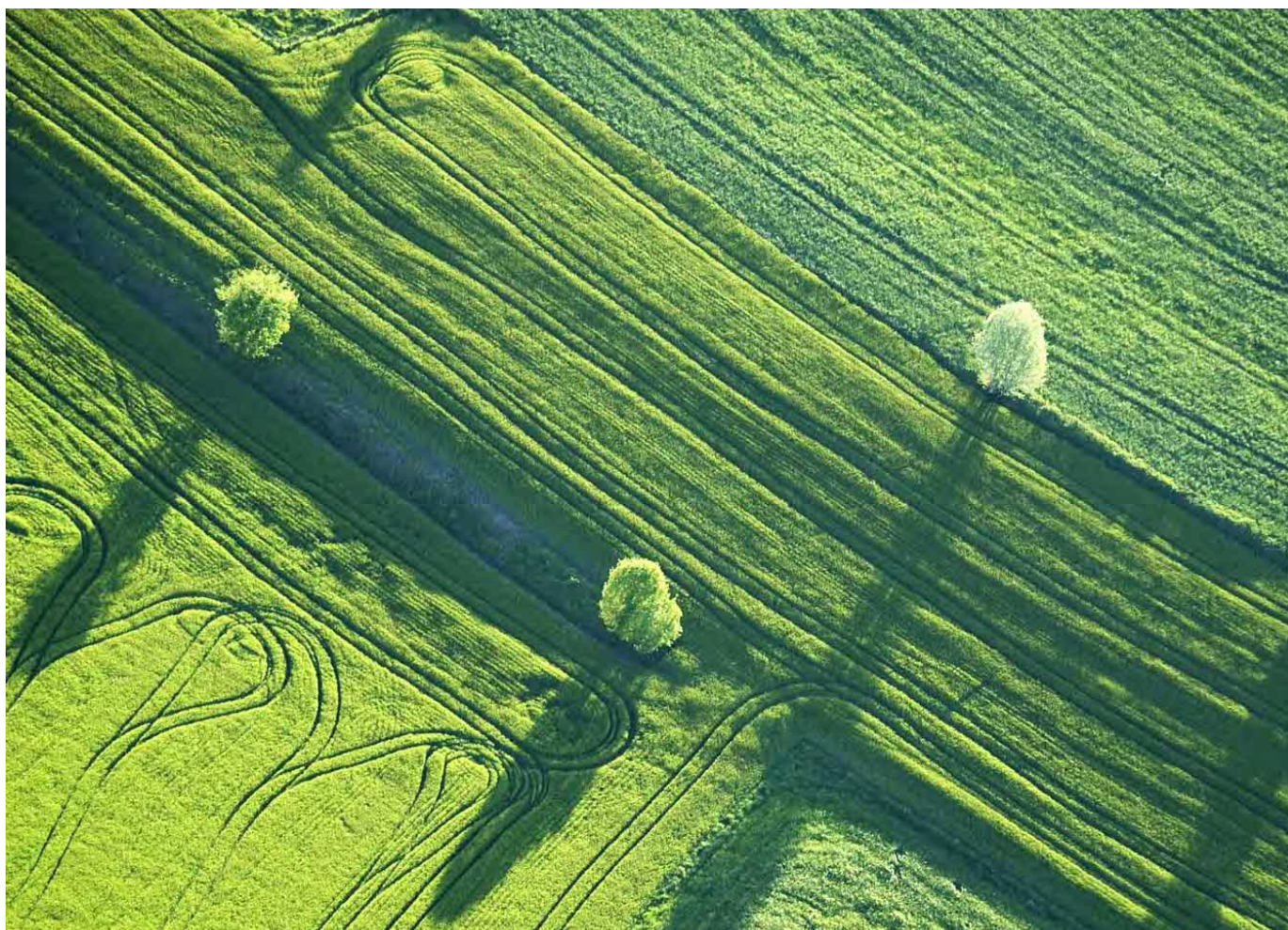


Appendix D

Copy of Phase II Geo-Environmental Site Investigation (RSK –2021)



Harworth Group

North Selby Mine

Phase 2 Geo-environmental Site Investigation

350409-R02(01)

April 2021





RSK GENERAL NOTES

Project No.: 350409


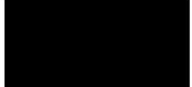
Title: Phase 2 Geo-environmental Site Investigation: North Selby Mine, New Road, York YO19 6EZ

Client: Harworth Group

Date: April 2021

Office: RSK Environment Limited, The Potteries, Pottery Street, Castleford, WF10 1NJ.
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Revision control sheet

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Where any data supplied by the client or from other sources have been used, it has been assumed that the information is correct. No responsibility can be accepted by RSK for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

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EXECUTIVE SUMMARY

Commissioning and purpose of assessment	<p>RSK Environment Limited (RSK) was commissioned by Harworth Group to carry out a Phase 2 Geo-environmental Site Investigation of the land at North Selby Mine, New Road, York, YO19 6EZ, grid reference 464590, 444190.</p> <p>The overall aim of the project was to assess land contamination sources to the proposed development.</p>
DESK-BASED ASSESSMENT	
Site description and proposed development	<p>The site currently comprises a former mine, occupies an area of 34 hectares and is being considered for development for use as a leisure site for static caravans, campers and tourers.</p>
History of site and surrounding area	<p>The site was formerly North Selby Mine. Potential sources of contamination identified on-site comprise made ground and historical sources associated with the operational phase of the site including an electricity substation and transformers and storage of oil, fuel and chemicals. No potentially contaminative current activities have been identified in the surrounding area.</p>
Previous site investigation (SI) reports	<p>There are no previous SI reports available.</p>
Geology and environmental setting	<p>The site is underlain by superficial deposits of the Elvington Glaciolacustrine Formation over the Sherwood Sandstone Group over Permian marls and limestones over Coal Measures according to published geological data. Made ground is present as colliery spoil within the landscape mounds, stripped soil mounds (topsoil and subsoil), infilled historic ponds and hardstanding.</p> <p>Environmental receptors identified comprise: groundwater within the superficial deposits classified as unproductive strata; groundwater within the Sherwood Sandstone classified as a principal aquifer; surface water courses Bridge Dike (on site) and Halfpenny Dike (adjacent to the south of site).</p>
Initial conceptual site model (CSM) and preliminary risk assessment (PRA)	<p>Potentially complete contaminant linkages identified with a risk estimate of moderate to low or above include:</p> <ol style="list-style-type: none"> 1. Direct contact of the potential contamination within the soils to future site users (proposed caravan and camping leisure site users and workers). 2. Permeation of plastic water supply pipes by contaminants in soil and shallow groundwater. 3. Migration and build-up of ground gas within on-site buildings. <p>To reduce the uncertainty associated with the conceptual model and to quantify the risk associated with the contaminant linkages above, intrusive investigation and subsequent quantitative risk assessment was recommended.</p>

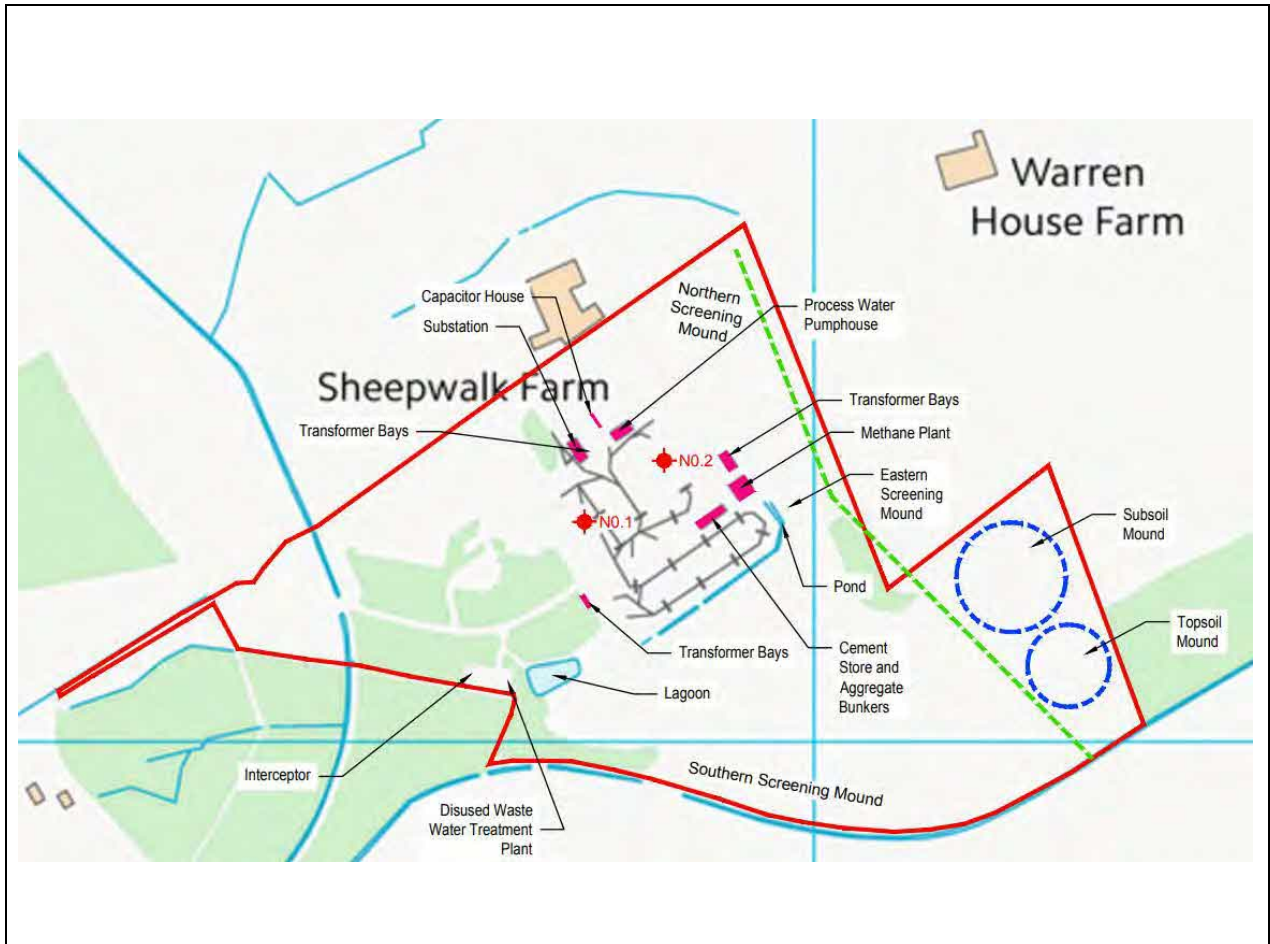
INTRUSIVE INVESTIGATION & ASSESSMENT	
SI scope	The scope of the SI was to establish ground conditions, investigate specific potential sources of contamination, determine the ground gas regime beneath site and assess the geotechnical properties of the soil.
SI factual findings	<p>The ground conditions at the site comprise made ground, predominantly comprising granular subbase material, generally less than 1m in thickness. A mound of made ground is present in a landscaped area to the south of the former car park (maximum thickness of 4.45m), resembling colliery spoil. Natural soils (Elvington Glaciolacustrine Formation) comprise predominantly clay with some silty sand horizons. This confirms the stratigraphical succession described within the initial conceptual model.</p> <p>Rest groundwater levels were recorded from 0.7m to 2.4m below ground level within the superficial deposits.</p> <p>Localised visual/ olfactory evidence of contamination was encountered during the intrusive works.</p> <p>No visual evidence of asbestos was encountered during the investigation.</p>
Refined conceptual site model and geo-environmental assessment	<p>Potential sources of contamination identified at the PRA stage were encountered during intrusive works in the form of made ground. Evidence of contamination was not encountered during the intrusive works in most of the targeted source areas, except for the former machinery storage area.</p> <p>Some localised contamination was encountered in areas which had not previously been identified as potential source areas in the PRA.</p> <p>Based on the results of the site investigation and generic quantitative risk assessment (GQRA), no potentially significant risk to future site users from soil contamination has been identified.</p> <p>The contaminant linkages that have been identified to be potentially complete and to require further action are:</p> <ol style="list-style-type: none"> 1. Permeation of plastic water supply pipes by contaminants in soil and shallow groundwater. 2. Migration and build-up of ground gas within on-site buildings. <p>Concentrations of ground gas were found to be low in the first round of monitoring and gas flow was negligible. A ground gas risk assessment will be undertaken on completion of the monitoring programme.</p>
Geotechnical assessment	<p>Given the presence of competent natural ground at a relatively shallow depth it is considered that spread foundations should be suitable for proposed buildings.</p> <p>Buried concrete classification should be classed as DS-1 and AC-1.</p> <p>It is anticipated from preliminary testing that the site is unsuitable for soakaways.</p>

Recommendations including issues for further assessment

A relevant pollutant linkage has been identified associated with permeation of localised organic contaminants to potable water supply pipes. It is recommended that the findings of this report be discussed with the local water provider to make sure that the criteria used are in agreement with their local requirements. If not additional testing may be required.

Assessment of the ground gas regime is ongoing; a ground gas risk assessment report will be produced on completion of the monitoring programme.

The information given in this summary is necessarily incomplete and is provided for initial briefing purposes only. The summary must not be used as a substitute for the full text of the report.



Site Name	North Selby Mine	NGR	464590, 444190
Site Address	New Road, York YO19 6EZ	Site area (ha.)	34

1 INTRODUCTION

1.1 Commissioning

RSK Environment Limited (RSK) was commissioned by Harworth Group to carry out a Phase 2 Geo-environmental Site Investigation of the land at North Selby Mine New Road, York, YO19 6EZ. The project was carried out to an agreed brief as set out in RSK's proposal (Ref. 350409/TL01/jh, dated 26 January 2021).

RSK's service constraints are shown in Appendix A.

The site is being considered for development as a leisure site for static caravans and touring campers and caravans.

A Phase 1 desk study report (reference 350409 R01 (00)) has been completed for the site as part of the geo-environmental site assessment and should be read in conjunction with this Phase 2 site investigation report.

1.2 Objectives

The objective of the work is:

to address abnormal development costs associated with potentially adverse ground conditions, including the possible presence of contamination and ground gas and to support discharge of Planning Conditions 20 and 21.

1.3 Scope of works

The scope of this assessment has been developed in accordance with relevant British Standards and authoritative technical guidance as referenced through the report. The assessment of the contamination status of the site is in line with the technical approach presented in Land Contamination Risk Management (LCRM) (Environment Agency, 2020) – which supersedes CLR11 Model Procedures for Land Contamination – and in general accordance with BS 10175: 2011 + A2 2017 (BSI, 2017). It is also compliant with relevant planning policy and guidance.

The scope of the intrusive investigation has been designed in line with the recommendations of BS5930:2015+A1:2020 Code of practice for ground investigations (BSI, 2020), which maintains compliance with BS EN 1997-1 and 1997-2 and their related standards. It has also been developed in general accordance with BS 10175: 2011 + A2 2017. Ground gas assessment has been undertaken in general accordance with BS8576: 2013 and BS 8485:2015+A1:2019.

A brief summary of relevant legislation and policy relating to land contamination is given in Appendix C.

The scope of works for the Phase 2 site investigation has included the following:

clearance of exploratory holes using ground penetrating radar and CAT scanning
five days trial pitting



soakaway testing in selected trial pits
two days of window sampling with the installation of ten ground gas monitoring wells
environmental and geotechnical laboratory analysis
interpretation of data to develop a refined conceptual site model (CSM)
generic quantitative risk assessment (GQRA) of relevant contaminant linkages
ground gas monitoring comprising 6 visits over 3 months – one visit completed to date
preparation of this factual and interpretative report

1.4 Existing reports

The following Phase 1 desk study report has been completed for the site:

RSK, North Selby Mine Phase 1 Desk Study, reference 350409-1, dated April 2021

Pertinent information from this report has been summarised in Section 3.

1.5 Limitations

This report is subject to the RSK service constraints given in Appendix A and limitations that may be described through this document.

2 SITE DETAILS

2.1 Site location

Site location details are presented in Table 1 and a site location plan is provided on Figure 1.

Table 1 Site location details

Site name	North Selby Mine
Full site address and postcode	New Road, Escrick, York, YO19 6EZ
National Grid reference (centre of site)	464590, 444190

2.2 Site description

The site boundary and current site layout are shown on Figure 2. The site covers an area of c. 34 hectares. It is currently occupied by the former North Selby Mine. The mine has been closed since 2000 and the majority of the site has been cleared.

This Phase 2 site investigation relates to the proposed leisure site development (c.7.7 hectares) and does not include intrusive investigation of the wider site area.

The wider site can be divided into three main areas:

- The site entrance, former amenity building and parking area in the west;
- The main site including the pit head and operational areas in the north and centre;
- The landscape mounds around the north, east and south

2.2.1 Site entrance, former amenity building and parking

This area of site has been cleared of all buildings. Most of the area is generally level and lies at an elevation of approximately 9m AOD. An area of landscaping adjacent to the south of the former car park lies at a slightly higher elevation of around 11m AOD. The former amenity building and adjoining boiler house have been demolished and a large mound and smaller mound of rubble remains. Most of the area is covered with hardstanding, including former parking and bus park areas.

Access into the site is via a gated access road off New Road to the west. The access road crosses an open drainage channel, Bridge Dike and there are two vacant fields either side of the road.

A process water borehole is located next to the access road (Borehole A).

2.2.2 Main site area

Most of the former buildings and structures within the main operational area have been cleared. The area is generally level and lies at an elevation of approximately 10m AOD. Most of the area is covered in hardstanding.

The following buildings and structures are still present:

- Main substation building and transformer bays (north)
- Capacitor house building
- Process water pumphouse building
- Methane plant building
- Transformer bays next to the former methane plant (north east)
- Cement store and aggregate bunkers
- Transformer bays behind the former stores (south west)
- Oil and grit interceptor
- Waste water treatment plant

The two former mineshafts within this area were infilled using a mixture of demolition arisings and coarse discard from the landscape bunds.

A small mound of demolition rubble remains in the former machinery storage area in the north of site. A process water borehole (Borehole B) is located adjacent to the capacitor house and is currently covered with a small pile of rubble. The former stock yard covers a large area in the southern part of the operational area and a pond (former settlement lagoon) is situated next to the disused waste water treatment plant.

2.2.3 Landscape mounds

The area to the north, east and south of the operational area has been landscaped to create screening mounds, using arisings from the excavation of the two shafts.

The topography varies across this area. The southern screening mound slopes downwards from a high point of approximately 22.0m AOD towards Halfpenny Dike at a low point of approximately 8.0m AOD in the south. A topsoil and subsoil mound (at elevations of up to 10.0m and 15.0m AOD respectively) are present in the easternmost part of site.

The majority of the landscaped area is classified as a Site of Importance for Nature Conservation (SINC).

2.3 Surrounding land uses

The site is located approximately 1.5km north east of Escrick, within a predominantly agricultural setting. Immediate surrounding land uses are described in Table 2.

Table 2 Surrounding land uses

North	New road, then agricultural land, Sheepwalk Farm (10m north), Warren House Farm (200m north east)
East	Lacey Bottom Wood (adjacent) and agricultural land
South	Halfpenny Dike (adjacent), then agricultural land, Chequer Hall Farm (350m south)
West	Spring Wood (adjacent), then agricultural land, Spring Wood Shepherd Huts (230m south west)

2.4 Development plans

The proposed layout of the site, at the time of preparing this report, is shown in Appendix B.

The proposed development area includes the area annotated as ‘Bowl’ and ‘Woodland’, which will be used for static caravans and touring campers and caravans. The proposed layout includes a reception and shop with a toilet/shower block and a potential café/bar with a toilet/shower block. It is proposed to remove the majority of the bitmac surface from the former parking areas and retain the main roadways. A new waste water treatment plant is proposed at the location of the disused treatment plant.

The landscape mound areas including the SINC will be retained and pathways will be added.

3 SUMMARY OF DESK STUDY

3.1 Site history

The review of the site history undertaken as part of the Phase 1 Desk Study indicated that the historical land was agricultural until construction began at the mine in 1979. The review of historical maps indicated a number of infilled ponds on site and infilled ponds and pits in the vicinity of site. Production at the mine began in 1991 and ceased in 2000. Demolition of site buildings began in 2000 and the site has now been cleared of most buildings and structures.

3.2 Site geology

The geology of the site is characterised by the succession recorded in Table 3 Site geology.

Table 3 Site geology

Strata	Description	Estimated thickness (m)
Made ground	Landscape mounds – colliery spoil from the excavation of the shafts and underground access roadways, believed to comprise clay and coarse rock fragments (mudstone, siltstone, sandstone, limestone, gypsum, anhydrite) and minor quantities of coal. Topsoil and subsoil mound (stripped from site). Infilled ponds – unknown fill material, but likely to comprise colliery spoil. Hardstanding (tarmacadam and concrete) and sub-base, across much of site.	Up to 10m within the mound areas
Superficial deposits (Elvington Glaciolacustrine Formation, Hemingbrough Glaciolacustrine Formation and Vale of York Formation)	Laminated silt and clay, boulder clay, sands and gravels.	25
Sherwood Sandstone Group	Sandstone.	226
Roxby Formation	Mudstone, siltstone, gypsum, anhydrite.	48
Brotherton Formation	Limestone (dolomitic).	33
Edlington Formation	Mudstone, siltstone, sandstone.	50
Cadeby Formation	Dolostone.	100
Coal Measures	Mudstone, siltstone, sandstone, coal.	> 500

3.3 Hydrogeology

The site is underlain by unproductive strata relating to the Elvington Glaciolacustrine Formation.

The underlying Sherwood Sandstone Group is classified as a Principal aquifer.

3.4 Hydrology

There is one watercourse on site - Bridge Dike is an open channel which flows in a southerly direction across the western part of site, then flows off-site towards the south west. Halfpenny dike lies adjacent to the southern site boundary and flows in a south westerly direction.

There is a pond (former settlement lagoon) in the southern part of site situated next to the disused waste water treatment plant. Water has also ponded at the toe of the eastern screening mound, next to the former stockyard.

A small pond (former clay pit) is situated 10m east of site and two small ponds are situated from 130m north west at Sheepwalk Farm.

3.5 Initial conceptual site model

3.5.1 Potential sources of contamination

Potential sources of soil and groundwater contamination identified from current activities and the history of the site and surrounding area are presented in Table 4. Ground gas sources are addressed in the next section.

Table 4 Potential sources of soil and groundwater contamination

Potential sources	Contaminants of concern	Current or historical?
On-site		
Made ground (landscape screening mounds and infilled ponds)	Colliery spoil, believed to comprise clay and coarse rock fragments and minor quantities of coal, potentially containing toxic and phytotoxic metals, inorganics, polycyclic aromatic hydrocarbons (PAHs), asbestos	Current
Electricity substation and transformers (from c. 1985)	Hydrocarbons, PAH (Note, polychlorinated biphenyls (PCB) not anticipated owing to age of transformers)	Historical
Storage of oils, fuels, chemicals on-site	Hydrocarbons, PAH	Historical
Disused waste water treatment plant	Hydrocarbons, PAH, metals	Historical
Oil/grit interceptor	Hydrocarbons, PAH, metals	Historical

Potential sources	Contaminants of concern	Current or historical?
Former machinery storage area	Hydrocarbons, PAH	Historical
Off-site		
None identified.		

3.5.2 Sensitive receptors and linking exposure/migration pathways

Sensitive receptors identified at or in the vicinity of the site that could be affected by the potential sources identified above comprise:

- future site users – proposed caravan and camping leisure site users and workers (oral, dermal and inhalation exposure with impacted soil, soil vapour and dust/fibres)
- adjacent site users – residential/ farm users and workers (migration of contamination via dust/fibre deposition, vapour or groundwater migration combined with inhalation)
- potable water supply pipes (permeation)
- groundwater in unproductive strata within superficial deposits (leaching from soils)
- groundwater in principal aquifer within Sherwood Sandstone Group bedrock (percolation through permeable strata to aquifer, lateral migration of dissolved phase)
- surface watercourses – Bridge Dike and Halfpenny Dike (lateral migration of dissolved phase, site run-off, migration through preferential pathways including utility trenches)

Potential linking pathways are shown in brackets for each item above.

Please note that construction workers and future maintenance workers have not been identified in the conceptual model as receptors because risks are considered to be managed through health and safety procedures according to the CDM Regulations.

Existing/ current vegetation has not been considered to be a sensitive receptor in the context of the conceptual model and ecological receptors are only considered within the CSM in the context of statutory protected sites.

3.6 Potential ground gas linkages

3.6.1 Ground gas generation potential

Potential ground gas sources identified for the site and surrounding area are shown in Table 5.

Table 5 Potential ground gas sources

Potential sources	Indicative ground gas generation potential (CIEH, 2008)	Additional information
On-site		
Made ground with low degradable organic content (e.g. up to 5% organic material and no easily degradable waste).	Very low	Colliery spoil used to construct the landscape screening mounds and topsoil and subsoil mounds in the eastern part of site.
Infilled ponds on-site (small ponds infilled from 1985 to 1995).	Very low	On-site ponds likely to have been infilled with colliery spoil during landscaping.
Mine workings at depth (less than 50 years since last worked) – flooded.	Very low	Mine workings are flooded. Methane abstracted from Stillingfleet Mine.
Off-site		
Off-site infilled pond (adjacent to east) and former sand pit (20m east), infilled from 1892 to 1975.	Very low	Small features, considered unlikely to be significant sources of ground gas

Given the anticipated ground conditions set out above, a very low potential for ground gas generation, which may impact the site, has been identified.

3.6.2 Preferential pathways for ground gas migration

Credible preferential pathways potentially connecting the source and receptor through vertical and lateral migration are:

- via soil pore spaces in made ground and permeable horizons in superficial deposits
- faults/ fissures/ fractures
- mine workings and mine shafts
- preferential pathways including utility trenches
- building foundations and construction joints
- utility routes and service penetrations into proposed buildings.

3.6.3 Sensitive receptors and linking pathways

Sensitive receptors identified at or in the vicinity of the site that could be affected by the potential ground gas sources identified above comprise:

- future site users – proposed caravan and camping leisure site users and workers (migration and ingress of ground gases into buildings, build-up in confined spaces and explosion/ asphyxiation)
- adjacent site users – residential/ farm users and workers (migration and ingress of ground gases into buildings, build-up in confined spaces and explosion/ asphyxiation)

future buildings and services – proposed reception/ shop and toilet/shower block and potential café/ bar and toilet/ shower block (migration and ingress of ground gases into buildings, build-up in confined spaces and explosion).

The assessment has identified receptors to include building structures and proposed end-users.

Construction workers have not been identified as receptors for the purposes of this assessment. Risks may still be present to construction workers especially where works include the entry into excavations within the ground. Construction workers should undertake appropriate risk assessments and risks should be managed through health and safety procedures and the use of PPE.

3.7 Preliminary risk assessment

Potentially complete contaminant linkages with a potential risk of moderate to low or higher identified in the preliminary risk assessment are:

1. Direct contact of the potential contamination within the soils to future site users (proposed caravan and camping leisure site users and workers).
2. Permeation of plastic water supply pipes by contaminants in soil and shallow groundwater.
3. Migration and build-up of ground gas within on-site buildings.

The initial conceptual site model is shown schematically in Figure 3.

4 SITE INVESTIGATION STRATEGY & METHODOLOGY

4.1 Introduction

RSK carried out intrusive investigation works between 22 March 2021 and 30 March 2021. Monitoring of boreholes is ongoing.

4.2 Objectives

The specific objectives of the investigation were as follows:

- to establish the ground conditions underlying the site including the extent and thickness of any made ground
- to investigate specific potential sources of contamination identified in initial CSM
- to determine the ground gas regime underlying the site
- to assess geotechnical properties of soils

4.3 Selection of investigation methods

The techniques adopted for the investigation were chosen with consideration of the objectives and site constraints, which are described below.

The trial pit investigation enabled assessment of the shallow ground conditions across the site and the collection of disturbed samples for chemical and geotechnical testing as well as enabling soakaway testing to be conducted in selected locations.

Windowless sampling allowed for standard penetration testing (SPT), the collection of samples for chemical analysis and the installation of ground gas and groundwater monitoring wells.

Prior to conducting intrusive works, utility service plans were obtained and buried service clearance undertaken in line with RSK's health and safety procedures.

4.4 Investigation strategy

The ground investigation was carried out using intrusive ground investigation techniques in general accordance with the recommendations of BS5930:2015+A1:2020, which maintains compliance with BS EN 1997-1 and 1997-2 and their related standards. Whilst every attempt was made to record full details of the strata encountered in the boreholes, techniques of hole formation and sampling will inevitably lead to disturbance, mixing or loss of material in some soils and rocks.

The constraints to the investigation were as follows:

- underground services
- buildings and structures
- soil mounds/ stockpiles

Preparatory works included breaking out concrete in the former pithead area.

Details of the investigation locations, installations and rationale are presented in Table 6. Forty-six machine excavated trial pits were dug to a maximum depth of 3.0 m bgl before being backfilled with arisings. Ten windowless sample boreholes were drilled to a maximum depth of 6.45m bgl; each was installed with a combined gas and groundwater monitoring well. An exploratory hole location plan is shown on Figure 4.

Table 6 Exploratory hole and monitoring well location and rationale

Investigation Type	Number	Designation	Monitoring well installation	Rationale Examples below
Trial-pits excavated by mechanical excavator	46	TP1 to TP18, TP21, TP23, TP25, TP26, TP28 to TP33, TP35 to TP39	n/a	To accurately log the upper strata in non-targeted locations beneath the site and to collect soil samples.
		TP19		Targeted location close to the former transformer bays (behind the former stores) to log strata and collect samples.
		TP20		Targeted location close to the former fuel store to log strata and collect samples.
		TP22		Targeted location close to the former oil store to log strata and collect samples.
		TP24		Targeted location close to the former waste oil store to log strata and collect samples.
		TP27		Targeted location close to the electricity substation building to log strata and collect samples.
		TP34		Targeted location close to the transformer bays near the methane plant to log strata and collect samples.
		TP40		Targeted location close to the electricity substation and capacitor house to log strata and collect samples.

Investigation Type	Number	Designation	Monitoring well installation	Rationale Examples below
		TP41 to TP43		Targeted locations around TP26 to further investigate area of contamination.
		TP44 to TP46		Targeted locations around TP29 to further investigate area of contamination.
Boreholes by windowless sampling methods	10	WS1 to WS10	Gas/ groundwater	To carry out in-situ geotechnical testing, to collect soil samples for chemical analysis and to install dual purpose groundwater and gas monitoring wells.

4.4.1 Implementation of investigation works

The exploratory holes were logged by an engineer in general accordance with the recommendations of BS5930:2015+A1:2020 (which incorporates the requirements of BS EN ISO 14688-1, 14688-2 and 14689-1).

The monitoring well construction and associated response zones are detailed on the exploratory hole records in Appendix E. The response zones were installed to target identified gas generation sources or migration pathways detailed in the initial preliminary CSM.

The soil sampling and analysis strategy was designed to characterise each encountered soil strata, permit an assessment of the potential contaminant linkages identified and investigate the geotechnical characteristics. In addition, samples were taken to allow for chemical and geotechnical testing to be undertaken.

Soils collected for laboratory analysis were placed in a variety of containers appropriate to the anticipated testing suite required. They were dispatched to the laboratory in cool boxes under chain of custody documentation. Samples were stored in accordance with the RSK quality procedures to maintain sample integrity and preservation and to minimise the chance of cross contamination.

4.5 Monitoring programme

4.5.1 Ground gas monitoring

In line with the initial CSM, response zones were installed to target the sources or pathways as detailed in Table 5.

One monitoring round has been undertaken to date to provide data to support refining of the CSM. A further five monitoring rounds are to be undertaken. The number of monitoring rounds undertaken is in general accordance with the decision matrix presented as Figure 6 of BS8576.

A calibrated infrared gas meter was used to measure gas flow, concentrations of carbon dioxide (CO₂), methane (CH₄) and oxygen (O₂) in percentage by volume, while hydrogen sulphide (H₂S) and carbon monoxide (CO) were recorded in parts per million.

The atmospheric pressure before and during monitoring, together with the weather conditions, were recorded. Further monitoring rounds will aim to include periods of low and/or falling atmospheric pressures and after/during rainfall.

Ground gas monitoring results to date, together with the temporal conditions are contained within Appendix F.

4.5.2 Groundwater monitoring

Depths to groundwater were recorded using an electronic dip meter during the first monitoring round on 20 April 2021. The groundwater monitoring data are included in Appendix F. Groundwater will be continued to be recorded during subsequent monitoring visits.

Groundwater samples were not taken as part of this investigation.

4.6 Laboratory testing

Laboratory testing was undertaken at a UKAS accredited laboratory with ISO17025 and MCERTS accredited test methods were specified where applicable for contamination testing and as shown in the laboratory test certificates appended.

4.6.1 Chemical analysis of soil samples

The soil sampling strategy was designed to characterise made ground and natural strata typically within the upper 1.0m of the ground profile whilst also characterising deeper strata and the potential for contaminant migration from relevant sources of contamination identified within the preliminary CSM.

Additional TPH testing was undertaken on samples obtained from additional trial pits (TP41 to TP46) located around TP26 and TP29 where evidence of hydrocarbon contamination was encountered.

Three shallow soil samples (M1 at 0.2m, M2 at 0.1m and M3 at 0.2m) were obtained from the landscape screening mounds surrounding the main development area, to assess the contamination status of this public open space area.

The programme of chemical tests undertaken on soil samples obtained from the intrusive investigation is presented in Table 7 with the laboratory testing results contained in Appendix G.

Table 7 Summary of chemical testing of soil samples

Stratum	Tests undertaken	No. of tests
Topsoil	Contamination Suite 1 (heavy metals, PAH, TPH, BTEX, pH and SOM)	1
	Asbestos screening and ID	1

Made ground	Contamination Suite 1 (heavy metals, PAH, TPH, BTEX, pH and SOM)	20
	Contamination Suite 2 (heavy metals, PAH and SOM)	8
	TPH CWG	4
	Asbestos screening and ID	20
	Pyritic BRE suite (brownfield)	1
Natural soil (Elvington Glaciolacustrine Formation)	Contamination Suite 1 (heavy metals, PAH, TPH, BTEX, pH and SOM)	10
	Contamination Suite 2 (heavy metals, PAH and SOM)	3
	TPH CWG	9
	Asbestos screening and ID	3
	Pyritic BRE suite (brownfield)	11
Landscape screening mound samples	Contamination Suite 2 (heavy metals, PAH and SOM)	3

4.6.2 Geotechnical analysis of soils

Where appropriate disturbed, bulk and undisturbed soil samples were taken for geotechnical classification testing with the depth and nature of samples detailed within the exploratory hole records.

Where appropriate, testing was undertaken in accordance with BS 1377:1990 Method of Tests for Soils for Civil Engineering Purposes or, where superseded, by the relevant part of BS EN ISO 17892:2014 Geotechnical investigation and testing - Laboratory Testing of Soil. Tests carried out in order to classify the concrete class required on-site have been undertaken following the procedures within BRE SD1:2005.

The programme of geotechnical tests undertaken on samples obtained from the intrusive investigation is presented in Table 8. The results and UKAS accreditation of tests methods are shown in Appendix H.

Table 8 Summary of geotechnical testing undertaken

Strata	Tests undertaken	No. of tests
Elvington Glaciolacustrine Formation (clay)	Moisture content %	12
	Liquid/ plastic limits	12

4.6.3 Infiltration testing

Infiltration tests were carried out in four trial pits; TP12, TP19, TP24 and TP34, to establish the infiltration rate. The tests were carried out generally in accordance with the method described in BRE Digest 365 (BRE, 2016). This involved filling the pits with water from a bowser and recording the drop in water level with time as the water soaked into the ground. Copies of the testing records are included in Appendix H.

5 SITE INVESTIGATION FACTUAL FINDINGS

The results of the intrusive investigation and subsequent geo-environmental and geotechnical laboratory analysis undertaken are detailed below.

5.1 Ground conditions encountered

The descriptions of the strata encountered, notes regarding visual or olfactory evidence of contamination, list of samples taken, field observations of soil and groundwater, in-situ testing and details of monitoring well installations are included on the exploratory hole records presented in Appendix E.

The exploratory holes revealed that the site is underlain by a variable thickness of made ground over superficial deposits of the Elvington Glaciolacustrine Formation. Bedrock was not encountered. This appears to confirm the stratigraphical succession described within the preliminary CSM.

For the purpose of discussion, the ground conditions encountered during the fieldworks are summarised in Table 9 with the strata discussed in subsequent subsections.

Table 9 General succession of strata encountered

Stratum	Exploratory holes encountered	Depth to top of stratum m bgl	Proven thickness (m)
Topsoil	WS01, WS02, WS04, TP01, TP02, TP07, TP08, TP10, TP11, TP13, TP14, TP15	0	0.20 – 0.75
Made ground	All except TP10	0 – 0.40	0.20 – 3.60
Elvington Glaciolacustrine Formation	All except WS02, WS05, TP01, TP16 and TP44	0.20 – 4.00	0.50 – 4.45

5.1.1 Topsoil

Topsoil was encountered in areas of soft landscaping around the car parking area in the western part of site. It typically comprised soft brown slightly sandy clay and was encountered to a maximum thickness of 0.75m.

5.1.2 Made ground

Made ground was encountered across the site except at one location (TP10), where only topsoil was present overlying the natural strata. The made ground predominantly comprised granular subbase material which was typically described as a fine to coarse gravel of limestone and was generally less than 1m in thickness.

A mound of made ground was present in a landscaped area next to the south of the main car park (maximum thickness of 4.45m), where it was described as firm slightly sandy gravelly clay containing mudstone, sandstone and rare coal and resembled colliery spoil.

Anthropogenic materials encountered within made ground include concrete, brick, metal (described as rebar and metal waste) and a railway sleeper.

5.1.3 Elvington Glaciolacustrine Formation

This stratum was encountered from beneath the topsoil or made ground. It generally comprised layers of clay (with varying proportions of sand and gravel) and silty sand.

A summary of the in-situ and laboratory test results recorded in the stratum are presented in Table 10.

Table 10 Summary of in-situ and laboratory test results for cohesive unit

Soil parameters	Min. Value	Max. Value	Reference
Moisture content (%)	13.2	29.7	Appendix H
Liquid limit (%)	37	57	
Plasticity limit (%)	16	23	
Plasticity index (%)	21	34	
Plasticity term	Medium	High	

5.1.4 Visual/olfactory evidence of soil contamination

Evidence of contamination was encountered at the following locations:

TP29 in northeast of site

In trial pit TP29 from 0.8m to 1.0m depth in made ground, an oily odour was noted and an oily sheen was present on perched water. Additional trial pits TP44, TP45 and TP46 were dug around this location to further investigate the contamination and obtain additional samples for analysis.

Further evidence of hydrocarbon contamination was encountered as oily water at 1.70m depth in TP44 and a drain filled with black clay and with an oily odour at 1.20m depth in TP45. Made ground in TP46 at 0.90m to 1.30m depth was described as greyish brown and black; no hydrocarbon odour was noted.

TP26 in centre of site, at former pithead

In trial pit TP26 at 1.80m water with an oily odour entered the pit. Additional trial pits TP41, TP42 and TP43 were dug around this location to further investigate the contamination and obtain additional samples for analysis. No further visual/ olfactory evidence of contamination was encountered in the additional trial pits.

Other

Other evidence of contamination encountered included a hydrocarbon odour in made ground at 1.10m to 2.45m depth in window sample hole WS05, in the southern part of site. A sulphur odour was noted in made ground at 1.30m to 1.60m depth in trial pit TP01 in the western part of site. Appropriate samples were scheduled for analysis.

No visual evidence of asbestos was encountered during the investigation.

5.2 Groundwater and surface water

5.2.1 Groundwater encountered during intrusive works

Groundwater was encountered during the intrusive investigation works as detailed on the logs in Appendix E.

5.2.2 Groundwater encountered during monitoring

Rest groundwater levels recorded during the first monitoring round are summarised in Table 11 based on the data provided in Appendix F.

Table 11 Summary of groundwater monitoring results

Monitoring well	Response zone stratum	Depth to water (m below ground level)
WS01	Made ground	Dry
WS02	Made ground	NM
WS03	Elvington Glaciolacustrine Formation	1.50
WS04		NM
WS05	Made ground	0.70
WS06	Elvington Glaciolacustrine Formation	2.40
WS07		0.73
WS08		0.78
WS09		2.11
WS10		2.15
NM: Unable to measure		

It should be noted that groundwater levels might fluctuate for a number of reasons including seasonal variations. On-going monitoring would be required to establish both the full range of conditions and any trends in groundwater levels.

5.2.3 Visual/olfactory evidence of groundwater contamination

No visual/olfactory evidence of contamination was noted during groundwater monitoring.

5.3 Chemical laboratory results

The soil testing results are presented in Appendix G.



5.4 Geotechnical laboratory results

The results of the geotechnical testing are discussed in Section 7 and presented in Appendix H.

5.5 Ground gas monitoring

The results of the ground gas monitoring undertaken to date are given in Appendix F. A letter report will be produced on completion of gas monitoring which will detail all results and include a ground gas risk assessment.

6 GEO-ENVIRONMENTAL ASSESSMENT

6.1 Refinement of initial CSM

Potential sources of contamination identified at the PRA stage were encountered during intrusive works in the form of made ground.

Significant contamination was not encountered during the intrusive works in exploratory hole locations that targeted the following potential source areas:

electricity substation, capacitor house, transformer bays, disused water treatment works and oil/fuel storage areas

Visual/ olfactory evidence of contamination was encountered within the former machinery storage area in the north eastern part of site (around trial pit TP29), which was identified as a potential source area at the PRA stage.

Evidence of contamination was noted at the following locations during the intrusive works, which had not been identified as potential source areas in the PRA:

TP26 in the centre of site (former pithead) – oily water was noted in the base of the pit at 1.8m depth

WS05 in the southern part of site (landscaped area next to access road) – a hydrocarbon odour was noted in made ground at 1.10m to 2.45m depth

TP01 in the western part of site (next to former car park) – a sulphur odour was noted in made ground at 1.30m to 1.60m depth

The ground conditions are the same as those anticipated within the CSM.

Groundwater was encountered at some locations during the intrusive works.

No potential pollutant linkages identified in the CSM have been eliminated at this stage.

6.2 Linkages for assessment

As described in LCRM (Environment Agency, 2020), there are two stages of quantitative risk assessment (QRA), Tier 2 generic (GQRA) and Tier 3 detailed (DQRA). The GQRA comprises the comparison of soil, groundwater, soil gas and ground gas results with generic assessment criteria (GAC) that are appropriate to the linkage being assessed. This comparison can be undertaken directly against the laboratory results or following statistical analysis depending upon the sampling procedure that was adopted. This assessment relates to LCRM Stage 1, Tier 2 generic quantitative risk assessment

Following the refinement of the CSM, the potentially complete contaminant linkages that require further assessment and the methodology of assessment are presented in Table 12.

Table 12 Linkages for GQRA

Potentially relevant contaminant linkage	Assessment method
Soil data	
1. Oral, dermal and inhalation exposure with impacted soil, soil vapour and dust by future site users (proposed caravan and camping leisure site users and workers)	Human health GAC in Appendix I for a proposed residential end use without home-grown produce as a conservative approach since no GAC is available for a leisure site end use scenario. Human health GAC in Appendix I for a proposed public open space (park) scenario has been used to assess analytical results of soil samples obtained from the landscape screening mounds.
2. Inhalation exposure of future residents to asbestos fibres	Qualitative assessment based on the asbestos minerals present, their form, concentration, location and the nature of the proposed development.
3. Contaminants permeating potable water supply pipes	Comparison of soil data to GAC in Appendix J for plastic water supply pipes using UKWIR (2010) guidance.
Ground Gas	
4. Concentrations of methane and carbon dioxide in ground gas entering and accumulating in enclosed spaces or small rooms in new buildings, which could affect future site users. For methane this could create a potentially explosive atmosphere, while death by asphyxiation could result from carbon dioxide.	A ground gas risk assessment will be undertaken on completion of the ground gas monitoring programme.

6.3 Methodology and assessment of soil results

The analysis of laboratory results relating to soil samples submitted for testing, is included in the following sections.

6.3.1 Oral, dermal and inhalation exposure with impacted soil by future occupants/site users

In order to assess the soil results against the appropriate GAC, the soil results have been split into appropriate data sets relevant to the oral, dermal and inhalation linkage.

The datasets being considered in the assessment are:

- data set 1 Topsoil
- data set 2 Made ground
- data set 3 Natural soil
- data set 4 Landscape screening mound samples

The soil results within dataset 1 to 3 (topsoil, made ground and natural soil) have been directly compared against the GAC for residential without home-grown produce. No GAC are available for a leisure site scenario, therefore the GAC considered to fit the CSM best have been used and provide a conservative approach.

The soil results within dataset 4 (soil samples from the landscape screening mounds) have been directly compared against the GAC for public open space (POS) public park end use.

The ratio of soil contaminant concentrations of genotoxic PAHs (benz(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(ah)anthracene, indeno(123-cd)pyrene and benzo(ghi)perylene) against benzo(a)pyrene have been compared against lower and upper limits set out in C4SL project methodology (CL:AIRE, 2014). All genotoxic PAH ratios were within the upper and lower bounds of the underlying toxicological study. Therefore, and in accordance with HPA guidance (HPA, 2010), the assessment of genotoxic PAHs has been based on the use of benzo(a)pyrene as a surrogate marker. Therefore, a risk from genotoxic PAHs is only considered likely if the respective benzo(a)pyrene concentrations exceed the relevant GAC.

6.3.1.1 Data set 1 – Topsoil

All topsoil results have been compared with the residential without home-grown produce GAC. A soil organic matter (SOM) of 2.5% has been selected since the laboratory result of the topsoil sample was 2.1%. The soil screening output spreadsheet is presented as Appendix K.

Results indicate that all contaminants are below the relevant GAC therefore it is considered that a relevant contaminant linkage does not exist and topsoil is suitable for re-use within the development.

6.3.1.2 Data set 2 – Made Ground

All made ground results have been compared with the residential without home-grown produce GAC. A soil organic matter (SOM) of 2.5% has been selected since laboratory results within the made ground range from 0.3% to 13.1% and the average SOM is 4.3%. The soil screening output spreadsheet is presented as Appendix K.

Assessment of the results indicates exceedances of the GAC for the contaminants shown in Table 13. These are highlighted in red on the screening output spreadsheet in Appendix K.

Table 13 Data summary table – Data set 2

Determinand	No. of samples tested	GAC (mg/kg)	No of exceedances	Maximum concentration (mg/kg)	
				Value	Location / depth (m bgl)
Benzo(a)anthracene	28	13.6	1	15	WS05 1.2m
Benzo(a)pyrene	28	5.3	2	10.4	WS05 1.2m and WS05 at 2.3m

Benzo(b)fluoranthene	28	4	2	12.9	WS05 1.2m and WS05 at 2.3m
Dibenzo(ah)anthracene	28	0.32	2	1.39	WS05 1.2m and WS05 at 2.3m

The exceedances for four individual PAH compounds are all from one location, WS05 at 1.2m and 2.3m depth. This window sample hole was located within a landscaped area next to the access road. The proposed development drawing indicates that this area is intended to remain as landscaped space.

Elevated concentrations of petroleum hydrocarbons were detected in WS05 at 1.2m and were lower at 2.3m depth at this location. However, the concentrations of the individual hydrocarbon fractions were below their respective GAC, indicating that they do not pose a significant risk to human health receptors.

Given that the PAH exceedances in WS05 are marginal and located below 1m depth, within a current and proposed landscaped area, it is considered that a relevant contaminant linkage does not exist to future site users.

Elevated concentrations of petroleum hydrocarbons were detected in TP30 at 0.5m, located within the former machinery storage area in the north eastern part of site. Lower TPH concentrations were detected in samples from TP29 and TP44 to TP46 in this area. All concentrations of the petroleum hydrocarbon fractions were below their respective GAC, indicating that they do not pose a significant risk to human health receptors.

Elsewhere, low concentrations of petroleum hydrocarbons were detected in made ground, including samples from TP26 and TP41 to TP43, where visual/olfactory evidence of contamination was noted during intrusive works. All concentrations of the petroleum hydrocarbon fractions were below their respective GAC, indicating that they do not pose a significant risk to human health receptors.

No other exceedances of the GAC were indicated in the samples of made ground.

6.3.1.3 Data set 3 – Natural soil

All natural soil results have been compared with the residential without home-grown produce GAC. A soil organic matter (SOM) of 1.0% has been selected since laboratory results within the natural ground range from 0.2% to 1.9% and the average SOM is 1.4%. The soil screening output spreadsheet is presented as Appendix K.

Results indicate that all contaminants are below the relevant GAC therefore it is considered that a relevant contaminant linkage does not exist.

6.3.1.4 Data set 4 – Landscape screening mounds

All soil results for shallow samples obtained from the landscape screening mounds have been compared with the public open space (park) GAC. A soil organic matter (SOM) of 6.0% has been selected since laboratory results within the soil range from 7.7% to 13.5% and the average SOM is 11.4%. The soil screening output spreadsheet is presented as Appendix K.

Results indicate that all contaminants are below the relevant GAC therefore it is considered that a relevant contaminant linkage does not exist.

6.3.1.5 Summary

Based on the above assessment, no potentially significant risks to future site users associated with the soil contamination have been identified and it is considered that the site may be regarded as suitable for the proposed end use.

6.3.2 Inhalation exposure of future occupants/site users to asbestos fibres

The visual inspection at the laboratory identified no materials suspected of potentially containing asbestos and the scheduled laboratory screening for asbestos found no detectable asbestos fibres within the samples of topsoil, made ground and natural soils.

6.3.3 Impact of organic contaminants on potable water supply pipes

For initial assessment purposes, the results of the investigation have been compared with the GAC presented in Appendix J for this linkage, which are reproduced from *UKWIR Report 10/WM/03/21. Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites* (UKWIR, 2010).

The results indicate that a relevant linkage may exist associated with localised organic contamination and therefore polyethylene (PE) and/or polyvinyl chloride (PVC) water supply pipes are expected to be unsuitable for use on the development unless remedial measures are implemented that mitigate the risk.

It should be noted that at the time of this investigation the future routes of water supply pipes had not been established, hence the investigation and sampling strategy may not be fully compliant with UKWIR recommendations. Consequently, a targeted investigation and specific sampling/analytical strategy may be required at a later date once the route(s) of the supply pipe(s) is/are known. In addition, it is recommended that the relevant water supply company be contacted at an early stage to confirm its requirements for assessment, which may not necessarily be the same as those recommended by UKWIR.

6.4 Ground gas risk assessment

One round of gas monitoring data have been collected to date and the results are shown in Appendix F.

The ground gas risk assessment will be issued as an addendum report upon completion of the gas monitoring programme.

Initial results indicate very low concentrations of methane (maximum of 0.2% v/v), low concentrations of carbon dioxide (maximum of 9.7% v/v) and negligible flow rates.

7 GEOTECHNICAL ASSESSMENT

7.1 Proposed development

It is understood that the proposed development is to include the construction of a reception and shop with toilet/shower block. A potential café/bar with toilet/shower block may also be constructed. At this stage no specific information relating to building loads has been provided.

7.2 Foundations

7.2.1 Foundation options

The proposed buildings are understood to comprise single storey structures, which are likely to be lightly loaded.

Ground conditions comprise sand and clay of variable strength. It is considered that traditional spread footings or raft foundations should be suitable for the proposed development.

7.2.2 Foundation works risk assessment

It is anticipated that a foundation works risk assessment report will not be required for the development because:

the type of foundation/ ground improvement method proposed does not have the potential to create preferential pathways for migration of ground gas to surface or groundwater to depth

7.2.3 Floor slabs

Given the presence of made ground, ground-bearing floor slabs would not be appropriate and suspended floor slabs should be used.

7.3 Excavations for foundations and services

Generally, the trial pits remained stable during excavation which indicates that foundation excavations should also remain stable in the short term. In the event that excavations are to remain open for longer periods, consideration should be given to the use of trench support systems.

Man entry into any excavations should not be undertaken without provision of suitable shoring and support and dewatering or suitable regrading and battering of side slopes to safe angles. Confined spaces protocols for the Health and Safety of personnel should always be used where man entry into excavations is to be undertaken as low oxygen conditions may be present.

Groundwater was encountered in some of the trial pits. Dewatering may therefore be required to facilitate foundation excavation.

Excavation should be possible using conventional site plant. Breakers may be necessary to remove any concrete obstructions within the made ground.

7.4 Chemical attack on buried concrete

This assessment of the potential for chemical attack on buried concrete at the site is based on BRE Special Digest 1: Concrete in aggressive ground, which represents the most up-to-date guidance on this topic currently available in the UK.

The desk study and site reconnaissance indicate that, for the purposes of assessing the aggressive chemical environment of the site, the site should be considered as comprising brownfield ground likely to contain pyrite.

The results of the laboratory analysis undertaken on samples of natural strata indicate 2:1 water / soil extract water soluble sulphate contents ranging from 20mg/l to 236mg/l, giving a characteristic value (mean of the highest 20%) for water soluble sulphate of 203mg/l; and pH value ranging from 8.13 to 8.69 giving a characteristic pH value of 8.14 (mean of the lowest 20%).

These results indicate that, in accordance with *BRE Special Digest 1: 2005 Concrete in aggressive ground* (BRE, 2005), the Design Sulphate Class for the site of DS-1. This assumes nominally mobile groundwater conditions and that no significantly disturbed clay comes into contact with concrete foundations or structures.

The corresponding ACEC classification for the site is AC-1, based on an assumption of mobile groundwater conditions, and a characteristic pH value of 8.14.

7.5 Infiltration drainage

The results of soakaway testing are presented as Appendix H. Infiltration rates could not be calculated at any of the four test locations due to insufficient drop in water level.

Based upon the results of the soakaway tests the ground conditions do not appear suitable for the use of pit soakaways.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 Geo-environmental assessment

Based on the results of the site investigation and GQRA, the contaminant linkages that have been identified to be potentially complete and to require further action are:

1. Permeation of plastic water supply pipes by contaminants in soil and shallow groundwater.
2. Migration and build-up of potential ground gas within on-site buildings

8.1.1 The permeation of plastic water supply pipes by contaminants in soil and shallow groundwater

A relevant pollutant linkage may exist associated with the permeation of localised organic contamination to plastic water supply pipes. The depth and route of the proposed water supply pipe is not currently known. It is recommended that either PE pipe incorporating a metal barrier is adopted, or further work is completed to enable a full assessment of the suitability of pipe material or provide a zonation of the site to allow differing grades of pipe to be used as appropriate to the ground conditions.

It is recommended that the findings of this report be discussed with the local water provider to make sure that the criteria used are in agreement with their local requirements. If not additional testing may be required.

8.1.2 The migration and build-up of potential ground gas within on-site buildings

A relevant pollutant linkage may exist associated with the build-up of ground gas within proposed site buildings. Further gas monitoring rounds are yet to be conducted to investigate this linkage; an addendum gas risk assessment letter report will be issued to confirm the findings.

Initial results show that no harmful levels of ground gas and negligible flow have been detected at the site.

8.2 Geotechnical assessment

Ground conditions generally comprise a cover of made ground underlain by superficial deposits of variable strength (clay and silty sand).

For lightly loaded single storey structures it is considered that spread or raft foundations will be suitable for proposed buildings.

Buried concrete classification should be classed as DS-1 and AC-1.

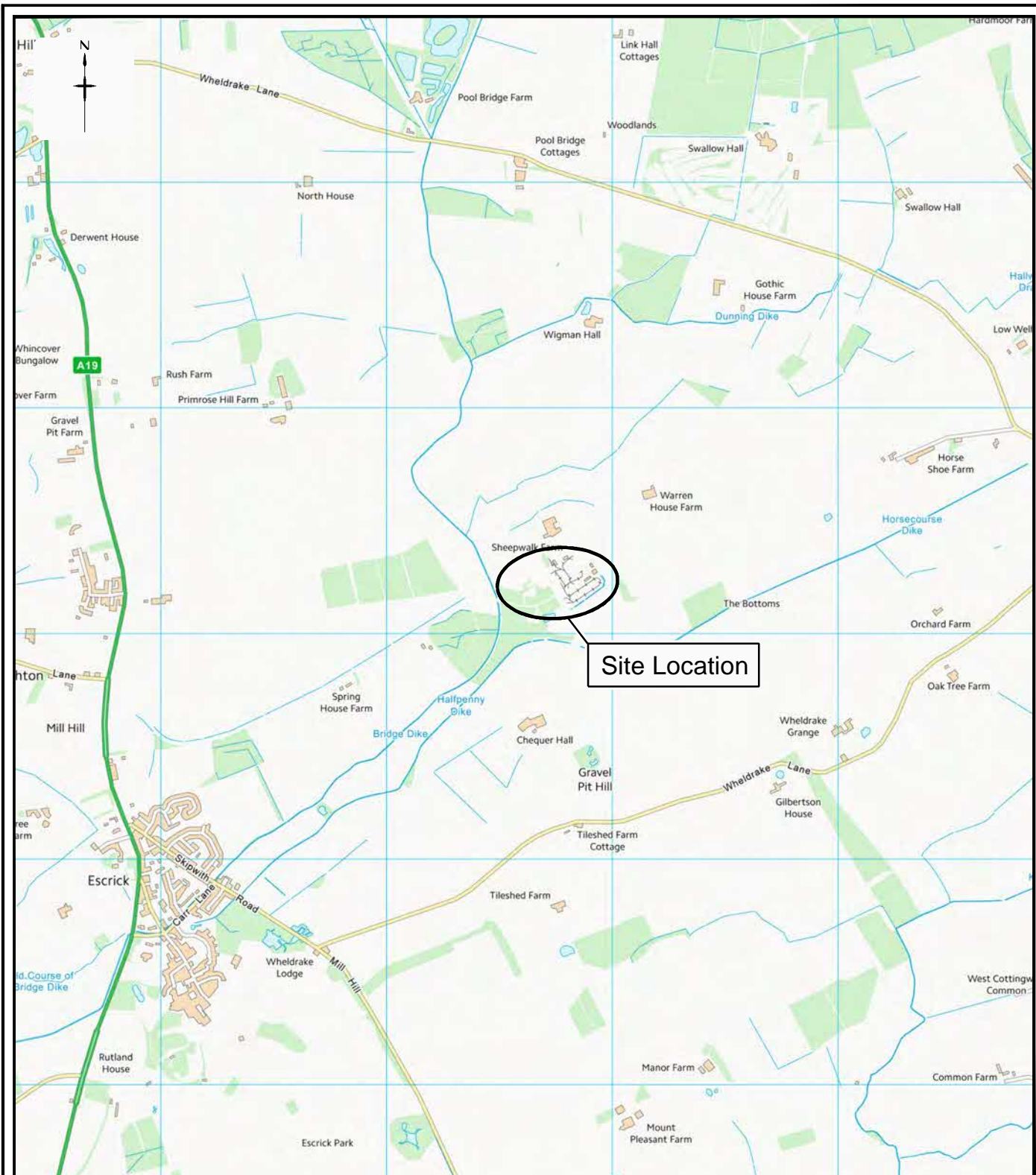
It is anticipated from preliminary testing that the site is unsuitable for soakaways.

REFERENCES

- AGS Interim Guidance (2013), 'Site investigation and asbestos risk assessment for the protection of site investigation and geotechnical laboratory personnel', February.
- Baker, K., Hayward, H., Potter, L., Bradley, D. and McLeod, C. (2009), CIRIA Report C682. The VOCs Handbook. Investigating, assessing and managing risks from inhalation of VOCs at land affected by contamination.
- Boyle, R. A. and Witherington, P. J. (2007), 'Guidance on Evaluation of Development Proposals on Sites where Methane and Carbon Dioxide are Present', National House-Building Council and RSK Group.
- British Standards Institution (BSI) (1990), 'BS 1377:1990. Methods of test for soils for civil engineering purposes'.
- British Standards Institution (BSI) (2020), 'BS 5930:2015+A1:2020. Code of practice for ground investigations'.
- British Standard Institution (BSI) (2019), 'BS 8485:2015+A1:2019. Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'.
- British Standards Institution (BSI) (2011), 'BS 10175:2011 + A2:2017. Investigation of potentially contaminated sites: Code of practice'.
- British Standards Institution (BSI) (2013), BS8576:2013. Guidance on investigations for ground gas – permanent gases and volatile organic compounds (VOCs).
- Building Research Establishment (2005), BRE Special Digest 1: Concrete in aggressive ground.
- Card G, Wilson S, Mortimer S, (2012). A Pragmatic Approach to Ground Gas Risk Assessment. CL:AIRE Research Bulletin RB17. CL:AIRE, London, UK. ISSN 2047- 6450 (Online).
- Chartered Institute of Environmental Health (CIEH), (2008), The Local Authority Guide to Ground Gas. Wilson, Card and Haines, September 2008.
- CIRIA (2014). Good practice on the testing and verification of protection systems for buildings against hazardous ground gases.
- Environment Agency (2020), Land contamination risk management, <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>, 8 October 2020
- Norbury, D. (2010), Soil and Rock Description in Engineering Practice.
- Part IIA of the Environmental Protection Act (Contaminated Land Regulations (England)) 2002.
- Rudland, D. J., Lancefield, R. M. and Mayell, P. N. (2001), CIRIA C552. Contaminated Land Risk Assessment: A Guide to Good Practice.
- RSK (April 2021), North Selby Mine Phase 1 Desk Study, reference 350409-1.
- UK Water Industry Research, (2010), UKWIR Report 10/WM/03/21. Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites.

FIGURES

FIGURE 1 SITE LOCATION PLAN



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Client	HARWORTH GROUP	
Project Title	NORTH SELBY MINE	
Drawing Title	SITE LOCATION PLAN	

Rev	Drawn	Date	Checked	Date	Approved	Date
01	LN	21.04.21	LA	21.04.21	JH	21.04.21
Dimensions		Scale		Original Size		
m		1:25,000		A4		

Project Number	Drawing File	Drawing Number
350409 - R01 (00)	350409 (R01-00) Figure 1.dwg	FIGURE 1

FIGURE 2 SITE LAYOUT PLAN



LEGEND

- Site Boundary
- Existing Buildings
- Overhead Line
- Mine Shaft

P1	16.04.21	First Issue	LN	LA	JH
Rev.	Date	Amendment	Drawn	Chkd.	Appd.



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Project Title
NORTH SELBY MINE

Drawing Title
SITE LAYOUT PLAN

Drawn	Date	Checked	Date	Approved	Date
LN	19.04.21	LA	19.04.21	JH	19.04.21

Scale	Orig Size	Dimensions
1:5000	A3	M

Project No.	Drawing File
350409 - R01 (00)	350409 (R01-00) Figure 2.dwg

Drawing No.	Rev.
FIGURE 2	P1

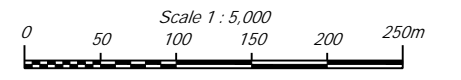
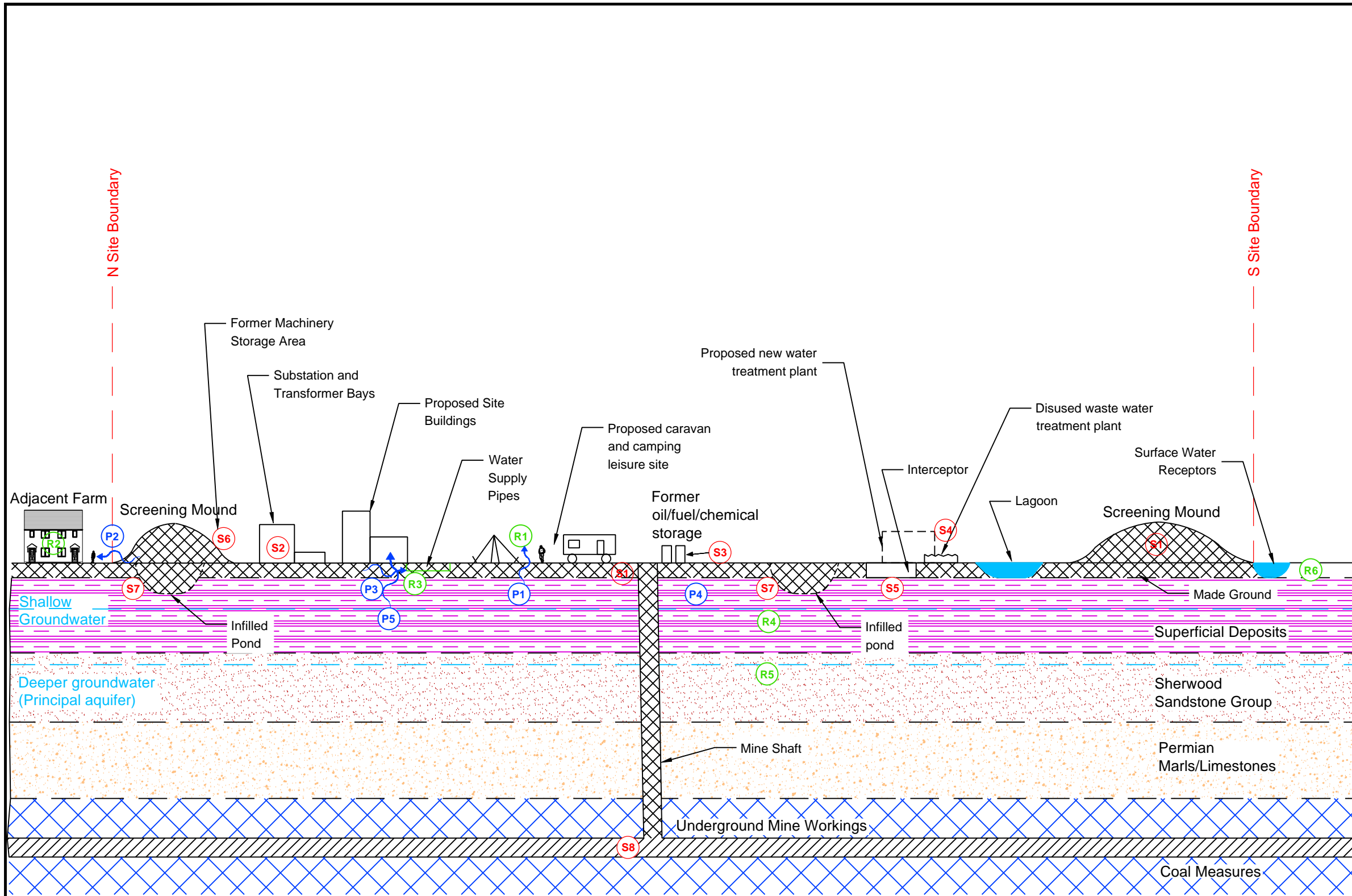


FIGURE 3 INITIAL SCHEMATIC CONCEPTUAL SITE MODEL



LEGEND

- Superficial Deposits
- Sherwood Sandstone Group
- Permian Marls/Limestone
- Coal Measures

Rev.	Date	Amendment	Drawn	Chkd.	Appd.
P1	21.04.21	First Issue	LN	LA	JH

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Client: **HARWORTH GROUP**

Project Title: **NORTH SELBY MINE**

Drawing Title: **INITIAL SCHEMATIC CONCEPTUAL SITE MODEL**

Drawn	Date	Checked	Date	Approved	Date
LN	21.04.21	LA	21.04.21	JH	21.04.21

Scale: **NTS** Orig Size: **A3** Dimensions: **M**

Project No. **350409 - R01 (00)** Drawing File: **350409 (R01-00) Figure 3.dwg**

Drawing No. **FIGURE 3** Rev. **P1**

SOURCES

- (S1) Made ground (landscape screening mounds and infilled ponds)
- (S2) Electricity substation and transformers
- (S3) Storage of oils, fuels, chemicals on-site
- (S4) Disused waste water treatment plant
- (S5) Disused oil/ grit interceptor
- (S6) Former machinery storage area
- (S7) Infilled ponds
- (S8) Mine workings

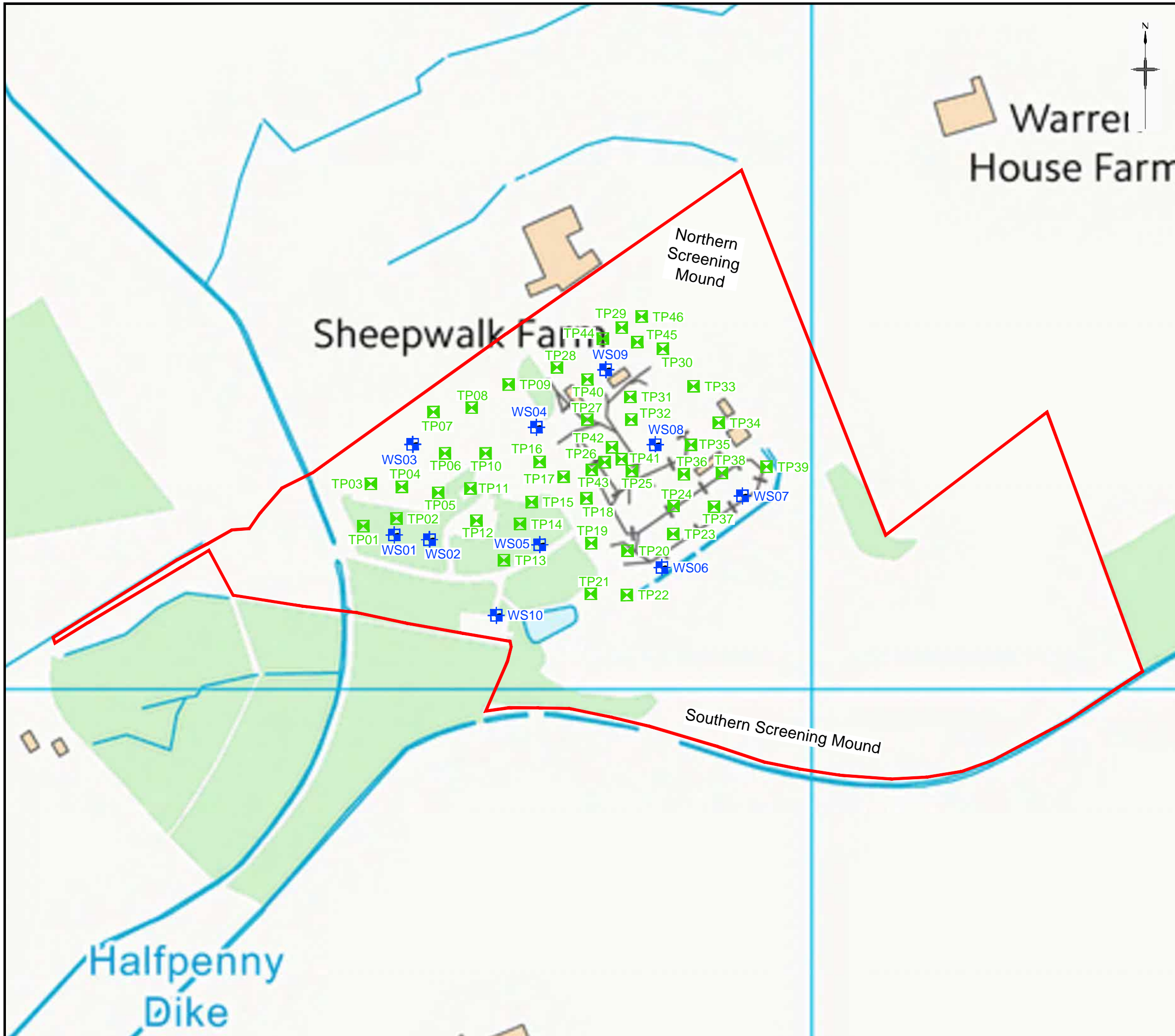
PATHWAYS

- (P1) Direct contact (oral, dermal and inhalation exposure with impacted soil, soil vapour and dust/fibres)
- (P2) Migration of contamination via dust/fibre deposition, vapour or groundwater migration combined with inhalation
- (P3) Permeation of plastic water supply pipes
- (P4) Leaching and vertical and lateral migration
- (P5) Migration and ingress of ground gases into buildings, build-up in confined spaces

RECEPTORS

- (R1) Future site users and properties
- (R2) Adjacent site users
- (R3) Underground potable water supply pipes
- (R4) Shallow groundwater
- (R5) Groundwater in Principal aquifer (Sherwood Sandstone Group bedrock)
- (R6) Surface water receptors (Bridge Dike and Halfpenny Dike)

FIGURE 4 EXPLORATORY HOLE LOCATION PLAN



LEGEND

- Site Boundary
- Window Sample Location
- Trial Pit Location

Rev.	Date	Amendment	Drawn	Chkd.	Appd.
P1	16.04.21	First Issue	LN	LA	JH

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Client
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Project Title
NORTH SELBY MINE

Drawing Title
EXPLORATORY HOLE LOCATION PLAN

Drawn	Date	Checked	Date	Approved	Date
LN	19.04.21	LA	19.04.21	JH	19.04.21

Scale	Orig Size	Dimensions
1:5000	A3	M

Project No.	Drawing File
350409 - R01 (00)	350409 (R01-00) Figure 4.dwg

Drawing No.	Rev.
FIGURE 4	P1

Scale 1 : 5,000

APPENDICES

APPENDIX A SERVICE CONSTRAINTS

1. This report and the site investigation carried out in connection with the report (together the "Services") were compiled and carried out by RSK Environment Limited (RSK) for Harworth Group (the "Client") in accordance with the terms of a contract [RSK Environment Standard Terms and Conditions] between RSK and the Client, dated 26 January 2021.. The Services were performed by RSK with the reasonable skill and care ordinarily exercised by an environmental consultant at the time the Services were performed. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the Client.
2. Other than that, expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services.
3. Unless otherwise agreed in writing, the Services were performed by RSK exclusively for the purposes of the Client. RSK is not aware of any interest of or reliance by any party other than the Client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and RSK disclaims any liability to such parties. **Any such party would be well advised to seek independent advice from a competent environmental consultant and/or lawyer.**
4. It is RSK's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without RSK 's review and advice shall be at the client's sole and own risk. Should RSK be requested to review the report after the date of this report, RSK shall be entitled to additional payment at the then existing rates or such other terms as agreed between RSK and the client.
5. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the report in the future shall be at the Client's own and sole risk. Should RSK be requested to review the report in the future, RSK shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between RSK and the client.
6. The observations and conclusions described in this report are based solely upon the Services which were provided pursuant to the agreement between the Client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, RSK did not seek to evaluate the presence on or off site of asbestos, invasive plants, electromagnetic fields, lead paint, heavy metals, radon gas, persistent, bioaccumulative or toxic chemicals (including PFAS/ PFOS) or other radioactive or hazardous materials, unless specifically identified in the Services.
7. The Services are based upon RSK's observations of existing physical conditions at the Site gained from a visual inspection of the site together with RSK's interpretation of information, including documentation, obtained from third parties and from the Client on the history and usage of the site,

unless specifically identified in the Services or accreditation system (such as UKAS ISO 17020:2012 clause 7.1.6):

- a. The Services were based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely.
- b. The Services were limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the visual inspection.
- c. The Services did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services.

RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK and including the doing of any independent investigation of the information provided to RSK save as otherwise provided in the terms of the contract between the Client and RSK.

8. The intrusive environmental site investigation aspects of the Services are a limited sampling of the site at pre-determined locations based on the known historic / operational configuration of the site. The conclusions given in this report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the properties of the materials adjacent and local conditions, together with the position of any current structures and underground utilities and facilities, and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters (as stipulated in the scope between the client and RSK, based on an understanding of the available operational and historical information) and it should not be inferred that other chemical species are not present.
9. Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan but is (are) used to present the general relative locations of features on, and surrounding, the site. Features (intrusive and sample locations etc) annotated on site plans are not drawn to scale but are centred over the approximate location. Such features should not be used for setting out and should be considered indicative only.
10. The comments given in this report and the opinions expressed are based on the ground conditions encountered during the site work and on the results of tests made in the field and in the laboratory. However, there may be conditions pertaining to the site that have not been disclosed by the investigation and therefore could not be taken into account. In particular, it should be noted that there may be areas of made ground not detected due to the limited nature of the investigation or the thickness and quality of made ground across the site may be variable. In addition, groundwater levels and ground gas concentrations and flows, may vary from those reported due to seasonal, or other, effects and the limitations stated in the data should be recognised.
11. Asbestos is often observed to be present in soils in discrete areas. Whilst asbestos-containing materials may have been locally encountered during the fieldworks or supporting laboratory analysis, the history of brownfield and demolition sites indicates that asbestos fibres may be present more widely in soils and aggregates, which could be encountered during more extensive ground works.
12. Unless stated otherwise, only preliminary geotechnical recommendations are presented in this report and these should be verified in a Geotechnical Design Report, once proposed construction and structural design proposals are confirmed.



APPENDIX B DEVELOPMENT DRAWINGS

Key

- Site Boundary
- Existing contours at 1m intervals
- Proposed northern screening mound contours at 1m intervals
- Existing built development limits
- Existing roads to be re-used
- Proposed vehicular routes surfaced with recycled crushed material from site, indicative layout shown subject to detailed design.
- Proposed recreational footpaths, surfaced with recycled crushed material from site
- Proposed support facilities buildings (reception/ shop, shower/toilet blocks, cafe/bar).
- Proposed area for touring caravans and campers
- Proposed area for static caravans
- Existing (E) and proposed ponds, all designed and managed as amphibian habitat
- Existing tree and shrub cover to be retained
- Proposed native species woodland, hedgerow shrubby understorey planting.
- Proposed close board treated timber screening fence, natural colour.
- Proposed stockproof fence, treated timber posts with straining wires and light pattern stockproof mesh.
- Site of Importance for Nature Conservation (SINC) boundary
- Open mosaic, tussocky grassland, ruderal and woodland fringe habitats, all to be managed in accordance with good nature conservation practice to support species diversity
- Existing agricultural grassland, to be managed as species-rich grassland
- Informal recreation and dog off leash zones. Dogs to be kept on leash in all other zones outside the development footprint.
- Woodland area - Retain bimac surface along proposed main roadways. Remove bimac surface to reveal underlying crushed stone away from main roadways. Create vehicular spurs using recycled site materials. Encourage/ allow natural colonisation of stone by local grassland/wildflower species. Retain mature and colonising trees, remove ornamental groundcover species, reinforce with new native tree and shrub woodland edge planting to enhance habitat value.

Design Approach

Based on the parameters plan, this indicative masterplan has been prepared to illustrate the potential layout of the site.

The proposed scheme would re-develop the former mine site as a leisure proposal. The site would be developed as a visually self-contained scheme using existing landform and vegetation cover combined with new landscape interventions, to create three distinct character zones:

- Woodland, developed amongst existing mature trees and woodland cover at the western edge of the site;
- Bowl, developed across the flat, enclosed bowl created by the former pithead within the middle of the site, with a light woodland character to be created;
- Valley, formed along the valley landform created by mining to the south and east of the site, with a more open character and retained as an open mosaic habitat, reflecting existing SINC designation of the area.

The Woodland area would continue during caravan and camper van uses whilst the Woodland or Bowl areas may be used to accommodate lodges. An internal landscape buffer, incorporating tree planting, ponds and species-rich grassland would be provided to create separation between the Bowl and Valley zones.

The scheme would be constructed in phases, broadly from west to east, with part of the Woodland and Bowl character zones being initially developed, supported by appropriate facilities buildings. The pace of implementation would be dependent on market conditions and the demand for each type of accommodation.

Existing hard surfaces and foundations would be broken out and existing buildings demolished. Arisings would be crushed and graded as recycled aggregate for use within the site with any surplus exported to market.

Access to the development would be from the A19, utilising the existing New Road junction and road. Existing approach roads within the site would be retained and extended using recycled site aggregate to create an informal network of stone surfaced routes allowing vehicle access to accommodation and pitches. Pitches, parking areas and footpaths would also be surfaced with recycled site aggregate.

Site facilities buildings would be low key, only containing uses typically required to support this type of leisure development. These uses would include a reception and small shop at the site entrance, toilet/ wash blocks and a possible cafe/ licensed bar, all set within the Woodland zone. Architectural design of the facility buildings would either be of traditional red brick and red pantile construction (as seen at Sheepwalk Farm) or contemporary design incorporating natural and/or visually recessive materials (for example timber clad walls with cedar shingle or matt aluminium/ zinc roof cladding). Crushed stone and precast concrete paver surfaces would provide local access to facility buildings.

A series of informal footpaths would be created through the site, with links to the surrounding public right of way network and providing access to nearby villages including Escrik and Wheidrake. Existing public rights of way running through the site would be retained on their existing alignments.

Utility supplies would either re-use or adapt existing facilities or would be brought to site via the existing access road. Waste water management would involve adaptation or replacement of the existing treatment plant and would utilise existing outfall arrangements.

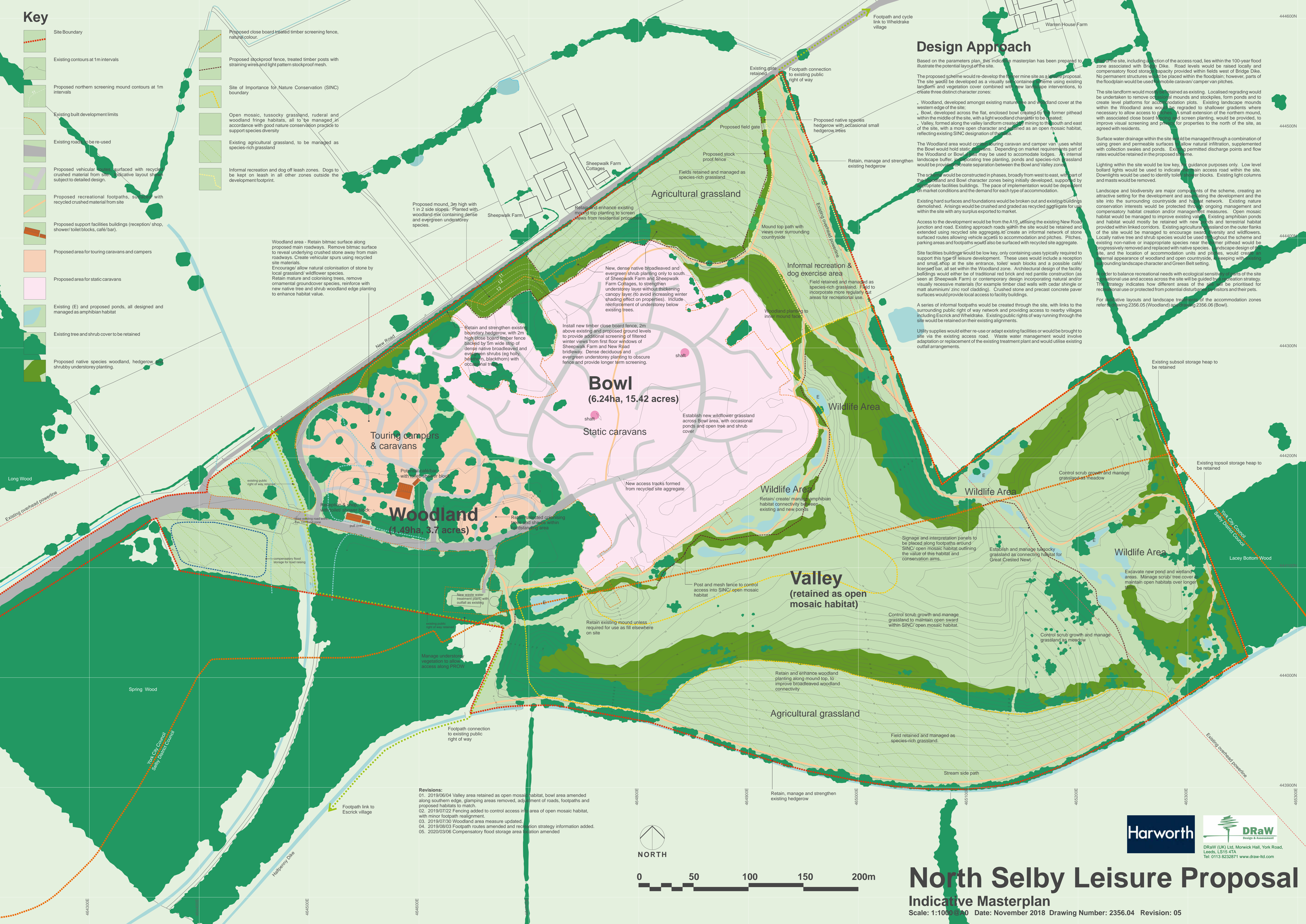
Surface water drainage within the site would be managed through a combination of using green and permeable surfaces to allow natural infiltration, supplemented with collection swales and ponds. Existing permitted discharge points and flow rates would be retained in the proposed scheme.

Lighting within the site would be low key, for guidance purposes only. Low level bollard lights would be used to indicate the main access road within the site. Downlights would be used to identify toilet and shower blocks. Existing light columns and masts would be removed.

Landscape and biodiversity are major components of the scheme, creating an attractive setting for the development and assuaging the development and the site into the surrounding countryside and habitat network. Existing nature conservation interests would be protected through ongoing management and compensatory habitat creation and/or management measures. Open mosaic habitat would be managed to improve existing value. Existing amphibian ponds and habitat would mostly be retained with new ponds and terrestrial habitat provided within linked corridors. Existing agricultural grassland on the outer flanks of the site would be managed to encourage sward diversity and wildflowers. Locally native tree and shrub species would be used throughout the scheme and existing non-native or inappropriate species near the former pithead would be progressively removed and replaced with native species. Landscape design of the site, and the location of accommodation units and pitches, would create an overall appearance of woodland and open countryside, keeping with the surrounding landscape character and Green Belt setting.

In order to balance recreational needs with ecological sensitivity interests of the site, recreational use and access across the site will be guided by a recreation strategy. This strategy indicates how different areas of the site will be prioritised for recreational use or protected from potential disturbance by visitors and their pets.

For illustrative layouts and landscape treatments of the accommodation zones refer to drawings 2356.05 (Woodland) and drawing 2356.06 (Bowl).



Revisions:
 01. 2019/06/04 Valley area retained as open mosaic habitat, bowl area amended along southern edge, glamping areas removed, adjustment of roads, footpaths and proposed habitats to match.
 02. 2019/07/22 Fencing added to control access in area of open mosaic habitat, with minor footpath realignment.
 03. 2019/07/30 Woodland area measure updated.
 04. 2019/08/03 Footpath routes amended and recreation strategy information added.
 05. 2020/03/06 Compensatory flood storage area



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North Selby Leisure Proposal

Indicative Masterplan

Scale: 1:1000 @ A0 Date: November 2018 Drawing Number: 2356.04 Revision: 05

APPENDIX C SUMMARY OF LEGISLATION AND POLICY RELATING TO LAND CONTAMINATION

Part IIA of the Environmental Protection Act 1990

Part IIA of the Environmental Protection Act 1990 (Part IIA) and its associated Contaminated Land Regulations 2000 (SI 2000/227), which came into force in England on 1 April 2000, formed the basis for the current regulatory framework and the statutory regime for the identification and remediation of contaminated land. Part IIA of the EPA 1990 defines contaminated land as 'any land which appears to the Local Authority in whose area it is situated to be in such a condition by reason of substances in, on or under the land, that significant harm is being caused, or that there is significant possibility of significant harm being caused, or that pollution of controlled waters is being or is likely to be caused'. Controlled waters are considered to include all groundwater, inland waters and estuaries.

In August 2006, the Contaminated Land (England) Regulations 2006 (SI 2006/1380) were implemented, which extended the statutory regime to include Part IIA of the EPA as originally introduced on 1 April 2000, together with changes intended chiefly to address land that is contaminated by virtue of radioactivity. These have been replaced subsequently by the Contaminated Land (England) (Amendment) Regulations 2012, which now exclude land that is contaminated by virtue of radioactivity.

The intention of Part IIA is to deal with contaminated land issues that are considered to cause significant harm on land that is not undergoing development (see Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance, April 2012). This document replaces Annex III of Defra Circular 01/2006, published in September 2006 (the remainder of this document is now obsolete).

Planning Policy

Contaminated land is often dealt with through planning because of land redevelopment. This approach was documented in Planning Policy Statement: Planning and Pollution Control PPS23, which states that it remains the responsibility of the landowner and developer to identify land affected by contamination and carry out sufficient remediation to render the land suitable for use. PPS23 was withdrawn early in 2012 and has been replaced by much reduced guidance within the National Planning Policy Framework (NPPF), reference ISBN: 978-1-5286-1033-9, February 2019.

The new framework has only limited guidance on contaminated land, as follows:

Chapter 11. Making effective use of land

- 117 Planning policies and decisions should promote an effective use of land in meeting the need for homes and other uses, while safeguarding and improving the environment and ensuring safe and healthy living conditions. Strategic policies should set out a clear strategy for accommodating objectively assessed needs, in a way that makes as much use as possible of previously-developed or 'brownfield' land.
118. Planning policies and decisions should:
- c) give substantial weight to the value of using suitable brownfield land within settlements for homes and other identified needs, and support appropriate opportunities to remediate despoiled, degraded, derelict, contaminated or unstable land.

Chapter 15. Conserving and enhancing the natural environment

170. Planning policies and decisions should contribute to and enhance the natural and local environment by:

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Ground conditions and pollution

178. Planning policies and decisions should ensure that:

a) a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);

b) after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990; and

c) adequate site investigation information, prepared by a competent person, is available to inform these assessments.

179. Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.

Water Resources Act (WRA)

The Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009 updated the Water Resources Act 1991, which introduced the offence of causing or knowingly permitting pollution of controlled waters. The Act provides the Environment Agency with powers to implement remediation necessary to protect controlled waters and recover all reasonable costs of doing so.

Water Framework Directive (WFD)

The Water Framework Directive 2000/60/EC is designed to:

enhance the status and prevent further deterioration of aquatic ecosystems and associated wetlands that depend on the aquatic ecosystems

promote the sustainable use of water

reduce pollution of water, especially by 'priority' and 'priority hazardous' substances

ensure progressive reduction of groundwater pollution.

The WFD requires a management plan for each river basin be developed every six years.

Groundwater Directive (GWD)

The 1980 Groundwater Directive 80/68/EEC and the 2006 Groundwater Daughter Directive 2006/118/EC of the WFD are the main European legislation in place to protect groundwater. The 1980 Directive is due to be repealed in December 2013. The European legislation has been transposed into national legislation by regulations and directions to the Environment Agency.

Priority Substances Directive (PSD)

The Priority Substances Directive 2008/105/EC is a 'Daughter' Directive of the WFD, which sets out a priority list of substances posing a threat to or via the aquatic environment. The PSD establishes environmental quality standards for priority substances, which have been set at concentrations that are safe for the aquatic environment and for human health. In addition, there is a further aim of reducing (or eliminating) pollution of surface water (rivers, lakes, estuaries and coastal waters) by pollutants on the list. The WFD requires that countries establish a list of dangerous substances that are being discharged and EQS for them. In England and Wales, this list is provided in the River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010. In order to achieve the objectives of the WFD, classification schemes are used to describe where the water environment is of good quality and where it may require improvement.

Environmental Permitting Regulations (EPR)

The Environmental Permitting (England and Wales) Regulations 2016 (as amended) provide a single regulatory framework that streamlines and integrates waste management licensing, pollution prevention and control, water discharge consenting, groundwater authorisations, and radioactive substances regulation. Schedule 22, paragraph 6 of EPR 2016 states: 'the regulator must, in exercising its relevant functions, take all necessary measures - (a) to prevent the input of any hazardous substance to groundwater; and (b) to limit the input of non-hazardous pollutants to groundwater so as to ensure that such inputs do not cause pollution of groundwater.'

Notes:

- 1. The above information is provided for background but does not constitute site-specific advice*
- 2. The above summary applies to England only. Variations exist within other countries of the United Kingdom*

APPENDIX D TECHNICAL BACKGROUND

D1 Desk Study

Aquifer designation and Source protection zones

Principal aquifer: layers of rock or drift deposit that have high intergranular and/or fracture permeability (usually providing a high level of water storage). They may support water supply and/or river base flow on a strategic scale.

Secondary A aquifer: permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

Secondary B aquifer: predominantly lower permeability layers that may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering.

Secondary undifferentiated aquifer: it has not been possible to attribute either a category A or B to a rock type. In most cases this means that it was previously designated as both a minor and non-aquifer in different locations owing to the variable characteristics.

Unproductive' strata: low permeability with negligible significance for water supply or river base flow.

The EA generally adopts a three-fold classification of source protection zones (SPZ) surround abstractions for public water supply. The Site is situated in an area defined as follows:

Zone 1 or the 'inner protection zone' is located immediately adjacent to the groundwater source and is based on a 50-day travel time from any point below the water table to the source. It is designed to protect against the effects of human activity and biological/chemical contaminants that may have an immediate effect on the source

Zone 2 or the 'outer protection zone' is defined by a 400-day travel time from a point below the water table to the source. The travel time is designed to provide delay and attenuation of slowly degrading pollutants

Zone 3 or the 'total catchment' is the area around the source within which all groundwater recharge is presumed to be discharged at the source.

Preliminary risk assessment methodology

LCRM outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. An outline conceptual model should be formed at the preliminary risk assessment stage that collates all the existing information pertaining to a site in text, tabular or diagrammatic form. The outline conceptual model identifies potentially complete (termed possible) contaminant linkages (contaminant–pathway–receptor) and is used as the basis for the design of the site investigation. The outline conceptual model is updated as further information becomes available, for example as a result of the site investigation.

Production of a conceptual model requires an assessment of risk to be made. Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the

likelihood and the consequences of an event must be taken into account when assessing risk. RSK has adopted guidance provided in CIRIA C552 for use in the production of conceptual models.

The likelihood of an event can be classified on a four-point system using the following terms and definitions based on CIRIA C552:

highly likely: the event appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution

likely: it is probable that an event will occur or circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term

low likelihood: circumstances are possible under which an event could occur, but it is not certain even in the long term that an event would occur and it is less likely in the short term

unlikely: circumstances are such that it is improbable the event would occur even in the long term.

The severity can be classified using a similar system also based on CIRIA C552. The terms and definitions relating to severity are:

severe: short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. Short-term risk to an ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000)

medium: chronic damage to human health ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000), pollution of sensitive water resources, significant change in an ecosystem or organism forming part of that ecosystem

mild: pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures or the environment

minor: harm, not necessarily significant, but that could result in financial loss or expenditure to resolve. Non-permanent human health effects easily prevented by use of personal protective clothing. Easily repairable damage to buildings, structures and services.

Once the probability of an event occurring and its consequences have been classified, a risk category can be assigned according to the table below.

		Consequences			
		Severe	Medium	Mild	Minor
Highly likely		Very high	High	Moderate	Moderate/low

Probability	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very low	Very low

Definitions of these risk categories are as follows together with an assessment of the further work that may be required:

very high: there is a high probability that severe harm could occur or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability; urgent investigation and remediation are likely to be required

high: harm is likely to occur. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required. Remedial works may be necessary in the short term and are likely over the long term

moderate: it is possible that harm could arise, but it is unlikely that the harm would be severe and it is more likely that the harm would be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term

low: it is possible that harm could occur, but it is likely that if realised this harm would at worst normally be mild

very low: there is a low possibility that harm could occur and if realised the harm is unlikely to be severe.

D2 Site Investigation Methodology

Ground gas monitoring

An infrared gas meter was used to measure gas flow, concentrations of carbon dioxide (CO₂), methane (CH₄) and oxygen (O₂) in percentage by volume, while hydrogen sulphide (H₂S) and carbon monoxide (CO) were recorded in parts per million. Initial and steady state concentrations were recorded. In addition, during the first monitoring round, all wells were screened with a PID to establish if there are any interferences and cross-sensitivity of other hydrocarbons with the infrared gas meter.

Low flow groundwater sampling

Groundwater samples were retrieved using a United States Environment Protection Agency (USEPA) approved low-flow purging and sampling methodology.

The low-flow method relies on moving groundwater through the well screen at approximately the same rate as it flows through the geological formation. This results in a significant reduction in the volume of water extracted before sampling and significantly reduces the amount of disturbance of the water in the monitoring well during purging and sampling. Drawdown levels in the monitoring well and water quality indicator parameters (pH, temperature, electrical conductivity, redox potential and dissolved oxygen) are monitored during low-flow purging and sampling, with stabilisation

indicating that purging is complete and sampling can begin. As the flow rate used for purging, in most cases, is the same or only slightly higher than the flow rate used for sampling, and because purging and sampling are conducted as one continuous operation in the field, the process is referred to as low-flow purging and sampling.

Reuse of suitable materials

The Definition of Waste: Development Industry Code of Practice (CL:AIRE, 2011) (CoP) was developed in consultation with the Environment Agency and development industry to enable the re-use of materials under certain scenarios and subject to demonstrating that specific criteria are met. The current reuse scenarios covered by the CoP comprise

- reuse on the site of origin (with or without treatment)
- direct transfer of clean and natural soils between sites
- use in the development of land other than the site of origin following treatment at an authorised Hub site (including a fixed soil treatment facility).

The importation of made ground soils (irrespective of contamination status) or crushed demolition materials is not permitted currently under the CoP and requires either a standard rules environmental permit or a U1 waste exemption (see below).

In the context of excavated materials used on-sites undergoing development, four factors are considered to be of particular relevance in determining if the material is a waste or when it ceases to be waste:

- the aim of the Waste Framework Directive is not undermined, i.e. if the use of the material will create an unacceptable risk of pollution of the environment or harm to human health it is likely to be waste
- the material is certain to be used
- the material is suitable for use both chemically and geotechnically
- only the required quantity of material will be used.

The CoP requires the preparation of a materials management plan (MMP) that confirms the above factors will be met. This plan needs to be reviewed by a 'Qualified Person' (QP) who will then issue a declaration form to the EA. As the project progresses, data must be collated and on completion a verification report produced that shows the MMP was followed and describes any changes.

The MMP establishes whether specific materials are classified as waste and how excavated materials will be treated and/or reused in line with the CoP. The MMP is likely to form part of the site waste management plan.



APPENDIX E EXPLORATORY HOLE RECORDS



WINDOW SAMPLE LOG

Contract: North Selby Mine		Client: Harworth Group		Window Sample: WS01
Contract Ref: 350409	Start: 26.03.21 End: 26.03.21	Ground Level (m AOD): 11.60	National Grid Co-ordinate: E:464551.3 N:444167.4	Sheet: 1 of 2

Progress Window Run	Samples / Tests				Water Backfill & Instru- mentation	Description of Strata	Depth (Thick- ness)	Material Graphic Legend
	Depth	No	Type	Results				
						Grass over soft to firm brown slightly sandy, slightly gravelly clay TOPSOIL. Gravel is angular to subrounded, fine to coarse mudstone and sandstone.	(0.40)	
						MADE GROUND: Firm slightly sandy, gravelly CLAY. Gravel is angular to subrounded, fine to coarse mudstone, sandstone and rare coal.	0.40	
						... At 1.00m groundwater encountered as slight seepage.		
	1.20-1.65	1.65	SPT	N=12				
	1.20 - 2.00 (101mm dia) 100% rec	1.50	1	ES	Jarx1+VL		(2.50)	
	2.00-2.45	2.45	SPT	N=13				
	2.00 - 3.00 (101mm dia) 95% rec							
	3.00-3.45	2	ES	Jarx1+VL			2.90	
	3.00 - 4.00 (86mm dia) 80% rec	3.00	2	ES	Jarx1+VL		(0.80)	
	3.00-3.45	4.00	SPT	N=12				
	4.00-4.45	4.45	SPT	N=28			3.70	
	4.00 - 5.00 (86mm dia) 100% rec	4.20	3	ES	Jarx1+VL		(0.30)	
						MADE GROUND: Light grey and white, angular to subangular, medium to coarse GRAVEL of concrete and gypsum.	4.00	
						... At 3.90m single piece of rebar.	4.08	
						Soft to firm brown slightly sandy, slightly gravelly CLAY. Gravel is subangular to subrounded, fine to medium mudstone. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(0.37)	
						... At 4.00m geotextile.	4.45	

Drilling Progress and Water Observations						General Remarks	
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)		
						1. Hand-dug inspection pit to 1.2m. 2. Installed Plain Pipe 0.00m-1.00m - Slotted Pipe 1.00m-4.00m.	
Method Used: Tracked window sampling						All dimensions in metres	
Plant Used: Premier rig						Scale: 1:25	
Drilled By: J. Bitner				Logged By: L Alderman		Checked By: HTG	

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WINDOW SAMPLE LOG

Contract: North Selby Mine		Client: Harworth Group		Window Sample: WS01
Contract Ref: 350409	Start: 26.03.21 End: 26.03.21	Ground Level (m AOD): 11.60	National Grid Co-ordinate: E:464551.3 N:444167.4	Sheet: 2 of 2

Progress Window Run	Samples / Tests				Water Backfill & Instru- mentation	Description of Strata	Depth (Thick- ness)	Material Graphic Legend
	Depth	No	Type	Results				
4.00 - 5.00 (86mm dia) 100% rec						Light grey slightly silty, fine to medium SAND. (ELVINGTON GLACIOLACUSTRINE FORMATION). Firm to stiff brown slightly sandy, gravelly CLAY. Gravel is subangular to subrounded, fine to coarse limestone. (ELVINGTON GLACIOLACUSTRINE FORMATION). <i>(stratum copied from 4.45m from previous sheet)</i>	(0.35)	
5.00-5.45	5.45	SPT	N=13			Light grey, brown, mottled yellowish brown, slightly silty, fine to medium SAND. (ELVINGTON GLACIOLACUSTRINE FORMATION). ... From 4.80m to 5.80m damp.	4.80	
5.00 - 6.00 (86mm dia) 100% rec						... From 5.80m to 6.00m orange brown.	(1.20)	
6.00-6.45	6.45	SPT	N=9			Window sample hole terminated at 6.00m depth.	6.00	

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Drilling Progress and Water Observations						General Remarks	
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)		
All dimensions in metres						Scale:	1:25
Method Used:	Tracked window sampling		Plant Used:	Premier rig		Drilled By:	J. Bitner
						Logged By:	L Alderman
						Checked By:	HTG





WINDOW SAMPLE LOG

Contract: North Selby Mine		Client: Harworth Group		Window Sample: WS02
Contract Ref: 350409	Start: 26.03.21 End: 26.03.21	Ground Level (m AOD): 11.83	National Grid Co-ordinate: E:464589.0 N:444162.3	Sheet: 1 of 1

Progress Window Run	Samples / Tests				Water Backfill & Instru- mentation	Description of Strata	Depth (Thick- ness)	Material Graphic Legend
	Depth	No	Type	Results				
						Grass over soft brown, slightly sandy, slightly gravelly clay TOPSOIL. Gravel is angular to subrounded, fine to coarse mudstone and sandstone.	(0.40)	
	0.80	1	ES	Jarx1+VL		MADE GROUND: Firm grey, slightly sandy, gravelly CLAY. Gravel is angular to subrounded, fine to coarse mudstone, sandstone and rare coal.	0.40	
							(3.00)	
						Window sample hole terminated at 3.40m depth due to refusal on limestone (possible boulder).	3.40	

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Drilling Progress and Water Observations						General Remarks	
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)		
						1. Hand-dug inspection pit to 1.2m. 2. Window Sample hole refused at 3.40m on limestone (possible boulder). 3. Installed Plain Pipe 0.00m-1.00m - Slotted Pipe 1.00m-3.00m.	
All dimensions in metres						Scale:	1:25
Method Used:	Tracked window sampling		Plant Used:	Premier rig		Drilled By:	J. Bitner
						Logged By:	L Alderman
						Checked By:	HTG





WINDOW SAMPLE LOG

Contract: North Selby Mine		Client: Harworth Group		Window Sample: WS03
Contract Ref: 350409	Start: 26.03.21 End: 26.03.21	Ground Level (m AOD): 8.91	National Grid Co-ordinate: E:464571.0 N:444264.5	Sheet: 1 of 2

Progress Window Run	Samples / Tests				Water Backfill & Instru- mentation	Description of Strata	Depth (Thick- ness)	Material Graphic Legend
	Depth	No	Type	Results				
						MADE GROUND: Tarmac.	0.15	
						MADE GROUND: Light yellow brown, slightly clayey, sandy, angular to subangular, fine to coarse GRAVEL of limestone.	0.25	
						MADE GROUND: Grey and white, slightly clayey, sandy, angular to subangular, fine to coarse GRAVEL of limestone and concrete.	0.55	
	0.60	1	ES	Jarx1+VL		Thinly laminated, stiff brown, mottled grey, slightly sandy, silty CLAY with occasional rootlets and with rare subangular to subrounded, medium gravel of sandstone. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(1.05)	
	1.20-1.65	1.65	SPT	N=10				
	1.20 - 2.00 (101mm dia) 100% rec							
	2.00-2.45	2.45	SPT	N=4				
	2.00 - 3.00 (101mm dia) 100% rec							
	3.00-3.45	3.45	SPT	N=5				
	3.00 - 4.00 (86mm dia) 100% rec							
	4.00-4.45	4.45	SPT	N=6				
	4.00 - 5.00 (86mm dia) 100% rec							
						Brown slightly silty, fine to medium SAND. (ELVINGTON GLACIOLACUSTRINE FORMATION). ... From 1.60m to 3.75m, damp.	3.75	
						Firm brown, sandy, gravelly CLAY. Gravel is subangular to subrounded, fine to coarse flint and limestone. (ELVINGTON GLACIOLACUSTRINE FORMATION).	4.00	
						Brown slightly silty, fine to medium SAND. (ELVINGTON GLACIOLACUSTRINE FORMATION). ... From 4.30m to 4.80m, wet.	(0.80)	

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Drilling Progress and Water Observations						General Remarks	
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)		
						1. Hand dug inspection pit to 1.20m. 2. Installed Plain Pipe 0.00m-1.00m - Slotted Pipe 1.00m-3.00m.	
Method Used: Tracked window sampling						All dimensions in metres	
Plant Used: Premier rig						Scale: 1:25	
Drilled By: J. Bitner						Logged By: WHopkins	
						Checked By: HTG	



WINDOW SAMPLE LOG

Contract: North Selby Mine		Client: Harworth Group		Window Sample: WS03
Contract Ref: 350409	Start: 26.03.21 End: 26.03.21	Ground Level (m AOD): 8.91	National Grid Co-ordinate: E:464571.0 N:444264.5	Sheet: 2 of 2

Progress Window Run	Samples / Tests				Water Backfill & Instru- mentation	Description of Strata	Depth (Thick- ness)	Material Graphic Legend
	Depth	No	Type	Results				
4.00 - 5.00 (86mm dia) 100% rec ▼	5.00-5.45	5.45	SPT	N=6		Brown slightly silty, fine to medium SAND. (ELVINGTON GLACIOLACUSTRINE FORMATION). <i>(stratum copied from 4.00m from previous sheet)</i>	4.80	
						Firm brown, sandy, gravelly CLAY. Gravel is subangular to subrounded, fine to coarse flint and limestone. (ELVINGTON GLACIOLACUSTRINE FORMATION). Window sample hole terminated at 5.00m depth.	5.00	

Drilling Progress and Water Observations						General Remarks	
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)		
All dimensions in metres						Scale:	1:25
Method Used:	Tracked window sampling		Plant Used:	Premier rig		Drilled By:	J. Bitner
						Logged By:	WHopkins
						Checked By:	HTG

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WINDOW SAMPLE LOG

Contract: North Selby Mine		Client: Harworth Group		Window Sample: WS04
Contract Ref: 350409	Start: 26.03.21 End: 26.03.21	Ground Level (m AOD): 10.53	National Grid Co-ordinate: E:464703.6 N:444282.8	Sheet: 1 of 1

Progress Window Run	Samples / Tests				Water Backfill & Instru- mentation	Description of Strata	Depth (Thick- ness)	Material Graphic Legend
	Depth	No	Type	Results				
						MADE GROUND: Grass over soft brown, slightly sandy, slightly gravelly clay TOPSOIL. Gravel is angular to subrounded, fine to coarse mudstone and sandstone.	(0.30)	
						MADE GROUND: Firm grey sandy, gravelly CLAY. Gravel is angular to subrounded, fine to coarse of mudstone and sandstone.	(0.30)	
						Thinly laminated, stiff brown mottled grey, slightly sandy silty CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(1.90)	
						Brown slightly silty, fine to medium SAND. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(1.00)	
						Firm to stiff brown, slightly gravelly CLAY. Gravel is subangular to subrounded, fine to coarse of limestone and flint. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(0.50)	
						Window sample hole terminated at 4.00m depth.		

Drilling Progress and Water Observations						General Remarks	
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)		
						1. Hand-dug inspection pit to 1.2m. 2. Installed Plain Pipe 0.00m-1.00m - Slotted Pipe 1.00m-3.00m.	
Method Used: Tracked window sampling						All dimensions in metres	
Plant Used: Premier rig						Scale: 1:25	
Drilled By: J. Bitner						Logged By: L Alderman	
						Checked By: HTG	

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WINDOW SAMPLE LOG

Contract: North Selby Mine		Client: Harworth Group		Window Sample: WS05
Contract Ref: 350409	Start: 29.03.21 End: 29.03.21	Ground Level (m AOD): 9.10	National Grid Co-ordinate: E:464787.1 N:444156.9	Sheet: 1 of 1

Progress Window Run	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
	Depth	No	Type	Results					
	0.50	1	ES	Jx1			MADE GROUND: Firm dark brown sandy gravelly CLAY. Gravel is subangular, fine to coarse of sandstone and concrete.	(1.10)	
1.20 - 1.20 (101mm dia) 100% rec	1.20-1.65 1.20	1.65 2	SPT ES	N=17 Jx1			... At 1.00m to 1.10m Gravel of subangular, fine to coarse limestone. MADE GROUND: Firm dark blackish brown slightly sandy gravelly CLAY with hydrocarbon odour. Gravel is subangular, fine to coarse at sandstone.	1.10	
2.00 - 2.30 (101mm dia) 100% rec	2.00-2.45	2.45	SPT	N=14				(1.35)	
	2.30	3	ES	Jx1				2.45	
Window sample hole terminated at 2.45m depth.									

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Drilling Progress and Water Observations						General Remarks						
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)							
						1. Hand-dug inspection pit to 1.2m. 2. Refused at 2.30m maybe obstruction search as pipe in culvert. Installed 1.00m Slotted and 1.00m Plain. 3. Installed Plain Pipe 1.00m - Slotted Pipe 1.00m						
All dimensions in metres						Scale:	1:25					
Method Used:	Tracked window sampling		Plant Used:	Premier rig		Drilled By:	J. Bitner		Logged By:	WHopkins	Checked By:	



WINDOW SAMPLE LOG

Contract: North Selby Mine		Client: Harworth Group		Window Sample: WS06
Contract Ref: 350409	Start: 29.03.21 End: 29.03.21	Ground Level (m AOD): 10.01	National Grid Co-ordinate: E:464838.1 N:444132.5	Sheet: 1 of 1

Progress Window Run	Samples / Tests				Water Backfill & Instru- mentation	Description of Strata	Depth (Thick- ness)	Material Graphic Legend
	Depth	No	Type	Results				
						MADE GROUND: Veneer of topsoil over dark greyish brown sandy clayey, subangular, fine to coarse GRAVEL of limestone.	(0.40)	
	0.50	1	ES			Firm orangish brown very sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION). ... From 0.40m to 0.60m greyish brown.	0.40	
	1.30	2	ES				(2.60)	
	2.50	3	ES			... From 2.50m to 3.00m Becoming dark orangish brown.	3.00	
Window sample hole terminated at 3.00m depth.								

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Drilling Progress and Water Observations						General Remarks	
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)		
						1. Hand-dug inspection pit to 1.2m. 2. Installed Plain Pipe 0.00m-1.00m and Slotted Pipe - 1.00m-3.00m.	
Method Used: Tracked window sampling						All dimensions in metres	
Plant Used: Premier rig						Scale: 1:25	
Drilled By: J. Bitner						Logged WHopkins	
						Checked By:	





WINDOW SAMPLE LOG

Contract: North Selby Mine		Client: Harworth Group		Window Sample: WS07
Contract Ref: 350409	Start: 29.03.21 End: 29.03.21	Ground Level (m AOD): 10.06	National Grid Co-ordinate: E:464924.4 N:444209.2	Sheet: 1 of 1

Progress Window Run	Samples / Tests				Water Backfill & Instru- mentation	Description of Strata	Depth (Thick- ness)	Material Graphic Legend
	Depth	No	Type	Results				
<p>1.20 - 2.00 (101mm dia) 100% rec</p>	0.50	1	ES		MADE GROUND: MACADAM.	(0.30)		
					MADE GROUND: Yellowish brown sandy, subangular, fine to coarse GRAVEL of limestone. (SUBBASE). Stiff grey and brown slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	0.50		
	2.00	2	ES		Window sample hole terminated at 2.00m depth.	(1.50)		

Drilling Progress and Water Observations						General Remarks	
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)		
						1. Hand-dug inspection pit to 1.2m. 2. Installed Plain Pipe 1.00m and Slotted Pipe 1.00m.	
Method Used: Tracked window sampling						All dimensions in metres	
Plant Used: Premier rig						Scale: 1:25	
Drilled By: J. Bitner				Logged By: WHopkins		Checked By:	

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WINDOW SAMPLE LOG

Contract: North Selby Mine		Client: Harworth Group		Window Sample: WS08
Contract Ref: 350409	Start: 29.03.21 End: 29.03.21	Ground Level (m AOD): 9.97	National Grid Co-ordinate: E:4648731.0 N:0444264.0	Sheet: 1 of 1

Progress Window Run	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
	Depth	No	Type	Results					
						MADE GROUND: MACADAM.	(0.50)		
						MADE GROUND: Yellowish brown sandy, subangular, fine to coarse GRAVEL of limestone. (SUBBASE).	(0.30)		
	0.90	1	ES			Stiff brown and grey CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	0.80		
	1.50	2	ES				(1.20)		
						Window sample hole terminated at 2.00m depth.	2.00		

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Drilling Progress and Water Observations						General Remarks	
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)		
						1. Hand-dug inspection pit to 1.2m. 2. Installed Plain Pipe 1.00m and Slotted Pipe 1.00m.	
Method Used: Tracked window sampling						All dimensions in metres	
Plant Used: Premier rig						Scale: 1:25	
Drilled By: J. Bitner						Logged By: WHopkins	
						Checked By:	



WINDOW SAMPLE LOG

Contract: North Selby Mine		Client: Harworth Group		Window Sample: WS09
Contract Ref: 350409	Start: 29.03.21 End: 29.03.21	Ground Level (m AOD): 10.14	National Grid Co-ordinate: E:464777.9 N:444344.3	Sheet: 1 of 1

Progress Window Run	Samples / Tests				Water Backfill & Instru- mentation	Description of Strata	Depth (Thick- ness)	Material Graphic Legend
	Depth	No	Type	Results				
						MADE GROUND: CONCRETE.	(0.40)	
						MADE GROUND: Yellowish brown sandy, subangular, fine to coarse GRAVEL of limestone. (SUBBASE).	0.40	
						Firm brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	0.60	
	1.20-1.65	1.65	SPT	N=9				
	1.50	1	ES					
	2.00-2.45	2.45	SPT	N=11			(2.85)	
	3.00 3.00-3.45	2 3.45	ES SPT	N=17			3.45	
						Window sample hole terminated at 3.45m depth.		

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Drilling Progress and Water Observations						General Remarks	
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)		
						1. Hand-dug inspection pit to 1.2m. 2. Installed Plain Pipe 1.00m and Slotted Pipe 2.00m.	
Method Used: Tracked window sampling						All dimensions in metres	
Plant Used: Premier rig						Scale: 1:25	
Drilled By: J. Bitner						Logged By: WHopkins	
						Checked By:	



WINDOW SAMPLE LOG

Contract: North Selby Mine		Client: Harworth Group		Window Sample: WS10
Contract Ref: 350409	Start: 29.03.21 End: 29.03.21	Ground Level (m AOD): 7.44	National Grid Co-ordinate: E:464660.6 N:444081.3	Sheet: 1 of 1

Progress Window Run	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
	Depth	No	Type	Results					
						MADE GROUND: Light grey sandy clayey, subangular, fine to coarse gravel of concrete.	0.20		
	0.30	1	ES			Firm brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(2.80)		
	1.40	2	ES			... 1.4m, damp.			
	2.80	3	ES						
Window sample hole terminated at 3.00m depth.								3.00	

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Drilling Progress and Water Observations						General Remarks	
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)		
						1. Hand-dug inspection pit to 1.2m. 2. Installed Plain Pipe 1.00m and Slotted Pipe 2.00m.	
Method Used: Tracked window sampling						All dimensions in metres	
Plant Used: Premier rig						Scale: 1:25	
Drilled By: J. Bitner						Logged By: WHopkins	
						Checked By:	



Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP01
Contract Ref: 350409	Start: 22.03.21 End: 22.03.21	Ground Level (m AOD): 8.45	National Grid Co-ordinate: E:464518.0 N:444176.8	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES			Soft brown slightly sandy CLAY. (TOPSOIL)	(0.30)		
0.50	2	ES			MADE GROUND: Soft brown slightly sandy slightly gravelly CLAY. Gravel is subangular, fine to coarse of concrete, macadam, coal and limestone.	(0.70)		
					MADE GROUND: Firm greyish brown very gravelly CLAY. Gravel is subangular, fine to coarse of limestone. ... At 1.00m concrete boulder.	1.00 (0.30)		
					MADE GROUND: Light grey slightly gravelly, fine to coarse SAND with odour of sulphur. Gravel is angular, fine to coarse of sandstone.	1.30 (0.30)		
1.50	3	ES			MADE GROUND: Firm dark grey slightly sandy gravelly CLAY. Gravel is subangular, fine to coarse of macadam, limestone and concrete.	1.60 (0.90)		
					... At 2.50m obstruction due to several concrete boulders. Trial pit terminated at 2.50m depth.	2.50		

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Plan (Not to Scale) 	<h2>General Remarks</h2>	
	1. Water seepage at 1.00m. 2. Concrete boulder at 1.00m and another at 2.10m.	
All dimensions in metres		Scale: 1:25
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins Checked By: HTG

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP02
Contract Ref: 350409	Start: 22.03.21 End: 22.03.21	Ground Level (m AOD): 9.30	National Grid Co-ordinate: E:464553.7 N:444185.0	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES			Soft brown slightly sandy CLAY. (TOPSOIL)	(0.40)		
0.60	2	ES			MADE GROUND: Firm light brown slightly sandy slightly gravelly CLAY. Gravel is subangular, fine to coarse of sandstone.	(0.40)		
0.90	3	ES			MADE GROUND: Firm dark blackish grey slightly sandy gravelly CLAY. Gravel is subangular, fine to coarse of multicolored and occasional coal. . . . From 0.90m to 1.0m pockets of orangish brown sand.	(0.30)		
1.50	4	ES			MADE GROUND: Soft light greyish brown very sandy gravelly CLAY with low cobble content. Gravel is angular, fine to coarse of limestone, sandstone and concrete. Cobbles are subangular of limestone.	(0.90)		
2.50	5	ES			Firm brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION). . . . From 2.00m to 2.30m sandy.	(0.90)		
					Trial pit terminated at 2.90m depth.	2.90		

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP03	
Contract Ref: 350409	Start: 22.03.21 End: 22.03.21	Ground Level (m AOD): 8.05	National Grid Co-ordinate: E:464526.2 N:444222.1	Sheet: 1 of 1	

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.40	1	ES				MADE GROUND: MACADAM.	0.15	
						MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone underlain by Terram. (SUBBASE)	0.30	
						MADE GROUND: Light grey clayey sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	(0.60)	
							0.90	
1.70	2	ES				MADE GROUND: Greyish red sandy subangular, fine to coarse GRAVEL of limestone with frequent cobbles. Cobbles are subangular, fine to coarse of limestone.	(0.60)	
							1.50	
						MADE GROUND: Firm dark brown sandy slightly gravelly CLAY. Gravel is subangular, fine to coarse of limestone, brick and mudstone.	(1.00)	
2.80	3	ES				Firm greyish brown sandy slightly gravelly CLAY with frequent cobbles. Gravel is well rounded, fine to coarse of flint and sandstone. Cobbles are well rounded of sandstone. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(0.50)	
						Trial pit terminated at 3.00m depth.	3.00	

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Plan (Not to Scale)		General Remarks	
		1. Groundwater at 2.50m.	
		All dimensions in metres	Scale: 1:25
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP04
Contract Ref: 350409	Start: 22.03.21 End: 22.03.21	Ground Level (m AOD): 8.40	National Grid Co-ordinate: E:464559.3 N:444219.0	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				MADE GROUND: MACADAM.	0.15	
						MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	0.25	
						MADE GROUND: Light grey clayey sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	0.50	
0.60	2	ES				Soft yellowish brown very sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(1.70)	
1.80	3	ES						
2.00	4	B					2.20	
Trial pit terminated at 2.20m depth.								

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP05
Contract Ref: 350409	Start: 22.03.21 End: 22.03.21	Ground Level (m AOD): 8.79	National Grid Co-ordinate: E:464598.5 N:444212.5	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	B				MADE GROUND: MACADAM.	0.15	
						MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	0.25	
						MADE GROUND: Light grey clayey sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	(0.30)	
0.60	2	ES				Soft yellowish brown very sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	0.55	
1.30	3	ES					(2.45)	
							3.00	
Trial pit terminated at 3.00m depth.								

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Plan (Not to Scale) 		General Remarks 1. Groundwater at 2.50m.		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP06
Contract Ref: 350409	Start: 22.03.21 End: 22.03.21	Ground Level (m AOD): 9.24	National Grid Co-ordinate: E:464605.6 N:444254.8	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				MADE GROUND: MACADAM.	0.15	
						MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	0.30	
						MADE GROUND: Light grey clayey sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	0.55	
0.60	2	ES				Stiff brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).		
						... From 1.00m to 2.60m, wet.		
1.50	3	ES					(2.05)	
						Trial pit terminated at 2.60m depth as hole stability poor.	2.60	

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	


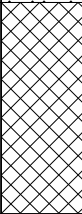
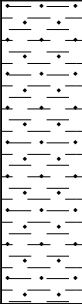

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP07
Contract Ref: 350409	Start: 22.03.21 End: 22.03.21	Ground Level (m AOD): 9.49	National Grid Co-ordinate: E:464593.3 N:444299.0	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Soft brown slightly sandy CLAY. (TOPSOIL)	0.20	
0.30	1	ES				MADE GROUND: Soft brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded of limestone and flint.	(0.30) 0.50	
0.60	2	ES				Soft light yellowish brown very sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(1.50)	
						Firm dark brown sandy silty slightly gravelly CLAY. Gravel is well rounded, fine to coarse of flint. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(0.50) 2.00	
2.50	3	ES				Trial pit terminated at 2.50m depth.	2.50	

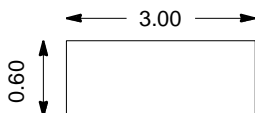

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP08
Contract Ref: 350409	Start: 22.03.21 End: 22.03.21	Ground Level (m AOD): 9.63	National Grid Co-ordinate: E:464634.3 N:444303.7	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES			Soft brown slightly sandy CLAY. (TOPSOIL)	(0.30)		
					MADE GROUND: Firm dark brown slightly sandy CLAY.	0.30		
0.90	2	ES				(0.70)		
1.50	3	ES			Soft yellowish brown very sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	1.00		
						(1.00)		
					Trial pit terminated at 2.00m depth.	2.00		

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Plan (Not to Scale) 		General Remarks		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	




Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP09
Contract Ref: 350409	Start: 26.03.21 End: 26.03.21	Ground Level (m AOD): 11.24	National Grid Co-ordinate: E:464673.7 N:444328.5	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES			MADE GROUND: Soft dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded, fine to coarse of sandstone, flint and brick.	(1.10)		
0.90	2	ES			. . . From 0.80m to 1.1m blackish brown and cobbles of subangular concrete.	1.10		
1.50	3	ES			Stiff brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION). . . . From 1.10m to 1.50m very sandy.	(1.60)		
2.70	4	ES			Trial pit terminated at 2.70m depth.	2.70		

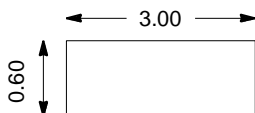

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP10
Contract Ref: 350409	Start: 25.03.21 End: 25.03.21	Ground Level (m AOD): 9.77	National Grid Co-ordinate: E:464649.1 N:444254.7	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Soft dark brown slightly sandy CLAY. (TOPSOIL)	0.20	
						Firm light brown, very sandy, slightly gravelly CLAY. Gravel is well rounded, fine to coarse of flint. (ELVINGTON GLACIOLACUSTRINE FORMATION). ... From 0.50m to 0.55m limestone gravel.	(0.60)	
						Trial pit terminated at 0.8m depth due to plastic pipe in back of excavation.	0.80	

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
		All dimensions in metres		Scale: 1:25
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	




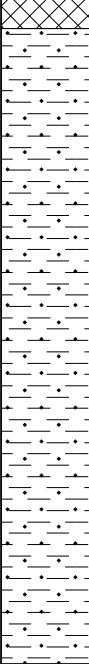
Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP11
Contract Ref: 350409	Start: 25.03.21 End: 25.03.21	Ground Level (m AOD): 9.80	National Grid Co-ordinate: E:464633.0 N:444217.2	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES			Soft dark brown slightly sandy CLAY. (TOPSOIL)	0.20		
0.50	2	ES			MADE GROUND: Firm brown slightly sandy CLAY.	(0.70)		
1.20	3	ES			Very soft light greyish brown very sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(0.70)		
					Trial pit terminated at 1.60m depth due to plastic water pipe in back of excavation.	1.60		

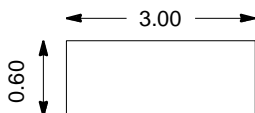

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Plan (Not to Scale) 	General Remarks		
	All dimensions in metres		Scale: 1:25
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP12	
Contract Ref: 350409	Start: 23.03.21 End: 23.03.21	Ground Level (m AOD): 8.97	National Grid Co-ordinate: E:464639.4 N:444182.7	Sheet: 1 of 1	

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						MADE GROUND: MACADAM.	0.10	
0.20	1	ES				MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	0.20	
0.40	2	ES				MADE GROUND: Light grey clayey sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	0.40	
						Firm brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION). ... From 0.40m to 0.50m blackish brown.	(2.10)	
						Trial pit terminated at 2.50m depth.	2.50	

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Plan (Not to Scale) 		<h2>General Remarks</h2>	
		All dimensions in metres Scale: 1:25	
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By: 

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP13
Contract Ref: 350409	Start: 23.03.21 End: 23.03.21	Ground Level (m AOD): 8.36	National Grid Co-ordinate: E:464668.7 N:444140.3	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES			Soft brown slightly sandy CLAY. (TOPSOIL)	(0.30)		
					MADE GROUND: Firm light brown slightly sandy slightly gravelly CLAY. Gravel is subrounded, fine to medium of sandstone.	(0.30)		
0.70	2	ES			Light yellowish brown clayey slightly gravelly, fine to coarse SAND. Gravel is subangular fine to coarse of sandstone. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(0.80)		
1.80	3	ES			Stiff dark reddish brown slightly sandy slightly gravelly CLAY. Gravel is subangular, fine to coarse of sandstone. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(1.30)		
2.50	4	ES				2.70		
Trial pit terminated at 2.70m depth.								

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Plan (Not to Scale) 		General Remarks 1. Hole stability poor.		
Method Used: Machine dug		Plant Used: Tracked excavator		Logged By: WHopkins
		All dimensions in metres		Scale: 1:25
				Checked By:



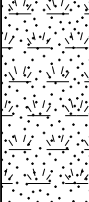
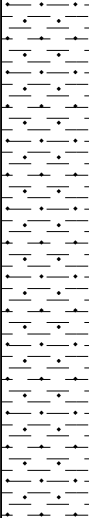
Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP14
Contract Ref: 350409	Start: 24.03.21 End: 24.03.21	Ground Level (m AOD): 10.57	National Grid Co-ordinate: E:464686.0 N:444179.1	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES			Soft brown slightly sandy CLAY. (TOPSOIL)	(0.30)		
0.50	2	ES			MADE GROUND: Soft light greyish brown sandy gravelly CLAY with frequent cobbles. Gravel subangular, fine to coarse of concrete and limestone. Cobbles are angular of concrete.	(0.50)		
					MADE GROUND: Light yellowish brown sandy, subangular, fine to coarse GRAVEL of limestone.	(0.40)		
1.30	3	ES			Firm brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(0.80)		
					Trial pit terminated at 2.00m depth with a plastic water pipe in base of excavation.	2.00		

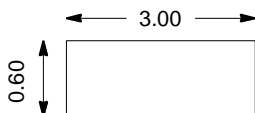
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Plan (Not to Scale) 		<h2>General Remarks</h2>		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine			Client: Harworth Group			Trial Pit: TP15		
Contract Ref: 350409		Start: 25.03.21 End: 25.03.21	Ground Level (m AOD): 9.71		National Grid Co-ordinate: E:464698.4 N:444202.6		Sheet: 1 of 1	

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Soft dark brown slightly sandy, slightly gravelly CLAY. Gravel is subangular, fine to coarse of limestone. (TOPSOIL)	(0.75)	
						Soft light grey and orangish brown very sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION). ... At 1.00m land drain.	0.75 (1.75)	
						Trial pit terminated at 2.50m depth.	2.50	

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Plan (Not to Scale) 			General Remarks		
All dimensions in metres			Scale: 1:25		
Method Used: Machine dug		Plant Used: Tracked excavator		Logged By: WHopkins	
				Checked By:	



Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP16
Contract Ref: 350409	Start: 25.03.21 End: 25.03.21	Ground Level (m AOD): 9.74	National Grid Co-ordinate: E:464707.0 N:444245.7	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES				MADE GROUND: CONCRETE.	0.20	
						MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone underlain by Terram. (SUBBASE)	(0.30) 0.50	
0.60	2	ES				MADE GROUND: Reddish brown clayey SAND and GRAVEL. Gravel is angular, fine to coarse of sandstone and concrete.	0.70	
0.90	3	ES				MADE GROUND: Firm light brownish grey sandy gravelly CLAY. Gravel is subangular, fine to coarse of sandstone and concrete.	(1.10) 1.80	

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Plan (Not to Scale) 		General Remarks 1. Perched groundwater encountered at 1.80m.	
All dimensions in metres		Scale: 1:25	
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By: HTG



Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP17
Contract Ref: 350409	Start: 25.03.21 End: 25.03.21	Ground Level (m AOD): 9.75	National Grid Co-ordinate: E:464732.7 N:444229.8	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES			MADE GROUND: Soft brown slightly sandy gravelly CLAY. Gravel is subangular fine to coarse of limestone, concrete and sandstone.	(0.40)		
0.45	2	ES				MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone underlain by Terram. (SUBBASE)		(0.30)
1.50	3	ES			Very soft light grey and brown very sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(1.50)		
						Trial pit terminated at 2.20m depth.		2.20

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
		All dimensions in metres		Scale: 1:25
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP18	
Contract Ref: 350409		Start: 24.03.21 End: 24.03.21	Ground Level (m AOD): 9.63	National Grid Co-ordinate: E:464757.2 N:444206.5	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES				MADE GROUND: MACADAM.	0.25	
						MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE).	(0.35)	
0.70	2	ES				Stiff grey and brown slighty sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	0.60	
1.70	3	ES				. . . From 1.60m to 2.50m becoming greyish brown and very sandy.	(1.90)	
						Trial pit terminated at 2.50m depth.	2.50	

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Plan (Not to Scale) 		<h2>General Remarks</h2>			
		All dimensions in metres		Scale: 1:25	
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:		

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP19
Contract Ref: 350409	Start: 24.03.21 End: 24.03.21	Ground Level (m AOD): 9.86	National Grid Co-ordinate: E:464762.4 N:444158.5	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES				MADE GROUND: MACADAM.	0.20	
						MADE GROUND: Yellowish brown limestone with light grey clayey sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	(0.30)	
0.60	2	ES				Firm grey and brown CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	0.50	
							(2.00)	
1.90	3	ES					2.50	
Trial pit terminated at 2.50m depth for soakaway.								

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP20
Contract Ref: 350409	Start: 24.03.21 End: 24.03.21	Ground Level (m AOD): 9.99	National Grid Co-ordinate: E:464801.3 N:444150.4	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.50	1	ES				MADE GROUND: MACADAM.	(0.40)	
						MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	(0.60)	
1.10	2	ES				Firm to stiff brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION)	1.00	
2.10	3	ES				... From 2.00m to 2.20m interbedded sandy layers.	(1.50)	
						Trial pit terminated at 2.50m depth for soakaway.	2.50	

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
		All dimensions in metres		Scale: 1:25
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	


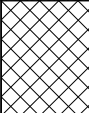
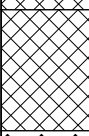
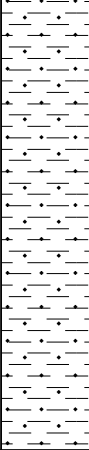
Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP21
Contract Ref: 350409	Start: 26.03.21 End: 26.03.21	Ground Level (m AOD): 9.75	National Grid Co-ordinate: E:464761.8 N:444104.3	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES			MADE GROUND: Soft dark blackish brown slightly sandy slightly gravelly CLAY. Gravel is subangular, fine to coarse of mudstone. MADE GROUND: Light brown sandy subangular, fine to coarse GRAVEL of limestone. ... From 0.50m to 1.00m frequent cobbles of limestone.	0.10		
0.30	2	ES				(0.90)		
1.20	3	ES			Stiff brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	1.00		
						(1.30)		
2.50	4	ES			Brown very sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	2.30		
						(0.30)		
					Trial pit terminated at 2.60m depth.	2.60		

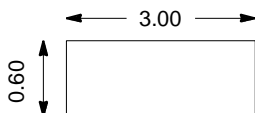

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
		All dimensions in metres Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP22
Contract Ref: 350409	Start: 26.03.21 End: 26.03.21	Ground Level (m AOD): 10.04	National Grid Co-ordinate: E:464800.5 N:444103.0	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						MADE GROUND: CONCRETE with rebar.	0.20	
						MADE GROUND: Dark grey slightly sandy angular, fine to coarse GRAVEL of sandstone.	(0.40)	
0.70	1	ES				MADE GROUND: Firm multicoloured slightly sandy slightly gravelly CLAY. Gravel is subangular, fine to coarse of sandstone, concrete and clay pipe. (Reddish brown, yellowish brown and black)	(0.40)	
1.10	2	ES				Stiff brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	1.00	
2.50	3	ES				Trial pit terminated at 2.50m depth.	2.50	

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Plan (Not to Scale) 	General Remarks		
	All dimensions in metres		Scale: 1:25
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By: 

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP23
Contract Ref: 350409	Start: 26.03.21 End: 26.03.21	Ground Level (m AOD): 9.99	National Grid Co-ordinate: E:464850.2 N:444168.5	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.40	1	ES				MADE GROUND: MACADAM.	(0.30)	
						MADE GROUND: Light yellowish brown limestone with light grey clayey sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	(0.40)	
0.80	2	ES				Stiff brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	0.70	
1.60	3	ES					(2.30)	
2.90	4	ES				... From 2.70m to 3.0m becoming sandy.	3.00	
						Trial pit terminated at 3.0m depth.		

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
		All dimensions in metres Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	



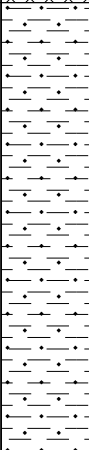
Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP24
Contract Ref: 350409	Start: 24.03.21 End: 24.03.21	Ground Level (m AOD): 10.04	National Grid Co-ordinate: E:464850.8 N:444198.5	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.50	1	ES			MADE GROUND: MACADAM.	(0.50)		
0.70	2	ES			MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE) Stiff brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	0.50 0.60		
1.50	3	ES				(1.40)		
					Trial pit terminated at 2.00m depth for soakaway.	2.00		

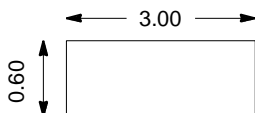

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	



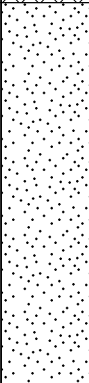
Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP25
Contract Ref: 350409	Start: 26.03.21 End: 26.03.21	Ground Level (m AOD): 10.07	National Grid Co-ordinate: E:464805.9 N:444235.9	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						MADE GROUND: MACADAM.	0.20	
0.40	1	ES				MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	(0.30) 0.50	
0.60	2	ES				Stiff brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).		
1.10	3	ES					(1.50)	
						Trial pit terminated at 2.00m depth.	2.00	

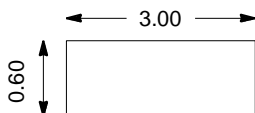

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
		All dimensions in metres		Scale: 1:25
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	



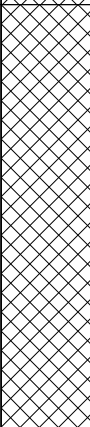
Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP26	
Contract Ref: 350409		Start: 25.03.21 End: 25.03.21	Ground Level (m AOD): 9.71	National Grid Co-ordinate: E:464776.8 N:444245.2	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						MADE GROUND: MACADAM.	0.25	
						MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone underlain by Terram. (SUBBASE)	0.50	
0.60	1	ES				Reddish brown slightly clayey, slightly gravelly, fine to coarse SAND. Gravel is angular, fine to coarse of sandstone.		
1.00	2	ES				. . . At 1.00m, Concrete culvert encountered at top end of hole.	(1.30)	
1.80	3	ES				. . . At 1.80m, Encountered pocket of gravel in base of hole - water rushed into hole. Water has oily odour.	1.80	

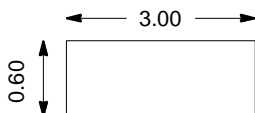

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Plan (Not to Scale) 		General Remarks 1. Possible service located in ground at base of hole.	
Method Used: Machine dug		Plant Used: Tracked excavator	
All dimensions in metres		Scale: 1:25	
Logged By: WHopkins		Checked By:	
			

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP27
Contract Ref: 350409	Start: 24.03.21 End: 24.03.21	Ground Level (m AOD): 9.40	National Grid Co-ordinate: E:464758.3 N:444291.1	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES			MADE GROUND: MACADAM.	0.25		
0.50	2	ES			MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone underlain by Terram. (SUBBASE)	0.50		
1.10	3	ES			MADE GROUND: Brownish grey sandy, clayey, subangular, fine to coarse GRAVEL of concrete, sandstone, cinder block and metal wire.	(1.40)		
					Trial pit terminated at 1.90m depth due to hole collapse.	1.90		

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
		All dimensions in metres		Scale: 1:25
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By: HTG	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP28
Contract Ref: 350409	Start: 25.03.21 End: 25.03.21	Ground Level (m AOD): 10.88	National Grid Co-ordinate: E:464725.6 N:444347.0	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES				MADE GROUND: Soft dark brown slightly sandy, gravelly CLAY. Gravel is subangular, fine to coarse of limestone and concrete. . . . From 0.10m to 0.30m whole railway sleeper.	(0.50)	
						MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone underlain by Terram. (SUBBASE)	0.50	
0.80	2	ES				Soft dark brown very sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION). . . . From 0.70m to 0.80m blackish brown.	0.70	
					 At 1.30m clay pipe land drain.		
1.60	3	ES					(1.80)	
							2.50	
						Trial pit terminated at 2.50m depth.		

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
		All dimensions in metres Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP29
Contract Ref: 350409	Start: 25.03.21 End: 25.03.21	Ground Level (m AOD): 10.93	National Grid Co-ordinate: E:464795.1 N:444389.5	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES			MADE GROUND: Brown and grey SAND and GRAVEL of subangular, fine to coarse sandstone, concrete, limestone, macadam and occasional sandstone cobbles.	(0.80)		
0.90	2	ES			MADE GROUND: Soft black slightly sandy, slightly gravelly CLAY with oily odour. Gravel is angular, fine to medium of mudstone.	1.00		
1.30	3	ES			Firm brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION). ... At 1.00m, oily sheen on perched water.	(1.00)		
					Trial pit terminated at 2.00m depth.	2.00		

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP30
Contract Ref: 350409	Start: 25.03.21 End: 25.03.21	Ground Level (m AOD): 10.95	National Grid Co-ordinate: E:464839.1 N:444366.7	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES			MADE GROUND: Dark blackish grey SAND and GRAVEL of subangular, fine to coarse concrete, limestone and sandstone.	(0.30)		
0.50	2	ES			MADE GROUND: Very soft light grey, very sandy slightly gravelly CLAY. Gravel is angular, fine to coarse sandstone.	(0.50)		
1.00	3	ES			Stiff brown and grey slighty sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION). ... From 1.00m to 1.20m very sandy.	(1.70)		
2.00	4	ES			... At 1.80m clay pipe land drain.	2.50		
Trial pit terminated at 2.50m depth.								

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP31	
Contract Ref: 350409		Start: 24.03.21 End: 24.03.21	Ground Level (m AOD): 9.53	National Grid Co-ordinate: E:464804.3 N:444315.2	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.40	1	ES				MADE GROUND: MACADAM.	(0.30)	
						MADE GROUND: Light yellowish brown limestone with light grey clayey sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	(0.40)	
0.80	2	ES				Stiff brown and grey slightly sandy CLAY. Gravel is well rounded, fine to coarse of flint. (ELVINGTON GLACIOLACUSTRINE FORMATION).	0.70	
1.40	3	ES				... At 1.40m cobbles of well rounded flint.	(1.30)	
2.00	4	ES				Trial pit terminated at 2.00m depth.	2.00	

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Plan (Not to Scale) 		<h2>General Remarks</h2>			
		All dimensions in metres		Scale: 1:25	
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:		

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP32
Contract Ref: 350409	Start: 25.03.21 End: 25.03.21	Ground Level (m AOD): 9.65	National Grid Co-ordinate: E:464805.3 N:444291.0	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.40	1	ES				MADE GROUND: MACADAM.	(0.30)	
						MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone underlain by Terram. (SUBBASE)	(0.30)	
0.80	2	ES				Stiff dark brown slightly gravelly CLAY. Gravel is well rounded, fine to coarse of flint. (ELVINGTON GLACIOLACUSTRINE FORMATION).		
1.50	3	ES				... At 1.20m cobbles of flint.	(1.90)	
2.50	4	ES				Trial pit terminated at 2.50m depth.	2.50	

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
		All dimensions in metres		Scale: 1:25
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP33
Contract Ref: 350409	Start: 26.03.21 End: 26.03.21	Ground Level (m AOD): 9.72	National Grid Co-ordinate: E:464872.0 N:444326.7	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.90	1	ES		↓	MADE GROUND: Grey sandy angular, fine to coarse GRAVEL of concrete, brick and sandstone.	(0.60)		
					CONCRETE floor slab with rebar.	0.60		
1.50	2	ES			Stiff brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	0.80		
					... From 1.30m to 2.00m becoming very sandy. ... At 1.40m, groundwater encountered.	(1.20)		
					Trial pit terminated at 2.00m depth - pit instability.	2.00		

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
		All dimensions in metres Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP34
Contract Ref: 350409	Start: 24.03.21 End: 24.03.21	Ground Level (m AOD): 9.61	National Grid Co-ordinate: E:464899.0 N:444287.5	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES				MADE GROUND: MACADAM.	0.20	
						MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	(0.30) 0.50	
0.60	2	ES				Stiff brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(1.90)	
1.00	3	ES						
						Trial pit terminated at 2.40m depth.	2.40	

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
		All dimensions in metres Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP35	
Contract Ref: 350409		Start: 25.03.21 End: 25.03.21	Ground Level (m AOD): 10.00	National Grid Co-ordinate: E:464869.3 N:444263.9	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES				MADE GROUND: MACADAM.	0.20	
						MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone underlain by Terram. (SUBBASE)	(0.40)	
0.70	2	ES				Stiff brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION). ... From 0.60m to 0.70m dark brown.	0.60	
1.50	3	ES					(1.90)	
						Trial pit terminated at 2.50m depth.	2.50	

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Plan (Not to Scale) 		<h2>General Remarks</h2>			
		All dimensions in metres		Scale: 1:25	
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:		

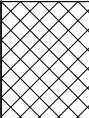
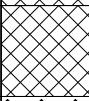
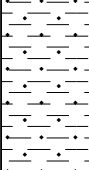

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP36
Contract Ref: 350409	Start: 25.03.21 End: 25.03.21	Ground Level (m AOD): 9.98	National Grid Co-ordinate: E:464861.6 N:444232.3	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES			MADE GROUND: MACADAM.	0.25		
					MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone underlain by Terram. (SUBBASE)	(0.75)		
					. . . At 0.9m plastic water pipe.	1.00		
1.10	2	ES			Stiff brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION). . . . From 1.00m to 1.30m sandy.			
1.60	3	ES				(1.50)		
						2.50		
Trial pit terminated at 2.50m depth.								

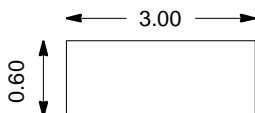

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP37
Contract Ref: 350409	Start: 26.03.21 End: 26.03.21	Ground Level (m AOD): 9.99	National Grid Co-ordinate: E:464894.1 N:444197.6	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.50	1	ES				MADE GROUND: MACADAM.	(0.40)	
						MADE GROUND: Grey limestone with light grey clayey sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	(0.30)	
						Firm brown ad grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION). ... From 0.90m to 1.20m sandy.	(0.60)	
1.30	3	ES				Trial pit terminated at 1.30m depth due to plastic water pipe in base.	1.30	

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP38
Contract Ref: 350409	Start: 26.03.21 End: 26.03.21	Ground Level (m AOD): 9.98	National Grid Co-ordinate: E:464902.4 N:444233.9	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.40	1	ES				MADE GROUND: MACADAM.	(0.30)	
						MADE GROUND: Light greyish brown clayey sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	(0.30)	
0.70	2	ES				Stiff brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION). ... From 0.60m to 0.80m sandy.	0.60	
1.50	3	ES					(1.90)	
						Trial pit terminated at 2.50m depth.	2.50	

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
		All dimensions in metres		Scale: 1:25
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP39
Contract Ref: 350409	Start: 26.03.21 End: 26.03.21	Ground Level (m AOD): 10.02	National Grid Co-ordinate: E:464950.2 N:444240.5	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						MADE GROUND: MACADAM.	(0.50)	
0.60	1	ES				MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	(0.35)	
						. . . At 0.80m perched water.	0.85	
1.00	2	ES				Firm brown and grey slighty sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(1.45)	
2.00	3	ES					2.30	
						Trial pit terminated at 2.30m depth.		

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
		All dimensions in metres		Scale: 1:25
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP40
Contract Ref: 350409	Start: 24.03.21 End: 24.03.21	Ground Level (m AOD): 9.60	National Grid Co-ordinate: E:464758.3 N:444333.8	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES				MADE GROUND: MACADAM.	0.25	
						MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone underlain by Terram. (SUBBASE)	(0.35)	
0.70	2	ES				Stiff brown and grey, slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION). ... At 0.60m damp.	0.60	
1.30	3	ES					(1.60)	
						Trial pit terminated at 2.20m depth.	2.20	

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Plan (Not to Scale) 		General Remarks 1. Damp at 0.60m.		
		All dimensions in metres		Scale: 1:25
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By: HTG	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP41
Contract Ref: 350409	Start: 30.03.21 End: 30.03.21	Ground Level (m AOD): ---	National Grid Co-ordinate: ---	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						MADE GROUND: MACADAM.	(0.30)	
						MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	(0.30)	
0.80	1	ES				Stiff grey and brown slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	0.60	
1.50	2	ES					(2.40)	
2.00	3	ES					3.00	
						Trial pit terminated at 3.00m depth.		

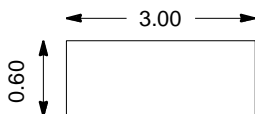

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
		All dimensions in metres		Scale: 1:25
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP42
Contract Ref: 350409	Start: 30.03.21 End: 30.03.21	Ground Level (m AOD): ---	National Grid Co-ordinate: ---	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES		~	MADE GROUND: MACADAM.	(0.30)	[Cross-hatch pattern]	
					MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	(0.30)	[Cross-hatch pattern]	
					Stiff brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	0.60	[Dotted pattern]	
2.30	2	ES			Trial pit terminated at 2.50m depth.	2.50	[Dotted pattern]	

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Plan (Not to Scale) 		General Remarks 1. Water Seepage at 0.70m.	
Method Used: Machine dug		Plant Used: Tracked excavator	
All dimensions in metres		Scale: 1:25	
Logged By: WHopkins		Checked By:	
			

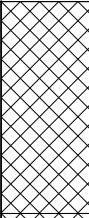
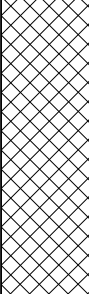
Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP43
Contract Ref: 350409	Start: 30.03.21 End: 30.03.21	Ground Level (m AOD): ---	National Grid Co-ordinate: ---	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.40	1	ES				MADE GROUND: Dark grey sandy, subangular, fine to coarse GRAVEL of concrete.	(0.30)	
						MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	(0.60)	
1.50	2	ES				. . . From 0.70m to 0.90m reddish brown, fine to coarse sand.	0.90	
1.70	3	ES				Firm brown and grey slightly sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(0.80)	
Trial pit terminated at 1.70m depth.							1.70	

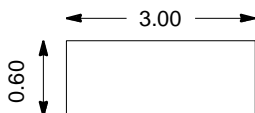

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Plan (Not to Scale)		General Remarks		
		1. Gravel and possible service at 1.70m. Oily water in gravel.		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP44
Contract Ref: 350409	Start: 30.03.21 End: 30.03.21	Ground Level (m AOD): ---	National Grid Co-ordinate: ---	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES			MADE GROUND: Dark greyish brown very sandy, subangular, fine to coarse GRAVEL of sandstone, flint and coal. Oily smell.	(0.70)		
0.80	2	ES			MADE GROUND: Firm brown, grey and black slightly sandy clay.	(1.00)		
1.70	3	ES			. . . At 1.70m encountered cable and oily water. Trial pit terminated at 1.70m depth.			

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Plan (Not to Scale) 		<h2>General Remarks</h2>		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:	

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP45
Contract Ref: 350409	Start: 30.03.21 End: 30.03.21	Ground Level (m AOD): ---	National Grid Co-ordinate: ---	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES			MADE GROUND: Dark greyish brown very sandy, subangular, fine to coarse GRAVEL of sandstone, flint and coal.	(1.20)		
1.20	2	ES			Firm brown and grey slighty sandy CLAY. (ELVINGTON GLACIOLACUSTRINE FORMATION).	(1.30)		
1.80	3	ES						
Trial pit terminated at 2.50m depth.						2.50		

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07 | Log TRIAL PIT LOG - A4P | 350409-SELBY-MINE.GPJ - v10_01.
 RSK Environment Ltd, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977 552255, Fax: 01977 552299, Web: www.rsk.co.uk. | 16/04/21 - 15:25 | LA1 |

Plan (Not to Scale) 		<h3>General Remarks</h3> <p>1. Land drain at 1.20m filled with black clay - oily odour.</p>		
Method Used: Machine dug		Plant Used: Tracked excavator		Logged By: WHopkins
		All dimensions in metres		Scale: 1:25
				Checked By:

Contract: North Selby Mine		Client: Harworth Group		Trial Pit: TP46
Contract Ref: 350409	Start: 30.03.21 End: 30.03.21	Ground Level (m AOD): ---	National Grid Co-ordinate: ---	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						MADE GROUND: Dark greyish brown very sandy, subangular, fine to coarse GRAVEL of sandstone, flint and coal.	(0.60)	
						MADE GROUND: Light yellowish brown sandy subangular, fine to coarse GRAVEL of limestone. (SUBBASE)	(0.30) 0.90	
						MADE GROUND: Firm greyish brown and black CLAY.	(0.40)	
						Firm brown and grey slightly sandy CLAY. (ELVINGTON FORMATION)	(0.90)	
						Trial pit terminated at 2.20m depth.	2.20	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07 | Log TRIAL PIT LOG - A4P | 350409-SELBY-MINE.GPJ - v10_01.
 RSK Environment Ltd, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977 552255, Fax: 01977 552299, Web: www.rsk.co.uk. | 16/04/21 - 15:26 | LA1 |

Plan (Not to Scale) 		General Remarks 1. Perched water above clay. Land drain 1.30m.	
All dimensions in metres		Scale: 1:25	
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: WHopkins	Checked By:



APPENDIX F GROUND GAS MONITORING DATA AND SITE CONDITIONS

IN-SITU GAS MONITORING RESULTS

Round 1	<u>Start Date</u> 20/04/2021	<u>End Date</u> 20/04/2021	<u>Previous</u> Constant	<u>Pressures</u> <u>During</u> Constant	<u>Start</u> 1020	<u>End</u> 1020	<u>Equipment Used & Remarks</u> Weather: Dry Ground: Dry Wind: Light Air Temp: 16°C Summary: Gas
---------	---------------------------------	-------------------------------	-----------------------------	---	----------------------	--------------------	---

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)
WS01	1	50	1	4.00	---	1.00 to 4.00	20/04/2021 08:45:00	-	1020	-	-	-	-	-	-	-
WS01	1	50	1 (2)	4.00	---	1.00 to 4.00	20/04/2021 08:46:00	-	-	-	-	0.0	0.0	20.5	0	0
WS01	1	50	1 (2)	---	---	1.00 to 4.00	15 secs	-	-	-	-	4.8	0.2	6.9	0	0
WS01	1	50	1 (2)	---	---	1.00 to 4.00	30 secs	-	-	-	-	4.7	0.2	6.8	0	0
WS01	1	50	1 (2)	---	---	1.00 to 4.00	60 secs	-	-	-	-	4.3	0.1	8.8	0	0
WS01	1	50	1 (2)	---	---	1.00 to 4.00	90 secs	-	-	-	-	3.6	0.1	11.4	0	0
WS01	1	50	1 (2)	---	---	1.00 to 4.00	120 secs	-	-	-	-	2.7	0.0	14.7	0	0
WS01	1	50	1 (2)	---	---	1.00 to 4.00	180 secs	-	-	-	-	2.2	0.0	16.8	0	0
WS01	1	50	1 (3)	4.00	3.80	1.00 to 4.00	20/04/2021 08:50:00	-	-	-	DRY	-	-	-	-	-
Remarks: Unable to monitor as headworks vandalised.																
WS02	1	50	1	3.00	---	1.00 to 3.00	20/04/2021 09:04:00	-	-	-	-	-	-	-	-	-
WS03	1	50	1	3.00	---	1.00 to 3.00	20/04/2021 09:16:00	-	1020	-	-	-	-	-	-	-
WS03	1	50	1 (2)	3.00	---	1.00 to 3.00	20/04/2021 09:17:00	-	-	-	-	0.1	0.0	19.6	0	0
WS03	1	50	1 (2)	---	---	1.00 to 3.00	15 secs	-	-	-	-	0.8	0.0	19.8	0	0
WS03	1	50	1 (2)	---	---	1.00 to 3.00	30 secs	-	-	-	-	0.8	0.0	19.5	0	0
WS03	1	50	1 (2)	---	---	1.00 to 3.00	60 secs	-	-	-	-	0.8	0.0	19.5	0	0
WS03	1	50	1 (2)	---	---	1.00 to 3.00	90 secs	-	-	-	-	0.8	0.0	19.5	0	0

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.



<p>RSK Environment Ltd The Potteries Pottery Street Castleford W. Yorkshire WF10 1NJ</p>	Compiled By	Date	Checked By	Date	Contract Ref:
		23/04/2021			350409
	North Selby Mine				Page: 1 of 4



IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)
WS03	1	50	1 (2)	---	---	1.00 to 3.00	120 secs	-	-	-	-	0.8	0.0	19.5	0	0
WS03	1	50	1 (2)	---	---	1.00 to 3.00	180 secs	-	-	-	-	0.8	0.0	19.5	0	0
WS03	1	50	1 (3)	3.00	2.80	1.00 to 3.00	20/04/2021 09:21:00	-	-	-	1.50	-	-	-	-	-
WS04	1	50	1	3.00	---	1.00 to 3.00	20/04/2021 09:30:00	-	-	-	-	-	-	-	-	-
WS04	1	50	1 (2)	3.00	---	1.00 to 3.00	20/04/2021 09:31:00	-	-	-	-	0.0	0.0	19.6	0	0
WS04	1	50	1 (2)	---	---	1.00 to 3.00	15 secs	-	-	-	-	2.2	0.0	19.3	0	0
WS04	1	50	1 (2)	---	---	1.00 to 3.00	30 secs	-	-	-	-	2.2	0.0	18.1	0	0
WS04	1	50	1 (2)	---	---	1.00 to 3.00	60 secs	-	-	-	-	2.2	0.0	18.1	0	0
WS04	1	50	1 (2)	---	---	1.00 to 3.00	90 secs	-	-	-	-	2.2	0.0	18.1	0	0
WS04	1	50	1 (2)	---	---	1.00 to 3.00	120 secs	-	-	-	-	2.2	0.0	18.1	0	0
WS04	1	50	1 (2)	---	---	1.00 to 3.00	180 secs	-	-	-	-	2.2	0.0	18.1	0	0
WS04	1	50	1 (3)	3.00	---	1.00 to 3.00	20/04/2021 09:35:00	-	-	-	-	-	-	-	-	-
Remarks: Bung stuck in pipe, unable to measure depth to water.																
WS05	1	50	1	2.00	---	1.00 to 2.00	20/04/2021 11:10:00	-	1020	-	-	-	-	-	-	-
WS05	1	50	1 (2)	2.00	---	1.00 to 2.00	20/04/2021 11:11:00	-	-	-	-	0.1	0.1	18.7	0	0
WS05	1	50	1 (2)	---	---	1.00 to 2.00	15 secs	-	-	-	-	0.8	0.5	16.8	0	0
WS05	1	50	1 (2)	---	---	1.00 to 2.00	30 secs	-	-	-	-	0.8	0.5	16.8	0	0
WS05	1	50	1 (2)	---	---	1.00 to 2.00	60 secs	-	-	-	-	0.8	0.5	16.8	0	0
WS05	1	50	1 (2)	---	---	1.00 to 2.00	90 secs	-	-	-	-	0.8	0.5	16.8	0	0
WS05	1	50	1 (2)	---	---	1.00 to 2.00	120 secs	-	-	-	-	0.8	0.5	16.8	0	0
WS05	1	50	1 (2)	---	---	1.00 to 2.00	180 secs	-	-	-	-	0.8	0.5	16.8	0	0
WS05	1	50	1 (3)	2.00	1.80	1.00 to 2.00	20/04/2021 11:15:00	-	-	-	0.70	-	-	-	-	-
WS06	1	50	1	3.00	---	1.00 to 3.00	20/04/2021 10:40:00	-	1020	-	-	-	-	-	-	-

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.




 RSK Environment Ltd The Potteries Pottery Street Castleford W. Yorkshire WF10 1NJ	Compiled By	Date	Checked By	Date	Contract Ref: 350409
		23/04/2021			
	Contract:	North Selby Mine			Page:



IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)
WS06	1	50	1 (2)	3.00	---	1.00 to 3.00	20/04/2021 10:41:00	-	-	-	-	0.0	0.1	19.9	0	0
WS06	1	50	1 (2)	---	---	1.00 to 3.00	15 secs	-	-	-	-	9.7	0.1	7.2	0	0
WS06	1	50	1 (2)	---	---	1.00 to 3.00	30 secs	-	-	-	-	9.7	0.1	7.1	0	0
WS06	1	50	1 (2)	---	---	1.00 to 3.00	60 secs	-	-	-	-	9.7	0.1	7.1	0	0
WS06	1	50	1 (2)	---	---	1.00 to 3.00	90 secs	-	-	-	-	9.7	0.1	7.1	0	0
WS06	1	50	1 (2)	---	---	1.00 to 3.00	120 secs	-	-	-	-	9.7	0.1	7.1	0	0
WS06	1	50	1 (2)	---	---	1.00 to 3.00	180 secs	-	-	-	-	9.7	0.1	7.1	0	0
WS06	1	50	1 (3)	3.00	2.85	1.00 to 3.00	20/04/2021 10:45:00	-	-	-	2.40	-	-	-	-	-
WS07	1	50	1	2.00	---	1.00 to 2.00	20/04/2021 10:28:00	-	1020	-	-	-	-	-	-	-
WS07	1	50	1 (2)	2.00	---	1.00 to 2.00	20/04/2021 10:29:00	-	-	-	-	0.0	0.1	19.9	0	0
WS07	1	50	1 (2)	---	---	1.00 to 2.00	15 secs	-	-	-	-	0.4	0.1	19.5	0	0
WS07	1	50	1 (2)	---	---	1.00 to 2.00	30 secs	-	-	-	-	0.4	0.1	19.5	0	0
WS07	1	50	1 (2)	---	---	1.00 to 2.00	60 secs	-	-	-	-	0.4	0.1	19.5	0	0
WS07	1	50	1 (2)	---	---	1.00 to 2.00	90 secs	-	-	-	-	0.4	0.1	19.5	0	0
WS07	1	50	1 (2)	---	---	1.00 to 2.00	120 secs	-	-	-	-	0.4	0.1	19.5	0	0
WS07	1	50	1 (2)	---	---	1.00 to 2.00	180 secs	-	-	-	-	0.4	0.1	19.5	0	0
WS07	1	50	1 (3)	2.00	1.90	1.00 to 2.00	20/04/2021 10:33:00	-	-	-	0.73	-	-	-	-	-
WS08	1	50	1	2.00	---	1.00 to 2.00	20/04/2021 10:09:00	-	1020	-	-	-	-	-	-	-
WS08	1	50	1 (2)	2.00	---	1.00 to 2.00	20/04/2021 10:10:00	-	-	-	-	0.0	0.0	0.0	-	0
WS08	1	50	1 (2)	---	---	1.00 to 2.00	15 secs	-	-	-	-	0.3	0.1	0.0	-	0
WS08	1	50	1 (2)	---	---	1.00 to 2.00	30 secs	-	-	-	-	0.3	0.1	0.0	-	0
WS08	1	50	1 (2)	---	---	1.00 to 2.00	60 secs	-	-	-	-	0.3	0.1	0.0	-	0
WS08	1	50	1 (2)	---	---	1.00 to 2.00	90 secs	-	-	-	-	0.3	0.1	0.0	-	0



Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

 RSK Environment Ltd The Potteries Pottery Street Castleford W. Yorkshire WF10 1NJ	Compiled By	Date	Checked By	Date	Contract Ref: 350409
	 Contract:	23/04/2021			
North Selby Mine					

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Pipe ref	Pipe diameter (mm)	Monitoring Round	Reported Installation Depth (m)	Measured Installation Depth (mbgl)	Response Zone	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)
WS08	1	50	1 (2)	---	---	1.00 to 2.00	120 secs	-	-	-	-	0.3	0.1	0.0	-	0
WS08	1	50	1 (2)	---	---	1.00 to 2.00	180 secs	-	-	-	-	0.3	0.1	0.0	-	0
WS08	1	50	1 (3)	2.00	1.90	1.00 to 2.00	20/04/2021 10:14:00	-	-	-	0.78	-	-	-	-	-
WS09	1	50	1	3.00	---	1.00 to 3.00	20/04/2021 09:47:00	-	1020	-	-	-	-	-	-	-
WS09	1	50	1 (2)	3.00	---	1.00 to 3.00	20/04/2021 09:48:00	-	-	-	-	0.0	0.0	19.3	0	0
WS09	1	50	1 (2)	---	---	1.00 to 3.00	15 secs	-	-	-	-	0.4	0.0	19.1	0	0
WS09	1	50	1 (2)	---	---	1.00 to 3.00	30 secs	-	-	-	-	0.4	0.0	19.1	0	0
WS09	1	50	1 (2)	---	---	1.00 to 3.00	60 secs	-	-	-	-	0.4	0.0	19.1	0	0
WS09	1	50	1 (2)	---	---	1.00 to 3.00	90 secs	-	-	-	-	0.4	0.0	19.1	0	0
WS09	1	50	1 (2)	---	---	1.00 to 3.00	120 secs	-	-	-	-	0.4	0.0	19.1	0	0
WS09	1	50	1 (2)	---	---	1.00 to 3.00	180 secs	-	-	-	-	0.4	0.0	19.1	0	0
WS09	1	50	1 (3)	3.00	2.80	1.00 to 3.00	20/04/2021 09:52:00	-	-	-	2.40	-	-	-	-	-
WS10	1	50	1	3.00	---	1.00 to 3.00	20/04/2021 11:30:00	-	1020	-	-	-	-	-	-	-
WS10	1	50	1 (2)	3.00	---	1.00 to 3.00	20/04/2021 11:31:00	-	-	-	-	0.0	0.0	19.0	0	0
WS10	1	50	1 (2)	---	---	1.00 to 3.00	15 secs	-	-	-	-	0.8	0.0	18.9	0	0
WS10	1	50	1 (2)	---	---	1.00 to 3.00	30 secs	-	-	-	-	0.8	0.0	18.9	0	0
WS10	1	50	1 (2)	---	---	1.00 to 3.00	60 secs	-	-	-	-	0.8	0.0	19.0	0	0
WS10	1	50	1 (2)	---	---	1.00 to 3.00	90 secs	-	-	-	-	0.8	0.0	19.0	0	0
WS10	1	50	1 (2)	---	---	1.00 to 3.00	120 secs	-	-	-	-	0.8	0.0	19.0	0	0
WS10	1	50	1 (2)	---	---	1.00 to 3.00	180 secs	-	-	-	-	0.8	0.0	19.0	0	0
WS10	1	50	1 (3)	3.00	2.80	1.00 to 3.00	20/04/2021 11:35:00	-	-	-	2.15	-	-	-	-	-

Key: I = Initial, Min = Minimum, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

 RSK Environment Ltd The Potteries Pottery Street Castleford W. Yorkshire WF10 1NJ	Compiled By	Date	Checked By	Date	Contract Ref: 350409
		23/04/2021			
Contract: North Selby Mine					Page: 4 of 4





APPENDIX G LABORATORY CERTIFICATES FOR SOIL ANALYSIS

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/03351
Issue Number: 1
Date: 14 April, 2021

Client: RSK Environment Ltd Castleford
The Potteries
Pottery Street
Castleford
WF10 1NJ

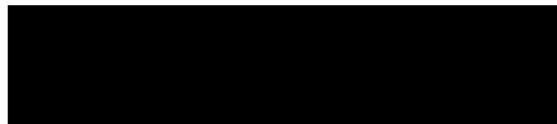
Project Manager: Laura Alderman
Project Name: North Selby Mine
Project Ref: 350409
Order No: N/A
Date Samples Received: 29/03/21
Date Instructions Received: 30/03/21
Date Analysis Completed: 14/04/21

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Danielle Brierley
Client Manager

Envirolab Job Number: 21/03351

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/3	21/03351/4	21/03351/7	21/03351/10	21/03351/11	21/03351/12	21/03351/18	Units	Limit of Detection	Method ref
Client Sample No	3	1	4	2	3	1	2			
Client Sample ID	TP1	TP2	TP2	TP3	TP3	TP4	TP6			
Depth to Top	1.5	0.3	1.5	1.7	2.8	0.2	0.6			
Depth To Bottom										
Date Sampled	22-Mar-21	22-Mar-21	22-Mar-21	22-Mar-21	22-Mar-21	22-Mar-21	22-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid	Soil - ES			
Sample Matrix Code	4A	5AE	2A	6AE	5AE	7	3A			
%Stones >10mm _A	<0.1	<0.1	15.0	<0.1	<0.1	-	<0.1			
pH _D ^{M#}	9.06	6.45	-	8.15	-	-	7.22	pH	0.01	A-T-031s
pH BRE _D ^{M#}	-	-	7.91	-	8.60	-	-	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.15	<0.01	-	-	-	-	0.42	g/l	0.01	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	1080	-	236	-	-	mg/l	10	A-T-026s
Sulphate (acid soluble) _D ^{M#}	520	340	-	-	-	-	710	mg/kg	200	A-T-028s
Sulphate BRE (acid sol) _D ^{M#}	-	-	0.29	-	0.08	-	-	% w/w	0.02	A-T-028s
Sulphur BRE (total) _D	-	-	0.15	-	0.12	-	-	% w/w	0.01	A-T-024s
Organic matter _D ^{M#}	0.3	2.1	-	2.4	-	-	1.8	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	9	2	-	<1	-	-	6	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	<0.5	0.5	-	1.1	-	-	1.6	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	7	16	-	19	-	-	41	mg/kg	1	A-T-024s
Chromium _D ^{M#}	5	18	-	27	-	-	37	mg/kg	1	A-T-024s
Lead _D ^{M#}	3	25	-	18	-	-	29	mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	-	0.50	-	-	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	6	12	-	26	-	-	38	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	-	<1	-	-	<1	mg/kg	1	A-T-024s
Zinc _D ^{M#}	11	50	-	57	-	-	108	mg/kg	5	A-T-024s

Envirolab Job Number: 21/03351

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/3	21/03351/4	21/03351/7	21/03351/10	21/03351/11	21/03351/12	21/03351/18	Units	Limit of Detection	Method ref			
Client Sample No	3	1	4	2	3	1	2						
Client Sample ID	TP1	TP2	TP2	TP3	TP3	TP4	TP6						
Depth to Top	1.5	0.3	1.5	1.7	2.8	0.2	0.6						
Depth To Bottom													
Date Sampled	22-Mar-21	22-Mar-21	22-Mar-21	22-Mar-21	22-Mar-21	22-Mar-21	22-Mar-21						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid	Soil - ES						
Sample Matrix Code	4A	5AE	2A	6AE	5AE	7	3A						
Asbestos in Soil (inc. matrix)													
Asbestos in soil [#]	NAD	NAD	-	-	-	NAD	-			A-T-045			
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	-	-	-	N/A	-			A-T-045			

Envirolab Job Number: 21/03351

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/3	21/03351/4	21/03351/7	21/03351/10	21/03351/11	21/03351/12	21/03351/18	Units	Limit of Detection	Method ref
Client Sample No	3	1	4	2	3	1	2			
Client Sample ID	TP1	TP2	TP2	TP3	TP3	TP4	TP6			
Depth to Top	1.5	0.3	1.5	1.7	2.8	0.2	0.6			
Depth To Bottom										
Date Sampled	22-Mar-21	22-Mar-21	22-Mar-21	22-Mar-21	22-Mar-21	22-Mar-21	22-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid	Soil - ES			
Sample Matrix Code	4A	5AE	2A	6AE	5AE	7	3A			
PAH-16MS										
Acenaphthene _A ^{M#}	0.05	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	-	<0.02	-	-	<0.02	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	-	<0.04	-	-	<0.04	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	-	<0.04	-	-	<0.04	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	-	<0.05	-	-	<0.05	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	-	<0.05	-	-	<0.05	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	-	<0.07	-	-	<0.07	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	-	<0.06	-	-	<0.06	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	-	<0.04	-	-	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	0.12	<0.08	-	<0.08	-	-	<0.08	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	0.01	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	-	<0.03	-	-	<0.03	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	-	<0.03	-	-	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	-	<0.03	-	-	0.04	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	0.09	<0.07	-	<0.07	-	-	<0.07	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	0.27	<0.08	-	<0.08	-	-	<0.08	mg/kg	0.01	A-T-019s

Envirolab Job Number: 21/03351

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/3	21/03351/4	21/03351/7	21/03351/10	21/03351/11	21/03351/12	21/03351/18	Units	Limit of Detection	Method ref
Client Sample No	3	1	4	2	3	1	2			
Client Sample ID	TP1	TP2	TP2	TP3	TP3	TP4	TP6			
Depth to Top	1.5	0.3	1.5	1.7	2.8	0.2	0.6			
Depth To Bottom										
Date Sampled	22-Mar-21	22-Mar-21	22-Mar-21	22-Mar-21	22-Mar-21	22-Mar-21	22-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid	Soil - ES			
Sample Matrix Code	4A	5AE	2A	6AE	5AE	7	3A			
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	-	-	-	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	-	-	-	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	-	-	-	-	<1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	-	-	-	-	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	1	<1	-	-	-	-	<1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	3	<1	-	-	-	-	<1	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	6	6	-	-	-	-	<1	mg/kg	1	A-T-055s
Total Aliphatics _A	10	6	-	-	-	-	<1	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	-	-	-	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	-	-	-	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	-	-	-	-	<1	mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	-	-	-	-	<1	mg/kg	1	A-T-055s
Aro >C12-C16 _A	<1	<1	-	-	-	-	<1	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	1	<1	-	-	-	-	<1	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	2	6	-	-	-	-	<1	mg/kg	1	A-T-055s
Total Aromatics _A	3	6	-	-	-	-	<1	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	14	13	-	-	-	-	<1	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	-	-	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	-	-	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	-	-	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	-	-	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	-	-	-	-	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	-	-	-	-	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 21/03351

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/20	21/03351/22	21/03351/24	21/03351/29	21/03351/31	21/03351/35	21/03351/38	Units	Limit of Detection	Method ref
Client Sample No	1	3	2	2	1	3	2			
Client Sample ID	TP7	TP7	TP8	TP11	TP12	TP13	TP14			
Depth to Top	0.3	2.5	0.8	0.5	0.2	1.8	0.5			
Depth To Bottom										
Date Sampled	22-Mar-21	22-Mar-21	22-Mar-21	25-Mar-21	25-Mar-21	23-Mar-21	24-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES			
Sample Matrix Code	2A	5A	6AE	2AE	7	3AE	4A			
%Stones >10mm _A	-	<0.1	5.1	-	37.4	<0.1	-			
pH _D ^{M#}	-	-	7.96	-	8.05	7.56	-	pH	0.01	A-T-031s
pH BRE _D ^{M#}	-	8.13	-	-	-	-	-	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	-	-	-	-	-	0.76	-	g/l	0.01	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	169	-	-	-	-	-	mg/l	10	A-T-026s
Sulphate (acid soluble) _D ^{M#}	-	-	-	-	-	1200	-	mg/kg	200	A-T-028s
Sulphate BRE (acid sol) _D ^{M#}	-	0.06	-	-	-	-	-	% w/w	0.02	A-T-028s
Sulphur BRE (total) _D	-	0.18	-	-	-	-	-	% w/w	0.01	A-T-024s
Organic matter _D ^{M#}	-	-	3.0	-	4.6	1.4	-	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	-	-	5	-	1	3	-	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	-	-	0.7	-	<0.5	1.3	-	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	-	-	17	-	10	25	-	mg/kg	1	A-T-024s
Chromium _D ^{M#}	-	-	23	-	5	41	-	mg/kg	1	A-T-024s
Lead _D ^{M#}	-	-	20	-	11	21	-	mg/kg	1	A-T-024s
Mercury _D	-	-	0.28	-	1.75	<0.17	-	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	-	-	24	-	4	51	-	mg/kg	1	A-T-024s
Selenium _D ^{M#}	-	-	<1	-	<1	<1	-	mg/kg	1	A-T-024s
Zinc _D ^{M#}	-	-	55	-	26	72	-	mg/kg	5	A-T-024s

Envirolab Job Number: 21/03351

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/20	21/03351/22	21/03351/24	21/03351/29	21/03351/31	21/03351/35	21/03351/38	Units	Limit of Detection	Method ref
Client Sample No	1	3	2	2	1	3	2			
Client Sample ID	TP7	TP7	TP8	TP11	TP12	TP13	TP14			
Depth to Top	0.3	2.5	0.8	0.5	0.2	1.8	0.5			
Depth To Bottom										
Date Sampled	22-Mar-21	22-Mar-21	22-Mar-21	25-Mar-21	25-Mar-21	23-Mar-21	24-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES			
Sample Matrix Code	2A	5A	6AE	2AE	7	3AE	4A			
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	-	-	NAD	-	-	NAD			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	-	-	N/A	-	-	N/A			A-T-045

Envirolab Job Number: 21/03351

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/20	21/03351/22	21/03351/24	21/03351/29	21/03351/31	21/03351/35	21/03351/38	Units	Limit of Detection	Method ref
Client Sample No	1	3	2	2	1	3	2			
Client Sample ID	TP7	TP7	TP8	TP11	TP12	TP13	TP14			
Depth to Top	0.3	2.5	0.8	0.5	0.2	1.8	0.5			
Depth To Bottom										
Date Sampled	22-Mar-21	22-Mar-21	22-Mar-21	25-Mar-21	25-Mar-21	23-Mar-21	24-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES			
Sample Matrix Code	2A	5A	6AE	2AE	7	3AE	4A			
PAH-16MS										
Acenaphthene _A ^{M#}	-	-	<0.01	-	0.10	<0.01	-	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	-	-	<0.01	-	<0.01	<0.01	-	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	-	-	<0.02	-	0.13	<0.02	-	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	-	-	<0.04	-	0.34	<0.04	-	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	-	-	<0.04	-	0.16	<0.04	-	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	-	-	<0.05	-	0.16	<0.05	-	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	-	-	<0.05	-	<0.05	<0.05	-	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	-	-	<0.07	-	<0.07	<0.07	-	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	-	-	<0.06	-	0.27	<0.06	-	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	-	-	<0.04	-	<0.04	<0.04	-	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	-	-	<0.08	-	1.00	<0.08	-	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	-	-	<0.01	-	0.07	<0.01	-	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	-	-	<0.03	-	<0.03	<0.03	-	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	-	-	0.10	-	<0.03	<0.03	-	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	-	-	0.05	-	0.54	<0.03	-	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	-	-	<0.07	-	0.93	<0.07	-	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	-	-	0.15	-	3.70	<0.08	-	mg/kg	0.01	A-T-019s

Envirolab Job Number: 21/03351

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/20	21/03351/22	21/03351/24	21/03351/29	21/03351/31	21/03351/35	21/03351/38	Units	Limit of Detection	Method ref
Client Sample No	1	3	2	2	1	3	2			
Client Sample ID	TP7	TP7	TP8	TP11	TP12	TP13	TP14			
Depth to Top	0.3	2.5	0.8	0.5	0.2	1.8	0.5			
Depth To Bottom										
Date Sampled	22-Mar-21	22-Mar-21	22-Mar-21	25-Mar-21	25-Mar-21	23-Mar-21	24-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES			
Sample Matrix Code	2A	5A	6AE	2AE	7	3AE	4A			
TPH CWG										
Ali >C5-C6 _A [#]	-	-	-	-	-	<0.01	-	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	-	-	-	-	-	<0.01	-	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	-	-	-	-	-	<1	-	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	-	-	-	-	-	<1	-	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	-	-	-	-	-	<1	-	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	-	-	-	-	-	<1	-	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	-	-	-	-	-	8	-	mg/kg	1	A-T-055s
Total Aliphatics _A	-	-	-	-	-	8	-	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	-	-	-	-	-	<0.01	-	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	-	-	-	-	-	<0.01	-	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	-	-	-	-	-	<1	-	mg/kg	1	A-T-055s
Aro >C10-C12 _A	-	-	-	-	-	<1	-	mg/kg	1	A-T-055s
Aro >C12-C16 _A	-	-	-	-	-	<1	-	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	-	-	-	-	-	<1	-	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	-	-	-	-	-	3	-	mg/kg	1	A-T-055s
Total Aromatics _A	-	-	-	-	-	3	-	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	-	-	-	-	-	10	-	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	-	-	-	-	-	<0.01	-	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	-	-	-	-	-	<0.01	-	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	-	-	-	-	-	<0.01	-	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	-	-	-	-	-	<0.01	-	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	-	-	-	-	-	<0.01	-	mg/kg	0.01	A-T-022s
MTBE _A [#]	-	-	-	-	-	<0.01	-	mg/kg	0.01	A-T-022s

Envirolab Job Number: 21/03351

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/42	21/03351/44	21/03351/46	21/03351/47	21/03351/49	21/03351/50	21/03351/51	Units	Limit of Detection	Method ref
Client Sample No	3	1	3	1	3	1	2			
Client Sample ID	TP15	TP16	TP16	TP17	TP17	TP18	TP18			
Depth to Top	1.4	0.3	0.90	0.3	1.5	0.3	0.7			
Depth To Bottom										
Date Sampled	25-Mar-21	25-Mar-21	25-Mar-21	25-Mar-21	25-Mar-21	24-Mar-21	24-Mar-21			
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES	Soil - ES	Solid	Soil - ES			
Sample Matrix Code	4A	7	5AE	2AE	4A	7	3A			
%Stones >10mm _A	<0.1	-	27.7	-	<0.1	-	<0.1			
pH _D ^{M#}	-	-	8.12	-	7.76	-	-	pH	0.01	A-T-031s
pH BRE _D ^{M#}	8.30	-	-	-	-	-	8.14	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	-	-	0.20	-	-	-	-	g/l	0.01	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	20	-	-	-	-	-	130	mg/l	10	A-T-026s
Sulphate (acid soluble) _D ^{M#}	-	-	1100	-	-	-	-	mg/kg	200	A-T-028s
Sulphate BRE (acid sol) _D ^{M#}	<0.02	-	-	-	-	-	0.06	% w/w	0.02	A-T-028s
Sulphur BRE (total) _D	<0.01	-	-	-	-	-	0.03	% w/w	0.01	A-T-024s
Organic matter _D ^{M#}	-	-	1.5	-	0.2	-	-	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	-	-	<1	-	3	-	-	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	-	-	<0.5	-	<0.5	-	-	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	-	-	15	-	4	-	-	mg/kg	1	A-T-024s
Chromium _D ^{M#}	-	-	11	-	13	-	-	mg/kg	1	A-T-024s
Lead _D ^{M#}	-	-	9	-	8	-	-	mg/kg	1	A-T-024s
Mercury _D	-	-	1.04	-	<0.17	-	-	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	-	-	9	-	10	-	-	mg/kg	1	A-T-024s
Selenium _D ^{M#}	-	-	<1	-	<1	-	-	mg/kg	1	A-T-024s
Zinc _D ^{M#}	-	-	38	-	30	-	-	mg/kg	5	A-T-024s

Envirolab Job Number: 21/03351

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/42	21/03351/44	21/03351/46	21/03351/47	21/03351/49	21/03351/50	21/03351/51	Units	Limit of Detection	Method ref			
Client Sample No	3	1	3	1	3	1	2						
Client Sample ID	TP15	TP16	TP16	TP17	TP17	TP18	TP18						
Depth to Top	1.4	0.3	0.90	0.3	1.5	0.3	0.7						
Depth To Bottom													
Date Sampled	25-Mar-21	25-Mar-21	25-Mar-21	25-Mar-21	25-Mar-21	24-Mar-21	24-Mar-21						
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES	Soil - ES	Solid	Soil - ES						
Sample Matrix Code	4A	7	5AE	2AE	4A	7	3A						
Asbestos in Soil (inc. matrix)													
Asbestos in soil [#]	-	NAD	NAD	NAD	-	NAD	-			A-T-045			
Asbestos ACM - Suitable for Water Absorption Test? _D	-	N/A	N/A	N/A	-	N/A	-			A-T-045			

Envirolab Job Number: 21/03351

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/42	21/03351/44	21/03351/46	21/03351/47	21/03351/49	21/03351/50	21/03351/51	Units	Limit of Detection	Method ref
Client Sample No	3	1	3	1	3	1	2			
Client Sample ID	TP15	TP16	TP16	TP17	TP17	TP18	TP18			
Depth to Top	1.4	0.3	0.90	0.3	1.5	0.3	0.7			
Depth To Bottom										
Date Sampled	25-Mar-21	25-Mar-21	25-Mar-21	25-Mar-21	25-Mar-21	24-Mar-21	24-Mar-21			
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES	Soil - ES	Solid	Soil - ES			
Sample Matrix Code	4A	7	5AE	2AE	4A	7	3A			
PAH-16MS										
Acenaphthene _A ^{M#}	-	-	<0.01	-	<0.01	-	-	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	-	-	<0.01	-	<0.01	-	-	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	-	-	<0.02	-	<0.02	-	-	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	-	-	<0.04	-	<0.04	-	-	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	-	-	<0.04	-	<0.04	-	-	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	-	-	<0.05	-	<0.05	-	-	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	-	-	<0.05	-	<0.05	-	-	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	-	-	<0.07	-	<0.07	-	-	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	-	-	<0.06	-	<0.06	-	-	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	-	-	<0.04	-	<0.04	-	-	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	-	-	<0.08	-	<0.08	-	-	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	-	-	<0.01	-	<0.01	-	-	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	-	-	<0.03	-	<0.03	-	-	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	-	-	<0.03	-	<0.03	-	-	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	-	-	<0.03	-	<0.03	-	-	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	-	-	<0.07	-	<0.07	-	-	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	-	-	<0.08	-	<0.08	-	-	mg/kg	0.01	A-T-019s

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Lab Sample ID	21/03351/42	21/03351/44	21/03351/46	21/03351/47	21/03351/49	21/03351/50	21/03351/51	Units	Limit of Detection	Method ref
Client Sample No	3	1	3	1	3	1	2			
Client Sample ID	TP15	TP16	TP16	TP17	TP17	TP18	TP18			
Depth to Top	1.4	0.3	0.90	0.3	1.5	0.3	0.7			
Depth To Bottom										
Date Sampled	25-Mar-21	25-Mar-21	25-Mar-21	25-Mar-21	25-Mar-21	24-Mar-21	24-Mar-21			
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES	Soil - ES	Solid	Soil - ES			
Sample Matrix Code	4A	7	5AE	2AE	4A	7	3A			
TPH CWG										
Ali >C5-C6 _A [#]	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	-	-	7	-	-	-	-	mg/kg	1	A-T-055s
Total Aliphatics _A	-	-	7	-	-	-	-	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Aro >C10-C12 _A	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Aro >C12-C16 _A	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	-	-	2	-	-	-	-	mg/kg	1	A-T-055s
Total Aromatics _A	-	-	2	-	-	-	-	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	-	-	9	-	-	-	-	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
MTBE _A [#]	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s

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Lab Sample ID	21/03351/53	21/03351/56	21/03351/63	21/03351/67	21/03351/70	21/03351/72	21/03351/76	Units	Limit of Detection	Method ref
Client Sample No	1	1	1	2	1	3	1			
Client Sample ID	TP19	TP20	TP22	TP23	TP24	TP24	TP26			
Depth to Top	0.3	0.5	0.7	0.8	0.5	1.5	0.6			
Depth To Bottom										
Date Sampled	24-Mar-21	24-Mar-21	26-Mar-21	26-Mar-21	24-Mar-21	24-Mar-21	26-Mar-21			
Sample Type	Solid	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES			
Sample Matrix Code	7	7	6AE	3AE	7	3A	4A			
%Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	14.6			
pH _D ^{M#}	9.73	9.24	7.58	8.06	8.76	-	8.88	pH	0.01	A-T-031s
pH BRE _D ^{M#}	-	-	-	-	-	8.40	-	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.03	0.05	0.21	-	0.02	-	<0.01	g/l	0.01	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	-	-	-	25	-	mg/l	10	A-T-026s
Sulphate (acid soluble) _D ^{M#}	960	590	940	-	470	-	<200	mg/kg	200	A-T-028s
Sulphate BRE (acid sol) _D ^{M#}	-	-	-	-	-	<0.02	-	% w/w	0.02	A-T-028s
Sulphur BRE (total) _D	-	-	-	-	-	0.01	-	% w/w	0.01	A-T-024s
Organic matter _D ^{M#}	10.0	10.9	1.1	1.5	10.8	-	0.5	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	5	<1	5	3	3	-	2	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.6	<0.5	0.9	1.4	0.8	-	<0.5	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	8	3	16	29	15	-	4	mg/kg	1	A-T-024s
Chromium _D ^{M#}	3	4	28	48	12	-	6	mg/kg	1	A-T-024s
Lead _D ^{M#}	22	5	18	23	21	-	4	mg/kg	1	A-T-024s
Mercury _D	3.34	3.13	<0.17	<0.17	2.72	-	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	1	2	23	58	9	-	6	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	<1	-	<1	mg/kg	1	A-T-024s
Zinc _D ^{M#}	44	32	48	82	47	-	19	mg/kg	5	A-T-024s

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Lab Sample ID	21/03351/53	21/03351/56	21/03351/63	21/03351/67	21/03351/70	21/03351/72	21/03351/76	Units	Limit of Detection	Method ref
Client Sample No	1	1	1	2	1	3	1			
Client Sample ID	TP19	TP20	TP22	TP23	TP24	TP24	TP26			
Depth to Top	0.3	0.5	0.7	0.8	0.5	1.5	0.6			
Depth To Bottom										
Date Sampled	24-Mar-21	24-Mar-21	26-Mar-21	26-Mar-21	24-Mar-21	24-Mar-21	26-Mar-21			
Sample Type	Solid	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES			
Sample Matrix Code	7	7	6AE	3AE	7	3A	4A			
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	-	-	-	NAD	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	-	-	-	N/A	-	-			A-T-045

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Lab Sample ID	21/03351/53	21/03351/56	21/03351/63	21/03351/67	21/03351/70	21/03351/72	21/03351/76	Units	Limit of Detection	Method ref
Client Sample No	1	1	1	2	1	3	1			
Client Sample ID	TP19	TP20	TP22	TP23	TP24	TP24	TP26			
Depth to Top	0.3	0.5	0.7	0.8	0.5	1.5	0.6			
Depth To Bottom										
Date Sampled	24-Mar-21	24-Mar-21	26-Mar-21	26-Mar-21	24-Mar-21	24-Mar-21	26-Mar-21			
Sample Type	Solid	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES			
Sample Matrix Code	7	7	6AE	3AE	7	3A	4A			
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02	<0.02	<0.02	-	0.03	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	-	0.14	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	-	0.09	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	-	0.11	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	-	<0.07	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06	<0.06	<0.06	-	0.12	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	-	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08	<0.08	<0.08	-	0.39	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	-	0.09	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	-	0.33	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	<0.08	<0.08	<0.08	<0.08	-	1.30	mg/kg	0.01	A-T-019s

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Client Project Ref: 350409

Lab Sample ID	21/03351/53	21/03351/56	21/03351/63	21/03351/67	21/03351/70	21/03351/72	21/03351/76	Units	Limit of Detection	Method ref
Client Sample No	1	1	1	2	1	3	1			
Client Sample ID	TP19	TP20	TP22	TP23	TP24	TP24	TP26			
Depth to Top	0.3	0.5	0.7	0.8	0.5	1.5	0.6			
Depth To Bottom										
Date Sampled	24-Mar-21	24-Mar-21	26-Mar-21	26-Mar-21	24-Mar-21	24-Mar-21	26-Mar-21			
Sample Type	Solid	Solid	Soil - ES	Soil - ES	Solid	Soil - ES	Soil - ES			
Sample Matrix Code	7	7	6AE	3AE	7	3A	4A			
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	-	<1	-	<1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	-	<1	-	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1	-	1	-	<1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	<1	-	5	-	<1	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	28	13	8	-	182	-	5	mg/kg	1	A-T-055s
Total Aliphatics _A	28	13	8	-	188	-	5	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<1	-	<1	-	<1	mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1	-	<1	-	<1	mg/kg	1	A-T-055s
Aro >C12-C16 _A	<1	<1	<1	-	2	-	<1	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	<1	<1	<1	-	7	-	<1	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	14	6	3	-	90	-	3	mg/kg	1	A-T-055s
Total Aromatics _A	14	6	3	-	99	-	3	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	42	19	10	-	288	-	8	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s

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Lab Sample ID	21/03351/77	21/03351/78	21/03351/80	21/03351/82	21/03351/83	21/03351/84	21/03351/85	Units	Limit of Detection	Method ref
Client Sample No	2	3	2	1	2	3	1			
Client Sample ID	TP26	TP26	TP27	TP28	TP28	TP28	TP29			
Depth to Top	1	1.8	0.5	0.1	0.8	1.6	0.3			
Depth To Bottom										
Date Sampled	26-Mar-21	26-Mar-21	24-Mar-21	25-Mar-21	25-Mar-21	25-Mar-21	25-Mar-21			
Sample Type	Soil - ES	Solid	Solid	Soil - ES	Soil - ES	Soil - ES	Solid			
Sample Matrix Code	4A	7	7	2ABE	4A	3AE	7			
%Stones >10mm _A	11.5	<0.1	<0.1	39.8	<0.1	<0.1	<0.1			
pH _D ^{M#}	9.16	9.27	9.11	8.77	7.06	7.69	8.80	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.02	0.01	0.07	0.02	0.05	0.11	0.62	g/l	0.01	A-T-026s
Sulphate (acid soluble) _D ^{M#}	480	420	1300	640	290	390	4700	mg/kg	200	A-T-028s
Organic matter _D ^{M#}	0.7	1.7	1.7	3.2	0.9	1.2	0.6	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	4	1	3	1	1	2	2	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	<0.5	<0.5	<0.5	0.7	<0.5	1.2	0.5	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	32	11	23	14	5	27	10	mg/kg	1	A-T-024s
Chromium _D ^{M#}	7	7	14	15	7	42	13	mg/kg	1	A-T-024s
Lead _D ^{M#}	17	6	12	28	8	21	21	mg/kg	1	A-T-024s
Mercury _D	1.13	1.71	3.15	0.95	<0.17	<0.17	3.14	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	10	8	15	11	7	51	13	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-024s
Zinc _D ^{M#}	96	37	26	132	31	73	58	mg/kg	5	A-T-024s

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Client Project Ref: 350409

Lab Sample ID	21/03351/77	21/03351/78	21/03351/80	21/03351/82	21/03351/83	21/03351/84	21/03351/85	Units	Limit of Detection	Method ref
Client Sample No	2	3	2	1	2	3	1			
Client Sample ID	TP26	TP26	TP27	TP28	TP28	TP28	TP29			
Depth to Top	1	1.8	0.5	0.1	0.8	1.6	0.3			
Depth To Bottom										
Date Sampled	26-Mar-21	26-Mar-21	24-Mar-21	25-Mar-21	25-Mar-21	25-Mar-21	25-Mar-21			
Sample Type	Soil - ES	Solid	Solid	Soil - ES	Soil - ES	Soil - ES	Solid			
Sample Matrix Code	4A	7	7	2ABE	4A	3AE	7			
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	-	-	NAD	NAD	-	-	NAD			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	-	-	N/A	N/A	-	-	N/A			A-T-045

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Client Project Ref: 350409

Lab Sample ID	21/03351/77	21/03351/78	21/03351/80	21/03351/82	21/03351/83	21/03351/84	21/03351/85	Units	Limit of Detection	Method ref
Client Sample No	2	3	2	1	2	3	1			
Client Sample ID	TP26	TP26	TP27	TP28	TP28	TP28	TP29			
Depth to Top	1	1.8	0.5	0.1	0.8	1.6	0.3			
Depth To Bottom										
Date Sampled	26-Mar-21	26-Mar-21	24-Mar-21	25-Mar-21	25-Mar-21	25-Mar-21	25-Mar-21			
Sample Type	Soil - ES	Solid	Solid	Soil - ES	Soil - ES	Soil - ES	Solid			
Sample Matrix Code	4A	7	7	2ABE	4A	3AE	7			
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.03	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	0.10	<0.03	<0.03	0.03	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	<0.03	0.06	<0.03	<0.03	0.11	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	0.10	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	<0.08	<0.08	0.16	<0.08	<0.08	0.39	mg/kg	0.01	A-T-019s

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Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/77	21/03351/78	21/03351/80	21/03351/82	21/03351/83	21/03351/84	21/03351/85	Units	Limit of Detection	Method ref
Client Sample No	2	3	2	1	2	3	1			
Client Sample ID	TP26	TP26	TP27	TP28	TP28	TP28	TP29			
Depth to Top	1	1.8	0.5	0.1	0.8	1.6	0.3			
Depth To Bottom										
Date Sampled	26-Mar-21	26-Mar-21	24-Mar-21	25-Mar-21	25-Mar-21	25-Mar-21	25-Mar-21			
Sample Type	Soil - ES	Solid	Solid	Soil - ES	Soil - ES	Soil - ES	Solid			
Sample Matrix Code	4A	7	7	2ABE	4A	3AE	7			
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	<1	<1	<1	1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	3	<1	<1	<1	<1	1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	24	4	1	<1	<1	4	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	10	41	29	40	2	3	25	mg/kg	1	A-T-055s
Total Aliphatics _A	10	68	34	42	2	3	32	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<1	1	<1	<1	2	mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1	<1	<1	<1	2	mg/kg	1	A-T-055s
Aro >C12-C16 _A	<1	3	1	3	<1	<1	7	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	<1	18	8	3	<1	<1	6	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	2	7	10	26	1	1	8	mg/kg	1	A-T-055s
Total Aromatics _A	2	28	19	34	1	1	26	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	12	96	53	76	3	4	58	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s

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Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/86	21/03351/87	21/03351/89	21/03351/93	21/03351/95	21/03351/96	21/03351/100	Units	Limit of Detection	Method ref
Client Sample No	2	3	2	2	4	1	1			
Client Sample ID	TP29	TP29	TP30	TP31	TP31	TP32	TP34			
Depth to Top	0.9	1.3	0.5	0.8	2	0.4	0.3			
Depth To Bottom										
Date Sampled	25-Mar-21	25-Mar-21	25-Mar-21	24-Mar-21	24-Mar-21	25-Mar-21	24-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid	Solid			
Sample Matrix Code	6AE	3A	4A	6AE	3A	7	7			
%Stones >10mm _A	10.0	<0.1	6.5	36.0	1.0	-	<0.1			
pH _D ^{M#}	7.49	8.24	8.86	8.53	-	-	9.64	pH	0.01	A-T-031s
pH BRE _D ^{M#}	-	-	-	-	8.49	-	-	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.21	0.17	0.17	<0.01	-	-	0.07	g/l	0.01	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	-	-	33	-	-	mg/l	10	A-T-026s
Sulphate (acid soluble) _D ^{M#}	1100	490	570	<200	-	-	670	mg/kg	200	A-T-028s
Sulphate BRE (acid sol) _D ^{M#}	-	-	-	-	0.03	-	-	% w/w	0.02	A-T-028s
Sulphur BRE (total) _D	-	-	-	-	0.02	-	-	% w/w	0.01	A-T-024s
Organic matter _D ^{M#}	3.7	1.0	1.4	1.0	-	-	13.1	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	2	3	6	1	-	-	1	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	<0.5	1.2	<0.5	0.6	-	-	0.7	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	8	23	8	12	-	-	14	mg/kg	1	A-T-024s
Chromium _D ^{M#}	15	42	6	12	-	-	3	mg/kg	1	A-T-024s
Lead _D ^{M#}	23	23	6	12	-	-	16	mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	0.28	0.28	-	-	2.79	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	8	47	7	17	-	-	2	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	-	-	<1	mg/kg	1	A-T-024s
Zinc _D ^{M#}	30	60	16	36	-	-	47	mg/kg	5	A-T-024s

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Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/86	21/03351/87	21/03351/89	21/03351/93	21/03351/95	21/03351/96	21/03351/100	Units	Limit of Detection	Method ref
Client Sample No	2	3	2	2	4	1	1			
Client Sample ID	TP29	TP29	TP30	TP31	TP31	TP32	TP34			
Depth to Top	0.9	1.3	0.5	0.8	2	0.4	0.3			
Depth To Bottom										
Date Sampled	25-Mar-21	25-Mar-21	25-Mar-21	24-Mar-21	24-Mar-21	25-Mar-21	24-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid	Solid			
Sample Matrix Code	6AE	3A	4A	6AE	3A	7	7			
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	-	-	NAD	-	-	NAD	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	-	-	N/A	-	-	N/A	-			A-T-045

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Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/86	21/03351/87	21/03351/89	21/03351/93	21/03351/95	21/03351/96	21/03351/100	Units	Limit of Detection	Method ref
Client Sample No	2	3	2	2	4	1	1			
Client Sample ID	TP29	TP29	TP30	TP31	TP31	TP32	TP34			
Depth to Top	0.9	1.3	0.5	0.8	2	0.4	0.3			
Depth To Bottom										
Date Sampled	25-Mar-21	25-Mar-21	25-Mar-21	24-Mar-21	24-Mar-21	25-Mar-21	24-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid	Solid			
Sample Matrix Code	6AE	3A	4A	6AE	3A	7	7			
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	0.08	<0.01	-	-	<0.01	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	0.07	<0.02	-	-	<0.02	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	-	-	<0.04	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	-	-	<0.04	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	-	-	<0.07	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06	<0.06	-	-	<0.06	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	-	-	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08	<0.08	-	-	<0.08	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	0.26	<0.01	-	-	<0.01	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	-	-	<0.03	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	-	-	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	0.47	<0.03	-	-	<0.03	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	0.20	<0.07	-	-	<0.07	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	<0.08	1.08	<0.08	-	-	<0.08	mg/kg	0.01	A-T-019s

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Client Project Ref: 350409

Lab Sample ID	21/03351/86	21/03351/87	21/03351/89	21/03351/93	21/03351/95	21/03351/96	21/03351/100	Units	Limit of Detection	Method ref
Client Sample No	2	3	2	2	4	1	1			
Client Sample ID	TP29	TP29	TP30	TP31	TP31	TP32	TP34			
Depth to Top	0.9	1.3	0.5	0.8	2	0.4	0.3			
Depth To Bottom										
Date Sampled	25-Mar-21	25-Mar-21	25-Mar-21	24-Mar-21	24-Mar-21	25-Mar-21	24-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid	Solid			
Sample Matrix Code	6AE	3A	4A	6AE	3A	7	7			
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<50	<1	-	-	<1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<50	<1	-	-	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	234	<1	-	-	<1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	307	<1	-	-	<1	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	10	<1	12600	<1	-	-	2	mg/kg	1	A-T-055s
Total Aliphatics _A	10	<1	13100	<1	-	-	2	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<50	<1	-	-	<1	mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<50	<1	-	-	<1	mg/kg	1	A-T-055s
Aro >C12-C16 _A	<1	<1	210	<1	-	-	<1	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	1	<1	326	<1	-	-	<1	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	7	<1	496	<1	-	-	<1	mg/kg	1	A-T-055s
Total Aromatics _A	8	<1	1030	<1	-	-	<1	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	18	<1	14100	<1	-	-	2	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s

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Client Project Ref: 350409

Lab Sample ID	21/03351/103	21/03351/106	21/03351/109	21/03351/112	21/03351/118	21/03351/124	21/03351/126	Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1	1	1	1			
Client Sample ID	TP35	TP36	TP37	TP38	TP40	WS02	WS04			
Depth to Top	0.3	0.3	0.5	0.4	0.3	0.8	1			
Depth To Bottom										
Date Sampled	25-Mar-21	25-Mar-21	26-Mar-21	26-Mar-21	24-Mar-21	26-Mar-21	26-Mar-21			
Sample Type	Solid	Solid	Solid	Solid	Solid	Soil - ES	Soil - ES			
Sample Matrix Code	7	7	7	7	7	6AE	3A			
%Stones >10mm _A	-	-	<0.1	<0.1	<0.1	21.7	<0.1			
pH _D ^{M#}	-	-	9.65	9.36	9.60	8.36	-	pH	0.01	A-T-031s
pH BRE _D ^{M#}	-	-	-	-	-	-	8.24	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	-	-	-	0.04	0.12	-	-	g/l	0.01	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	-	-	-	-	150	mg/l	10	A-T-026s
Sulphate (acid soluble) _D ^{M#}	-	-	-	900	2000	-	-	mg/kg	200	A-T-028s
Sulphate BRE (acid sol) _D ^{M#}	-	-	-	-	-	-	0.06	% w/w	0.02	A-T-028s
Sulphur BRE (total) _D	-	-	-	-	-	-	0.03	% w/w	0.01	A-T-024s
Organic matter _D ^{M#}	-	-	7.4	0.5	6.8	13.8	-	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	-	-	<1	1	14	5	-	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	-	-	0.6	<0.5	0.7	<0.5	-	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	-	-	8	5	12	36	-	mg/kg	1	A-T-024s
Chromium _D ^{M#}	-	-	<1	6	4	11	-	mg/kg	1	A-T-024s
Lead _D ^{M#}	-	-	13	3	41	17	-	mg/kg	1	A-T-024s
Mercury _D	-	-	3.10	3.55	3.24	<0.17	-	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	-	-	<1	4	2	27	-	mg/kg	1	A-T-024s
Selenium _D ^{M#}	-	-	<1	1	<1	<1	-	mg/kg	1	A-T-024s
Zinc _D ^{M#}	-	-	21	19	71	38	-	mg/kg	5	A-T-024s

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Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/103	21/03351/106	21/03351/109	21/03351/112	21/03351/118	21/03351/124	21/03351/126	Units	Limit of Detection	Method ref			
Client Sample No	1	1	1	1	1	1	1						
Client Sample ID	TP35	TP36	TP37	TP38	TP40	WS02	WS04						
Depth to Top	0.3	0.3	0.5	0.4	0.3	0.8	1						
Depth To Bottom													
Date Sampled	25-Mar-21	25-Mar-21	26-Mar-21	26-Mar-21	24-Mar-21	26-Mar-21	26-Mar-21						
Sample Type	Solid	Solid	Solid	Solid	Solid	Soil - ES	Soil - ES						
Sample Matrix Code	7	7	7	7	7	6AE	3A						
Asbestos in Soil (inc. matrix)													
Asbestos in soil [#]	NAD	NAD	-	NAD	-	-	-			A-T-045			
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	-	N/A	-	-	-			A-T-045			

Envirolab Job Number: 21/03351

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/103	21/03351/106	21/03351/109	21/03351/112	21/03351/118	21/03351/124	21/03351/126	Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1	1	1	1			
Client Sample ID	TP35	TP36	TP37	TP38	TP40	WS02	WS04			
Depth to Top	0.3	0.3	0.5	0.4	0.3	0.8	1			
Depth To Bottom										
Date Sampled	25-Mar-21	25-Mar-21	26-Mar-21	26-Mar-21	24-Mar-21	26-Mar-21	26-Mar-21			
Sample Type	Solid	Solid	Solid	Solid	Solid	Soil - ES	Soil - ES			
Sample Matrix Code	7	7	7	7	7	6AE	3A			
PAH-16MS										
Acenaphthene _A ^{M#}	-	-	<0.01	<0.01	<0.01	0.03	-	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	-	-	<0.01	<0.01	<0.01	0.02	-	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	-	-	<0.02	<0.02	<0.02	0.03	-	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	-	-	<0.04	<0.04	<0.04	<0.04	-	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	-	-	<0.04	<0.04	<0.04	<0.04	-	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	-	-	<0.05	<0.05	<0.05	<0.05	-	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	-	-	<0.05	<0.05	<0.05	<0.05	-	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	-	-	<0.07	<0.07	<0.07	<0.07	-	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	-	-	<0.06	<0.06	<0.06	<0.06	-	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	-	-	<0.04	<0.04	<0.04	<0.04	-	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	-	-	<0.08	<0.08	<0.08	<0.08	-	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	-	-	<0.01	<0.01	<0.01	0.07	-	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	-	-	<0.03	<0.03	<0.03	<0.03	-	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	-	-	<0.03	<0.03	<0.03	0.99	-	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	-	-	<0.03	<0.03	<0.03	0.28	-	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	-	-	<0.07	<0.07	<0.07	<0.07	-	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	-	-	<0.08	<0.08	<0.08	1.42	-	mg/kg	0.01	A-T-019s

Envirolab Job Number: 21/03351

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/103	21/03351/106	21/03351/109	21/03351/112	21/03351/118	21/03351/124	21/03351/126	Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1	1	1	1			
Client Sample ID	TP35	TP36	TP37	TP38	TP40	WS02	WS04			
Depth to Top	0.3	0.3	0.5	0.4	0.3	0.8	1			
Depth To Bottom										
Date Sampled	25-Mar-21	25-Mar-21	26-Mar-21	26-Mar-21	24-Mar-21	26-Mar-21	26-Mar-21			
Sample Type	Solid	Solid	Solid	Solid	Solid	Soil - ES	Soil - ES			
Sample Matrix Code	7	7	7	7	7	6AE	3A			
TPH CWG										
Ali >C5-C6 _A [#]	-	-	-	<0.01	<0.01	-	-	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	-	-	-	<0.01	<0.01	-	-	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	-	-	-	<1	<1	-	-	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	-	-	-	<1	<1	-	-	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	-	-	-	2	<1	-	-	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	-	-	-	4	<1	-	-	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	-	-	-	15	3	-	-	mg/kg	1	A-T-055s
Total Aliphatics _A	-	-	-	21	3	-	-	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	-	-	-	<0.01	<0.01	-	-	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	-	-	-	<0.01	<0.01	-	-	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	-	-	-	1	<1	-	-	mg/kg	1	A-T-055s
Aro >C10-C12 _A	-	-	-	<1	<1	-	-	mg/kg	1	A-T-055s
Aro >C12-C16 _A	-	-	-	3	<1	-	-	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	-	-	-	3	<1	-	-	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	-	-	-	3	<1	-	-	mg/kg	1	A-T-055s
Total Aromatics _A	-	-	-	11	<1	-	-	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	-	-	-	32	3	-	-	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	-	-	-	<0.01	<0.01	-	-	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	-	-	-	<0.01	<0.01	-	-	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	-	-	-	<0.01	<0.01	-	-	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	-	-	-	<0.01	<0.01	-	-	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	-	-	-	<0.01	<0.01	-	-	mg/kg	0.01	A-T-022s
MTBE _A [#]	-	-	-	<0.01	<0.01	-	-	mg/kg	0.01	A-T-022s

Envirolab Job Number: 21/03351

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/127	21/03351/128	21/03351/129					Units	Limit of Detection	Method ref
Client Sample No	1	2	3							
Client Sample ID	M1	M2	M3							
Depth to Top	0.20	0.10	0.20							
Depth To Bottom										
Date Sampled	26-Mar-21	26-Mar-21	26-Mar-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	2AE	2AE	2AE							
%Stones >10mm _A	3.7	4.6	3.0							
pH _D ^{M#}	8.18	7.97	8.32					pH	0.01	A-T-031s
Organic matter _D ^{M#}	7.7	13.5	13.1					% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	9	4	19					mg/kg	1	A-T-024s
Cadmium _D ^{M#}	1.0	0.7	0.7					mg/kg	0.5	A-T-024s
Copper _D ^{M#}	32	38	38					mg/kg	1	A-T-024s
Chromium _D ^{M#}	26	19	16					mg/kg	1	A-T-024s
Lead _D ^{M#}	20	17	20					mg/kg	1	A-T-024s
Mercury _D	0.45	<0.17	<0.17					mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	32	34	34					mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1					mg/kg	1	A-T-024s
Zinc _D ^{M#}	95	68	65					mg/kg	5	A-T-024s

Envirolab Job Number: 21/03351

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03351/127	21/03351/128	21/03351/129					Units	Limit of Detection	Method ref
Client Sample No	1	2	3							
Client Sample ID	M1	M2	M3							
Depth to Top	0.20	0.10	0.20							
Depth To Bottom										
Date Sampled	26-Mar-21	26-Mar-21	26-Mar-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	2AE	2AE	2AE							
PAH-16MS										
Acenaphthene _A ^{M#}	0.01	0.02	0.02					mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	0.01	0.01					mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02					mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05					mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05					mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07					mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06					mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08					mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	0.01	0.02	0.02					mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03					mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	0.25	0.65	0.71					mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.17	0.33	0.28					mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	<0.07					mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	0.44	1.03	1.04					mg/kg	0.01	A-T-019s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

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

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

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

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

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

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

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

Asbestos:

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

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

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/03473
Issue Number: 1
Date: 19 April, 2021

Client: RSK Environment Ltd Castleford
The Potteries
Pottery Street
Castleford
WF10 1NJ

Project Manager: John Harrison/Laura Alderman/Will Hopkins
Project Name: North Selby Mine
Project Ref: 350409
Order No: N/A
Date Samples Received: 31/03/21
Date Instructions Received: 01/04/21
Date Analysis Completed: 19/04/21

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Danielle Brierley
Client Manager

Envirolab Job Number: 21/03473

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03473/1							Units	Limit of Detection	Method ref
Client Sample No	1									
Client Sample ID	TP9									
Depth to Top										
Depth To Bottom										
Date Sampled	26-Mar-21									
Sample Type	Soil - ES									
Sample Matrix Code	6AE									
%Stones >10mm _A	1.2									
pH _D ^{M#}	8.11							pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.85							g/l	0.01	A-T-026s
Sulphate (acid soluble) _D ^{M#}	820							mg/kg	200	A-T-028s
Organic matter _D ^{M#}	1.7							% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	<1							mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.8							mg/kg	0.5	A-T-024s
Copper _D ^{M#}	19							mg/kg	1	A-T-024s
Chromium _D ^{M#}	28							mg/kg	1	A-T-024s
Lead _D ^{M#}	15							mg/kg	1	A-T-024s
Mercury _D	0.41							mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	28							mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1							mg/kg	1	A-T-024s
Zinc _D ^{M#}	57							mg/kg	5	A-T-024s

Envirolab Job Number: 21/03473

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03473/1							Units	Limit of Detection	Method ref
Client Sample No	1									
Client Sample ID	TP9									
Depth to Top										
Depth To Bottom										
Date Sampled	26-Mar-21									
Sample Type	Soil - ES									
Sample Matrix Code	6AE									
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD									A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A									A-T-045

Envirolab Job Number: 21/03473

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03473/1							Units	Limit of Detection	Method ref
Client Sample No	1									
Client Sample ID	TP9									
Depth to Top										
Depth To Bottom										
Date Sampled	26-Mar-21									
Sample Type	Soil - ES									
Sample Matrix Code	6AE									
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01							mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01							mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02							mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04							mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04							mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05							mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05							mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07							mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06							mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04							mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08							mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01							mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03							mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03							mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03							mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07							mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08							mg/kg	0.01	A-T-019s

Envirolab Job Number: 21/03473

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03473/1									
Client Sample No	1									
Client Sample ID	TP9									
Depth to Top										
Depth To Bottom										
Date Sampled	26-Mar-21									
Sample Type	Soil - ES									
Sample Matrix Code	6AE									
TPH CWG										
Ali >C5-C6 _A [#]	<0.01							mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01							mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1							mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1							mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1							mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	1							mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	7							mg/kg	1	A-T-055s
Total Aliphatics _A	8							mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01							mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01							mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1							mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1							mg/kg	1	A-T-055s
Aro >C12-C16 _A	1							mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	1							mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	2							mg/kg	1	A-T-055s
Total Aromatics _A	5							mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	13							mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01							mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01							mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01							mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01							mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01							mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01							mg/kg	0.01	A-T-022s

REPORT NOTES

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The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

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

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

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

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

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

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

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

Asbestos:

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

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

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/03608
Issue Number: 1
Date: 27 April, 2021

Client: RSK Environment Ltd Castleford
The Potteries
Pottery Street
Castleford
WF10 1NJ

Project Manager: John Harrison/Laura Alderman/Will Hopkins
Project Name: North Selby Mine
Project Ref: 350409
Order No: N/A
Date Samples Received: 31/03/21
Date Instructions Received: 07/04/21
Date Analysis Completed: 27/04/21

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Danielle Brierley
Client Manager

Envirolab Job Number: 21/03608

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03608/1	21/03608/2	21/03608/3	21/03608/4	21/03608/6	21/03608/7	21/03608/9	Units	Limit of Detection	Method ref
Client Sample No	1	2	3	1	3	1	1			
Client Sample ID	WS05	WS05	WS05	WS06	WS06	WS07	WS08			
Depth to Top	0.5	1.2	2.3	0.5	2.5	0.6	0.9			
Depth To Bottom										
Date Sampled	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21			
Sample Type	Solid	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	7	5AE	5AE	5A	5AE	5A	5A			
%Stones >10mm _A	-	16.6	46.6	-	<0.1	-	<0.1			
pH _D ^{M#}	-	9.13	9.17	-	-	-	7.89	pH	0.01	A-T-031s
pH BRE _D ^{M#}	-	-	-	-	8.26	-	-	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	-	0.08	0.04	-	-	-	0.11	g/l	0.01	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	-	-	96	-	-	mg/l	10	A-T-026s
Sulphate (acid soluble) _D ^{M#}	-	1300	870	-	-	-	310	mg/kg	200	A-T-028s
Sulphate BRE (acid sol) _D ^{M#}	-	-	-	-	0.03	-	-	% w/w	0.02	A-T-028s
Sulphur BRE (total) _D	-	-	-	-	0.02	-	-	% w/w	0.01	A-T-024s
Organic matter _D ^{M#}	-	3.2	2.5	-	-	-	1.7	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	-	3	2	-	-	-	<1	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	-	<0.5	<0.5	-	-	-	1.0	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	-	11	9	-	-	-	26	mg/kg	1	A-T-024s
Chromium _D ^{M#}	-	17	16	-	-	-	41	mg/kg	1	A-T-024s
Lead _D ^{M#}	-	145	124	-	-	-	20	mg/kg	1	A-T-024s
Mercury _D	-	1.33	1.35	-	-	-	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	-	5	6	-	-	-	51	mg/kg	1	A-T-024s
Selenium _D ^{M#}	-	<1	<1	-	-	-	1	mg/kg	1	A-T-024s
Zinc _D ^{M#}	-	23	18	-	-	-	73	mg/kg	5	A-T-024s

Envirolab Job Number: 21/03608

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03608/1	21/03608/2	21/03608/3	21/03608/4	21/03608/6	21/03608/7	21/03608/9	Units	Limit of Detection	Method ref
Client Sample No	1	2	3	1	3	1	1			
Client Sample ID	WS05	WS05	WS05	WS06	WS06	WS07	WS08			
Depth to Top	0.5	1.2	2.3	0.5	2.5	0.6	0.9			
Depth To Bottom										
Date Sampled	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21			
Sample Type	Solid	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	7	5AE	5AE	5A	5AE	5A	5A			
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	-	-	NAD	-	NAD	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	-	-	N/A	-	N/A	-			A-T-045

Envirolab Job Number: 21/03608

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03608/1	21/03608/2	21/03608/3	21/03608/4	21/03608/6	21/03608/7	21/03608/9	Units	Limit of Detection	Method ref
Client Sample No	1	2	3	1	3	1	1			
Client Sample ID	WS05	WS05	WS05	WS06	WS06	WS07	WS08			
Depth to Top	0.5	1.2	2.3	0.5	2.5	0.6	0.9			
Depth To Bottom										
Date Sampled	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21			
Sample Type	Solid	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	7	5AE	5AE	5A	5AE	5A	5A			
PAH-16MS										
Acenaphthene _A ^{M#}	-	10.8	6.37	-	-	-	<0.01	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	-	0.19	0.12	-	-	-	<0.01	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	-	16.2	7.26	-	-	-	<0.02	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	-	15	9.62	-	-	-	<0.04	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	-	10.4	6.73	-	-	-	<0.04	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	-	12.9	8.08	-	-	-	<0.05	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	-	4.67	2.76	-	-	-	<0.05	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	-	4.79	3.53	-	-	-	<0.07	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	-	15.9	9.79	-	-	-	<0.06	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	-	1.39	0.84	-	-	-	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	-	43.7	25.1	-	-	-	<0.08	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	-	15.9	6.84	-	-	-	<0.01	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	-	5.67	3.40	-	-	-	<0.03	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	-	1.15	1.98	-	-	-	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	-	74.2	27.7	-	-	-	<0.03	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	-	31.3	19.1	-	-	-	<0.07	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	-	264	139	-	-	-	<0.08	mg/kg	0.01	A-T-019s

Envirolab Job Number: 21/03608

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03608/1	21/03608/2	21/03608/3	21/03608/4	21/03608/6	21/03608/7	21/03608/9	Units	Limit of Detection	Method ref
Client Sample No	1	2	3	1	3	1	1			
Client Sample ID	WS05	WS05	WS05	WS06	WS06	WS07	WS08			
Depth to Top	0.5	1.2	2.3	0.5	2.5	0.6	0.9			
Depth To Bottom										
Date Sampled	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21			
Sample Type	Solid	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	7	5AE	5AE	5A	5AE	5A	5A			
TPH CWG										
Ali >C5-C6 _A [#]	-	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	-	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	-	<10	<5	-	-	-	<1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	-	<10	<5	-	-	-	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	-	16	6	-	-	-	<1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	-	38	11	-	-	-	1	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	-	43	19	-	-	-	2	mg/kg	1	A-T-055s
Total Aliphatics _A	-	98	37	-	-	-	4	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	-	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	-	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	-	<10	<5	-	-	-	<1	mg/kg	1	A-T-055s
Aro >C10-C12 _A	-	<10	7	-	-	-	<1	mg/kg	1	A-T-055s
Aro >C12-C16 _A	-	394	128	-	-	-	<1	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	-	1050	317	-	-	-	<1	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	-	1250	517	-	-	-	2	mg/kg	1	A-T-055s
Total Aromatics _A	-	2700	968	-	-	-	2	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	-	2790	1010	-	-	-	6	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	-	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	-	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	-	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	-	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	-	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	-	<0.01	<0.01	-	-	-	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 21/03608

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03608/10	21/03608/11	21/03608/12	21/03608/13	21/03608/14	21/03608/16	21/03608/17	Units	Limit of Detection	Method ref
Client Sample No	2	1	2	1	2	1	2			
Client Sample ID	WS08	WS09	WS09	WS10	WS10	TP41	TP41			
Depth to Top	1.5	1.5	3	0.3	1.4	0.8	1.5			
Depth To Bottom										
Date Sampled	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	30-Mar-21	30-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5AE	5A	5A	5A	5AE	5A	5A			
%Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	<0.1	4.0	<0.1			
pH _D ^{M#}	8.62	8.65	-	8.31	8.50	-	-	pH	0.01	A-T-031s
pH BRE _D ^{M#}	8.62	-	8.69	-	8.50	-	-	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	-	0.06	-	0.16	0.13	-	-	g/l	0.01	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	37	-	51	-	135	-	-	mg/l	10	A-T-026s
Sulphate (acid soluble) _D ^{M#}	-	240	-	350	460	-	-	mg/kg	200	A-T-028s
Sulphate BRE (acid sol) _D ^{M#}	<0.02	-	0.02	-	0.05	-	-	% w/w	0.02	A-T-028s
Sulphur BRE (total) _D	0.01	-	0.01	-	0.02	-	-	% w/w	0.01	A-T-024s
Organic matter _D ^{M#}	1.9	1.9	-	1.4	1.7	-	-	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	<1	<1	-	<1	5	-	-	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	1.0	0.9	-	0.8	1.0	-	-	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	24	26	-	22	23	-	-	mg/kg	1	A-T-024s
Chromium _D ^{M#}	41	36	-	44	28	-	-	mg/kg	1	A-T-024s
Lead _D ^{M#}	20	19	-	17	18	-	-	mg/kg	1	A-T-024s
Mercury _D	0.31	<0.17	-	<0.17	<0.17	-	-	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	43	44	-	47	42	-	-	mg/kg	1	A-T-024s
Selenium _D ^{M#}	2	<1	-	<1	<1	-	-	mg/kg	1	A-T-024s
Zinc _D ^{M#}	68	70	-	52	64	-	-	mg/kg	5	A-T-024s

Envirolab Job Number: 21/03608

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03608/10	21/03608/11	21/03608/12	21/03608/13	21/03608/14	21/03608/16	21/03608/17	Units	Limit of Detection	Method ref
Client Sample No	2	1	2	1	2	1	2			
Client Sample ID	WS08	WS09	WS09	WS10	WS10	TP41	TP41			
Depth to Top	1.5	1.5	3	0.3	1.4	0.8	1.5			
Depth To Bottom										
Date Sampled	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	30-Mar-21	30-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5AE	5A	5A	5A	5AE	5A	5A			
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	-	-	-	NAD	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	-	-	-	N/A	-	-	-			A-T-045

Envirolab Job Number: 21/03608

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03608/10	21/03608/11	21/03608/12	21/03608/13	21/03608/14	21/03608/16	21/03608/17	Units	Limit of Detection	Method ref
Client Sample No	2	1	2	1	2	1	2			
Client Sample ID	WS08	WS09	WS09	WS10	WS10	TP41	TP41			
Depth to Top	1.5	1.5	3	0.3	1.4	0.8	1.5			
Depth To Bottom										
Date Sampled	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	30-Mar-21	30-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5AE	5A	5A	5A	5AE	5A	5A			
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	-	<0.01	<0.01	-	-	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	-	<0.01	<0.01	-	-	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	-	<0.02	<0.02	-	-	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	-	<0.04	<0.04	-	-	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	-	<0.04	<0.04	-	-	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	-	<0.05	<0.05	-	-	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	-	<0.05	<0.05	-	-	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	-	<0.07	<0.07	-	-	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	-	<0.06	<0.06	-	-	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	-	<0.04	<0.04	-	-	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	-	<0.08	<0.08	-	-	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	-	<0.01	<0.01	-	-	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	-	<0.03	<0.03	-	-	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	-	<0.03	<0.03	-	-	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	-	<0.03	<0.03	-	-	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	-	<0.07	<0.07	-	-	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	<0.08	-	<0.08	<0.08	-	-	mg/kg	0.01	A-T-019s

Envirolab Job Number: 21/03608

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03608/10	21/03608/11	21/03608/12	21/03608/13	21/03608/14	21/03608/16	21/03608/17	Units	Limit of Detection	Method ref
Client Sample No	2	1	2	1	2	1	2			
Client Sample ID	WS08	WS09	WS09	WS10	WS10	TP41	TP41			
Depth to Top	1.5	1.5	3	0.3	1.4	0.8	1.5			
Depth To Bottom										
Date Sampled	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	30-Mar-21	30-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5AE	5A	5A	5A	5AE	5A	5A			
TPH CWG										
Ali >C5-C6 _A [#]	-	<0.01	-	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	-	<0.01	-	<0.01	0.02	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	-	<1	-	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	-	<1	-	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	-	1	-	<1	1	<1	1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	-	<1	-	<1	4	<1	3	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	-	3	-	3	6	2	5	mg/kg	1	A-T-055s
Total Aliphatics _A	-	4	-	3	11	2	9	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	-	<0.01	-	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	-	<0.01	-	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	-	<1	-	<1	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C10-C12 _A	-	<1	-	<1	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C12-C16 _A	-	<1	-	<1	1	<1	1	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	-	<1	-	<1	1	<1	1	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	-	3	-	1	5	1	6	mg/kg	1	A-T-055s
Total Aromatics _A	-	3	-	1	7	1	9	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	-	6	-	4	18	4	18	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	-	<0.01	-	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	-	<0.01	-	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	-	<0.01	-	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	-	<0.01	-	<0.01	0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	-	<0.01	-	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	-	<0.01	-	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 21/03608

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03608/18	21/03608/19	21/03608/20	21/03608/22	21/03608/23	21/03608/24	21/03608/25	Units	Limit of Detection	Method ref
Client Sample No	3	1	2	2	3	1	2			
Client Sample ID	TP41	TP42	TP42	TP43	TP43	TP44	TP44			
Depth to Top	3	0.7	2.3	1.5	1.7	0.3	0.8			
Depth To Bottom										
Date Sampled	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid	Solid	Soil - ES			
Sample Matrix Code	5A	5A	5A	5A	7	7	5AE			
%Stones >10mm _A	<0.1	<0.1	<0.1	19.4	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044

Envirolab Job Number: 21/03608

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03608/18	21/03608/19	21/03608/20	21/03608/22	21/03608/23	21/03608/24	21/03608/25	Units	Limit of Detection	Method ref
Client Sample No	3	1	2	2	3	1	2			
Client Sample ID	TP41	TP42	TP42	TP43	TP43	TP44	TP44			
Depth to Top	3	0.7	2.3	1.5	1.7	0.3	0.8			
Depth To Bottom										
Date Sampled	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid	Solid	Soil - ES			
Sample Matrix Code	5A	5A	5A	5A	7	7	5AE			
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	<1	<1	3	<1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<1	<1	2	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	1	<1	<1	<1	2	4	<1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	1	<1	<1	<1	25	7	1	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	3	3	1	9	122	19	29	mg/kg	1	A-T-055s
Total Aliphatics _A	5	3	1	9	149	35	31	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<1	<1	<1	2	<1	mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1	<1	<1	2	<1	mg/kg	1	A-T-055s
Aro >C12-C16 _A	1	<1	<1	<1	3	11	1	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	3	<1	<1	1	63	7	2	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	5	1	3	1	25	11	26	mg/kg	1	A-T-055s
Total Aromatics _A	9	1	3	2	91	33	29	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	14	4	4	11	239	68	60	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 21/03608

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03608/26	21/03608/28	21/03608/29	21/03608/31	21/03608/32			Units	Limit of Detection	Method ref
Client Sample No	3	2	3							
Client Sample ID	TP44	TP45	TP45	TP46	TP46					
Depth to Top	1.7	1.2	1.8	1.2	1.8					
Depth To Bottom										
Date Sampled	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	5AE	5A	5AE	3A	3					
%Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	<0.1			% w/w	0.1	A-T-044

Envirolab Job Number: 21/03608

Client Project Name: North Selby Mine

Client Project Ref: 350409

Lab Sample ID	21/03608/26	21/03608/28	21/03608/29	21/03608/31	21/03608/32			Units	Limit of Detection	Method ref
Client Sample No	3	2	3							
Client Sample ID	TP44	TP45	TP45	TP46	TP46					
Depth to Top	1.7	1.2	1.8	1.2	1.8					
Depth To Bottom										
Date Sampled	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	5AE	5A	5AE	3A	3					
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s	
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s	
Ali >C8-C10 _A	<1	1	<1	<1	<1		mg/kg	1	A-T-055s	
Ali >C10-C12 _A ^{M#}	<1	18	<1	<1	<1		mg/kg	1	A-T-055s	
Ali >C12-C16 _A ^{M#}	3	50	1	<1	<1		mg/kg	1	A-T-055s	
Ali >C16-C21 _A ^{M#}	4	43	3	<1	1		mg/kg	1	A-T-055s	
Ali >C21-C35 _A ^{M#}	9	20	4	1	4		mg/kg	1	A-T-055s	
Total Aliphatics _A	15	133	8	1	5		mg/kg	1	A-T-055s	
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s	
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s	
Aro >C8-C10 _A	<1	<1	<1	<1	<1		mg/kg	1	A-T-055s	
Aro >C10-C12 _A	<1	12	<1	<1	<1		mg/kg	1	A-T-055s	
Aro >C12-C16 _A	4	50	1	<1	<1		mg/kg	1	A-T-055s	
Aro >C16-C21 _A ^{M#}	3	41	1	<1	<1		mg/kg	1	A-T-055s	
Aro >C21-C35 _A ^{M#}	17	9	6	<1	4		mg/kg	1	A-T-055s	
Total Aromatics _A	23	112	9	<1	4		mg/kg	1	A-T-055s	
TPH (Ali & Aro >C5-C35) _A	38	245	17	1	9		mg/kg	1	A-T-055s	
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s	
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s	
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s	
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s	
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s	
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s	

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

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

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

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

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

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

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

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

Asbestos:

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

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

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

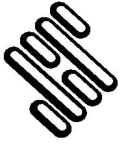
Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.



APPENDIX H LABORATORY CERTIFICATES FOR GEOTECHNICAL ANALYSIS



STRUCTURAL SOILS LTD
TEST REPORT



Report No. 784888 R1

1774

Date 21-April-2021 Contract Selby mine

Client RSK Environment Ltd
Address Spring Lodge
172 Chester Road
Helsby
Cheshire WA6 0AR

For the Attention of Will Hopkins

Samples submitted by client 12/04/2021
Testing Started 13/04/2021
Testing Completed 23/04/2021

Client Reference 350409
Client Order No.
Instruction Type Written

Tests marked 'Not UKAS Accredited' in this report are not included in the UKAS Accreditation Schedule for our Laboratory.

Ukas Accredited Tests Undertaken

Water Content BS EN ISO-17982-1
Liquid Limit (definitive method) BS EN ISO-17892-12
Plastic Limit BS EN ISO-17892-12
Plasticity Index Derivation BS EN ISO-17892-12

* This clause of BS1377 is no longer the most up to date method due to the publication of ISO17892

Please Note: Remaining samples will be retained for a period of one month from today and will then be disposed of.
Test were undertaken on samples 'as received' unless otherwise stated.
Opinions and interpretations expressed in this report are outside the scope of accreditation for this laboratory.

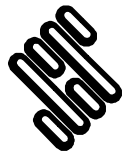
Structural Soils Ltd, The Potteries, Pottery Street, Castleford, WF10 1NJ Tel.01977 552255. E-mail mark.athorne@soils.co.uk

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with Part 1, Part 12 of BS EN ISO 17892

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Water Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
TP3	3	D	2.80	13.2	54	22	32	100	Orange brown CLAY
TP6	3	D	1.50	29.7	48	23	25	89	Orange brown CLAY
TP8	3	D	1.50	15.4	38	16	22	94	Orange brown CLAY
TP9	3	D	1.50	24.8	56	22	34	100	Orange brown CLAY
TP15	2	D	0.80	20.0	42	16	26	100	Orange brown CLAY
TP17	3	D	1.50	15.3	37	16	21	91	Orange brown CLAY
TP18	2	D	0.70	18.6	47	19	28	97	Orange brown CLAY
TP19	2	D	0.60	18.2	45	19	26	95	Orange brown CLAY

SYMBOLS: * denotes BS 1377



**STRUCTURAL
SOILS LTD**

Contract:

Selby Mine

Contract Ref:

784888



SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with Part 1, Part 12 of BS EN ISO 17892

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Water Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
TP23	4	D	2.90	20.2	41	17	24	94	Orange brown CLAY
TP31	2	D	0.80	27.4	42	17	25	100	Orange brown CLAY
TP33	1	D	0.90	28.5	57	23	34	100	Orange brown CLAY
TP37	2	D	0.90	26.7	52	23	29	97	Orange brown CLAY

SYMBOLS: * denotes BS 1377



**STRUCTURAL
SOILS LTD**

Contract:

Selby Mine

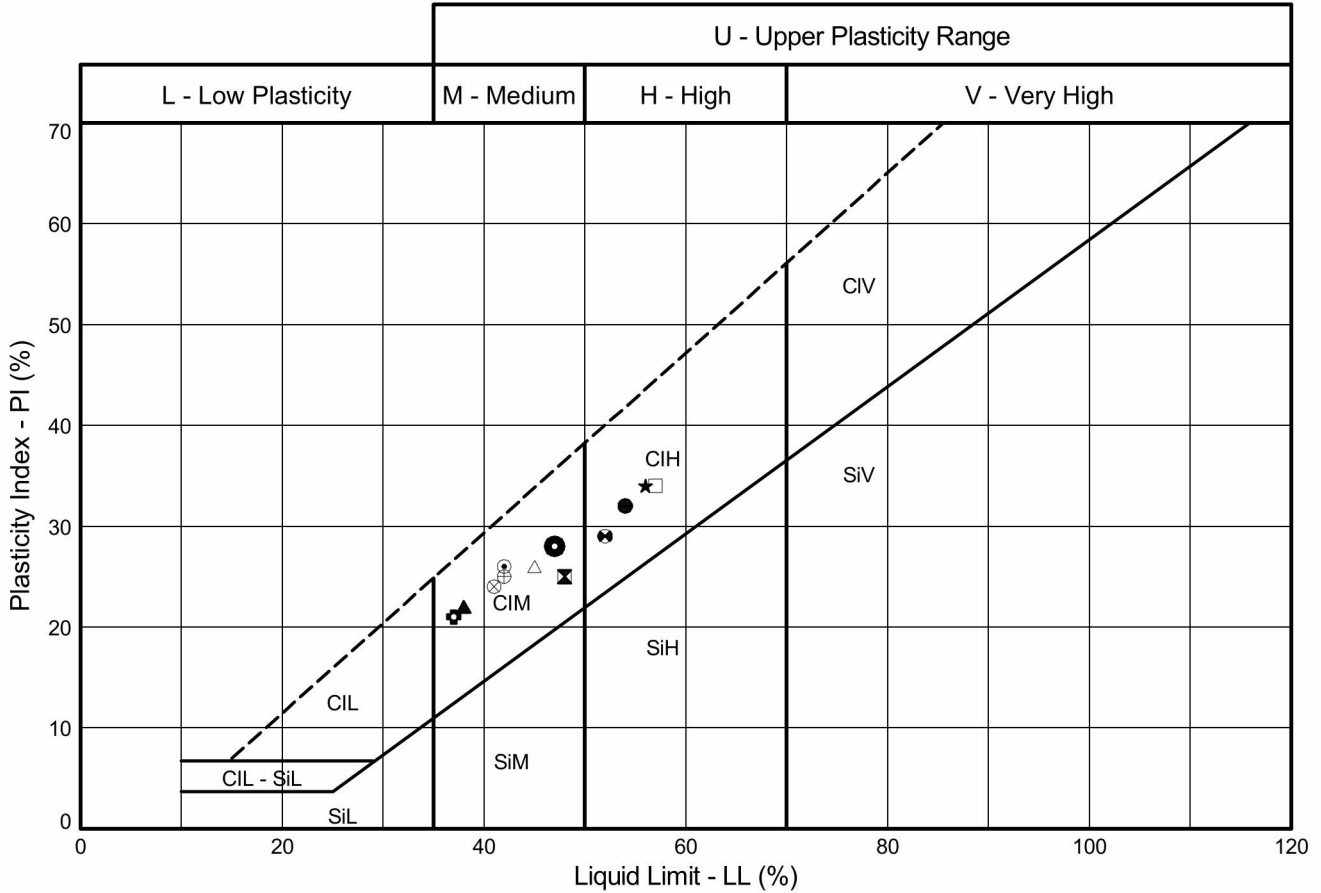
Contract Ref:

784888



PI vs LL CHART

According to BS EN 14688-2:2018
Testing in accordance with BS EN ISO 17892-12:2018



Sample Identification				Test Method #	Preparation Method +	WC %	LL %	PL %	PI %	<425µm %	Lab location	Notes
Exploratory Position ID	Sample	Depth (m)										
●	TP3	3D	2.80	5.3/5.5/6.5	5.2.1	13.2	54	22	32	100	C	
⊠	TP6	3D	1.50	5.3/5.5/6.5	5.2.7	29.7	48	23	25	89	C	
▲	TP8	3D	1.50	5.3/5.5/6.5	5.2.7	15.4	38	16	22	94	C	
★	TP9	3D	1.50	5.3/5.5/6.5	5.2.1	24.8	56	22	34	100	C	
⊙	TP15	2D	0.80	5.3/5.5/6.5	5.2.1	20.0	42	16	26	100	C	
⊕	TP17	3D	1.50	5.3/5.5/6.5	5.2.7	15.3	37	16	21	91	C	
⊗	TP18	2D	0.70	5.3/5.5/6.5	5.2.7	18.6	47	19	28	97	C	
△	TP19	2D	0.60	5.3/5.5/6.5	5.2.7	18.2	45	19	26	95	C	
⊗	TP23	4D	2.90	5.3/5.5/6.5	5.2.1	20.2	41	17	24	94	C	
⊕	TP31	2D	0.80	5.3/5.5/6.5	5.2.1	27.4	42	17	25	100	C	
□	TP33	1D	0.90	5.3/5.5/6.5	5.2.1	28.5	57	23	34	100	C	
⊗	TP37	2D	0.90	5.3/5.5/6.5	5.2.7	26.7	52	23	29	97	C	

Tested in accordance with the following clauses of BS EN ISO 17892-12:2018

- 5.3 - Cone Penetrometer Method
- 5.3.14 - One-Point Cone Penetrometer Method
- 5.4 - Casagrande Method
- 5.5 - Plastic Limit Method
- 6.5 - Plasticity Index

Water Content (WC) tested in accordance with BS EN ISO 17892-1:2014

+ Tested in accordance with the following clauses of BS EN ISO 17892-12:2018.

- 5.2.1 - Natural State
- 5.2.7 - Wet Sieved

Key: * = Non-standard test, NP = Non plastic, I = Increasing WC, D = Decreasing WC.

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)



STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By

Date

LUKE FISHER

23/04/21

Contract

Selby Mine

Contract Ref:

784888



TESTING VERIFICATION CERTIFICATE



1774

The test results included in this report are certified as:-

ISSUE STATUS: **FINAL**

In accordance with the Structural Soils Ltd Laboratory Quality Management System, results sheets and summaries of results issued by the laboratory are checked by an approved signatory. The integrity of the test data and results are ensured by control of the computer system employed by the laboratory as part of the Software Verification Program as detailed in the Laboratory Quality Manual.

This testing verification certificate covers all testing compiled on or before the following datetime: **21/04/2021 15:27:49**.

Testing reported after this date is not covered by this Verification Certificate.



Approved Signatory
Luke Fisher (Laboratory Manager)

(Head Office)
Bristol Laboratory
Unit 1A, Princess Street
Bedminster
Bristol
BS3 4AG

Castleford Laboratory
The Potteries, Pottery Street
Castleford
West Yorkshire
WF10 1NJ

Hemel Laboratory
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Tonbridge Laboratory
Anerley Court, Half Moon Lane
Hildenborough
Tonbridge
TN11 9HU



**STRUCTURAL
SOILS LTD**

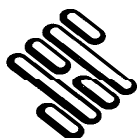
Contract:

Selby Mine

Job No:

784888





STRUCTURAL SOILS LTD
INSITU TESTING REPORT



1774

Report No. 784856.R01(00)

Date 25-March-2021 Contract North Selby Mine, York

Client RSK Environment

Address Spring Lodge
172 Chester Road
Helsby
Cheshire
WA6 0AR

For the Attention of Laura Alderman

Order received 10-March-2021

Testing Started 24-March-2021

Testing Completed 24-March-2021

Client Reference 350409

Client Order No. P02112117

Instruction Type Written

Tests marked 'Not UKAS Accredited' in this report are not included in the UKAS Accreditation Schedule for our Laboratory.

UKAS Accredited Tests

Not - UKAS Tests:

* 4 no. Soakaway Testing to BRE Digest 365

Please note that 3 fills in each pit was not achievable due to time constraints/ground conditions

The results represent the ground conditions at the specified locations and depths at the time of testing.

Please Note: Remaining samples will be retained for a period of one month from today and will then be disposed of.

Test were undertaken on samples 'as received' unless otherwise stated.

Opinions and interpretations expressed in this report are outside the scope of accreditation for this laboratory.

Structural Soils Ltd, The Potteries, Pottery Street, Castleford, WF10 1NJ Tel.01977552255. e-mail matthew.doran@soils.co.uk

TESTING VERIFICATION CERTIFICATE

The test results included in this report are certified as:-

ISSUE STATUS: **FINAL**

In accordance with the Structural Soils Ltd Laboratory Quality Management System, results sheets and summaries of results issued by the laboratory are checked by an approved signatory. The integrity of the test data and results are ensured by control of the computer system employed by the laboratory as part of the Software Verification Program as detailed in the Laboratory Quality Manual.

This testing verification certificate covers all testing compiled on or before the following datetime: **25/03/2021 09:44:40**.

Testing reported after this date is not covered by this Verification Certificate.



Approved Signatory
Matthew Doran (Deputy Site Testing Manager)

(Head Office)
Bristol Laboratory
Unit 1A, Princess Street
Bedminster
Bristol
BS3 4AG

Castleford Laboratory
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**STRUCTURAL
SOILS LTD**

Contract:

North Selby Mine, York

Job No:

784856

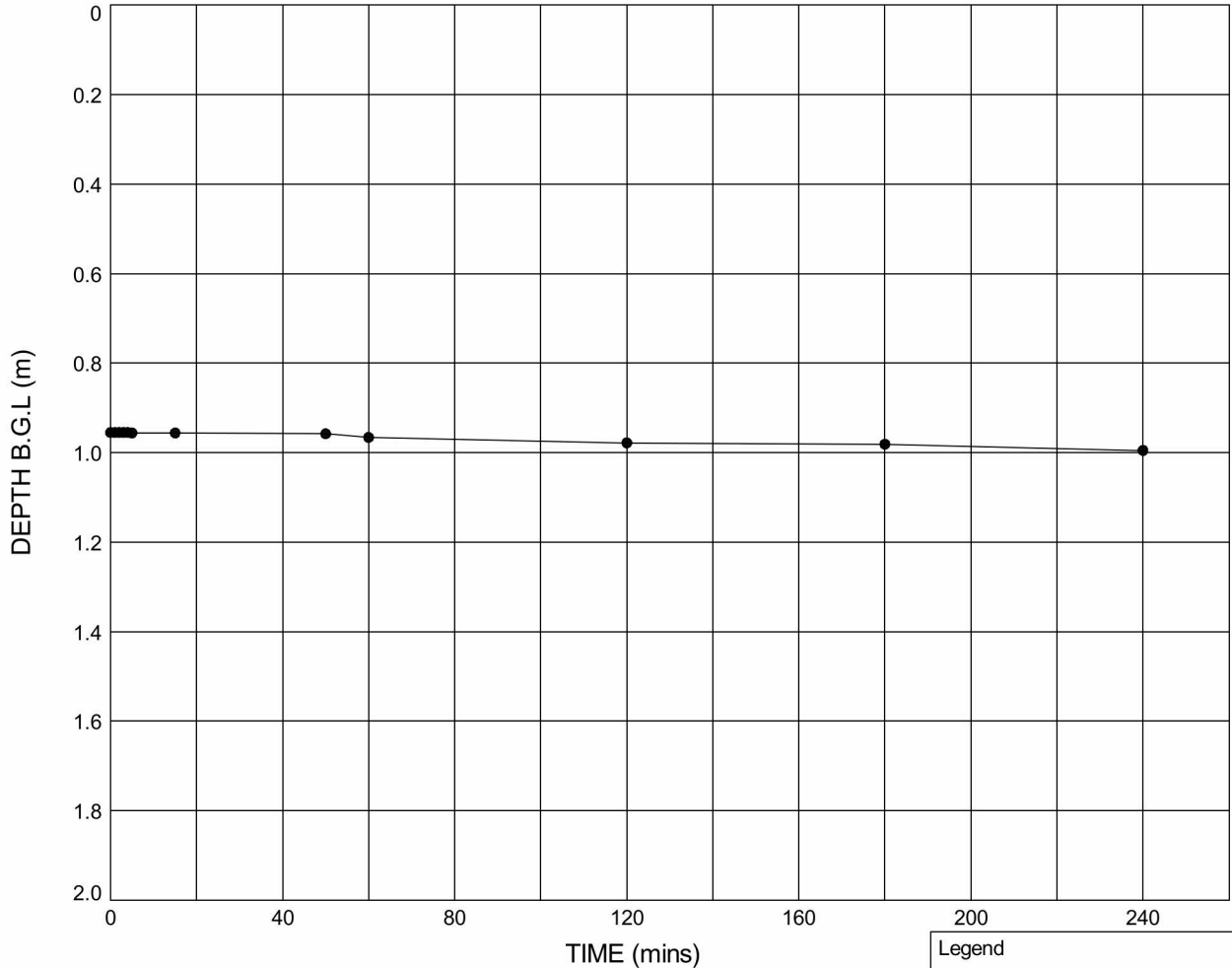


FULL SCALE SOAKAWAY TEST

Non-standard test

Soakaway Test - Position ID : TP12

Plot of Depth of Water Below Ground Level Against Time



Pit start depth: = **2.00** m
 Pit final depth: = **2.00** m
 Effective depth, D_e = **1.05** m
 Effective storage volume, V_{p75-25} = **0.2978** m³
 Surface area, a_{p50} = **2.8690** m²
 Time, t_{p75-25} = **N/A** secs
 Infiltration rate, f = **N/A** m/s

Notes: Test 1 - Unable to calculate infiltration rate due to insufficient drop in water level

Legend

● Test 1 (24.03.21)

Plan (Not to scale)

1.90

0.30

No Bearing Taken

GINT_LIBRARY_V10_01_GLB LibVersion: v8_07_001 PjVersion: v8_07 | Graph 1 - TP SOAKAWAY - 2 - FINAL REPORT - A4P | 784856.GPJ - v10_01 | 25/03/21 - 09:09 | DR1 |



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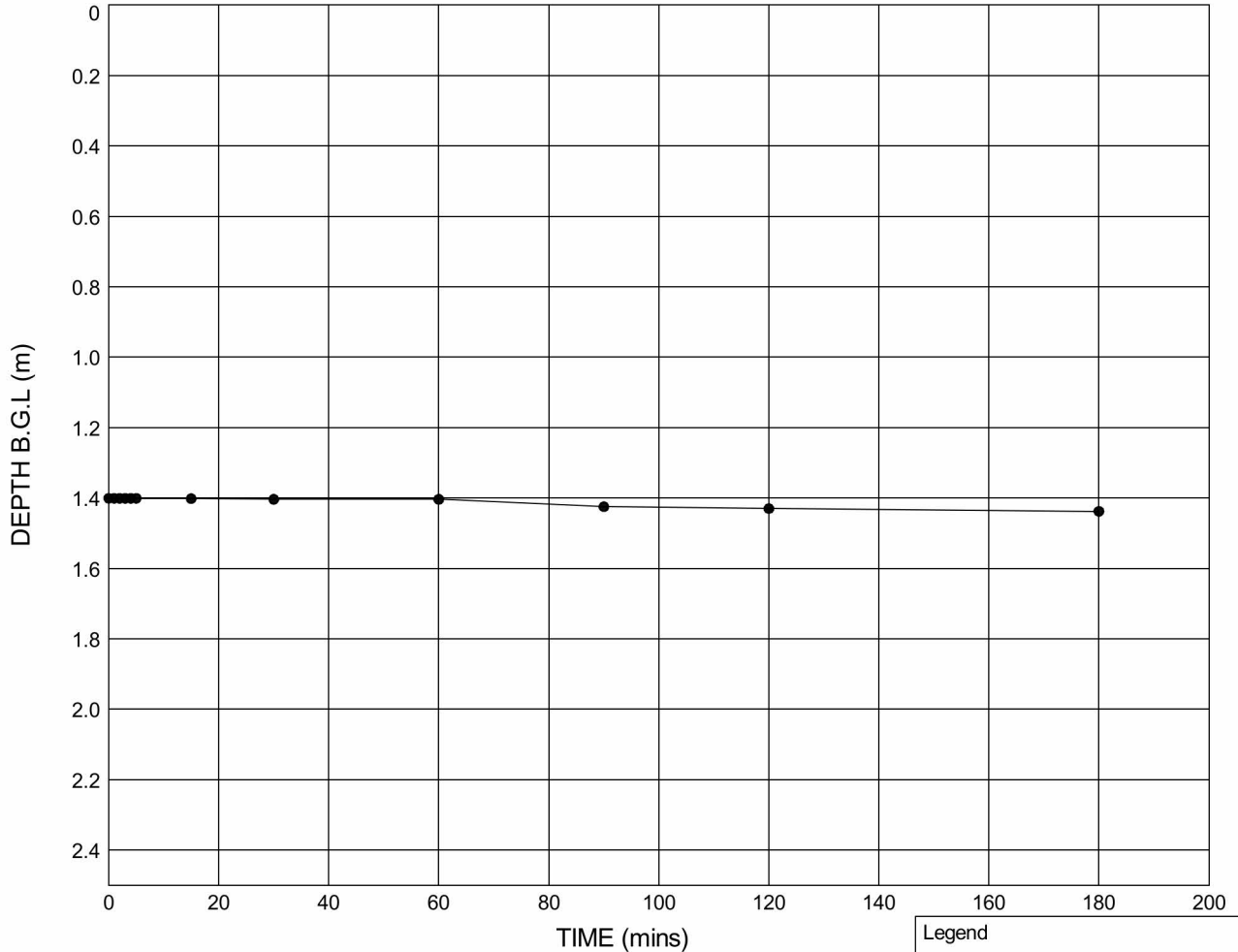
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[REDACTED]	25/03/21	[REDACTED]	25/03/21
Contract		Contract Ref:	
North Selby Mine, York		784856	

FULL SCALE SOAKAWAY TEST

Non-standard test

Soakaway Test - Position ID : TP19

Plot of Depth of Water Below Ground Level Against Time



Pit start depth: = **2.38** m
 Pit final depth: = **2.38** m
 Effective depth, D_e = **0.97** m
 Effective storage volume, V_{p75-25} = **0.3068** m³
 Surface area, a_{p50} = **2.9676** m²
 Time, t_{p75-25} = **N/A** secs
 Infiltration rate, f = **N/A** m/s

Notes: Test 1 - Unable to calculate infiltration rate due to insufficient drop in water level

Legend

● Test 1 (24.03.21)

Plan (Not to scale)

No Bearing Taken

GINT_LIBRARY_V10_01_GLB LibVersion: v8_07_001 ProjVersion: v8_07 | Graph 1 - TP SOAKAWAY - 2 - FINAL REPORT - A4P | 784856.GPJ - v10_01 | 25/03/21 - 09:16 | DRT1 |



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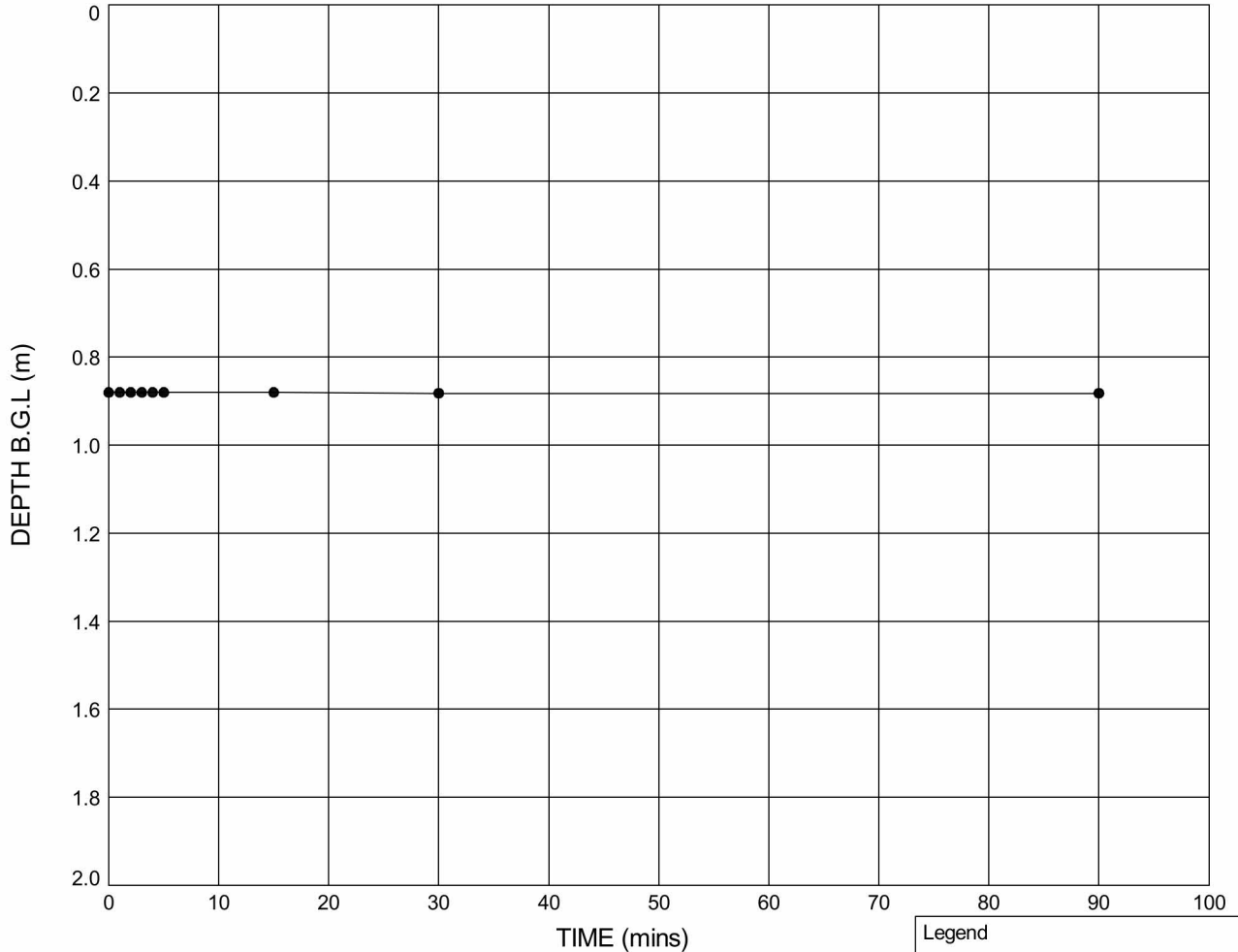
Compiled By	Date	Checked By	Date
[REDACTED]	25/03/21	[REDACTED]	25/03/21
Contract		Contract Ref:	
North Selby Mine, York		784856	

FULL SCALE SOAKAWAY TEST

Non-standard test

Soakaway Test - Position ID : TP24

Plot of Depth of Water Below Ground Level Against Time



Pit start depth: = **1.99** m
 Pit final depth: = **1.99** m
 Effective depth, D_e = **1.11** m
 Effective storage volume, V_{p75-25} = **0.3315** m³
 Surface area, a_{p50} = **2.6995** m²
 Time, t_{p75-25} = **N/A** secs
 Infiltration rate, f = **N/A** m/s

Notes: Test 1 - Unable to calculate infiltration rate due to insufficient drop in water level

Legend

● Test 1 (24.03.21)

Plan (Not to scale)

No Bearing Taken

GINT_LIBRARY_V10_01_GLB LibVersion: v8_07_001 ProjVersion: v8_07 | Graph 1 - TP SOAKAWAY - 2 - FINAL REPORT - A4P | 784856.GPJ - v10_01 | 25/03/21 - 09:21 | DR1 |



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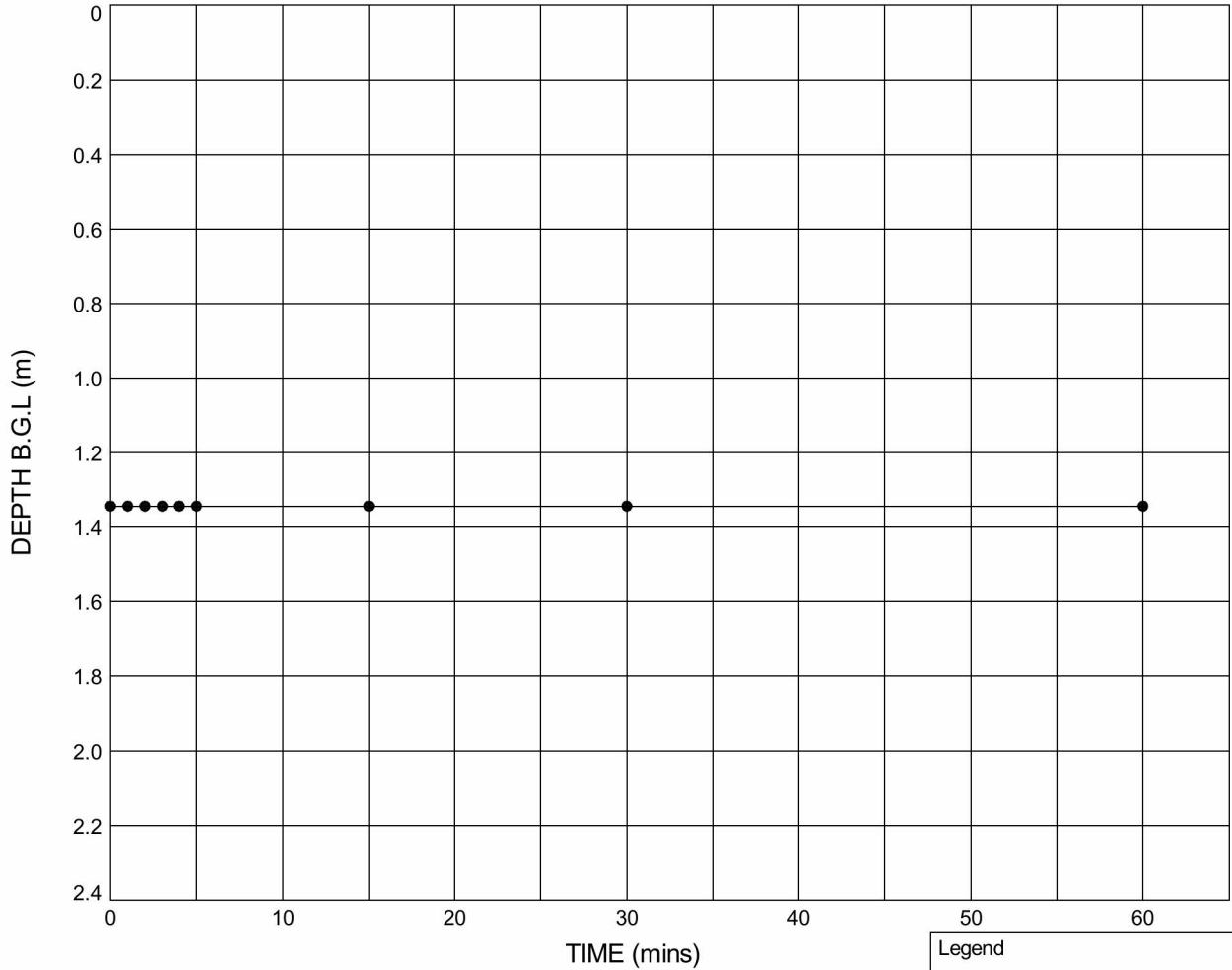
Compiled By	Date	Checked By	Date
[REDACTED]	25/03/21	[REDACTED]	25/03/21
Contract		Contract Ref:	
North Selby Mine, York		784856	

FULL SCALE SOAKAWAY TEST

Non-standard test

Soakaway Test - Position ID : TP34

Plot of Depth of Water Below Ground Level Against Time



Pit start depth: = **2.30** m
 Pit final depth: = **2.30** m
 Effective depth, D_e = **0.96** m
 Effective storage volume, V_{p75-25} = **0.3015** m³
 Surface area, a_{p50} = **2.9268** m²
 Time, t_{p75-25} = **N/A** secs
 Infiltration rate, f = **N/A** m/s

Notes: Test 1 - Unable to calculate infiltration rate due to insufficient drop in water level

Legend

● Test 1 (24.03.21)

Plan (Not to scale)

No Bearing Taken

GINT_LIBRARY_V10_01_GLB LibVersion: v8_07_001 PjVersion: v8_07 | Graph 1 - TP SOAKAWAY - 2 - FINAL REPORT - A4P | 784856.GPJ - v10_01 | 25/03/21 - 09:28 | DR1 |



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Contract		Contract Ref:	
North Selby Mine, York		784856	



APPENDIX I GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH

Generic assessment criteria for human health: residential scenario without home-grown produce

Background

RSK's generic assessment criteria (GAC) were initially prepared following the publication by the Environment Agency (EA) of soil guideline value (SGV) and toxicological (TOX) reports, and associated publications in 2009⁽¹⁾. RSK GAC were updated following the publication of GAC by LQM/CIEH in 2009⁽²⁾. RSK GAC are periodically revised when updated information on toxicological, land use or receptor parameters is published.

Updates to the RSK GAC

In 2014, the publication of Category 4 Screening Levels (C4SL)^(3,4), as part of the Defra-funded research project SP1010, included modifications to certain exposure assumptions documented within EA Science Report SC050221/SR3 (herein after referred to as SR3)⁽⁵⁾ used in the generation of SGVs.

C4SL were published for six substances (cadmium, arsenic, benzene, benzo(a)pyrene, chromium VI and lead) for a sandy loam soil type with 6% soil organic matter, based on a low level of toxicological concern (LLTC; see Section 2.3 of research project report SP1010⁽³⁾). Where a C4SL has been published, the RSK GAC duplicates the C4SL published values using all input parameters within the SP1010 final project report⁽³⁾ and associated appendices⁽⁶⁾, and adopts them as GAC for these six substances.

For all other substances the C4SL exposure modifications relevant for residential without home-grown produce end use have been applied to the current RSK GAC. These include alterations to daily inhalation rates for residential and commercial scenarios, reducing soil adherence factors in children (age classes 1 to 12 only) and reducing exposure frequency for dermal contact outdoors.

The RSK GAC have also been revised with updated toxicology published by LQM/CIEH in 2015⁽⁷⁾ or by the USEPA⁽¹⁴⁾, where a C4SL has not been published.

RSK GAC derivation for metals and organic compounds

Model selection

Soil assessment criteria (SAC) were calculated using the Contaminated Land Exposure Assessment (CLEA) tool v1.071, supporting EA guidance^(5,8,9) and revised exposure scenarios published for the C4SL⁽³⁾. The SAC are also termed GAC.

Conceptual model

In accordance with SR3⁽⁵⁾, the residential without home-grown produce scenario considers risks to a female child between the ages of 0 and 6 years old as the highest risk scenario. In accordance with Box 3.1 of SR3⁽⁵⁾, the pathways considered for production of the SAC in the residential without home-grown produce scenario are

- direct soil and dust ingestion in areas of soft landscaping
- dermal contact with soil and indoor dust

inhalation of indoor and outdoor dust and vapours.

Figure 1 is a conceptual model illustrating these linkages.

In line with guidance in the EA SGV report for cadmium⁽¹⁾, the RSK GAC for cadmium has been derived based on estimates representative of lifetime exposure. Although young children are generally more likely to have higher exposures to soil contaminants, the renal toxicity of cadmium, and the derivation of the TDI_{oral} and TDI_{inh} , are based on considerations of the kidney burden accumulated over 50 years or so. It is therefore reasonable to consider exposure not just in childhood but averaged over a longer period.

With respect to volatilisation, the CLEA model assumes a simple linear partitioning of a chemical in the soil between the sorbed, dissolved and vapour phase⁽⁹⁾. The upper boundaries of this partitioning are represented by the maximum aqueous solubility and pure saturated vapour concentration of the chemical. The CLEA model estimates saturated soil concentrations where these limits are reached⁽⁹⁾. The CLEA software uses a traffic light system to identify when individual and/or combined assessment criteria exceed the lower of either the aqueous- or vapour-based soil saturation limits. Model output cells are flagged red where the saturated soil concentration has been exceeded and the contribution of the indoor and outdoor vapour pathway to total exposure is greater than 10%. In this case, further consideration of the following is required⁽⁹⁾:

Free phase contamination may be present.

Exposure from the vapour pathways will be over-predicted by the model, as in reality the vapour phase concentration will not increase at concentrations above saturation limits

Where the vapour pathway contribution is greater than 90%, it is unlikely the relevant health criteria value (HCV) will be exceeded at soil concentrations at least a factor of ten higher than the relevant HCV.

Where the vapour pathway is the predominant pathway (contributes greater than 90% of exposure) or the only exposure route considered and the cell is highlighted red (SAC exceeds saturation limit), the risk based on the assumed conceptual model is likely to be negligible as the vapour risk is assumed to be tolerable at maximum possible soil concentrations. In such circumstances, the vapour pathway exposure should be considered based on the presence of free phase or non-aqueous phase liquid sources and the measured concentrations of volatile organic compounds (VOC) in the vapour phase. Screening could be considered based on setting the SAC as the modelled soil saturation limits. However, as stated within the CLEA handbook⁽⁹⁾, this is likely to not be practical in many cases because of the very low saturation limits and, in any case, is highly conservative.

It should also be noted that for mixtures of compounds, free phase may be present where soil (or groundwater) concentrations are well below saturation limits for individual compounds.

Where the vapour pathway is only one of the exposure pathways considered, an additional approach can then be utilised as detailed within Section 4.12 of the CLEA model handbook⁽⁹⁾, which explains how to calculate an effective assessment criterion manually.

SR3⁽⁵⁾ states that, as a general rule of thumb, it is recognised that estimating vapour phase concentrations from dissolved and sorbed phase contamination by petroleum hydrocarbons are at least a factor of ten higher than those likely to be measured on-site. RSK has therefore applied an empirical subsurface to indoor air correction factor of 10 into the CLEA model chemical database for all petroleum hydrocarbon fractions (including BTEX, trimethylbenzenes and the

polycyclic aromatic hydrocarbons (PAH) naphthalene, acenaphthene and acenaphthylene) to reduce this conservatism.

Input selection

The most up-to-date published chemical and toxicological data was obtained from EA Report SC050021/SR7⁽¹⁰⁾, the EA TOX⁽¹⁾ reports, the C4SL SP1010 project report and associated appendices^(3,6), the 2015 LQM/CIEH report⁽⁷⁾ or the USEPA IRIS database⁽¹⁴⁾. Where a C4SL has been published, the RSK GAC have duplicated the C4SL published values using all input parameters within the SP1010 final project report⁽³⁾ and associated appendices⁽⁶⁾, and has adopted them as GAC for these six substances. Toxicological and specific chemical parameters for 1,2,4-trimethylbenzene, barium and methyl tertiary-butyl ether (MTBE) were obtained from the CL:AIRE Soil Generic Assessment Criteria report⁽¹¹⁾.

For TPH, aromatic hydrocarbons C₅–C₈ were not modelled, as this range comprises benzene (>EC5-EC7) and toluene (>EC7-EC8), which are modelled separately.

Physical parameters

For the residential without home-grown produce scenario, the CLEA default building is a small, two-storey terrace house with a concrete ground-bearing slab. SR3⁽⁵⁾ notes this residential building type to be the most conservative in terms of potential for vapour intrusion. The building parameters used in the production of the RSK GACs are the default CLEA v1.06 inputs presented in Table 3.3 of SR3⁽³⁾, with a dust loading factor detailed in Section 9.3 of SR3⁽⁵⁾. The parameters for a sandy loam soil type were used in line with Table 4.4 of SR3⁽⁵⁾. This includes a value of 6% for the percentage of soil organic matter (SOM) within the soil. In RSK's experience, this is rather high for many sites. To avoid undertaking site-specific risk assessments for this SOM, RSK has produced an additional set of GAC for SOM of 1% and 2.5% for all substances using the CLEA tool.

Summary of modifications to the default CLEA SR3⁽⁵⁾ input parameters for residential without home-grown produce

In summary, the RSK GAC were produced using the default input parameters for soil properties, the air dispersion model, building properties and the vapour model detailed in SR3⁽⁵⁾. Modifications to the default SR3⁽⁵⁾ exposure scenarios based on the C4SL exposure scenarios⁽³⁾ are presented in Table 2 below.

The final selected GAC are presented by pathway in Table 3 and the combined GAC in Table 4.

Figure 1: Conceptual model for CLEA residential scenario without home-grown produce

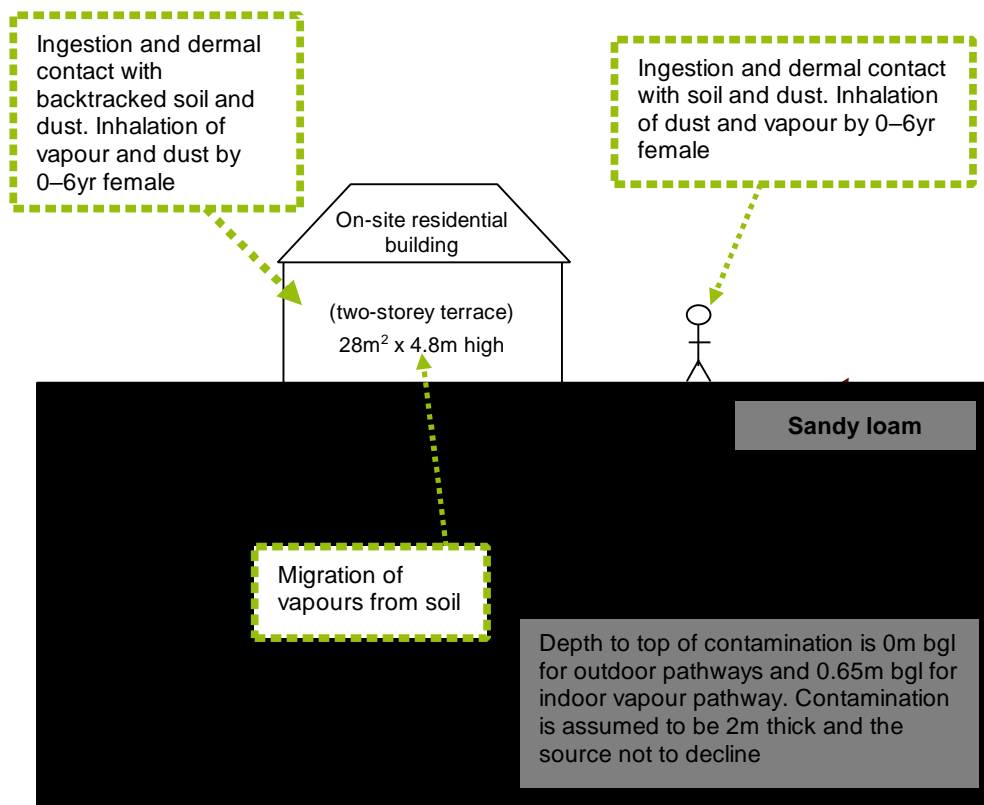


Table 1: Exposure assessment parameters for residential scenario without home-grown produce – inputs for CLEA model

Parameter	Value	Justification
Land use	Residential without home-grown produce	Chosen land use
Receptor	Female child	Key generic assumption given in Box 3.1, SR3 ⁽⁵⁾
Building	Small terraced house	Key generic assumption given in Box 3.1, SR3 ⁽⁵⁾ . Small, two-storey terraced house chosen, as it is the most conservative residential building type in terms of protection from vapor intrusion (Section 3.4.6, SR3) ⁽⁵⁾
Soil type	Sandy loam	Most common UK soil type (Section 4.3.1, from Table 3.1, SR3) ⁽⁵⁾
Start age class (AC)	1	Range of age classes corresponding to key generic assumption that the critical receptor is a young female child aged 0–6. From Box 3.1, SR3 ⁽⁵⁾
End AC	6	
SOM (%)	6	Representative of sandy loamy soil according to EA guidance note dated January 2009 entitled 'Changes We Have Made to the CLEA Framework Documents' ⁽¹³⁾
	1	To provide SAC for sites where SOM <6% as often observed by RSK
	2.5	
pH	7	Model default



Table 2: Residential without home-grown produce – modified receptor data

Parameter	Unit	Age class					
		1	2	3	4	5	6
Soil to skin adherence factor – (outdoor)	mg soil/cm ² skin	0.1	0.1	0.1	0.1	0.1	0.1
Justification		Table 3.5, SP1010 ⁽³⁾					
Inhalation rate	m ³ day ⁻¹	5.4	8.0	8.9	10.1	10.1	10.1
Justification		Mean value USEPA, 2011 ⁽¹²⁾ ; Table 3.2, SP1010 ⁽³⁾					
<p>Notes: For cadmium, the exposure assessment for a residential land use is based on estimates representative of lifetime exposure AC1-18. This is because the TDI_{oral} and TDI_{inh} are based on considerations of the kidney burden accumulated over 50 years. It is therefore reasonable to consider exposure not just in childhood but averaged over a longer period. See the Environment Agency Science Report SC05002/ TOX 3⁽¹⁾, Science Report SC050021/Cadmium SGV⁽¹⁾ and the project report SP1010⁽³⁾ for more information.</p>							

References

1. Environment Agency (2009), 'Science Reports SC050021 - SGV and TOX reports for: benzene, toluene, ethylbenzene, xylene, mercury, selenium, nickel, arsenic, cadmium, phenol, dioxins, furans and dioxin-like PCBs'; 'Supplementary information for the derivation of SGV for: benzene, toluene, ethylbenzene, xylene, mercury, selenium, nickel, arsenic, cadmium, phenol, dioxins, furans and dioxin-like PCBs', and 'Contaminants in soil: updated collation of toxicological data and intake values for humans: benzene, toluene, ethylbenzene, xylene, mercury, selenium, nickel, arsenic, cadmium, phenol, dioxins, furans and dioxin-like PCBs'. Available at: <https://www.gov.uk/government/publications/contaminants-in-soil-updated-collation-of-toxicological-data-and-intake-values-for-humans> and <https://www.gov.uk/government/publications/land-contamination-soil-guideline-values-sgvs> (accessed 4 February 2015)
2. Nathaniel, C. P., McCaffrey, C., Ashmore, M., Cheng, Y., Gillet, A. G., Ogden, R. C. and Scott, D. (2009), *LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment*, second edition (Nottingham: Land Quality Press).
3. Contaminated Land: Applications in Real Environment (CL:AIRE) (2014). 'Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination', Revision 2, DEFRA research project SP1010.
4. Department for Environment, Food and Rural Affairs (Defra) (2014), 'SP1010: Development of Category 4 Screening Levels for assessment of land affected by contamination – Policy Companion Document', Revision 2.
5. Environment Agency (2009), *Science Report – SC050021/SR3. Updated technical background to the CLEA model* (Bristol: Environment Agency).
6. Contaminated Land: Applications in Real Environment (CL:AIRE) (2014). 'Appendices C to H). DEFRA research project SP1010'.
7. Nathaniel, C. P., McCaffrey, C., Gillet, A. G., Ogden, R. C. and Nathaniel, J. F. (2015), *The LQM/CIEH S4ULs for Human Health Risk Assessment* (Nottingham: Land Quality Press).
8. Environment Agency (2009), *Human health toxicological assessment of contaminants in soil. Science Report – Final SC050021/SR2* (Bristol: Environment Agency).
9. Environment Agency (2009), *Science Report – SC050021/SR4 CLEA Software (version 1.05) Handbook* (Bristol: Environment Agency).
10. Environment Agency (2008), *Science Report SC050021/SR7. Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values* (Bristol: Environment Agency).
11. CL:AIRE (2010), *Soil Generic Assessment Criteria for Human Health Risk Assessment* (London: CL:AIRE).
12. USEPA (2011), *Exposure factors handbook*, EPA/600/R-090/052F (Washington, DC: Office of Research and Development).
13. Environment Agency (2009), 'Changes made to the CLEA framework documents after the three-month evaluation period in 2008', released January 2009.
14. USEPA (2010). Hydrogen cyanide and cyanide salts. Integrated Risk Information Systems (IRIS) Chemical Assessment Summary. September 2010. <https://www.epa.gov/iris> (accessed 9 December 2015)



GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - RESIDENTIAL WITHOUT HOME-GROWN PRODUCE



Table 3
 Human Health Generic Assessment Criteria by Pathway for Residential Scenario Without Home-Grown Produce

Compound	...	SAC Appropriate to Pathway SOM 1% (mg/kg)			Soil Saturation Limit (mg/kg)	SAC Appropriate to Pathway SOM 2.5% (mg/kg)			Soil Saturation Limit (mg/kg)	SAC Appropriate to Pathway SOM 6% (mg/kg)			Soil Saturation Limit (mg/kg)
		Oral	Inhalation	Combined		Oral	Inhalation	Combined		Oral	Inhalation	Combined	

Generic assessment criteria for human health: public open space (public park) scenario

Background

RSK's generic assessment criteria (GAC) were initially prepared following the publication by the Environment Agency (EA) of soil guideline value (SGV) and toxicological (TOX) reports, and associated publications in 2009⁽¹⁾. RSK GAC were updated following the publication of GAC by LQM/CIEH in 2009⁽²⁾. RSK GAC are periodically revised when updated information on toxicological, land use or receptor parameters is published.

Updates to the RSK GAC

In 2014 the publication of Category 4 Screening Levels (C4SL)^(3,4), as part of the Defra-funded research project SP1010, included modifications to certain exposure assumptions documented within EA Science Report SC050221/SR3 (herein after referred to as SR3)⁽⁵⁾ used in the generation of SGVs. The publication of C4SL introduced two new land-use scenarios relating to public open spaces.

C4SL were published for six substances (cadmium, arsenic, benzene, benzo(a)pyrene, chromium VI and lead) for a sandy loam soil type with 6% soil organic matter, based on a low level of toxicological concern (LLTC; see Section 2.3 of research project report SP1010⁽³⁾). Where a C4SL has been published, the RSK GAC duplicates the C4SL published values using all input parameters within the SP1010 final project report⁽³⁾ and associated appendices⁽⁶⁾, and adopts them as GAC for these six substances.

For all other substances the C4SL exposure modifications have been applied. The RSK GAC have also been produced with updated toxicology published by LQM/CIEH in 2015⁽⁷⁾ or by the USEPA⁽¹⁴⁾, where a C4SL has not been published.

RSK GAC derivation for metals and organic compounds

Model selection

Soil assessment criteria (SAC) were calculated using the Contaminated Land Exposure Assessment (CLEA) tool v1.06, supporting EA guidance^(5,8,9) and revised exposure scenarios published for the C4SL⁽³⁾.

Conceptual model

This GAC derivation considers POS_{Park} be used for the following scenarios:

- family visits and picnics

- children's play areas

- sporting activities such as football on an informal basis (not considered as a dedicated sports pitch)

- dog walking.

The POS_{Park} scenario considers risk to a child receptor (female) between the ages of 0 and 6 years old. In accordance with Section 3.6.4.3 of the SP1010 project report⁽³⁾, the pathways considered for production of SAC in the POS_{Park} scenario are

- ingestion of soil outdoors
- dermal contact with soil outdoors
- inhalation of dust outdoors
- inhalation of vapours outdoors.

Figure 1 is a conceptual model illustrating these linkages.

In line with guidance in the EA SGV report for cadmium⁽¹⁾, the RSK GAC for cadmium has been derived based on estimates representative of lifetime exposure. Although young children are generally more likely to have higher exposures to soil contaminants, the renal toxicity of cadmium, and the derivation of the TDI_{oral} and TDI_{inh}, are based on considerations of the kidney burden accumulated over 50 years or so. It is therefore reasonable to consider exposure not just in childhood but averaged over a longer period.

With respect to volatilisation, the CLEA model assumes a simple linear partitioning of a chemical in the soil between the sorbed, dissolved and vapour phase⁽⁹⁾. The upper boundaries of this partitioning are represented by the maximum aqueous solubility and pure saturated vapour concentration of the chemical. The CLEA model estimates saturated soil concentrations where these limits are reached⁽⁹⁾. The CLEA software uses a traffic light system to identify when individual and/or combined assessment criteria exceed the lower of either the aqueous- or vapour-based soil saturation limits. Model output cells are flagged red where the saturated soil concentration has been exceeded and the contribution of the indoor and outdoor vapour pathway to total exposure is greater than 10%. In this case, further consideration of the following is required⁽⁹⁾:

- Free phase contamination may be present.

- Exposure from the vapour pathways will be over-predicted by the model, as in reality the vapour phase concentration will not increase at concentrations above saturation limits

- Where the vapour pathway is greater than 90%, it is unlikely the relevant health criteria value (HCV) will be exceeded at soil concentrations at least a factor of ten higher than the relevant HCV.

Where the vapour pathway is the predominant pathway (contributes greater than 90% of exposure) or the only exposure route considered and the cell is highlighted red (SAC exceeds saturation limit), the risk based on the assumed conceptual model is likely to be negligible, as the vapour risk is assumed to be tolerable at maximum possible soil concentrations. In such circumstances the vapour pathway should be considered based on the presence of free phase or non-aqueous phase liquid sources and the measured concentrations of volatile organic compounds (VOC) in the vapour phase. Screening could be considered based on setting the SAC as the modelled soil saturation limits. However, as stated within the CLEA handbook⁽⁹⁾, this is likely to not be practical in many cases because of the very low saturation limits and, in any case, is highly conservative.

It should also be noted that for mixtures of compounds, free phase may be present where soil (or groundwater) concentrations are well below saturation limits for individual compounds.

Where the vapour pathway is only one of the exposure pathways considered, an additional approach can then be utilised as detailed within Section 4.12 of the CLEA model handbook⁽⁹⁾, which explains how to calculate an effective assessment criterion manually.

SR3⁽⁵⁾ states that, as a general rule of thumb, it is recognised that estimating vapour phase concentrations from dissolved and sorbed phase contamination by petroleum hydrocarbons are at least a factor of ten higher than those likely to be measured on-site. RSK has therefore applied an empirical subsurface correction factor of 10 into the CLEA chemical database for all petroleum hydrocarbons (including BTEX, trimethylbenzenes, and the polycyclic aromatic hydrocarbons (PAH) naphthalene, acenaphthene and acenaphthylene) to reduce this conservatism.

Input selection

The most up-to-date published chemical and toxicological data was obtained from EA Report SC050021/SR7⁽¹⁰⁾, the EA TOX⁽¹⁾ reports, the C4SL SP1010 project report and associated appendices^(3,6), the 2015 LQM/CIEH report⁽⁷⁾ or the USEPA IRIS database⁽¹⁴⁾. Where a C4SL has been published, the RSK GAC duplicates the C4SL published values using all input parameters within the SP1010 final project report⁽³⁾ and associated appendices⁽⁶⁾, and adopts them as GAC for these six substances. Toxicological and specific chemical parameters for 1,2,4-trimethylbenzene, barium and methyl tertiary-butyl ether (MTBE) were obtained from the CL:AIRE Soil Generic Assessment Criteria report⁽¹¹⁾.

For TPH, aromatic hydrocarbons C₅–C₈ were not modelled, as this range comprises benzene (>EC5-EC7) and toluene (>EC7-EC8), which are modelled separately.

Physical parameters

For the POS_{Park} scenario, project report SP1010⁽³⁾ considers there to be no buildings with the public park, the park being a relatively large area (>0.5ha) of predominantly grassed open space with no more than 25% of exposed soil. The input parameters were based on the air dispersion model and the vapour model detailed in SR3⁽⁵⁾. Full details of the land-use scenario are presented in Table 3.7 of project report SP1010⁽³⁾.

The parameters for a sandy loam soil type were used in line with SR3⁽⁵⁾. This includes a value of 6% for the percentage of soil organic matter (SOM) within the soil. In RSK's experience, this is rather high for many sites. To avoid undertaking site-specific risk assessments for this parameter, RSK has produced an additional set of SAC for an SOM of 1% and 2.5%.

The SAC were produced using the input parameters in Table 1 below and Table 3.6 of project report SP1010⁽³⁾. The GAC by pathway are presented in Table 2 and the combined GAC presented in Table 3.

Figure 1: Conceptual model for CLEA public open space (park) scenario

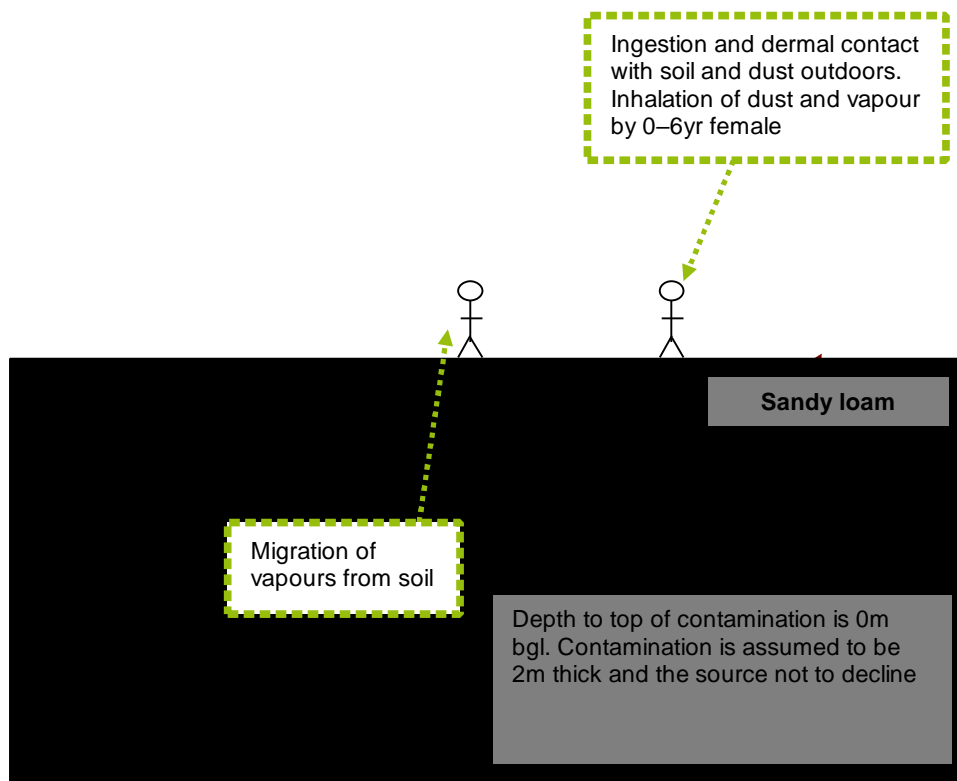


Table 1: Exposure assessment parameters for public open space (park) scenario

Parameter	Value	Justification
Land use	Public open space (park)	Chosen land use. Table 3.7 of SP1010 ⁽³⁾
Receptor	Female child	Taken as female child exposed over 6 years from 0 to 6 years, Table 3.7, SP1010 ⁽³⁾
Soil type	Sandy loam	Most common UK soil type (Section 4.3.1, Table 4.4, SR3 ⁽⁵⁾)
Start age class (AC)	1	Range of AC corresponding to key generic assumption that the critical receptor is a young female child aged 0–6 years. From Table 3.7, SP1010 ⁽³⁾
End AC	6	
SOM (%)	6	Representative of sandy loam according to EA guidance note dated January 2009 entitled 'Changes We Have Made to the CLEA Framework Documents' ⁽¹³⁾
	1	To provide SAC for sites where SOM < 6% as often observed by RSK
	2.5	
pH	7	Model default

References

1. Environment Agency (2009), Science Reports SC050021 - SGV and TOX reports for: benzene, toluene, ethylbenzene, xylene, mercury, selenium, nickel, arsenic, cadmium, phenol, dioxins, furans and dioxin-like PCBs'; 'Supplementary information for the derivation of SGV for: benzene, toluene, ethylbenzene, xylene, mercury, selenium, nickel, arsenic, cadmium, phenol, dioxins, furans and dioxin-like PCBs' and 'Contaminants in soil: updated collation of toxicological data and intake values for humans: benzene, toluene, ethylbenzene, xylene, mercury, selenium, nickel, arsenic, cadmium, phenol, dioxins, furans and dioxin-like PCBs'. Available at: <https://www.gov.uk/government/publications/contaminants-in-soil-updated-collation-of-toxicological-data-and-intake-values-for-humans> and <https://www.gov.uk/government/publications/land-contamination-soil-guideline-values-sgvs> (accessed 4 February 2015).
2. Nathaniel, C. P., McCaffrey, C., Ashmore, M., Cheng, Y., Gillet, A. G., Ogden, R. C. and Scott, D. (2009), *LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment*, second edition (Nottingham: Land Quality Press).
3. Contaminated Land: Applications in Real Environment (CL:AIRE) (2014), 'Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination', Revision 2, DEFRA research project SP1010'.
4. Department for Environment, Food and Rural Affairs (Defra) (2014), 'SP1010: Development of Category 4 Screening Levels for assessment of land affected by contamination – Policy Companion Document', Revision 2.
5. Environment Agency (2009), *Science Report – SC050021/SR3. Updated technical background to the CLEA model* (Bristol: Environment Agency).
6. Contaminated Land: Applications in Real Environment (CL:AIRE) (2014), 'Appendices C to H). DEFRA research project SP1010'.
7. Nathaniel, C. P., McCaffrey, C., Gillet, A. G., Ogden, R. C. and Nathaniel, J. F. (2015), *The LQM/CIEH S4ULs for Human Health Risk Assessment* (Nottingham Land Quality Press).
8. Environment Agency (2009), *Human health toxicological assessment of contaminants in soil. Science Report – Final SC050021/SR2* (Bristol: Environment Agency).
9. Environment Agency (2009), *Science Report – SC050021/SR4 CLEA Software (version 1.05) Handbook* (Bristol: Environment Agency).
10. Environment Agency (2008), *Science Report SC050021/SR7. Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values* (Bristol: Environment Agency).
11. CL:AIRE (2010), *Soil Generic Assessment Criteria for Human Health Risk Assessment* (London: CL:AIRE).
12. USEPA (2011), *Exposure factors handbook*, EPA/600/R-090/052F (Washington DC: Office of Research and Development).
13. Environment Agency (2009), 'Changes made to the CLEA framework documents after the three-month evaluation period in 2008', released January 2009'.
14. USEPA (2010). Hydrogen cyanide and cyanide salts. Integrated Risk Information Systems (IRIS) Chemical Assessment Summary. September 2010. <https://www.epa.gov/iris> (accessed 9 December 2015)



APPENDIX J GENERIC ASSESSMENT CRITERIA FOR POTABLE WATER SUPPLY PIPES

A range of pipe materials is available and careful selection, design and installation is required to ensure that water supply pipes are satisfactorily installed and meet the requirements of the Water Supply (Water Fittings) Regulations 1999 in England and Wales, the Byelaws 2000 in Scotland and the Northern Ireland Water Regulations. The regulations include a requirement to use only suitable materials when laying water pipes and laying water pipes without protection is not permitted at contaminated sites. The water supply company has a statutory duty to enforce the regulations.

Contaminants in the ground can pose a risk to human health by permeating potable water supply pipes. To fulfil their statutory obligation, UK water supply companies require robust evidence from developers to demonstrate either that the ground in which new plastic supply pipes will be laid is free from specific contaminants, or that the proposed remedial strategy will mitigate any existing risk. If these requirements cannot be demonstrated to the satisfaction of the relevant water company, it becomes necessary to specify an alternative pipe material on the whole development or in specific zones.

In 2010, UK Water Industry Research (UKWIR) published *Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites* (Report Ref. No. 10/WM/03/21). This report reviewed previously published industry guidelines and threshold concentrations adopted by individual water supply companies.

The focus of the UKWIR research project was to develop clear and concise procedures, which provide consistency in the pipe selection decision process. It was intended to provide guidance that can be used to ensure compliance with current regulations and to prevent water supply pipe failing prematurely due to the presence of contamination.

The report concluded that in most circumstances only organic contaminants pose a potential risk to plastic pipe materials and Table 3.1 of the report provides threshold concentrations for polyethylene (PE) and polyvinyl chloride (PVC) pipes for the organic contaminants of concern. The report also makes recommendations for the procedures to be adopted in the design of site investigations and sampling strategies, and the assessment of data, to ensure that the ground through which water supply pipes will be laid is adequately characterised.

Risks to water supply pipes have therefore been assessed against the threshold concentrations for PE and PVC pipe specified in Table 3.1 of Report 10/WM/03/21, which have been adopted as the GAC for this linkage and are reproduced in Table A3 below.

Since water supply pipes are typically laid at a minimum depth of 0.75 m below finished ground levels, sample results from depths between 0.5 m and 1.5 m below finished level are generally considered suitable for assessing risks to water supply. Samples outside these depths can be used, providing the stratum is the same as that in which water supply pipes are likely to be located. The report specifies that sampling should characterise the ground conditions to a minimum of 0.5 m below the proposed depth of the pipe.


It should be noted that the assessment provided in this report is a guide and the method of assessment and recommendations should be checked with the relevant water supply company.

Table Q1: Generic assessment criteria for water supply pipes

		Pipe material	
		GAC (mg/kg)	
	Parameter group	PE	PVC
1	Extended VOC suite by purge and trap or head space and GC-MS with TIC (Not including compounds within group 1a)	0.5	0.125
1a	BTEX + MTBE	0.1	0.03
2	SVOCs TIC by purge and trap or head space and GC-MS with TIC (aliphatic and aromatic C ₅ -C ₁₀) (Not including compounds within group 2e and 2f)	2	1.4
2e	Phenols	2	0.4
2f	Cresols and chlorinated phenols	2	0.04
3	Mineral oil C ₁₁ -C ₂₀	10	Suitable
4	Mineral oil C ₂₁ -C ₄₀	500	Suitable
5	Corrosive (conductivity, redox and pH)	Suitable	Suitable
Specific suite identified as relevant following site investigation			
2a	Ethers	0.5	1
2b	Nitrobenzene	0.5	0.4
2c	Ketones	0.5	0.02
2d	Aldehydes	0.5	0.02
6	Amines	Not suitable	Suitable
Notes: where indicated as 'suitable', the material is considered resistant to permeation or degradation and no threshold concentration has been specified by UKWIR.			



APPENDIX K GQRA DATA SCREENING TABLES – SOILS

Project name	North Selby Mine	Notes		
Project code	350409			
Client name	Harworth Group			
Address	New Road, York, YO19 6EZ			
NGR	464590, 444190			
Land use	Residential without home-grown produce			
SOM	2.5%			
GAC version	2019_00			

Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects	Notes
Lab sample ID 21/03351/4 Client sample ID TP2 Depth to top 0.3 Depth to bottom Date sampled 22/03/21									
Metals and Inorganics									
Arsenic	mg/kg	40		2	2	1	1	0	2
Cadmium	mg/kg	149		0.5	0.5	1	1	0	0.5
Chromium	mg/kg	910	21	18	18	1	1	0	18
Copper	mg/kg	7100		16	16	1	1	0	16
Lead	mg/kg	310		25	25	1	1	0	25
Mercury	mg/kg	56	0.6	<0.17		1	0	1	<0.17
Nickel	mg/kg	180		12	12	1	1	0	12
Selenium	mg/kg	430		<1		1	0	1	<1
Zinc	mg/kg	40000		50	50	1	1	0	50
Asbestos									
Asbestos in soil						1	0	1	NAD
Petroleum Hydrocarbons									
Alli >C5-C6	mg/kg	78		<0.01		1	0	1	<0.01
Alli >C6-C8	mg/kg	230		<0.01		1	0	1	<0.01
Alli >C8-C10	mg/kg	65		<1		1	0	1	<1
Alli >C10-C12	mg/kg	330	118	<1		1	0	1	<1
Alli >C12-C16	mg/kg	2400	59	<1		1	0	1	<1
Alli >C16-C21	mg/kg			<1		1	0	1	<1
Alli >C21-C35	mg/kg			6	6	1	1	0	6
Alli >C16-C35 calculated	mg/kg	92000	21	6	6	1	1	0	6
Total Aliphatics	mg/kg			6	6	1	1	0	6
Aro >C5-C7	mg/kg			<0.01		1	0	1	<0.01
Aro >C7-C8	mg/kg			<0.01		1	0	1	<0.01
Aro >C8-C10	mg/kg	115		<1		1	0	1	<1
Aro >C10-C12	mg/kg	600		<1		1	0	1	<1
Aro >C12-C16	mg/kg	2300	419	<1		1	0	1	<1
Aro >C16-C21	mg/kg	1900		<1		1	0	1	<1
Aro >C21-C35	mg/kg	1900		6	6	1	1	0	6
Total Aromatics	mg/kg			6	6	1	1	0	6
TPH (Ali & Aro)	mg/kg			13	13	1	1	0	13
BTEX - Benzene	mg/kg	1.6		<0.01		1	0	1	<0.01
BTEX - Toluene	mg/kg	1900		<0.01		1	0	1	<0.01
BTEX - Ethyl Benzene	mg/kg	190		<0.01		1	0	1	<0.01
BTEX - o Xylene	mg/kg	210		<0.01		1	0	1	<0.01
BTEX - m & p Xylene	mg/kg	180		<0.01		1	0	1	<0.01
MTBE	mg/kg	170		<0.01		1	0	1	<0.01
Polycyclic aromatic hydrocarbons									
Acenaphthene	mg/kg	7200		<0.01		1	0	1	<0.01
Acenaphthylene	mg/kg	7200		<0.01		1	0	1	<0.01
Anthracene	mg/kg	35000		<0.02		1	0	1	<0.02
Benzo(a)anthracene	mg/kg	13.6		<0.04		1	0	1	<0.04
Benzo(a)pyrene	mg/kg	5.3		<0.04		1	0	1	<0.04
Benzo(b)fluoranthene	mg/kg	4		<0.05		1	0	1	<0.05
Benzo(ghi)perylene	mg/kg	358		<0.05		1	0	1	<0.05
Benzo(k)fluoranthene	mg/kg	107		<0.07		1	0	1	<0.07
Chrysene	mg/kg	31		<0.06		1	0	1	<0.06
Dibenzo(ah)anthracene	mg/kg	0.32		<0.04		1	0	1	<0.04
Fluoranthene	mg/kg	1600		<0.08		1	0	1	<0.08
Fluorene	mg/kg	3800	77	<0.01		1	0	1	<0.01
Indeno(123-cd)pyrene	mg/kg	46		<0.03		1	0	1	<0.03
Naphthalene	mg/kg	55		<0.03		1	0	1	<0.03
Phenanthrene	mg/kg	1450		<0.03		1	0	1	<0.03
Pyrene	mg/kg	3800		<0.07		1	0	1	<0.07
Total PAH-16MS	mg/kg			<0.08		1	0	1	<0.08
Other analytes									
% Stones >10mm	% w/w			<0.1		1	0	1	<0.1
Organic matter	% w/w			2.1	2.1	1	1	0	2.1
pH	pH			6.45	6.45	1	1	0	6.45
pH BRE				0	0	0	0	0	
Sulphate (acid soluble)	mg/kg			340	340	1	1	0	340
Sulphate (water sol 2:1)	g/l			<0.01		1	0	1	<0.01
Sulphate BRE (acid sol)	% w/w			0	0	0	0	0	
Sulphur BRE (total)	% w/w			0	0	0	0	0	

Project name	North Selby Mine
Project code	350409
Client name	Harworth Group
Address	New Road, York, YO19 6EZ
NGR	464590, 444190
Land use	Residential without home-grown produce
SOM	2.5%
GAC version	2019_00

Lab sample ID	21/03608/2	21/03608/3
Client sample ID	WS05	WS05
Depth to top	1.2	2.3
Depth to bottom		
Date sampled	29/03/21	29/03/21

Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-dete		
Metals and Inorganics										
Arsenic	mg/kg	40		14	<1	25	20	5	3	2
Cadmium	mg/kg	149		1.1	<0.5	25	11	14	<0.5	<0.5
Chromium	mg/kg	910	21	28	<1	25	24	1	17	16
Copper	mg/kg	7100		36	3	25	25	0	11	9
Lead	mg/kg	310		145	3	25	25	0	145	124
Mercury	mg/kg	56	0.6	3.55	<0.17	25	20	5	1.33	1.35
Nickel	mg/kg	180		28	<1	25	24	1	5	6
Selenium	mg/kg	430		1	<1	25	1	24	<1	<1
Zinc	mg/kg	40000		132	11	25	25	0	23	18
Asbestos										
Asbestos in soil						21	0	21		
Petroleum Hydrocarbons										
Ali >C5-C6	mg/kg	78			<0.01	25	0	25	<0.01	<0.01
Ali >C6-C8	mg/kg	230			<0.01	25	0	25	<0.01	<0.01
Ali >C8-C10	mg/kg	65		3	<1	25	3	22	<10	<5
Ali >C10-C12	mg/kg	330	118	18	<1	25	2	23	<10	<5
Ali >C12-C16	mg/kg	2400	59	234	<1	25	11	14	16	6
Ali >C16-C21	mg/kg			307	<1	25	15	10	38	11
Ali >C21-C35	mg/kg			12600	1	25	25	0	43	19
Ali >C16-C35 calculated	mg/kg	92000	21	12907	1	25	25	0	81	30
Total Aliphatics	mg/kg			13100	1	25	25	0	98	37
Aro >C5-C7	mg/kg				<0.01	25	0	25	<0.01	<0.01
Aro >C7-C8	mg/kg				<0.01	25	0	25	<0.01	<0.01
Aro >C8-C10	mg/kg	115		2	<1	25	4	21	<10	<5
Aro >C10-C12	mg/kg	600		12	<1	25	4	21	<10	7
Aro >C12-C16	mg/kg	2300	419	394	<1	25	14	11	394	128
Aro >C16-C21	mg/kg	1900		1050	<1	25	16	9	1050	317
Aro >C21-C35	mg/kg	1900		1250	<1	25	22	3	1250	517
Total Aromatics	mg/kg			2700	<1	25	22	3	2700	968
TPH (Ali & Aro)	mg/kg			14100	1	25	25	0	2790	1010
BTEX - Benzene	mg/kg	1.6			<0.01	25	0	25	<0.01	<0.01
BTEX - Toluene	mg/kg	1900			<0.01	25	0	25	<0.01	<0.01
BTEX - Ethyl Benzene	mg/kg	190			<0.01	25	0	25	<0.01	<0.01
BTEX - o Xylene	mg/kg	210			<0.01	25	0	25	<0.01	<0.01
BTEX - m & p Xylene	mg/kg	180			<0.01	25	0	25	<0.01	<0.01
MTBE	mg/kg	170			<0.01	25	0	25	<0.01	<0.01
Polycyclic aromatic hydrocarbons										
Acenaphthene	mg/kg	7200		10.8	<0.01	25	6	19	10.8	6.37
Acenaphthylene	mg/kg	7200		0.19	<0.01	25	3	22	0.19	0.12
Anthracene	mg/kg	35000		16.2	<0.02	25	6	19	16.2	7.26
Benzo(a)anthracene	mg/kg	13.6		15	<0.04	25	4	21	15	9.62
Benzo(a)pyrene	mg/kg	5.3		10.4	<0.04	25	5	20	10.4	6.73
Benzo(b)fluoranthene	mg/kg	4		12.9	<0.05	25	5	20	12.9	8.08
Benzo(ghi)perylene	mg/kg	358		4.67	<0.05	25	2	23	4.67	2.76
Benzo(k)fluoranthene	mg/kg	107		4.79	<0.07	25	2	23	4.79	3.53
Chrysene	mg/kg	31		15.9	<0.06	25	4	21	15.9	9.79
Dibenzo(ah)anthracene	mg/kg	0.32		1.39	<0.04	25	2	23	1.39	0.84
Fluoranthene	mg/kg	1600		43.7	<0.08	25	5	20	43.7	25.1
Fluorene	mg/kg	3800	77	15.9	<0.01	25	7	18	15.9	6.84
Indeno(123-cd)pyrene	mg/kg	46		5.67	<0.03	25	3	22	5.67	3.4
Naphthalene	mg/kg	55		1.98	<0.03	25	6	19	1.15	1.98
Phenanthrene	mg/kg	1450		74.2	<0.03	25	9	16	74.2	27.7
Pyrene	mg/kg	3800		31.3	<0.07	25	7	18	31.3	19.1
Total PAH-16MS	mg/kg			264	<0.08	25	10	15	264	139
Other analytes										
% Stones >10mm	% w/w			46.6	<0.1	31	13	18	16.6	46.6
Organic matter	% w/w			13.8	0.3	25	25	0	3.2	2.5
pH	pH			9.73	7.49	25	25	0	9.13	9.17
pH BRE	pH			7.91	7.91	1	1	0		
Sulphate (acid soluble)	mg/kg			4700	<200	20	19	1	1300	870
Sulphate (water sol 2:1)	g/l			0.85	<0.01	20	19	1	0.08	0.04
Sulphate BRE (acid sol)	% w/w			0.29	0.29	1	1	0		
Sulphur BRE (total)	% w/w			0.15	0.15	1	1	0		

Project name	North Selby Mine
Project code	350409
Client name	Harworth Group
Address	New Road, York, YO19 6EZ
NGR	464590, 444190
Land use	Residential without home-grown produce
SOM	1%
GAC version	2019_00


Notes



Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects	21/03351/11	21/03351/18	21/03351/22	21/03351/35	21/03351/42	21/03351/49	21/03351/51	21/03351/67	21/03351/72	21/03351/83	21/03351/84	21/03351/87	21/03351/93	21/03351/95	21/03608/16	21/03608/17	21/03608/18	21/03608/19	21/03608/20	21/03608/22			
									Client sample ID	TP3	TP6	TP7	TP13	TP15	TP17	TP18	TP23	TP24	TP28	TP28	TP29	TP31	TP31	TP41	TP41	TP41	TP41	TP41	TP42	TP42	TP43
									Depth to top	2.8	0.6	2.5	1.8	1.4	1.5	0.7	0.8	1.5	0.8	1.6	1.3	0.8	2	0.8	1.5	3	0.7	2.3	1.5		
									Depth to bottom																						
Date sampled	22/03/21	22/03/21	22/03/21	23/03/21	25/03/21	25/03/21	24/03/21	26/03/21	24/03/21	25/03/21	25/03/21	25/03/21	24/03/21	24/03/21	30/03/21	30/03/21	30/03/21	30/03/21	30/03/21	30/03/21	30/03/21	30/03/21	30/03/21	30/03/21	30/03/21	30/03/21	30/03/21				
Metals and Inorganics																															
Arsenic	mg/kg	40		6	<1	13	9	4	6			3		3		3		1	2	3	1										
Cadmium	mg/kg	149		1.6	<0.5	13	11	2	1.6			1.3		<0.5		1.4		<0.5	1.2	1.2	0.6										
Chromium	mg/kg	910	21	48		7	13	13	0	37		41		13		48		7	42	42	12										
Copper	mg/kg	7100		41		4	13	13	0	41		25		4		29		5	27	23	12										
Lead	mg/kg	310		29		8	13	13	0	29		21		8		23		8	21	23	12										
Mercury	mg/kg	56	0.2	0.31	<0.17		13	2	11	<0.17		<0.17		<0.17		<0.17		<0.17	<0.17	<0.17	0.28										
Nickel	mg/kg	180		58		7	13	13	0	38		51		10		58		7	51	47	17										
Selenium	mg/kg	430		2	<1		13	2	11	<1		<1		<1		<1		<1	<1	<1	<1										
Zinc	mg/kg	40000		108		30	13	13	0	108		72		30		82		31	73	60	36										
Asbestos																															
Asbestos in soil							3	0	3																						
Petroleum Hydrocarbons																															
Ali >C5-C6	mg/kg	42			<0.01		19	0	19	<0.01		<0.01		<0.01		<0.01		<0.01	<0.01	<0.01	<0.01			<0.01	<0.01	<0.01	<0.01	<0.01			
Ali >C6-C8	mg/kg	100		0.02	<0.01		19	1	18	<0.01		<0.01		<0.01		<0.01		<0.01	<0.01	<0.01	<0.01			<0.01	<0.01	<0.01	<0.01				
Ali >C8-C10	mg/kg	27			<1		19	0	19	<1		<1		<1		<1		<1	<1	<1	<1			<1	<1	<1	<1				
Ali >C10-C12	mg/kg	130	48		<1		19	0	19	<1		<1		<1		<1		<1	<1	<1	<1			<1	<1	<1	<1				
Ali >C12-C16	mg/kg	1100	24		2	<1	19	6	13	<1		<1		<1		<1		<1	<1	<1	<1			1	1	<1	<1				
Ali >C16-C21	mg/kg				25	<1	19	7	12	<1		<1		<1		<1		<1	<1	<1	<1			3	1	<1	<1				
Ali >C21-C35	mg/kg				122	<1	19	16	3	<1		8		<1		<1		2	3	<1	<1			2	5	3	1	9			
Ali >C16-C35 calculated	mg/kg	65000	8	147	<1		19	16	3	<1		8		<1		<1		2	3	<1	<1			2	8	4	3	9			
Total Aliphatics	mg/kg			149	<1		19	16	3	<1		8		<1		<1		2	3	<1	<1			2	9	5	3	9			
Aro >C5-C7	mg/kg				<0.01		19	0	19	<0.01		<0.01		<0.01		<0.01		<0.01	<0.01	<0.01	<0.01			<0.01	<0.01	<0.01	<0.01	<0.01			
Aro >C7-C8	mg/kg				<0.01		19	0	19	<0.01		<0.01		<0.01		<0.01		<0.01	<0.01	<0.01	<0.01			<0.01	<0.01	<0.01	<0.01	<0.01			
Aro >C8-C10	mg/kg	47			<1		19	0	19	<1		<1		<1		<1		<1	<1	<1	<1			<1	<1	<1	<1	<1			
Aro >C10-C12	mg/kg	300			<1		19	0	19	<1		<1		<1		<1		<1	<1	<1	<1			<1	<1	<1	<1	<1			
Aro >C12-C16	mg/kg	1800	169		3	<1	19	5	14	<1		<1		<1		<1		<1	<1	<1	<1			1	1	<1	<1	<1			
Aro >C16-C21	mg/kg	1900			63	<1	19	6	13	<1		<1		<1		<1		<1	<1	<1	<1			1	3	<1	<1	1			
Aro >C21-C35	mg/kg	1900			25	<1	19	16	3	<1		3		<1		<1		1	1	<1	<1			1	6	5	1	3	1		
Total Aromatics	mg/kg			91	<1		19	16	3	<1		3		<1		<1		1	1	<1	<1			1	9	9	1	3	2		
TPH (Ali & Aro)	mg/kg			239	<1		19	16	3	<1		10		<1		<1		3	4	<1	<1			4	18	14	4	11			
BTEX - Benzene	mg/kg	0.9			<0.01		19	0	19	<0.01		<0.01		<0.01		<0.01		<0.01	<0.01	<0.01	<0.01			<0.01	<0.01	<0.01	<0.01	<0.01			
BTEX - Toluene	mg/kg	900	869		<0.01		19	0	19	<0.01		<0.01		<0.01		<0.01		<0.01	<0.01	<0.01	<0.01			<0.01	<0.01	<0.01	<0.01	<0.01			
BTEX - Ethyl Benzene	mg/kg	80			<0.01		19	0	19	<0.01		<0.01		<0.01		<0.01		<0.01	<0.01	<0.01	<0.01			<0.01	<0.01	<0.01	<0.01	<0.01			
BTEX - o Xylene	mg/kg	90			<0.01		19	0	19	<0.01		<0.01		<0.01		<0.01		<0.01	<0.01	<0.01	<0.01			<0.01	<0.01	<0.01	<0.01	<0.01			
BTEX - m & p Xylene	mg/kg	80		0.01	<0.01		19	1	18	<0.01		<0.01		<0.01		<0.01		<0.01	<0.01	<0.01	<0.01			<0.01	<0.01	<0.01	<0.01	<0.01			
MTBE	mg/kg	100			<0.01		19	0	19	<0.01		<0.01		<0.01		<0.01		<0.01	<0.01	<0.01	<0.01			<0.01	<0.01	<0.01	<0.01	<0.01			
Polycyclic aromatic hydrocarbons																															
Acenaphthene	mg/kg	6600	57		<0.01		13	0	13	<0.01		<0.01		<0.01		<0.01		<0.01	<0.01	<0.01	<0.01										
Acenaphthylene	mg/kg	6600	86		<0.01		13	0	13	<0.01		<0.01		<0.01		<0.01		<0.01	<0.01	<0.01	<0.01										
Anthracene	mg/kg	31000	1.17		<0.02		13	0	13	<0.02		<0.02		<0.02		<0.02		<0.02	<0.02	<0.02	<0.02										
Benzo(a)anthracene	mg/kg	11			<0.04		13	0	13	<0.04		<0.04		<0.04		<0.04		<0.04	<0.04	<0.04	<0.04										
Benzo(a)pyrene	mg/kg	5.3			<0.04		13	0	13	<0.04		<0.04		<0.04		<0.04		<0.04	<0.04	<0.04	<0.04										
Benzo(b)fluoranthene	mg/kg	4			<0.05		13	0	13	<0.05		<0.05		<0.05		<0.05		<0.05	<0.05	<0.05	<0.05										
Benzo(ghi)perylene	mg/kg	355			<0.05		13	0	13	<0.05		<0.05		<0.05		<0.05		<0.05	<0.05	<0.05	<0.05										
Benzo(k)fluoranthene	mg/kg	106			<0.07		13	0	13	<0.07		<0.07		<0.07		<0.07		<0.07	<0.07	<0.07	<0.07										
Chrysene	mg/kg	30			<0.06		13	0	13	<0.06		<0.06		<0.06		<0.06		<0.06	<0.06	<0.06	<0.06										
Dibenzo(ah)anthracene	mg/kg	0.31			<0.04		13	0	13	<0.04		<0.04		<0.04		<0.04		<0.04	<0.04	<0.04	<0.04										
Fluoranthene	mg/kg	1500			<0.08		13	0	13	<0.08		<0.08		<0.08		<0.08		<0.08	<0.08	<0.08	<0.08										
Fluorene	mg/kg	2800	31		<0.01		13	0	13	<0.01		<0.01		<0.01		<0.01		<0.01	<0.01	<0.01	<0.01										
Indeno(123-cd)pyrene	mg/kg	45			<0.03		13	0	13	<0.03		<0.03		<0.03		<0.03		<0.03	<0.03	<0.03	<0.03										
Naphthalene	mg/kg	23			<0.03		13	0	13	<0.03		<0.03		<0.03		<0.03		<0.03	<0.03	<0.03	<0.03										
Phenanthrene	mg/kg	1300	36	0.04	<0.03		13	1	12	<0.03		<0.03		<0.03		<0.03		<0.03	<0.03	<0.03	<0.03										
Pyrene	mg/kg	3700			<0.07		13	0	13	<0.07		<0.07		<0.07		<0.07															




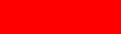





Project name	North Selby Mine
Project code	350409
Client name	Harworth Group
Address	New Road, York, YO19 6EZ
NGR	464590, 444190
Land use	Residential without home-grown produce
SOM	1%
GAC version	2019_00

Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-dete	Lab sample ID	21/03608/23	21/03608/29	21/03608/32	21/03351/12/21/03608/4	21/03608/6	21/03608/7	21/03608/9	21/03608/10	21/03608/11	21/03608/12	21/03608/13	21/03608/14		
									Client sample ID	TP43	TP45	TP46	WS04	WS06	WS06	WS07	WS08	WS08	WS09	WS09	WS10	WS10	
									Depth to top	1.7	1.8	1.8	1	0.5	2.5	0.6	0.9	1.5	1.5	3	0.3	1.4	
									Depth to bottom														
									Date sampled	30/03/21	30/03/21	30/03/21	26/03/21	29/03/21	29/03/21	29/03/21	29/03/21	29/03/21	29/03/21	29/03/21	29/03/21	29/03/21	
Metals and Inorganics																							
Arsenic	mg/kg	40		6	<1	13	9	4								<1	<1	<1		<1		5	
Cadmium	mg/kg	149		1.6	<0.5	13	11	2								1	1	0.9			0.8	1	
Chromium	mg/kg	910	21	48		7	13	13	0							41	41	36			44	28	
Copper	mg/kg	7100		41		4	13	13	0							26	24	26			22	23	
Lead	mg/kg	310		29		8	13	13	0							20	20	19			17	18	
Mercury	mg/kg	56	0.2	0.31	<0.17		13	2	11							<0.17	0.31	<0.17			<0.17	<0.17	
Nickel	mg/kg	180		58		7	13	13	0							51	43	44			47	42	
Selenium	mg/kg	430		2	<1		13	2	11							1	2	<1		<1	<1		
Zinc	mg/kg	40000		108		30	13	13	0							73	68	70			52	64	
Asbestos																							
Asbestos in soil							3	0	3				NAD		NAD						NAD		
Petroleum Hydrocarbons																							
Ali >C5-C6	mg/kg	42			<0.01		19	0	19	<0.01	<0.01	<0.01				<0.01		<0.01		<0.01	<0.01		
Ali >C6-C8	mg/kg	100		0.02	<0.01		19	1	18	<0.01	<0.01	<0.01				<0.01		<0.01		<0.01	0.02		
Ali >C8-C10	mg/kg	27			<1		19	0	19	<1	<1	<1				<1		<1		<1	<1		
Ali >C10-C12	mg/kg	130	48		<1		19	0	19	<1	<1	<1				<1		<1		<1	<1		
Ali >C12-C16	mg/kg	1100	24		2	<1	19	6	13		2	1	<1			<1		1		<1	1		
Ali >C16-C21	mg/kg				25	<1	19	7	12		25	3	1			1		<1		<1	4		
Ali >C21-C35	mg/kg				122	<1	19	16	3		122	4	4			2		3			3	6	
Ali >C16-C35 calculated	mg/kg	65000	8	147	<1		19	16	3		147	7	5			3		3			3	10	
Total Aliphatics	mg/kg				149	<1	19	16	3		149	8	5			4		4			3	11	
Aro >C5-C7	mg/kg				<0.01		19	0	19	<0.01	<0.01	<0.01				<0.01		<0.01		<0.01	<0.01		
Aro >C7-C8	mg/kg				<0.01		19	0	19	<0.01	<0.01	<0.01				<0.01		<0.01		<0.01	<0.01		
Aro >C8-C10	mg/kg	47			<1		19	0	19	<1	<1	<1				<1		<1		<1	<1		
Aro >C10-C12	mg/kg	300			<1		19	0	19	<1	<1	<1				<1		<1		<1	<1		
Aro >C12-C16	mg/kg	1800	169		3	<1	19	5	14		3	1	<1			<1		<1		<1	1		
Aro >C16-C21	mg/kg	1900			63	<1	19	6	13		63	1	<1			<1		<1		<1	1		
Aro >C21-C35	mg/kg	1900			25	<1	19	16	3		25	6	4			2		3			1	5	
Total Aromatics	mg/kg				91	<1	19	16	3		91	9	4			2		3			1	7	
TPH (Ali & Aro)	mg/kg				239	<1	19	16	3		239	17	9			6		6			4	18	
BTEX - Benzene	mg/kg	0.9			<0.01		19	0	19	<0.01	<0.01	<0.01				<0.01		<0.01		<0.01	<0.01		
BTEX - Toluene	mg/kg	900	869		<0.01		19	0	19	<0.01	<0.01	<0.01				<0.01		<0.01		<0.01	<0.01		
BTEX - Ethyl Benzene	mg/kg	80			<0.01		19	0	19	<0.01	<0.01	<0.01				<0.01		<0.01		<0.01	<0.01		
BTEX - o Xylene	mg/kg	90			<0.01		19	0	19	<0.01	<0.01	<0.01				<0.01		<0.01		<0.01	<0.01		
BTEX - m & p Xylene	mg/kg	80			0.01	<0.01	19	1	18	<0.01	<0.01	<0.01				<0.01		<0.01		<0.01	0.01		
MTBE	mg/kg	100			<0.01		19	0	19	<0.01	<0.01	<0.01				<0.01		<0.01		<0.01	<0.01		
Polycyclic aromatic hydrocarbons																							
Acenaphthene	mg/kg	6600	57		<0.01		13	0	13							<0.01	<0.01	<0.01		<0.01	<0.01		
Acenaphthylene	mg/kg	6600	86		<0.01		13	0	13							<0.01	<0.01	<0.01		<0.01	<0.01		
Anthracene	mg/kg	31000	1.17		<0.02		13	0	13							<0.02	<0.02	<0.02		<0.02	<0.02		
Benzo(a)anthracene	mg/kg	11			<0.04		13	0	13							<0.04	<0.04	<0.04		<0.04	<0.04		
Benzo(a)pyrene	mg/kg	5.3			<0.04		13	0	13							<0.04	<0.04	<0.04		<0.04	<0.04		
Benzo(b)fluoranthene	mg/kg	4			<0.05		13	0	13							<0.05	<0.05	<0.05		<0.05	<0.05		
Benzo(ghi)perylene	mg/kg	355			<0.05		13	0	13							<0.05	<0.05	<0.05		<0.05	<0.05		
Benzo(k)fluoranthene	mg/kg	106			<0.07		13	0	13							<0.07	<0.07	<0.07		<0.07	<0.07		
Chrysene	mg/kg	30			<0.06		13	0	13							<0.06	<0.06	<0.06		<0.06	<0.06		
Dibenzo(ah)anthracene	mg/kg	0.31			<0.04		13	0	13							<0.04	<0.04	<0.04		<0.04	<0.04		
Fluoranthene	mg/kg	1500			<0.08		13	0	13							<0.08	<0.08	<0.08		<0.08	<0.08		
Fluorene	mg/kg	2800	31		<0.01		13	0	13							<0.01	<0.01	<0.01		<0.01	<0.01		
Indeno(123-cd)pyrene	mg/kg	45			<0.03		13	0	13							<0.03	<0.03	<0.03		<0.03	<0.03		
Naphthalene	mg/kg	23			<0.03		13	0	13							<0.03	<0.03	<0.03		<0.03	<0.03		
Phenanthrene	mg/kg	1300	36	0.04	<0.03		13	1	12							<0.03	<0.03	<0.03		<0.03	<0.03		
Pyrene	mg/kg	3700			<0.07		13	0	13							<0.07	<0.07	<0.07		<0.07	<0.07		
Total PAH-16MS	mg/kg				<0.08		13	0	13							<0.08	<0.08	<0.08		<0.08	<0.08		
Other analytes																							
% Stones >10mm	% w/w				36	<0.1	31	4	27	<0.1	<0.1	<0.1	<0.1			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
Organic matter	% w/w				1.9	0.2	13	13	0							1.7	1.9	1.9		1.4	1.7		
pH	pH				8.65	7.06	13	13	0							7.89	8.62	8.65		8.31	8.5		
pH BRE	pH				8.69	8.13	11	11	0			8.24		8.26			8.62		8.69			8.5	
Sulphate (acid soluble)	mg/kg				1200	<200	10	9	1							310		240		350	460		
Sulphate (water sol 2:1)	g/l				0.76	<0.01	10	9	1							0.11		0.06		0.16	0.13		
Sulphate BRE (acid sol)	% w/w				0.08	<0.02	11	8	3			0.06		0.03			<0.02		0.02		0.05		
Sulphur BRE (total)	% w/w				0.18	<0.01	11	10	1			0.03		0.02			0.01		0.01		0.02		

Project name	North Selby Mine	Notes	
Project code	350409		
Client name	Harworth Group		
Address	New Road, York, YO19 6EZ		
NGR	464590, 444190		
Land use	Public Open Space public park		
SOM	6%		
GAC version	2019_00		

Analyte	Unit	GAC	T1	Max	Min	Count	Lab sample ID 21/03351/12 21/03351/12 21/03351/129			
							Client sample ID M1 M2 M3			
							Depth to top	0.2	0.1	0.2
							Depth to bottom			
Date sampled							26/03/21	26/03/21	26/03/21	
							# Detects	# Non-detects		
Metals and Inorganics										
Arsenic	mg/kg	170		19	4	3	3	0	9	
Cadmium	mg/kg	880		1	0.7	3	3	0	1	
Chromium	mg/kg	33000	250	26	16	3	3	0	26	
Copper	mg/kg	44000		38	32	3	3	0	32	
Lead	mg/kg	1300		20	17	3	3	0	20	
Mercury	mg/kg	240	30	0.45	<0.17	3	1	2	0.45	
Nickel	mg/kg	800		34	32	3	3	0	34	
Selenium	mg/kg	1800		<1		3	0	<1	<1	
Zinc	mg/kg	173000		95	65	3	3	0	95	
Asbestos										
Asbestos in soil						0	0	0		
Petroleum Hydrocarbons										
AlI >C5-C6	mg/kg	180000	1150			0	0	0		
AlI >C6-C8	mg/kg	320000	736			0	0	0		
AlI >C8-C10	mg/kg	21000	451			0	0	0		
AlI >C10-C12	mg/kg	24000	283			0	0	0		
AlI >C12-C16	mg/kg	26000	142			0	0	0		
AlI >C16-C21	mg/kg					0	0	0		
AlI >C21-C35	mg/kg					0	0	0		
AlI >C16-C35 calculated	mg/kg	490000				0	0	0		
Total Aliphatics	mg/kg					0	0	0		
Aro >C5-C7	mg/kg					0	0	0		
Aro >C7-C8	mg/kg					0	0	0		
Aro >C8-C10	mg/kg	9300	3580			0	0	0		
Aro >C10-C12	mg/kg	10000				0	0	0		
Aro >C12-C16	mg/kg	10400				0	0	0		
Aro >C16-C21	mg/kg	7800				0	0	0		
Aro >C21-C35	mg/kg	7900				0	0	0		
Total Aromatics	mg/kg					0	0	0		
TPH (AlI & Aro)	mg/kg					0	0	0		
BTEX - Benzene	mg/kg	230				0	0	0		
BTEX - Toluene	mg/kg	100000	4357			0	0	0		
BTEX - Ethyl Benzene	mg/kg	27000	2844			0	0	0		
BTEX - o Xylene	mg/kg	33000	2618			0	0	0		
BTEX - m & p Xylene	mg/kg	31000	3167			0	0	0		
MTBE	mg/kg	117400	62700			0	0	0		
Polycyclic aromatic hydrocarbons										
Acenaphthene	mg/kg	30000		0.02	0.01	3	3	0	0.01	
Acenaphthylene	mg/kg	30000		0.01	<0.01	3	2	1	<0.01	
Anthracene	mg/kg	152000		<0.02		3	0	3	<0.02	
Benzo(a)anthracene	mg/kg	62		<0.04		3	0	3	<0.04	
Benzo(a)pyrene	mg/kg	21		<0.04		3	0	3	<0.04	
Benzo(b)fluoranthene	mg/kg	16		<0.05		3	0	3	<0.05	
Benzo(ghi)perylene	mg/kg	1570		<0.05		3	0	3	<0.05	
Benzo(k)fluoranthene	mg/kg	442		<0.07		3	0	3	<0.07	
Chrysene	mg/kg	121		<0.06		3	0	3	<0.06	
Dibenzo(ah)anthracene	mg/kg	1.4		<0.04		3	0	3	<0.04	
Fluoranthene	mg/kg	6400		<0.08		3	0	3	<0.08	
Fluorene	mg/kg	20100		0.02	0.01	3	3	0	0.01	
Indeno(123-cd)pyrene	mg/kg	183		<0.03		3	0	3	<0.03	
Naphthalene	mg/kg	3000		0.71	0.25	3	3	0	0.25	
Phenanthrene	mg/kg	6300		0.33	0.17	3	3	0	0.17	
Pyrene	mg/kg	15000		<0.07		3	0	3	<0.07	
Total PAH-16MS	mg/kg			1.04	0.44	3	3	0	0.44	
Other analytes										
% Stones >10mm	% w/w			4.6	3	3	3	0	3.7	
Organic matter	% w/w			13.5	7.7	3	3	0	7.7	
pH	pH			8.32	7.97	3	3	0	8.18	
pH BRE						0	0	0		
Sulphate (acid soluble)	mg/kg					0	0	0		
Sulphate (water sol 2:1)	g/l					0	0	0		
Sulphate BRE (acid sol)	% w/w					0	0	0		
Sulphur BRE (total)	% w/w					0	0	0		

Notes for GORA (soil) Screening Tool Output

1		Details of the GAC (landuse, SOM and GAC version) used in the GORA are displayed at the top of the output screening sheet
2		Full details of the GAC derivation are included in a separate appendix document
3		The output screening sheet presents the reported Total Organic Carbon and the corresponding calculated Soil Organic Matter, using a conversion of TOC (%) divided by 0.58 to compute the SOM
4		Any laboratory results that are appended to the reported concentrations (e.g. Tentatively Identified Compounds, PAH Double Ratio Plots etc.) are not included in the output screening sheet.
5	T1	First level screening threshold, equating to:  Chromium: total Cr concentration compared to Cr VI (conservative assessment)  Chromium: total Cr concentration compared to Cr III Comment Where Cr VI has been reported, the CrVI results are compared directly to the CrVI GAC
6		 Mercury : total Hg concentration compared to elemental Hg (conservative assessment)  Mercury : total Hg concentration compared to inorganic Hg Comment The tool does not screen against methyl mercury (this parameter is only reported if mercury has been speciated)
7		 Petroleum Hydrocarbons: The soil saturation limit has been exceeded  Petroleum Hydrocarbons: The modelled GAC has been exceeded Comment RSK has adopted an approach for petroleum hydrocarbons whereby the concentration modelled for each petroleum hydrocarbon fraction has been tabulated as the GAC with the corresponding solubility or vapour saturation limits given in brackets on the GAC appendix document. First level (T1) GORA screening is against the soil saturation limit.
8		 Free cyanide: Conservatively for sites where a child is the critical receptor, concentration compared for the SoBRA (2019) acute GAC for free CN Comment Only applicable where the acute GAC of 24mg/kg for a child as the critical receptor is lower than the chronic GAC i.e. Residential without home-grown produce, POS Parks, POS Resi, Primary School and Secondary School land uses
9		 Total cyanide: total CN compared to GAC for free CN or the SoBRA (2019) acute GAC for free CN (whichever is lowest) Comment There is no GAC for total CN (risks are driven by free CN) therefore the first level GORA screening is against free CN and no other screening is undertaken. For end uses where the critical receptor is a child the T1 is set at the acute GAC for free CN. Only applicable where the acute GAC of 24mg/kg is lower than the chronic GAC. The assumption that cyanide total comprises 100% free CN is conservative and consideration should be made on the suitability of this GAC based on the CSM.
10		 Any analyte: First level screening threshold (T1) or GAC may be exceeded (e.g. lab results include a < or > symbol)
11		The GORA screening for asbestos is in relation to presence or absence ('detect'). Presence is reported as asbestos type or quantification >0.001%. Absence is reported as < limit of quantification of 0.001% or No Asbestos Detected (NAD).
12		Where <u>individual</u> reported concentrations are presented in grey (not black) font, the result was below the laboratory method detection limit.
13		Where cells are shaded grey, <u>all</u> results for that analyte are below the laboratory method detection limit

Appendix E

Groundsure Data – Enviro & Geo Insight Reports (2022)

NORTH SELBY MINE, NEW ROAD, DEIGHTON, YORK, YO19 6EZ

Order Details

Date: 23/11/2022
Your ref: OE_1702_1048_LS_232
Our Ref: GS-9218001

Site Details

Location: 464757 444249
Area: 13.7 ha
Authority: [City of York Council](#), [Selby District Council](#)



Summary of findings

p. 2

Aerial image

p. 6

OS MasterMap site plan

N/A: >10ha

groundsure.com/insightuserguide

Contact us with any questions at:

info@groundsure.com

08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
10	1.1	<u>Historical industrial land uses</u>	3	0	0	0	-
11	1.2	<u>Historical tanks</u>	3	1	0	0	-
11	1.3	<u>Historical energy features</u>	2	0	0	0	-
12	1.4	Historical petrol stations	0	0	0	0	-
12	1.5	Historical garages	0	0	0	0	-
12	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
13	2.1	<u>Historical industrial land uses</u>	3	0	0	0	-
14	2.2	<u>Historical tanks</u>	6	1	0	0	-
14	2.3	<u>Historical energy features</u>	3	0	0	0	-
15	2.4	Historical petrol stations	0	0	0	0	-
15	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
16	3.1	Active or recent landfill	0	0	0	0	-
16	3.2	Historical landfill (BGS records)	0	0	0	0	-
17	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
17	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
17	3.5	<u>Historical waste sites</u>	1	0	0	0	-
18	3.6	Licensed waste sites	0	0	0	0	-
18	3.7	<u>Waste exemptions</u>	0	2	1	13	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
20	4.1	<u>Recent industrial land uses</u>	5	2	0	-	-
21	4.2	Current or recent petrol stations	0	0	0	0	-
21	4.3	Electricity cables	0	0	0	0	-
21	4.4	Gas pipelines	0	0	0	0	-
21	4.5	Sites determined as Contaminated Land	0	0	0	0	-

22	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
22	4.7	Regulated explosive sites	0	0	0	0	-
22	4.8	Hazardous substance storage/usage	0	0	0	0	-
22	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
22	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
23	4.11	<u>Licensed pollutant release (Part A(2)/B)</u>	0	1	0	0	-
23	4.12	Radioactive Substance Authorisations	0	0	0	0	-
23	4.13	<u>Licensed Discharges to controlled waters</u>	0	4	3	1	-
24	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
25	4.15	Pollutant release to public sewer	0	0	0	0	-
25	4.16	List 1 Dangerous Substances	0	0	0	0	-
25	4.17	List 2 Dangerous Substances	0	0	0	0	-
25	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
25	4.19	Pollution inventory substances	0	0	0	0	-
26	4.20	Pollution inventory waste transfers	0	0	0	0	-
26	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Geology (basic)					
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27	5.1	<u>Superficial geology (625k)</u>	Identified (within 500m)				
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27	5.2	<u>Bedrock geology (625k)</u>	Identified (within 500m)				
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Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
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28	6.1	<u>Superficial aquifer</u>	Identified (within 500m)				
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30	6.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
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32	6.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
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33	6.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
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33	6.5	Groundwater vulnerability- local information	None (within 0m)				
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35	6.6	<u>Groundwater abstractions</u>	8	0	0	0	12
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40	6.7	Surface water abstractions	0	0	0	0	0
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40	6.8	<u>Potable abstractions</u>	2	0	0	0	0
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41	6.9	<u>Source Protection Zones</u>	2	0	0	0	-
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41	6.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
42	7.1	<u>Water Network (OS MasterMap)</u>	8	5	25	-	-
46	7.2	<u>Surface water features</u>	1	2	13	-	-
46	7.3	<u>WFD Surface water body catchments</u>	1	-	-	-	-
46	7.4	<u>WFD Surface water bodies</u>	0	1	0	-	-
47	7.5	<u>WFD Groundwater bodies</u>	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
48	8.1	<u>Risk of flooding from rivers and the sea</u>	High (within 50m)				
49	8.2	<u>Historical Flood Events</u>	1	0	1	-	-
49	8.3	Flood Defences	0	0	0	-	-
49	8.4	Areas Benefiting from Flood Defences	0	0	0	-	-
50	8.5	Flood Storage Areas	0	0	0	-	-
51	8.6	<u>Flood Zone 2</u>	Identified (within 50m)				
52	8.7	<u>Flood Zone 3</u>	Identified (within 50m)				
Page	Section	Surface water flooding					
53	9.1	<u>Surface water flooding</u>	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
55	10.1	<u>Groundwater flooding</u>	High (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
56	11.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
57	11.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
57	11.3	Special Areas of Conservation (SAC)	0	0	0	0	0
57	11.4	Special Protection Areas (SPA)	0	0	0	0	0
57	11.5	National Nature Reserves (NNR)	0	0	0	0	0
58	11.6	Local Nature Reserves (LNR)	0	0	0	0	0
58	11.7	<u>Designated Ancient Woodland</u>	0	0	1	0	2
58	11.8	Biosphere Reserves	0	0	0	0	0
59	11.9	Forest Parks	0	0	0	0	0



59	11.10	Marine Conservation Zones	0	0	0	0	0
59	11.11	<u>Green Belt</u>	2	0	0	0	0
59	11.12	Proposed Ramsar sites	0	0	0	0	0
60	11.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
60	11.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
60	11.15	Nitrate Sensitive Areas	0	0	0	0	0
60	11.16	<u>Nitrate Vulnerable Zones</u>	1	0	0	1	4
62	11.17	<u>SSSI Impact Risk Zones</u>	2	-	-	-	-
63	11.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
64	12.1	World Heritage Sites	0	0	0	-	-
64	12.2	Area of Outstanding Natural Beauty	0	0	0	-	-
64	12.3	National Parks	0	0	0	-	-
64	12.4	Listed Buildings	0	0	0	-	-
65	12.5	Conservation Areas	0	0	0	-	-
65	12.6	Scheduled Ancient Monuments	0	0	0	-	-
65	12.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
66	13.1	<u>Agricultural Land Classification</u>	Grade 3a (within 250m)				
67	13.2	Open Access Land	0	0	0	-	-
67	13.3	<u>Tree Felling Licences</u>	0	1	5	-	-
68	13.4	<u>Environmental Stewardship Schemes</u>	0	1	2	-	-
68	13.5	<u>Countryside Stewardship Schemes</u>	0	1	2	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
69	14.1	<u>Priority Habitat Inventory</u>	1	1	3	-	-
70	14.2	Habitat Networks	0	0	0	-	-
70	14.3	<u>Open Mosaic Habitat</u>	1	0	0	-	-
70	14.4	Limestone Pavement Orders	0	0	0	-	-



Recent aerial photograph



Capture Date: 24/06/2020

Site Area: 13.7ha



Recent site history - 2017 aerial photograph



Capture Date: 19/09/2017

Site Area: 13.7ha



Recent site history - 2014 aerial photograph



Capture Date: 16/04/2014

Site Area: 13.7ha



Recent site history - 1999 aerial photograph



Capture Date: 20/05/1999

Site Area: 13.7ha



1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features

1.1 Historical industrial land uses

Records within 500m **3**

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 10**

ID	Location	Land use	Dates present	Group ID
1	On site	Unspecified Mine	1988	1455594

ID	Location	Land use	Dates present	Group ID
2	On site	Railway Sidings	1988	1409582
A	On site	Unspecified Tank	1988	1434781

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

4

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 10**

ID	Location	Land use	Dates present	Group ID
A	On site	Unspecified Tank	1991 - 1995	234909
A	On site	Unspecified Tank	1985 - 1995	238120
B	On site	Unspecified Tank	1995	227492
B	5m S	Unspecified Tank	1995	227493

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m

2

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 10**

ID	Location	Land use	Dates present	Group ID
3	On site	Electricity Substation	1991 - 1995	138821
B	On site	Electricity Substation	1991	130504



This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0
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Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	0
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Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

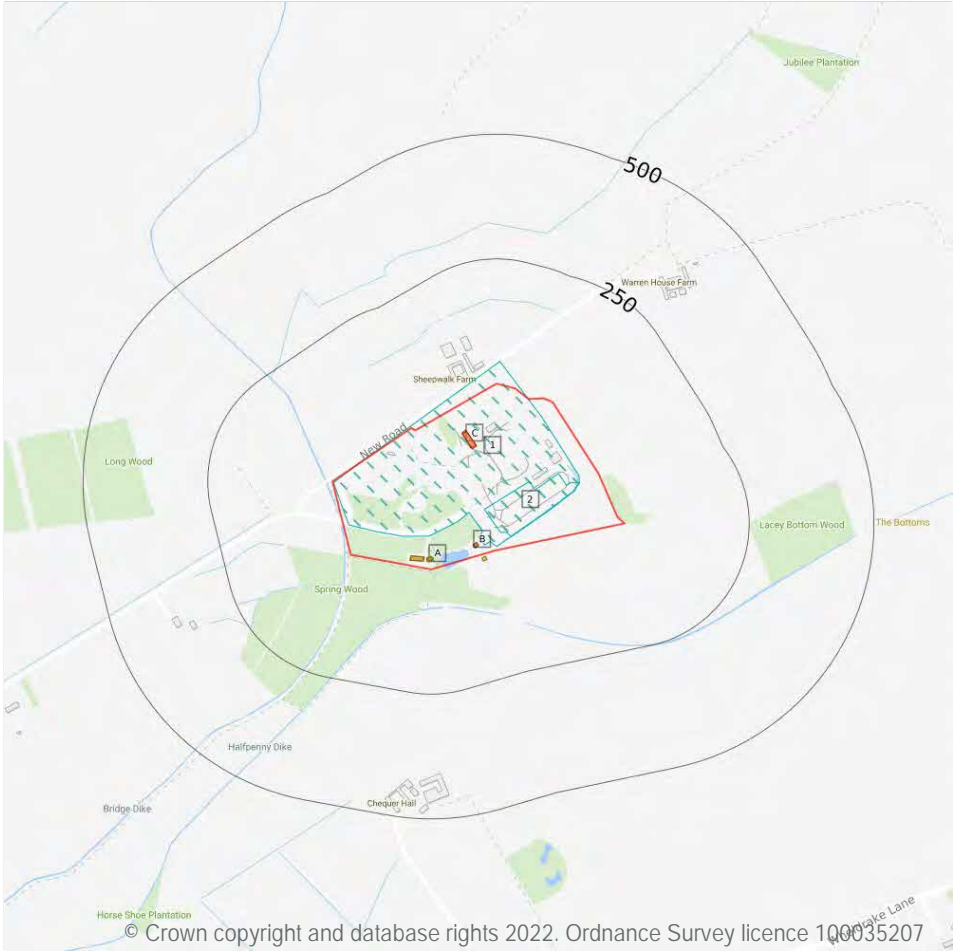
1.6 Historical military land




Records within 500m	0
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Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped



- Site Outline
- Search buffers in metres (m)
-  Historical industrial land uses
-  Historical tanks
-  Historical energy features

2.1 Historical industrial land uses

Records within 500m **3**

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 13**

ID	Location	Land Use	Date	Group ID
1	On site	Unspecified Mine	1988	1455594
2	On site	Railway Sidings	1988	1409582
A	On site	Unspecified Tank	1988	1434781

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m

7

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 13**

ID	Location	Land Use	Date	Group ID
A	On site	Unspecified Tank	1985	238120
A	On site	Unspecified Tank	1991	238120
A	On site	Unspecified Tank	1991	234909
A	On site	Unspecified Tank	1995	238120
A	On site	Unspecified Tank	1995	234909
B	On site	Unspecified Tank	1995	227492
B	5m S	Unspecified Tank	1995	227493

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m

3

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 13**

ID	Location	Land Use	Date	Group ID
B	On site	Electricity Substation	1991	130504
C	On site	Electricity Substation	1991	138821
C	On site	Electricity Substation	1995	138821

This data is sourced from Ordnance Survey / Groundsure.



2.4 Historical petrol stations

Records within 500m

0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m

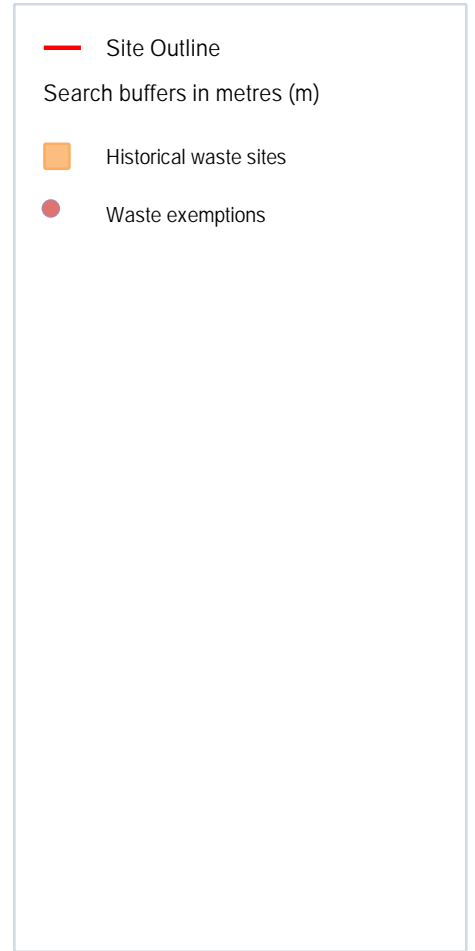
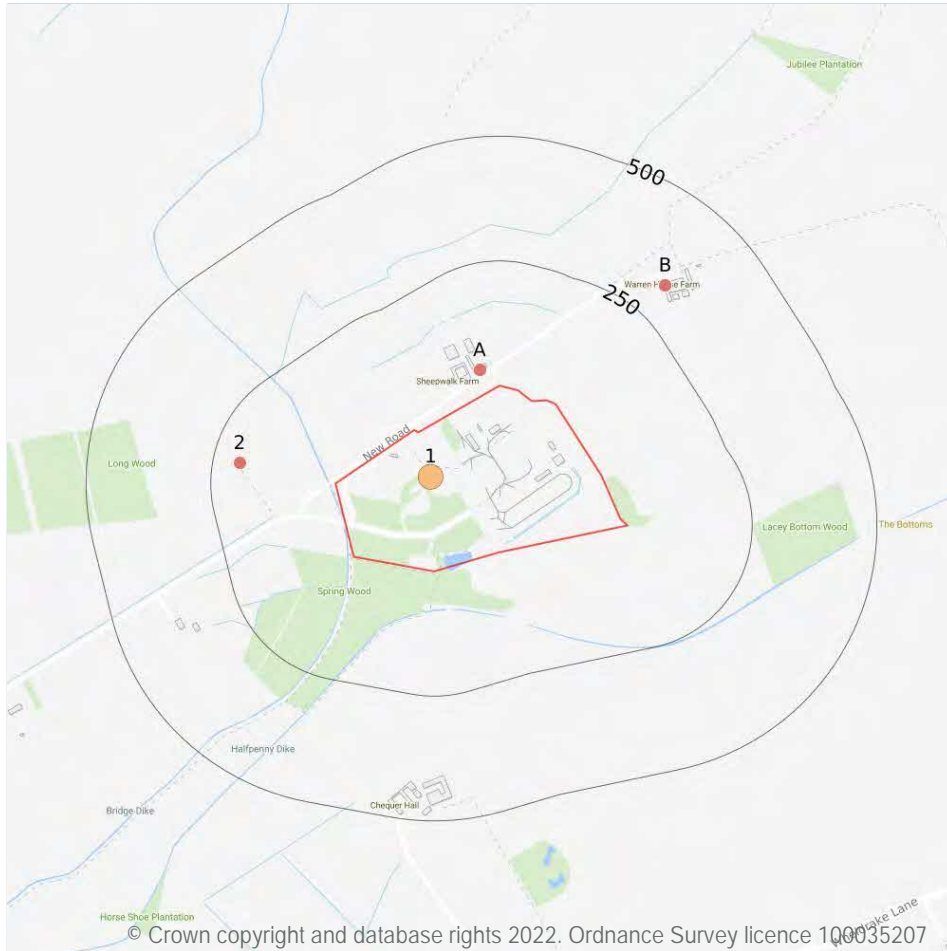
0

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



3.1 Active or recent landfill

Records within 500m

0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m

0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0
---------------------	---

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	0
---------------------	---

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m	1
---------------------	---

Waste site records derived from Local Authority planning records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 16**

ID	Location	Address	Further Details	Date
1	On site	Site Address: New Road, Escrick, York, North Yorkshire, YO19 6EZ	Type of Site: Waste to Energy Planning application reference: 12/03385/FULM Description: Comprises coal to biomass conversion plan. Proposed Anaerobic Digestion (AD) facility which will employ CHP units to generate electricity and heat from up to 60,000 tonnes of organic waste per year. The heat and some of the electricity will be used to power a horticultural glasshouse, which will be co-located on site. Work involves the demolition of buildings and re-profiling of bunds and areas of the former mine, construction of an anaerobic digestion combined heat and power facility and horticultural glasshouse and associated infrastructure and works. Data source: Historic Planning Application Data Type: Point	28/04/2014

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m

0

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m

16

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 16**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	46m N	1 SHEEPWALK WESTERN COTTAGE, NEW ROAD, ESCRICK, YORK, YO19 6EZ	WEX178707	Using waste exemption	Not on a farm	Burning of waste as a fuel in a small appliance
A	46m N	1 SHEEPWALK WESTERN COTTAGE, NEW ROAD, ESCRICK, YORK, YO19 6EZ	WEX077197	Using waste exemption	On a farm	Burning of waste as a fuel in a small appliance
2	197m W	Swan Farm YORK YO19 6HA	EPR/YF0837ER /A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of sludge
B	323m NE	WARREN HOUSE FARM, NEW ROAD, ESCRICK, YORK, YO19 6EZ	WEX174655	Disposing of waste exemption	On a farm	Deposit of waste from dredging of inland waters
B	323m NE	WARREN HOUSE FARM, NEW ROAD, ESCRICK, YORK, YO19 6EZ	WEX174655	Storing waste exemption	On a farm	Storage of waste in a secure place
B	323m NE	WARREN HOUSE FARM, NEW ROAD, ESCRICK, YORK, YO19 6EZ	WEX174655	Disposing of waste exemption	On a farm	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice
B	323m NE	WARREN HOUSE FARM, NEW ROAD, ESCRICK, YORK, YO19 6EZ	WEX174655	Disposing of waste exemption	On a farm	Burning waste in the open
B	323m NE	WARREN HOUSE FARM, NEW ROAD, ESCRICK, YORK, YO19 6EZ	WEX174655	Storing waste exemption	On a farm	Storage of waste in secure containers

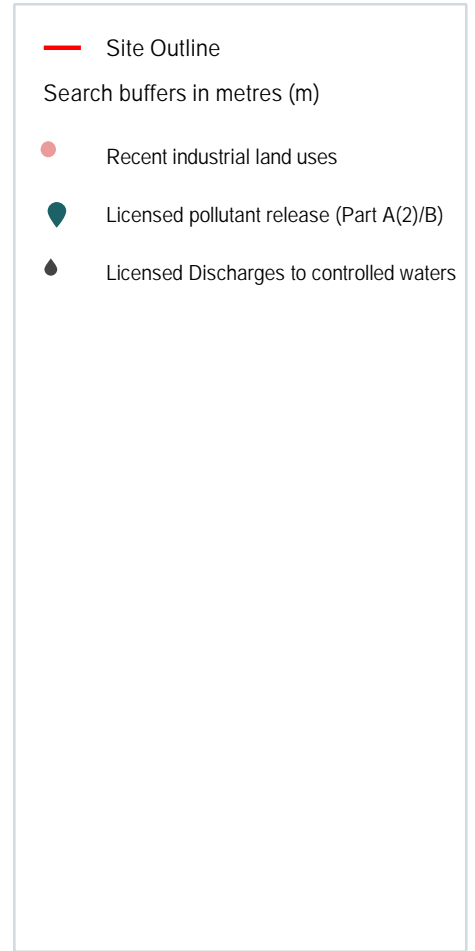
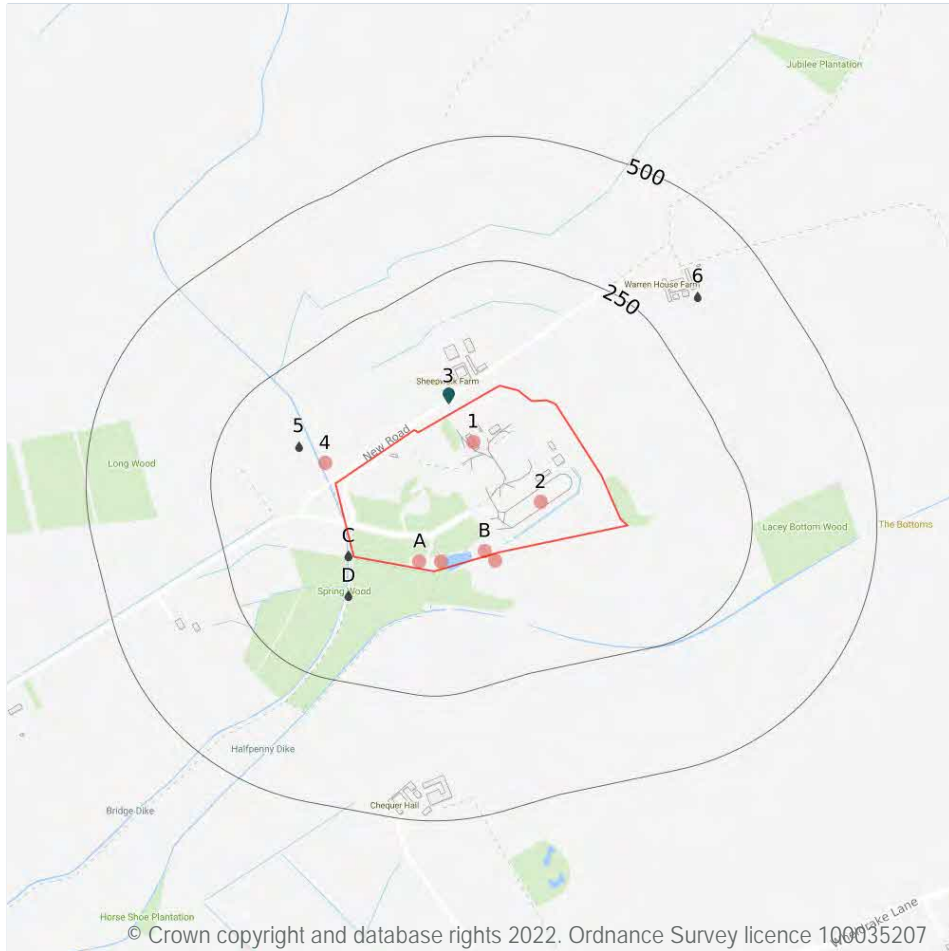


ID	Location	Site	Reference	Category	Sub-Category	Description
B	323m NE	WARREN HOUSE FARM, NEW ROAD, ESCRICK, YORK, YO19 6EZ	WEX174655	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
B	323m NE	WARREN HOUSE FARM, NEW ROAD, ESCRICK, YORK, YO19 6EZ	WEX012609	Disposing of waste exemption	On a farm	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice
B	323m NE	WARREN HOUSE FARM, NEW ROAD, ESCRICK, YORK, YO19 6EZ	WEX012609	Disposing of waste exemption	On a farm	Burning waste in the open
B	323m NE	WARREN HOUSE FARM, NEW ROAD, ESCRICK, YORK, YO19 6EZ	WEX012609	Storing waste exemption	On a farm	Storage of waste in a secure place
B	323m NE	WARREN HOUSE FARM, NEW ROAD, ESCRICK, YORK, YO19 6EZ	WEX012609	Treating waste exemption	On a farm	Treatment of sheep dip for disposal
B	323m NE	WARREN HOUSE FARM, NEW ROAD, ESCRICK, YORK, YO19 6EZ	WEX012609	Using waste exemption	On a farm	Use of waste in construction
B	323m NE	WARREN HOUSE FARM, NEW ROAD, ESCRICK, YORK, YO19 6EZ	WEX012609	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
B	323m NE	WARREN HOUSE FARM, NEW ROAD, ESCRICK, YORK, YO19 6EZ	WEX012609	Using waste exemption	On a farm	Burning of waste as a fuel in a small appliance

This data is sourced from the Environment Agency and Natural Resources Wales.



4 Current industrial land use



4.1 Recent industrial land uses

Records within 250m

7

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on [page 20](#)

ID	Location	Company	Address	Activity	Category
1	On site	Electricity Sub Station	North Yorkshire, YO19	Electrical Features	Infrastructure and Facilities
2	On site	Travelling Crane	North Yorkshire, YO19	Travelling Cranes and Gantries	Industrial Features
A	On site	Tank	North Yorkshire, YO19	Tanks (Generic)	Industrial Features

ID	Location	Company	Address	Activity	Category
A	On site	Tank	North Yorkshire, YO19	Tanks (Generic)	Industrial Features
B	On site	Tank	North Yorkshire, YO19	Tanks (Generic)	Industrial Features
B	14m S	Tank	North Yorkshire, YO19	Tanks (Generic)	Industrial Features
4	46m W	Electricity Poles	North Yorkshire, YO19	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m 0

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m 0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m 0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m 0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.



4.6 Control of Major Accident Hazards (COMAH)

Records within 500m

0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m

0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m

0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m

0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m

0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.



4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m

1

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 20**

ID	Location	Address	Details	
3	32m N	British Coal Nth, Selby Mine, New Rd, Escrick, YO19 6EZ	Process: Coal & Coke Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m

0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m

8

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 20**

ID	Location	Address	Details	
C	10m SW	NORTH SELBY MINE, ESCRICK, YORK, NORTH YORKSHIRE, UNITED KINGDOM, YO19 6EZ	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: 27/24/0011 Permit Version: 1 Receiving Water: BRIDGE DIKE	Status: SURRENDERED UNDER EPR 2010 Issue date: 28/08/2007 Effective Date: 28/08/2007 Revocation Date: 06/07/2015
C	10m SW	NORTH SELBY MINE, ESCRICK, YORK, NORTH YORKSHIRE, UNITED KINGDOM, YO19 6EZ	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 27/24/0011 Permit Version: 1 Receiving Water: BRIDGE DIKE	Status: SURRENDERED UNDER EPR 2010 Issue date: 28/08/2007 Effective Date: 28/08/2007 Revocation Date: 06/07/2015



ID	Location	Address	Details	
C	10m SW	RJB MINING (UK) LTD-NORTH SELBY, NORTH SELBY MINE, ESCRICK, YORK, NORTH YORKSHIRE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: QR27/24/0011 Permit Version: 1 Receiving Water: RIVER OUSE (TIDAL)	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 12/10/1995 Effective Date: 12/10/1995 Revocation Date: 23/07/1997
C	10m SW	RJB MINING (UK) LTD-NORTH SELBY, NORTH SELBY MINE, ESCRICK, YORK, NORTH YORKSHIRE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: QR27/24/0011 Permit Version: 2 Receiving Water: RIVER OUSE (TIDAL)	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 24/07/1997 Effective Date: 24/07/1997 Revocation Date: 27/08/2007
D	79m SW	RJB MINING (UK) LTD - NORTH SELBY -, SITE DRAINAGE	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: 3314 Permit Version: 2 Receiving Water: BRIDGE DYKE	Status: TRANSFERRED FROM R(PP)A 1951-1961 Issue date: 05/09/1980 Effective Date: 05/09/1980 Revocation Date: 09/03/1982
D	79m SW	RJB MINING (UK) LTD - NORTH SELBY -, SITE DRAINAGE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 3314 Permit Version: 2 Receiving Water: BRIDGE DYKE	Status: TRANSFERRED FROM R(PP)A 1951-1961 Issue date: 05/09/1980 Effective Date: 05/09/1980 Revocation Date: 09/03/1982
5	105m W	RJB MINING (UK) LTD-NORTH SELBY, NORTH SELBY MINE, ESCRICK, YORK, NORTH YORKSHIRE	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: 3314 Permit Version: 3 Receiving Water: RIVER OUSE (TIDAL)	Status: REVOKED - UNSPECIFIED Issue date: 10/03/1982 Effective Date: 10/03/1982 Revocation Date: 12/10/1995
6	356m NE	WARREN HOUSE FARM, ESCRICK, YORK, YO4 6EZ	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: S/P/1872 Permit Version: 1 Receiving Water: DITCH	Status: TRANSFERRED FROM R(PP)A 1951-1961 Issue date: 28/05/1963 Effective Date: 28/05/1963 Revocation Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m

0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.



4.15 Pollutant release to public sewer

Records within 500m	0
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Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m	0
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Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m	0
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Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m	0
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Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m	0
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The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m

0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.21 Pollution inventory radioactive waste

Records within 500m

0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.



5 Geology (basic)

5.1 Superficial geology (625k)

Records within 500m

1

Generalised geology data based on BGS's published poster maps of the UK (North and South). Superficial related themes digitised from 1977 first edition Quaternary map (North and South).

Location	Lex code	Description	Rock type
On site	LDE-CLAY	LACUSTRINE DEPOSITS (UNDIFFERENTIATED)	CLAY

This data is sourced from the British Geological Survey.

5.2 Bedrock geology (625k)

Records within 500m

1

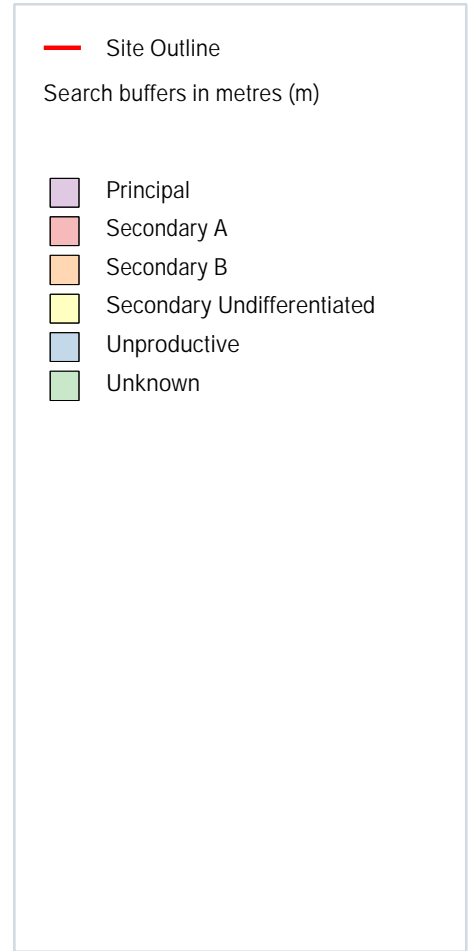
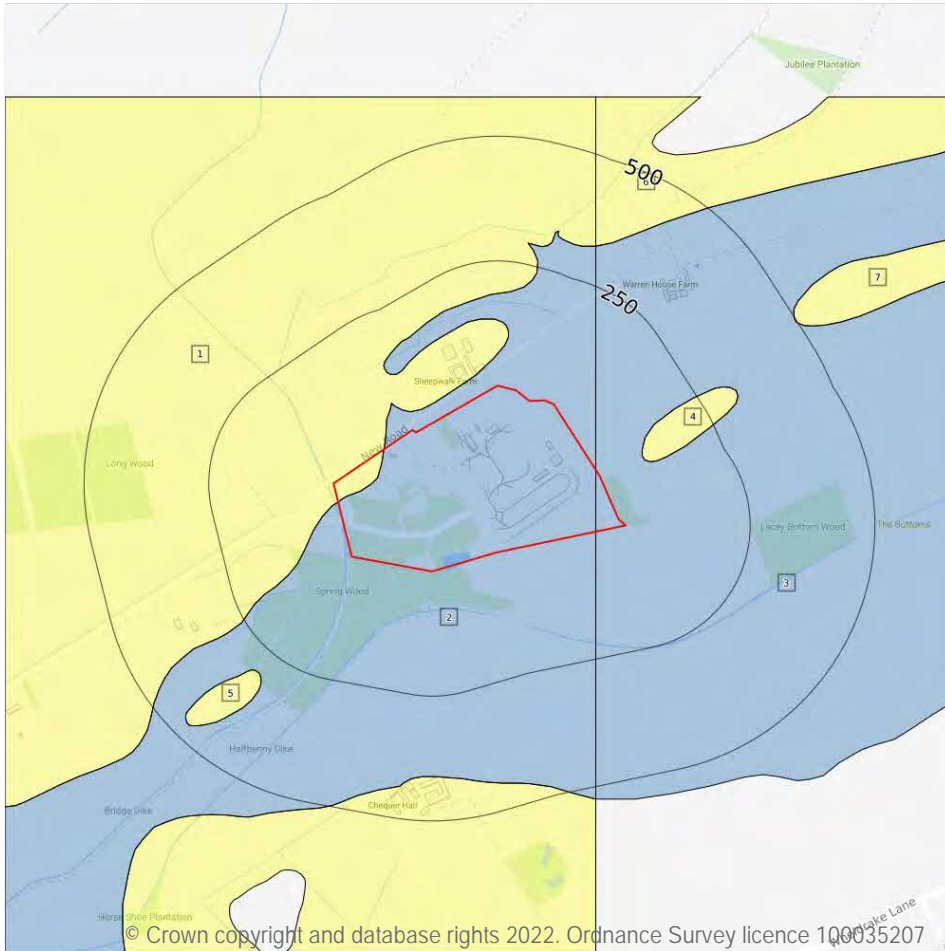
Generalised geology data based on BGS's published poster maps of the UK (North and South). Bedrock related themes created through generalisation of 1:50,000 data.

Location	Lex code	Description	Rock type
On site	TRIA-SCON	TRIASSIC ROCKS (UNDIFFERENTIATED)	SANDSTONE AND CONGLOMERATE, INTERBEDDED

This data is sourced from the British Geological Survey.



6 Hydrogeology - Superficial aquifer



6.1 Superficial aquifer

Records within 500m

7

Aquifer status of groundwater held within superficial geology.
Features are displayed on the Hydrogeology map on **page 28**

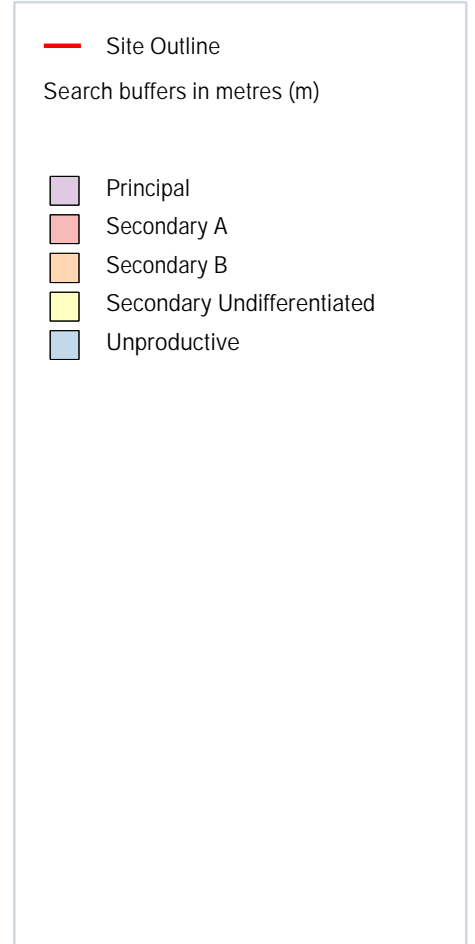
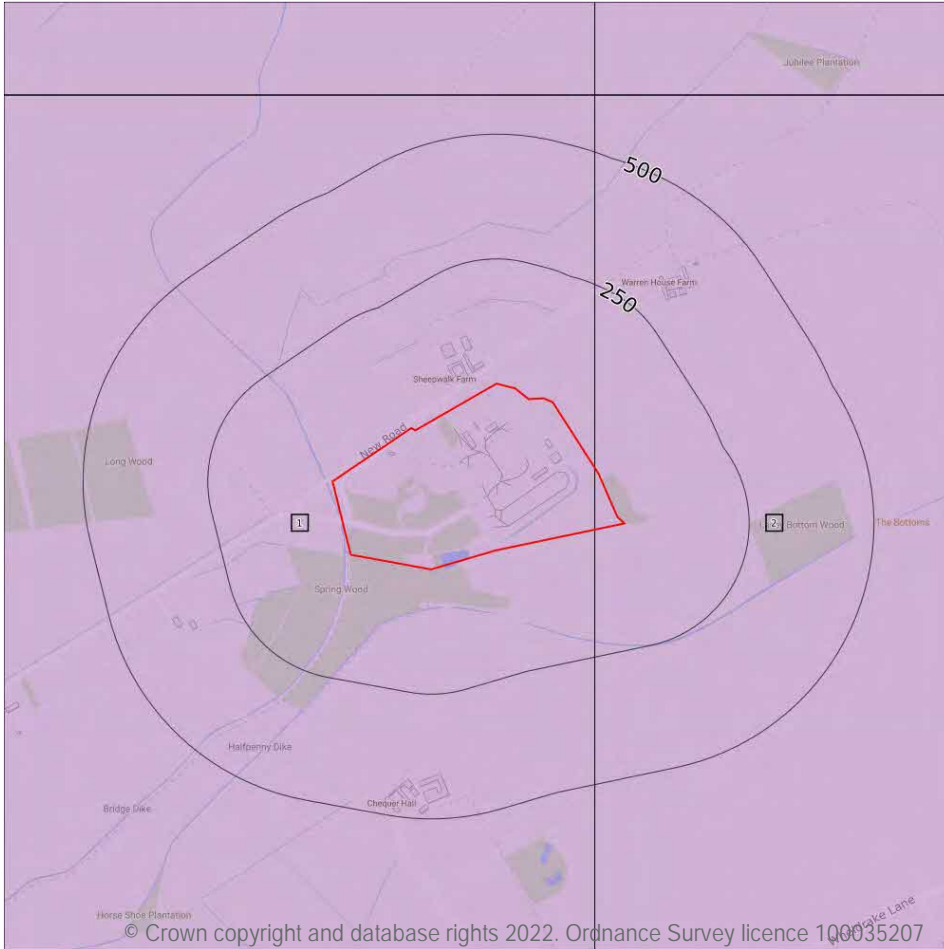
ID	Location	Designation	Description
1	On site	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
2	On site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

ID	Location	Designation	Description
3	On site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
4	94m E	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
5	298m SW	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
6	325m NE	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
7	498m NE	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Bedrock aquifer



6.2 Bedrock aquifer

Records within 500m

2

Aquifer status of groundwater held within bedrock geology.

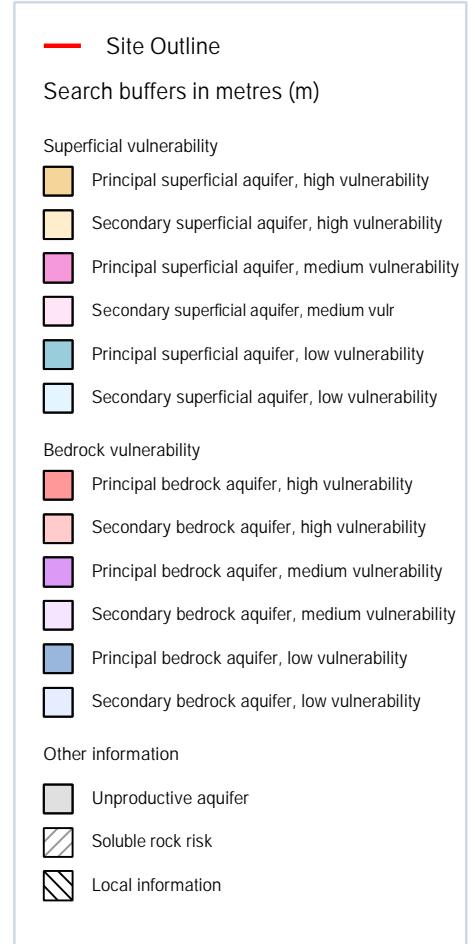
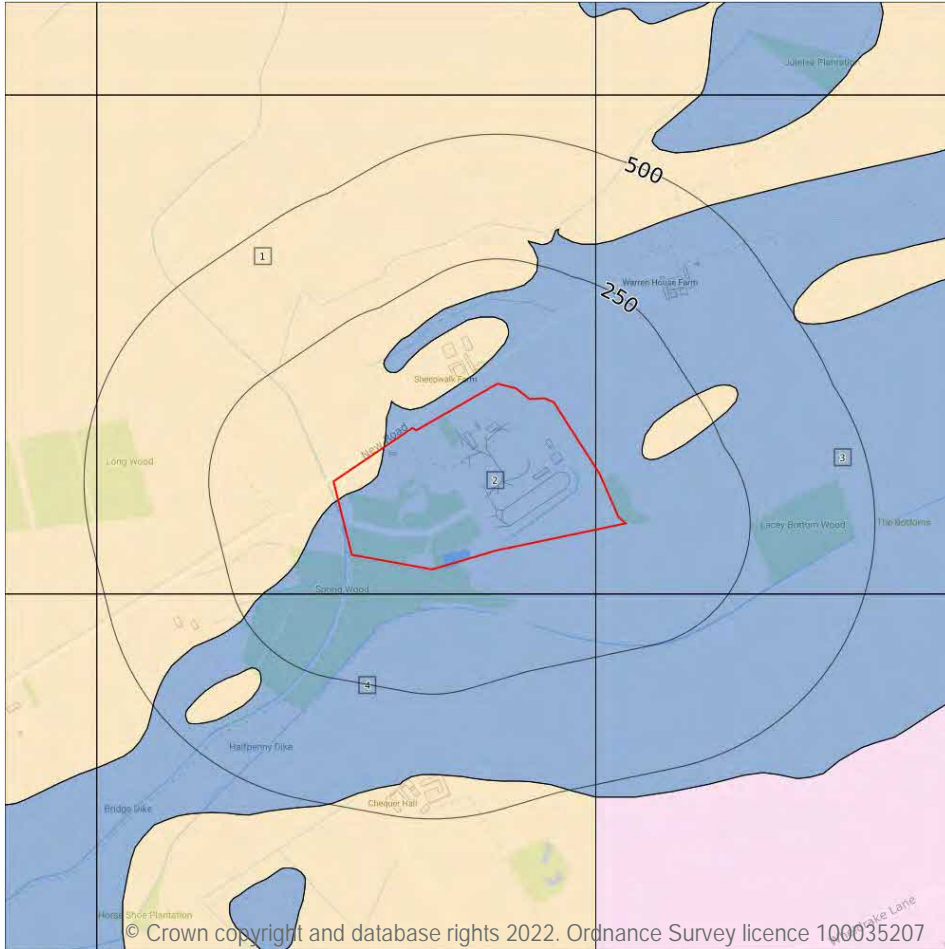
Features are displayed on the Bedrock aquifer map on [page 30](#)

ID	Location	Designation	Description
1	On site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
2	On site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Groundwater vulnerability



6.3 Groundwater vulnerability

Records within 50m

4

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 32**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Mixed
2	On site	Summary Classification: Principal bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Mixed
3	On site	Summary Classification: Principal bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Mixed
4	49m S	Summary Classification: Principal bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Mixed

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

6.4 Groundwater vulnerability- soluble rock risk

Records on site

0

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

6.5 Groundwater vulnerability- local information

Records on site

0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by

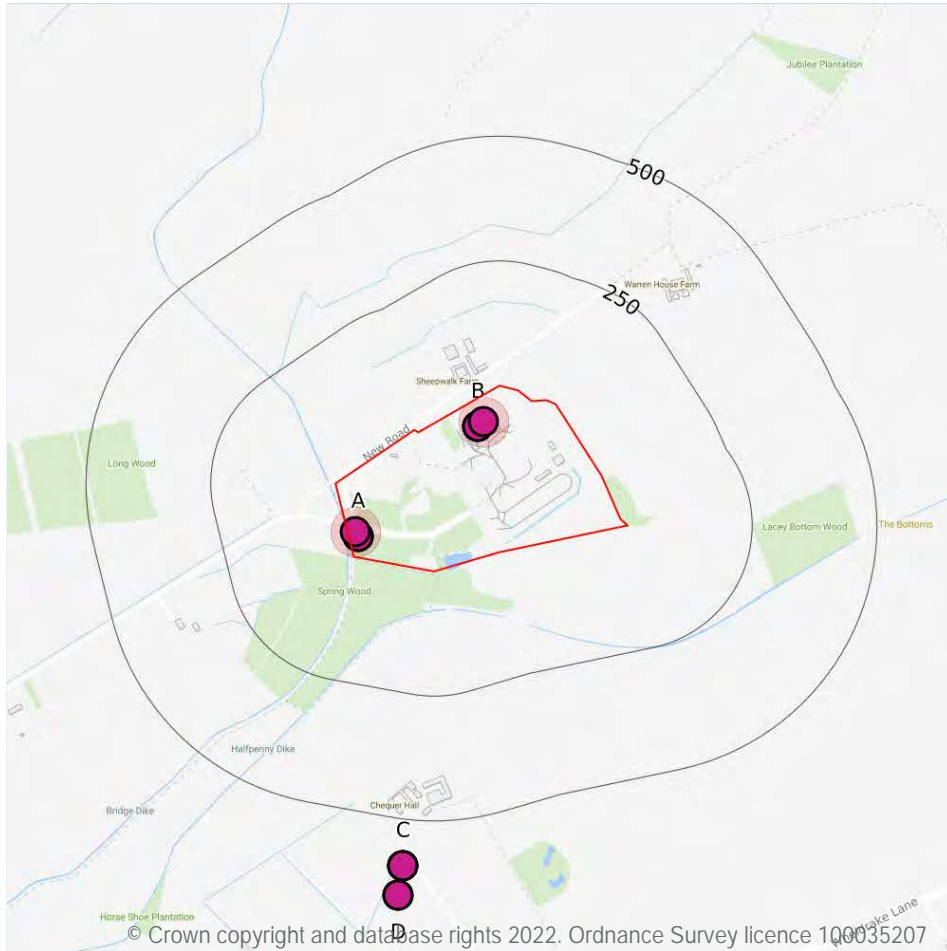


email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.



Abstractions and Source Protection Zones



6.6 Groundwater abstractions

Records within 2000m

20

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 35**

ID	Location	Details	
A	On site	Status: Historical Licence No: 2/27/24/400 Details: Potable Water Supply - Direct Direct Source: GROUNDWATERS Point: BOREHOLE A Data Type: Point Name: RJB MINING (UK) LTD Easting: 464520 Northing: 444120	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/05/2000 Expiry Date: 30/04/2003 Issue No: 2 Version Start Date: 31/05/2000 Version End Date: -
A	On site	Status: Historical Licence No: 2/27/24/430 Details: Raw Water Supply Direct Source: GROUNDWATERS Point: BOREHOLE A - SHERWOOD SANDSTONE - ESCRICK Data Type: Point Name: UK COAL MINING LTD Easting: 464520 Northing: 444120	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 30/05/2003 Expiry Date: 31/03/2015 Issue No: 1 Version Start Date: 30/05/2003 Version End Date: -
A	On site	Status: Historical Licence No: 2/27/24/430 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE A - SHERWOOD SANDSTONE - ESCRICK Data Type: Point Name: Harworth Estates Investments Ltd Easting: 464520 Northing: 444120	Annual Volume (m ³): 10000 Max Daily Volume (m ³): 1000 Original Application No: - Original Start Date: 30/05/2003 Expiry Date: 31/03/2015 Issue No: 2 Version Start Date: 03/09/2013 Version End Date: -
A	On site	Status: Active Licence No: 2/27/24/430/R01 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE A - SHERWOOD SANDSTONE - ESCRICK Data Type: Point Name: Harworth Estates Investments Ltd Easting: 464514 Northing: 444129	Annual Volume (m ³): 10,000 Max Daily Volume (m ³): 1,000 Original Application No: - Original Start Date: 01/04/2015 Expiry Date: 31/03/2027 Issue No: 3 Version Start Date: 24/08/2018 Version End Date: -



ID	Location	Details	
B	On site	Status: Historical Licence No: 2/27/24/400 Details: Potable Water Supply - Direct Direct Source: GROUNDWATERS Point: BOREHOLE B Data Type: Point Name: RJB MINING (UK) LTD Easting: 464760 Northing: 444340	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/05/2000 Expiry Date: 30/04/2003 Issue No: 2 Version Start Date: 31/05/2000 Version End Date: -
B	On site	Status: Historical Licence No: 2/27/24/430 Details: Raw Water Supply Direct Source: GROUNDWATERS Point: BOREHOLE B - SHERWOOD SANDSTONE - ESCRICK Data Type: Point Name: UK COAL MINING LTD Easting: 464760 Northing: 444340	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 30/05/2003 Expiry Date: 31/03/2015 Issue No: 1 Version Start Date: 30/05/2003 Version End Date: -
B	On site	Status: Historical Licence No: 2/27/24/430 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE B - SHERWOOD SANDSTONE - ESCRICK Data Type: Point Name: Harworth Estates Investments Ltd Easting: 464760 Northing: 444340	Annual Volume (m ³): 10000 Max Daily Volume (m ³): 1000 Original Application No: - Original Start Date: 30/05/2003 Expiry Date: 31/03/2015 Issue No: 2 Version Start Date: 03/09/2013 Version End Date: -
B	On site	Status: Active Licence No: 2/27/24/430/R01 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE B - SHERWOOD SANDSTONE - ESCRICK Data Type: Point Name: Harworth Estates Investments Ltd Easting: 464771 Northing: 444349	Annual Volume (m ³): 10,000 Max Daily Volume (m ³): 1,000 Original Application No: - Original Start Date: 01/04/2015 Expiry Date: 31/03/2027 Issue No: 3 Version Start Date: 24/08/2018 Version End Date: -



ID	Location	Details	
C	592m S	Status: Historical Licence No: 2/27/24/441 Details: Spray Irrigation - Direct Direct Source: GROUNDWATERS Point: BOREHOLE - SHERWOOD SANDSTONE - ESCRICK Data Type: Point Name: ROLAWN LTD Easting: 464610 Northing: 443460	Annual Volume (m ³): 136000 Max Daily Volume (m ³): 1930 Original Application No: - Original Start Date: 01/03/2005 Expiry Date: 31/03/2015 Issue No: 2 Version Start Date: 23/06/2011 Version End Date: -
C	592m S	Status: Historical Licence No: NE/026/0034/008 Details: Spray Irrigation - Direct Direct Source: GROUNDWATERS Point: BOREHOLE - SHERWOOD SANDSTONE - ESCRICK Data Type: Point Name: ROLAWN LTD Easting: 464610 Northing: 443460	Annual Volume (m ³): 717,000 Max Daily Volume (m ³): 19422 Original Application No: - Original Start Date: 01/10/2012 Expiry Date: 31/03/2027 Issue No: 3 Version Start Date: 20/08/2013 Version End Date: -
C	592m S	Status: Active Licence No: NE/027/0024/056 Details: Transfer Between Sources (Post Water Act 2003) Direct Source: GROUNDWATERS Point: BOREHOLE - SHERWOOD SANDSTONE - ESCRICK Data Type: Point Name: Escrick Park Home Farm Easting: 464610 Northing: 443460	Annual Volume (m ³): 322,000 Max Daily Volume (m ³): 5,616 Original Application No: NPS/WR/025440 Original Start Date: 06/06/2014 Expiry Date: 31/03/2030 Issue No: 2 Version Start Date: 12/06/2017 Version End Date: -
C	592m S	Status: Active Licence No: NE/027/0024/056 Details: Spray Irrigation - Direct Direct Source: GROUNDWATERS Point: BOREHOLE - SHERWOOD SANDSTONE - ESCRICK Data Type: Point Name: Escrick Park Home Farm Easting: 464610 Northing: 443460	Annual Volume (m ³): 322,000 Max Daily Volume (m ³): 5,616 Original Application No: NPS/WR/025440 Original Start Date: 06/06/2014 Expiry Date: 31/03/2030 Issue No: 2 Version Start Date: 12/06/2017 Version End Date: -
D	653m S	Status: Historical Licence No: 2/27/24/310 Details: Spray Irrigation - Direct Direct Source: GROUNDWATERS Point: BOREHOLE Data Type: Point Name: ESCRICK PARK HOME FARM Easting: 464600 Northing: 443400	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 30/06/1995 Expiry Date: 30/09/2004 Issue No: 100 Version Start Date: 01/04/2001 Version End Date: -



ID	Location	Details	
D	653m S	Status: Historical Licence No: 2/27/24/310 Details: Spray Irrigation - Direct Direct Source: GROUNDWATERS Point: BOREHOLE - SHERWOOD SANDSTONE - ESCRICK Data Type: Point Name: ESCRICK PARK HOME FARM Easting: 464600 Northing: 443400	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 30/06/1995 Expiry Date: 30/09/2004 Issue No: 100 Version Start Date: 01/04/2001 Version End Date: -
-	1970m NE	Status: Historical Licence No: 2/27/24/348 Details: Spray Irrigation - Direct Direct Source: GROUNDWATERS Point: BOREHOLE Data Type: Point Name: A SCUTT & SON Easting: 465770 Northing: 446160	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 08/07/1997 Expiry Date: 31/12/2006 Issue No: 100 Version Start Date: 08/07/1997 Version End Date: -
-	1970m NE	Status: Historical Licence No: 2/27/24/348 Details: Spray Irrigation - Direct Direct Source: GROUNDWATERS Point: BOREHOLE - SHERWOOD SANDSTONE - CROCKEY HILL Data Type: Point Name: SWALLOW HALL Easting: 465770 Northing: 446160	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 08/07/1997 Expiry Date: 31/12/2006 Issue No: 101 Version Start Date: 15/02/2002 Version End Date: -
-	1970m NE	Status: Historical Licence No: 2/27/24/348 Details: Spray Irrigation - Direct Direct Source: GROUNDWATERS Point: BOREHOLE - SHERWOOD SANDSTONE - CROCKEY HILL Data Type: Point Name: SWALLOW HALL Easting: 465770 Northing: 446160	Annual Volume (m ³): 6300 Max Daily Volume (m ³): 120 Original Application No: - Original Start Date: 08/07/1997 Expiry Date: 31/12/2006 Issue No: 102 Version Start Date: 09/06/2005 Version End Date: -
-	1970m NE	Status: Historical Licence No: 2/27/24/457 Details: Spray Irrigation - Direct Direct Source: GROUNDWATERS Point: BOREHOLE - SHERWOOD SANDSTONE - CROCKEY HILL Data Type: Point Name: SWALLOW HALL Easting: 465770 Northing: 446160	Annual Volume (m ³): 12000 Max Daily Volume (m ³): 120.001 Original Application No: - Original Start Date: 01/01/2007 Expiry Date: 31/03/2015 Issue No: 2 Version Start Date: 31/05/2007 Version End Date: -



ID	Location	Details	
-	1972m NE	Status: Historical Licence No: 2/27/24/457 Details: Spray Irrigation - Direct Direct Source: GROUNDWATERS Point: BOREHOLE - SHERWOOD SANDSTONE - CROCKEY HILL Data Type: Point Name: SWALLOW HALL Easting: 465784 Northing: 446155	Annual Volume (m ³): 12000 Max Daily Volume (m ³): 120.001 Original Application No: - Original Start Date: 01/01/2007 Expiry Date: 31/03/2015 Issue No: 2 Version Start Date: 31/05/2007 Version End Date: -
-	1972m NE	Status: Active Licence No: 2/27/24/457/R01 Details: Spray Irrigation - Direct Direct Source: GROUNDWATERS Point: BOREHOLE - SHERWOOD SANDSTONE - CROCKEY HILL Data Type: Point Name: SWALLOW HALL Easting: 465784 Northing: 446155	Annual Volume (m ³): 12,000 Max Daily Volume (m ³): 120 Original Application No: NPS/WR/016935 Original Start Date: 01/04/2015 Expiry Date: 31/03/2027 Issue No: 1 Version Start Date: 01/04/2015 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

6.7 Surface water abstractions

Records within 2000m	0
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Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

6.8 Potable abstractions

Records within 2000m	2
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Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 35**

ID	Location	Details	
A	On site	Status: Historical Licence No: 2/27/24/400 Details: Potable Water Supply - Direct Direct Source: GROUNDWATERS Point: BOREHOLE A Data Type: Point Name: RJB MINING (UK) LTD Easting: 464520 Northing: 444120	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/05/2000 Expiry Date: 30/04/2003 Issue No: 2 Version Start Date: 31/05/2000 Version End Date: -
B	On site	Status: Historical Licence No: 2/27/24/400 Details: Potable Water Supply - Direct Direct Source: GROUNDWATERS Point: BOREHOLE B Data Type: Point Name: RJB MINING (UK) LTD Easting: 464760 Northing: 444340	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/05/2000 Expiry Date: 30/04/2003 Issue No: 2 Version Start Date: 31/05/2000 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

6.9 Source Protection Zones

Records within 500m	2
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Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination. Features are displayed on the Abstractions and Source Protection Zones map on [page 35](#)

ID	Location	Type	Description
A	On site	1	Inner catchment
B	On site	1	Inner catchment

This data is sourced from the Environment Agency and Natural Resources Wales.

6.10 Source Protection Zones (confined aquifer)

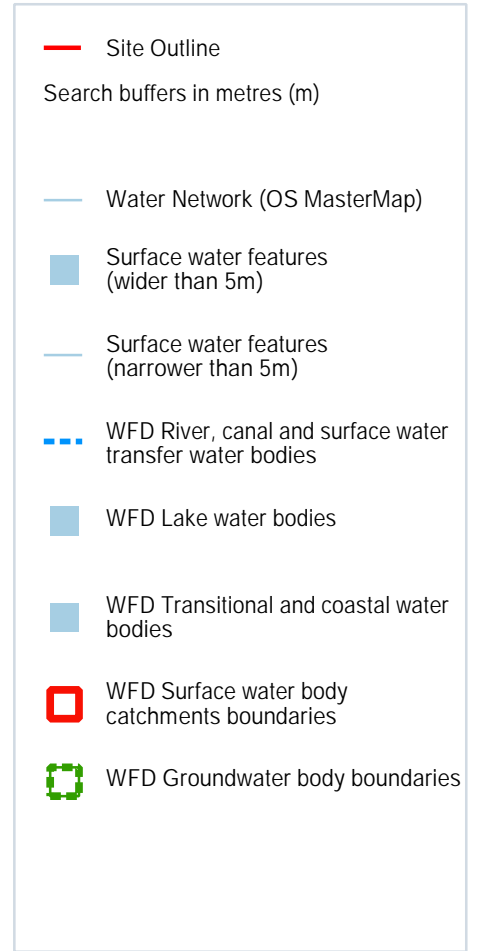
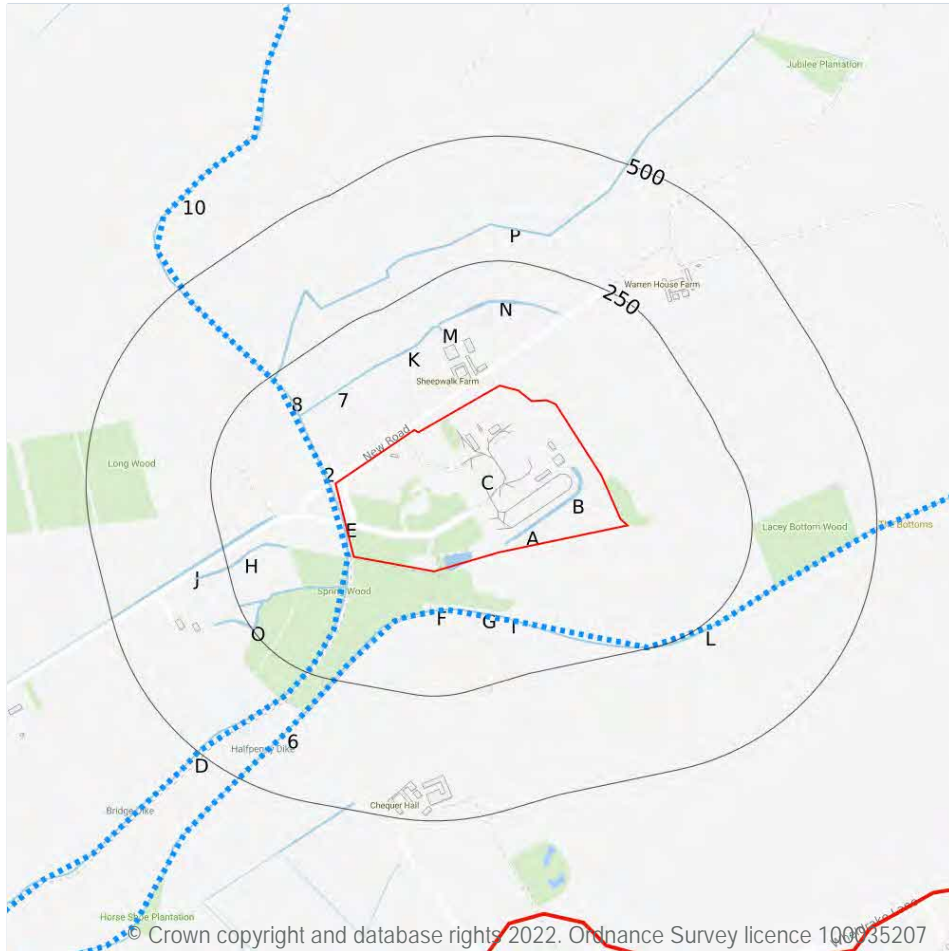
Records within 500m	0
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Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.



7 Hydrology



7.1 Water Network (OS MasterMap)

Records within 250m

38

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on [page 42](#)

ID	Location	Type of water feature	Ground level	Permanence	Name
A	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
A	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
A	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
A	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
B	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
2	3m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Bridge Dike
E	3m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Bridge Dike
E	3m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Bridge Dike
E	4m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	10m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Bridge Dike
D	62m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Bridge Dike



ID	Location	Type of water feature	Ground level	Permanence	Name
E	62m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	63m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
F	78m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Halfpenny Dike
F	79m S	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Halfpenny Dike
G	84m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Halfpenny Dike
F	85m SW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Halfpenny Dike
6	89m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Halfpenny Dike
H	126m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
I	128m S	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Halfpenny Dike
I	138m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Halfpenny Dike
J	139m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
K	148m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
7	149m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-



ID	Location	Type of water feature	Ground level	Permanence	Name
I	150m S	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Halfpenny Dike
8	151m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Bridge Dike
L	153m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Halfpenny Dike
M	153m N	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
M	164m N	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
M	164m N	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
N	164m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
O	200m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
O	200m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
P	241m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
10	242m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Bridge Dike

This data is sourced from the Ordnance Survey.



7.2 Surface water features

Records within 250m

16

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on [page 42](#)

This data is sourced from the Ordnance Survey.

7.3 WFD Surface water body catchments

Records on site

1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on [page 42](#)

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
C	On site	River	Stillingfleet Beck Source to Ouse	GB104027063710	Ouse Lower Yorkshire	Wharfe and Ouse Lower

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 WFD Surface water bodies

Records identified

1

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on [page 42](#)

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
3	11m SW	River	Stillingfleet Beck Source to Ouse	GB104027063710	Moderate	Fail	Moderate	2019



This data is sourced from the Environment Agency and Natural Resources Wales.

7.5 WFD Groundwater bodies

Records on site	1
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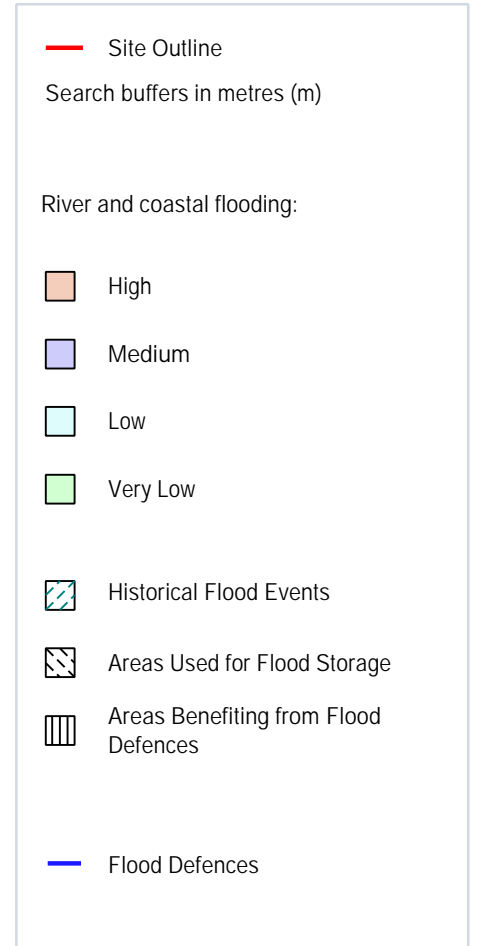
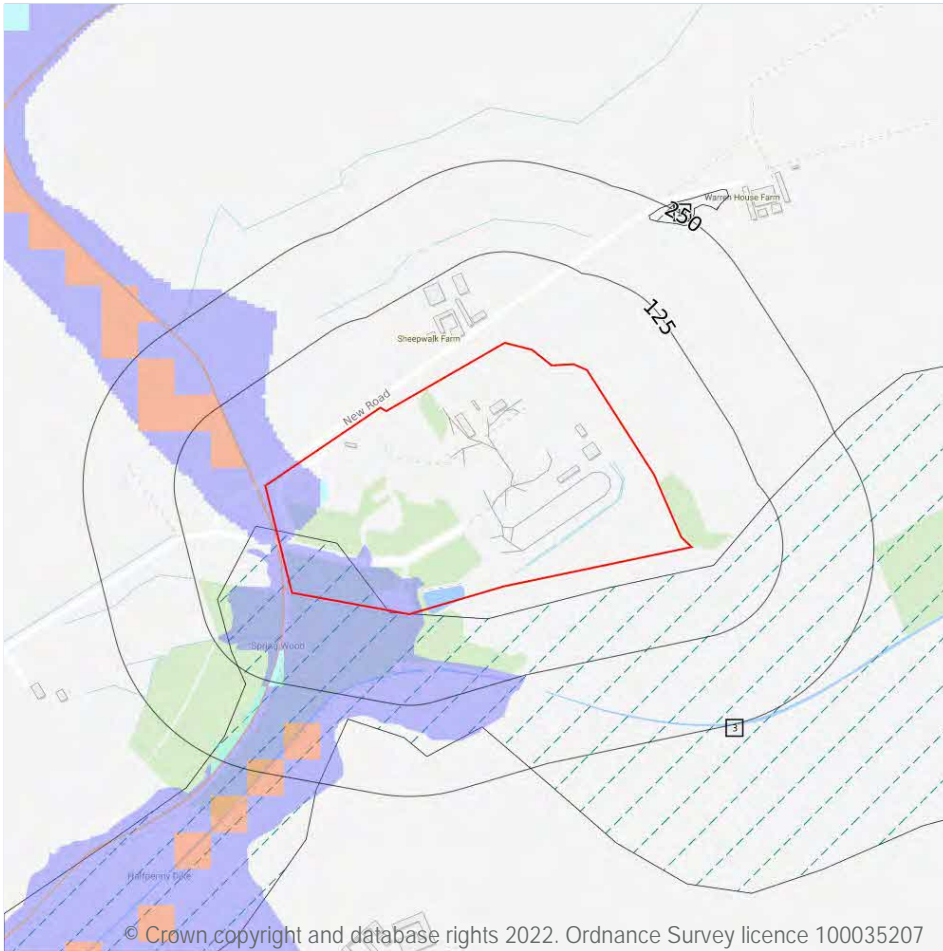
Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 42**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
C	On site	Wharfe & Lower Ouse Sherwood Sandstone	GB40401G702400	Poor	Poor	Good	2019

This data is sourced from the Environment Agency and Natural Resources Wales.

8 River and coastal flooding



8.1 Risk of flooding from rivers and the sea

Records within 50m

5

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

Features are displayed on the River and coastal flooding map on **page 48**

Distance	Flood risk category
On site	Medium
0 - 50m	High

This data is sourced from the Environment Agency and Natural Resources Wales.

8.2 Historical Flood Events

Records within 250m	2
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Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

Features are displayed on the River and coastal flooding map on **page 48**

ID	Location	Event name	Date of flood	Flood source	Flood cause	Type of flood
3	On site	1978 Flood Event	1978-12-01 1978-12-31	Unknown	Overtopping of defences	Fluvial
11	224m NE	2020 February Flood Incident - Storm Dennis	2020-02-15 2020-03-19	Drainage	Local drainage/surface water	No data

This data is sourced from the Environment Agency and Natural Resources Wales.

8.3 Flood Defences

Records within 250m	0
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Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

8.4 Areas Benefiting from Flood Defences

Records within 250m	0
---------------------	---

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.



8.5 Flood Storage Areas

Records within 250m

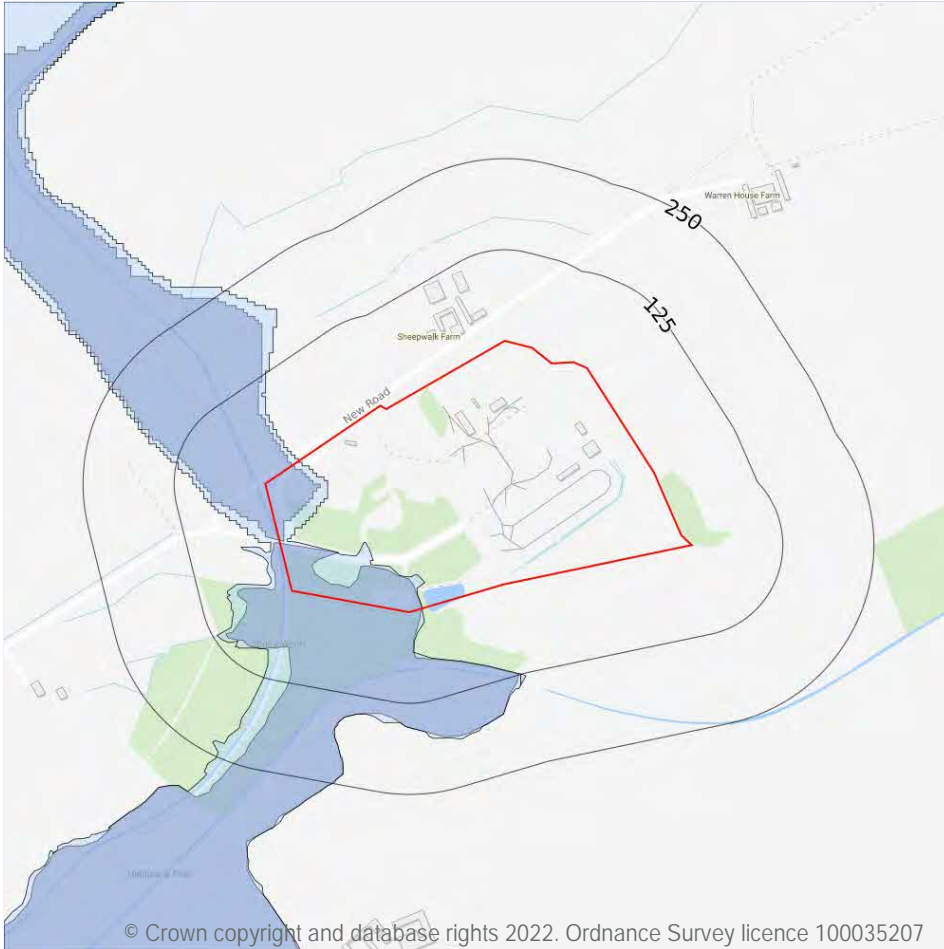
0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.



River and coastal flooding - Flood Zones



- Site Outline
- Search buffers in metres (m)
- Flood zone 2
- Flood zone 3

8.6 Flood Zone 2

Records within 50m

1

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

Features are displayed on the River and coastal flooding map on [page 48](#)

Location	Type
On site	Zone 2 - (Fluvial /Tidal Models)

This data is sourced from the Environment Agency and Natural Resources Wales.

8.7 Flood Zone 3

Records within 50m

1

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

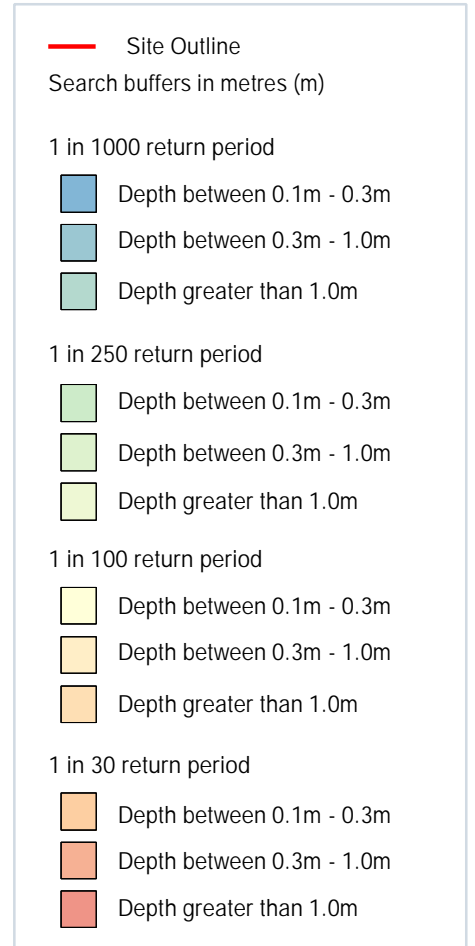
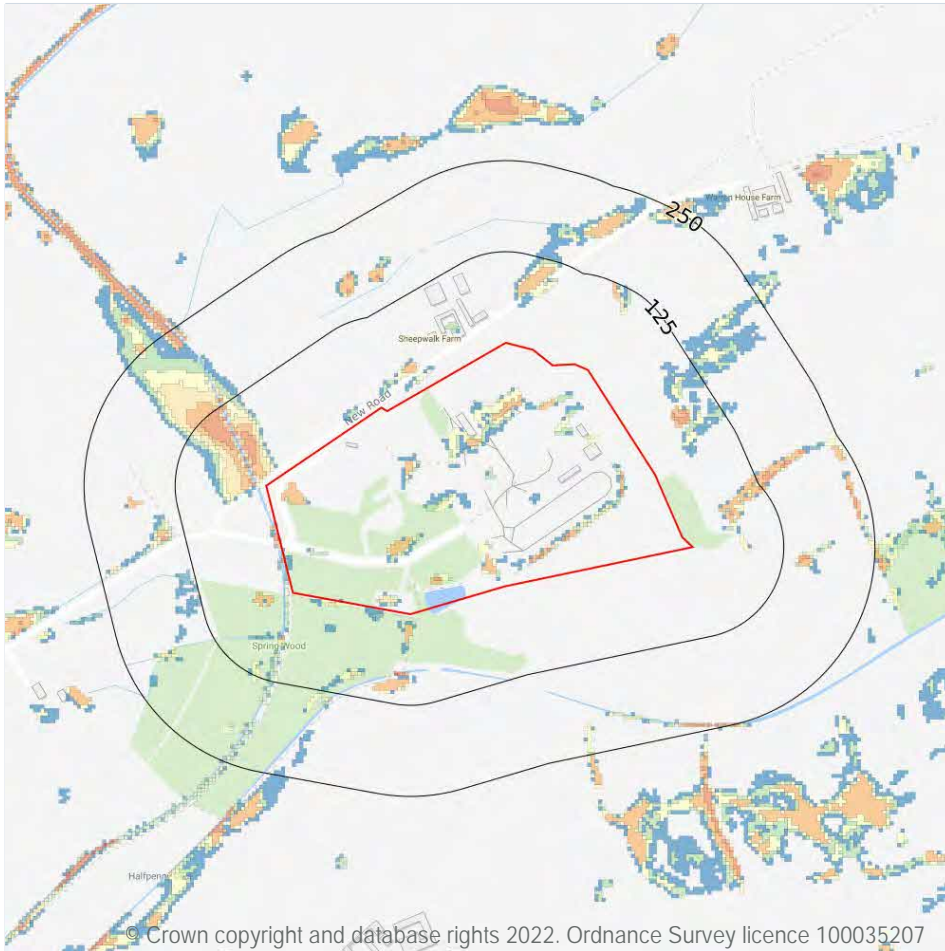
Features are displayed on the River and coastal flooding map on **page 48**

Location	Type
On site	Zone 3 - (Fluvial Models)

This data is sourced from the Environment Agency and Natural Resources Wales.



9 Surface water flooding



9.1 Surface water flooding

Highest risk on site

1 in 30 year, 0.3m - 1.0m

Highest risk within 50m

1 in 30 year, 0.3m - 1.0m

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on [page 53](#)

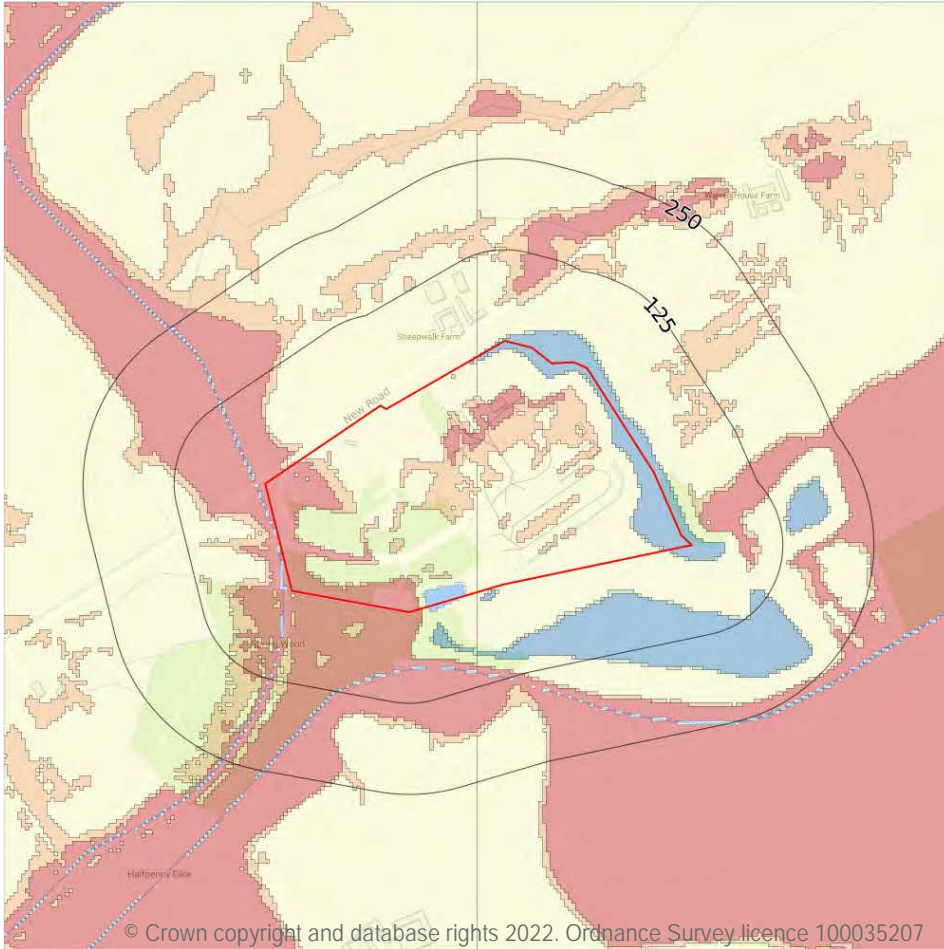
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Greater than 1.0m
1 in 250 year	Greater than 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.3m and 1.0m

This data is sourced from Ambiental Risk Analytics.

10 Groundwater flooding



10.1 Groundwater flooding

Highest risk on site

High

Highest risk within 50m

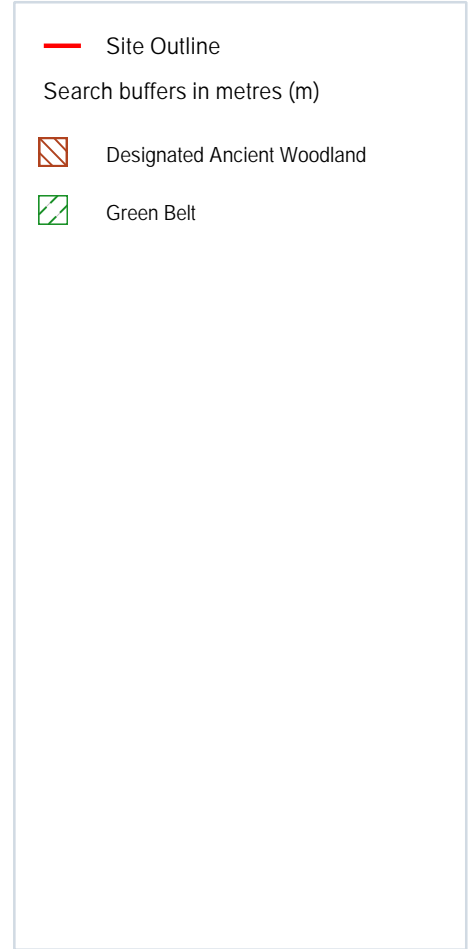
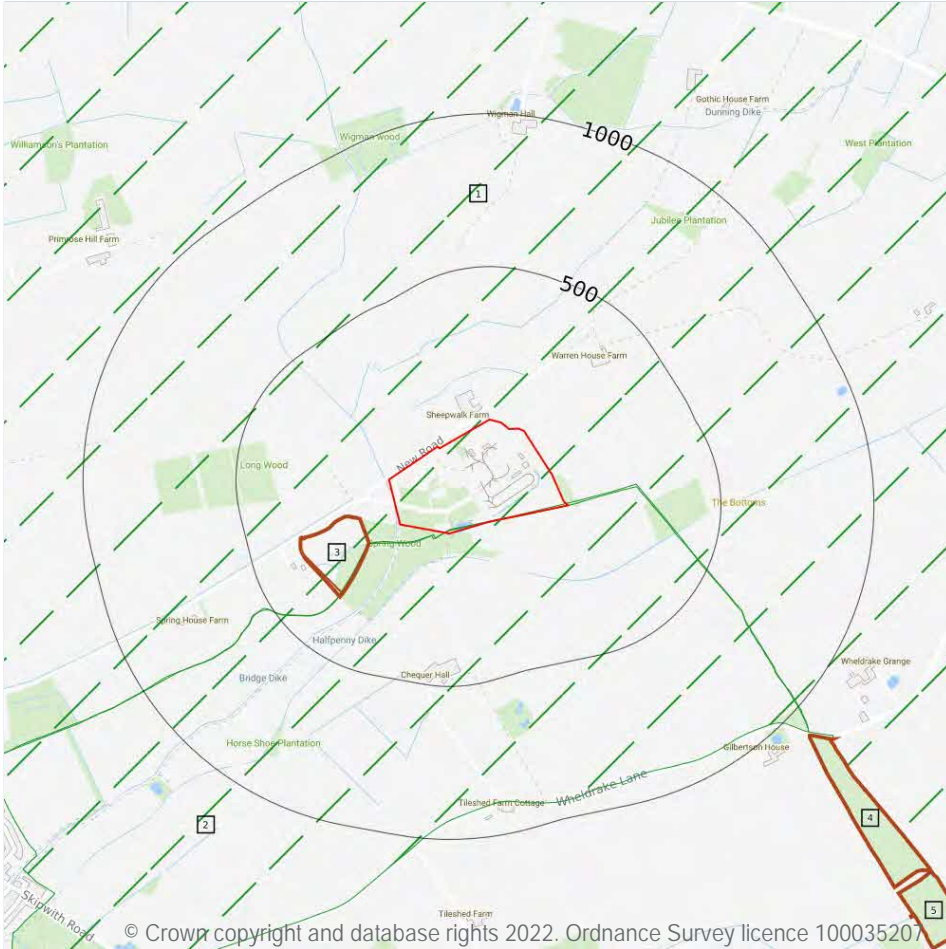
High

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 55**

This data is sourced from Ambient Risk Analytics.

11 Environmental designations



11.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.2 Conserved wetland sites (Ramsar sites)

Records within 2000m

0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 Special Areas of Conservation (SAC)

Records within 2000m

0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.4 Special Protection Areas (SPA)

Records within 2000m

0

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.5 National Nature Reserves (NNR)

Records within 2000m

0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.6 Local Nature Reserves (LNR)

Records within 2000m

0

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.7 Designated Ancient Woodland

Records within 2000m

3

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on **page 56**

ID	Location	Name	Woodland Type
3	117m SW	Spring Wood	Ancient Replanted Woodland
4	1091m SE	Gilbertsons Wood	Ancient Replanted Woodland
5	1666m SE	Gilbertsons Wood	Ancient Replanted Woodland

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.8 Biosphere Reserves

Records within 2000m

0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.



11.9 Forest Parks

Records within 2000m 0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

11.10 Marine Conservation Zones

Records within 2000m 0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.11 Green Belt

Records within 2000m 2

Areas designated to prevent urban sprawl by keeping land permanently open.

Features are displayed on the Environmental designations map on **page 56**

ID	Location	Name	Local Authority name
1	On site	York	York
2	On site	York	Selby

This data is sourced from the Ministry of Housing, Communities and Local Government.

11.12 Proposed Ramsar sites

Records within 2000m 0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

11.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m

0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

11.14 Potential Special Protection Areas (pSPA)

Records within 2000m

0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

11.15 Nitrate Sensitive Areas

Records within 2000m

0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

11.16 Nitrate Vulnerable Zones

Records within 2000m

6

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
On site	Ouse from Naburn to Sillingfleet NVZ	Surface Water	289	Existing



Location	Name	Type	NVZ ID	Status
383m W	Ouse from Naburn to Sillingfleet NVZ	Surface Water	289	Existing
899m S	Riccall Dam Catchment (trib of Ouse) NVZ	Surface Water	288	Existing
1560m N	Ouse from Naburn to Sillingfleet NVZ	Surface Water	289	Existing
1626m S	Riccall Dam Catchment (trib of Ouse) NVZ	Surface Water	288	Existing
1715m N	Ouse from Naburn to Sillingfleet NVZ	Surface Water	289	Existing

This data is sourced from Natural England and Natural Resources Wales.



ID	Location	Type of developments requiring consultation
1	On site	<p>Infrastructure - Pipelines, pylons and overhead cables. any transport proposal including road, rail and by water (excluding routine maintenance). airports, helipads and other aviation proposals.</p> <p>Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines.</p> <p>Minerals, Oil and Gas - Planning applications for quarries: new proposals or extensions, outside or extending outside existing settlements/urban areas affecting greenspace, farmland or semi natural habitats. oil & gas exploration/extraction.</p> <p>Rural non-residential - Large non residential developments outside existing settlements/urban areas where footprint exceeds 1ha.</p> <p>Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas.</p> <p>Air pollution - Any industrial/agricultural development that could cause air pollution (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t).</p> <p>Combustion - General combustion processes >50mw energy input. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.</p> <p>Waste - Landfill. incl: inert landfill, non-hazardous landfill, hazardous landfill.</p> <p>Discharges - Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream.</p>
2	On site	<p>Infrastructure - Pipelines, pylons and overhead cables. any transport proposal including road, rail and by water (excluding routine maintenance). airports, helipads and other aviation proposals.</p> <p>Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines.</p> <p>Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, review of minerals permissions (romp), extensions, variations to conditions etc. oil & gas exploration/extraction.</p> <p>Rural non-residential - Large non residential developments outside existing settlements/urban areas where footprint exceeds 1ha.</p> <p>Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas.</p> <p>Air pollution - Any industrial/agricultural development that could cause air pollution (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t).</p> <p>Combustion - General combustion processes >50mw energy input. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.</p> <p>Waste - Landfill. incl: inert landfill, non-hazardous landfill, hazardous landfill.</p> <p>Discharges - Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream.</p>

This data is sourced from Natural England.

11.18 SSSI Units

Records within 2000m

0

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.



12 Visual and cultural designations

12.1 World Heritage Sites

Records within 250m

0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12.2 Area of Outstanding Natural Beauty

Records within 250m

0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

12.3 National Parks

Records within 250m

0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

12.4 Listed Buildings

Records within 250m

0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.



This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12.5 Conservation Areas

Records within 250m

0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12.6 Scheduled Ancient Monuments

Records within 250m

0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12.7 Registered Parks and Gardens

Records within 250m

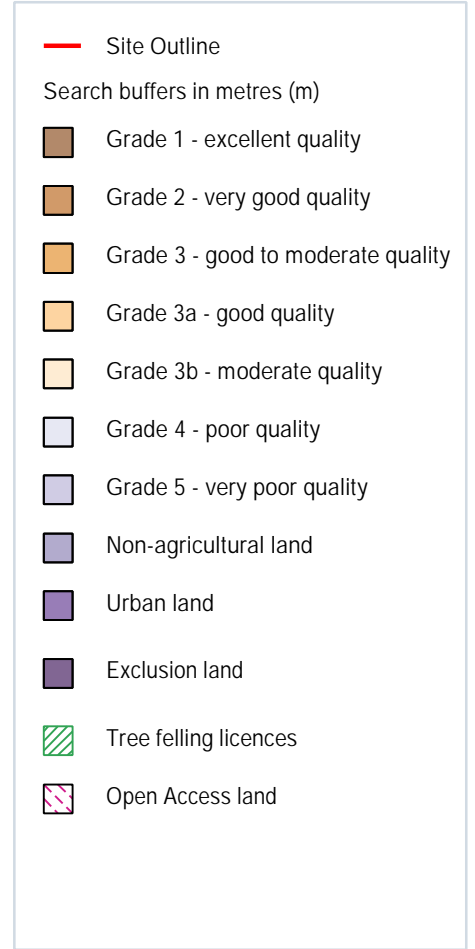
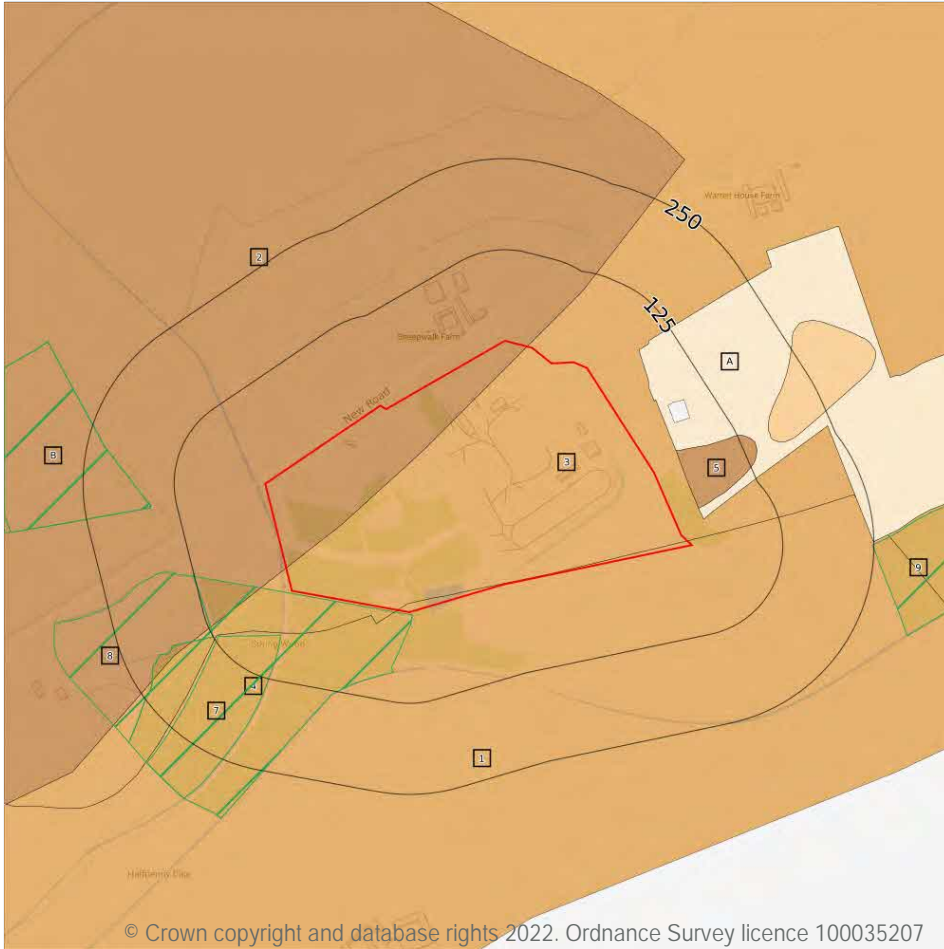
0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.



13 Agricultural designations



13.1 Agricultural Land Classification

Records within 250m

6

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 66**

ID	Location	Classification	Description
1	On site	Grade 3	Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

ID	Location	Classification	Description
2	On site	Grade 2	Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.
3	On site	Grade 3	Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.
5	37m E	Grade 2	Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.
A	37m E	Grade 3b	Moderate quality agricultural land. Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.
A	166m E	Grade 3a	Good quality agricultural land. Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

This data is sourced from Natural England.

13.2 Open Access Land

Records within 250m

0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

13.3 Tree Felling Licences

Records within 250m

6

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

Features are displayed on the Agricultural designations map on **page 66**



ID	Location	Description	Reference	Application date
4	3m SW	Selective Fell/Thin (Conditional)	012/81/17-18	20/12/2017
7	63m SW	Selective Fell/Thin (Unconditional)	012/029/13-14	01/01/1970
8	121m SW	Clear Fell (Conditional)	012/81/17-18	20/12/2017
B	160m W	Selective Fell/Thin (Unconditional)	012/30/12-13	20/06/2012
B	160m W	Selective Fell/Thin (Conditional)	012/81/17-18	20/12/2017
9	248m E	Selective Fell/Thin (Conditional)	012/81/17-18	20/12/2017

This data is sourced from the Forestry Commission.

13.4 Environmental Stewardship Schemes

Records within 250m

3

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

Location	Reference	Scheme	Start Date	End date
3m SW	AG00396388	Entry Level plus Higher Level Stewardship	01/09/2012	31/08/2022
160m W	AG00396388	Entry Level plus Higher Level Stewardship	01/09/2012	31/08/2022
248m E	AG00396388	Entry Level plus Higher Level Stewardship	01/09/2012	31/08/2022

This data is sourced from Natural England.

13.5 Countryside Stewardship Schemes

Records within 250m

3

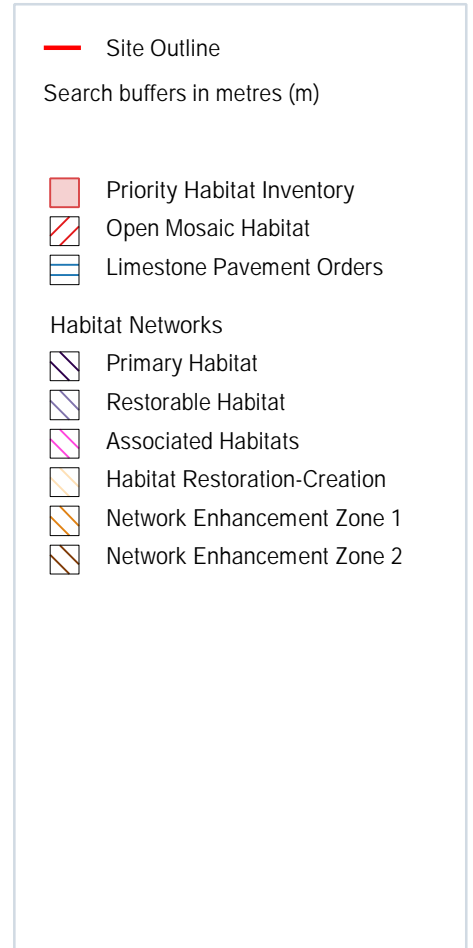
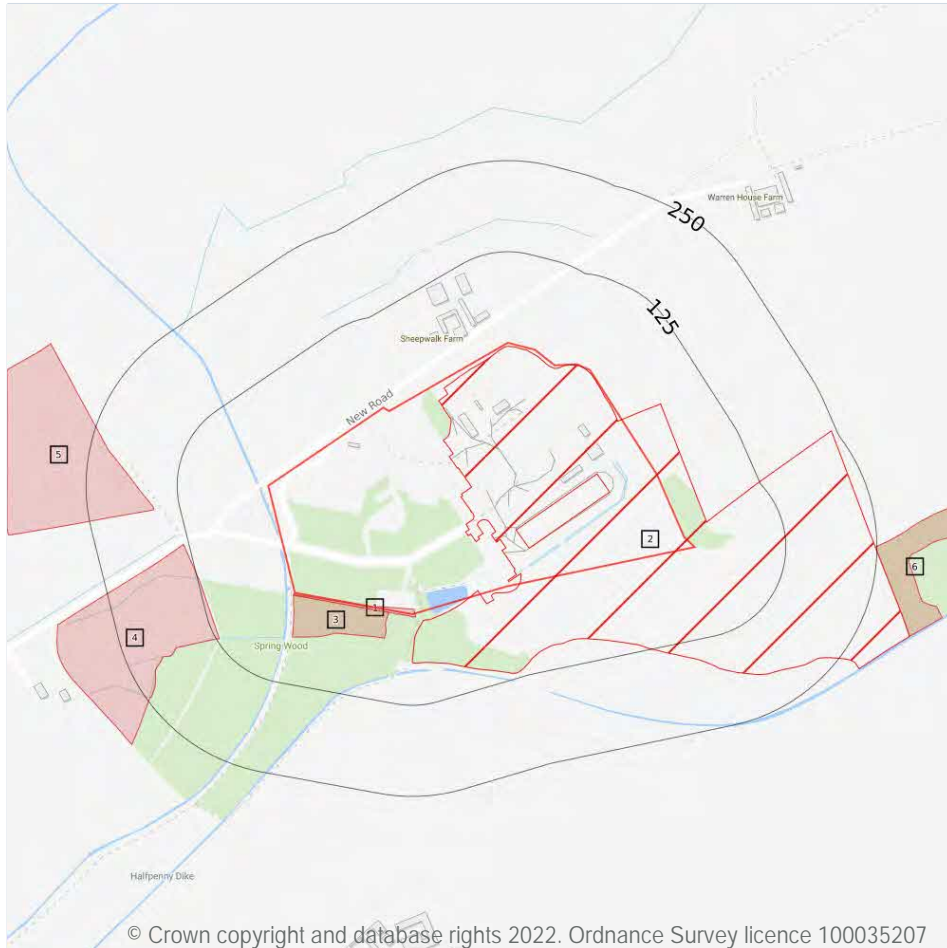
Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

Location	Reference	Scheme	Start Date	End Date
3m SW	807564	Countryside Stewardship (Higher Tier)	01/01/2020	31/12/2024
160m W	807564	Countryside Stewardship (Higher Tier)	01/01/2020	31/12/2024
248m E	807564	Countryside Stewardship (Higher Tier)	01/01/2020	31/12/2024

This data is sourced from Natural England.



14 Habitat designations



14.1 Priority Habitat Inventory

Records within 250m

5

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on [page 69](#)

ID	Location	Main Habitat	Other habitats
1	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	3m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
4	118m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
5	160m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

ID	Location	Main Habitat	Other habitats
6	248m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

14.2 Habitat Networks

Records within 250m	0
---------------------	---

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

14.3 Open Mosaic Habitat

Records within 250m	1
---------------------	---

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

Features are displayed on the Habitat designations map on **page 69**

ID	Location	Site reference	Identification confidence	Primary source	Secondary source	Tertiary source
2	On site	BRITPITS ref: 3263	Low	British Geological Survey BRITPITS database	UK Perspectives Aerial Photography	-

This data is sourced from Natural England.

14.4 Limestone Pavement Orders

Records within 250m	0
---------------------	---

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see <https://www.groundsure.com/sources-reference>.

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NORTH SELBY MINE, NEW ROAD, DEIGHTON, YORK, YO19 6EZ

Order Details

Date: 23/11/2022
Your ref: OE_1702_1048_LS_232
Our Ref: GS-9218002

Site Details

Location: 464757 444249
Area: 13.7 ha
Authority: [City of York Council](#), [Selby District Council](#)



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Summary of findings

p. 2

Aerial image

p. 5

OS MasterMap site plan

N/A: >10ha

groundsure.com/insightuserguide

Contact us with any questions at:

info@groundsure.com

08444 159 000

Summary of findings

Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
9	1.1	10k Availability	Identified (within 500m)				
10	1.2	Artificial and made ground (10k)	4	0	0	5	-
12	1.3	Superficial geology (10k)	3	1	3	9	-
13	1.4	Landslip (10k)	0	0	0	0	-
14	1.5	Bedrock geology (10k)	2	0	0	0	-
15	1.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
16	2.1	50k Availability	Identified (within 500m)				
17	2.2	Artificial and made ground (50k)	2	0	0	0	-
18	2.3	Artificial ground permeability (50k)	3	0	-	-	-
19	2.4	Superficial geology (50k)	2	1	3	6	-
20	2.5	Superficial permeability (50k)	Identified (within 50m)				
20	2.6	Landslip (50k)	0	0	0	0	-
21	2.7	Landslip permeability (50k)	None (within 50m)				
22	2.8	Bedrock geology (50k)	1	0	0	0	-
23	2.9	Bedrock permeability (50k)	Identified (within 50m)				
23	2.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
24	3.1	BGS Boreholes	4	0	3	-	-
Page	Section	Natural ground subsidence					
26	4.1	Shrink swell clays	Low (within 50m)				
28	4.2	Running sands	Low (within 50m)				
30	4.3	Compressible deposits	Moderate (within 50m)				
32	4.4	Collapsible deposits	Very low (within 50m)				
33	4.5	Landslides	Very low (within 50m)				
34	4.6	Ground dissolution of soluble rocks	Negligible (within 50m)				

Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m	
35	5.1	Natural cavities	0	0	0	0	-	
36	5.2	<u>BritPits</u>	1	0	0	2	-	
36	5.3	<u>Surface ground workings</u>	0	3	0	-	-	
37	5.4	<u>Underground workings</u>	1	0	0	0	0	
37	5.5	<u>Historical Mineral Planning Areas</u>	1	0	0	0	-	
38	5.6	Non-coal mining	0	0	0	0	0	
38	5.7	Mining cavities	0	0	0	0	0	
38	5.8	JPB mining areas	None (within 0m)					
38	5.9	<u>Coal mining</u>	Identified (within 0m)					
39	5.10	Brine areas	None (within 0m)					
39	5.11	Gypsum areas	None (within 0m)					
39	5.12	Tin mining	None (within 0m)					
39	5.13	Clay mining	None (within 0m)					

Page	Section	Radon					
40	6.1	<u>Radon</u>	Less than 1% (within 0m)				

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
41	7.1	<u>BGS Estimated Background Soil Chemistry</u>	6	4	-	-	-
41	7.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
42	7.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
43	8.1	Underground railways (London)	0	0	0	-	-
43	8.2	Underground railways (Non-London)	0	0	0	-	-
44	8.3	Railway tunnels	0	0	0	-	-
44	8.4	<u>Historical railway and tunnel features</u>	4	0	0	-	-
44	8.5	Royal Mail tunnels	0	0	0	-	-
45	8.6	Historical railways	0	0	0	-	-
45	8.7	<u>Railways</u>	28	0	0	-	-
46	8.8	Crossrail 1	0	0	0	0	-



46	8.9	Crossrail 2	0	0	0	0	-
46	8.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 24/06/2020

Site Area: 13.7ha



Recent site history - 2017 aerial photograph



Capture Date: 19/09/2017

Site Area: 13.7ha



Recent site history - 2014 aerial photograph



Capture Date: 16/04/2014

Site Area: 13.7ha



Recent site history - 1999 aerial photograph

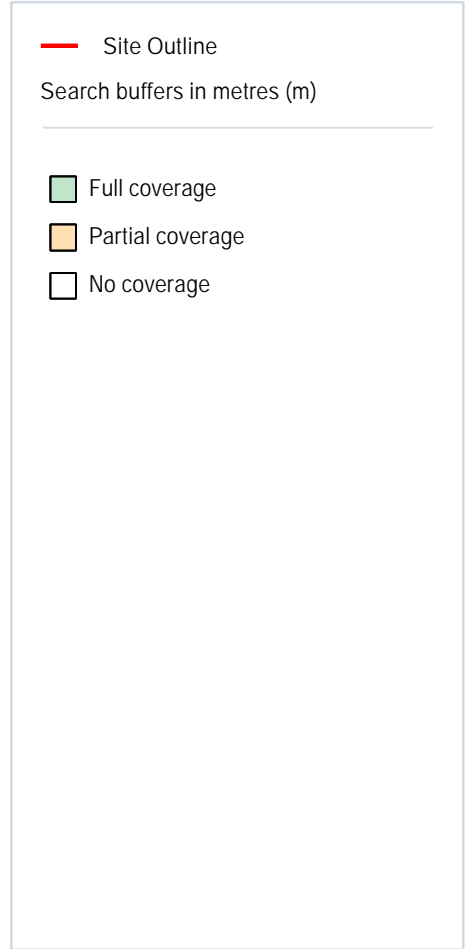
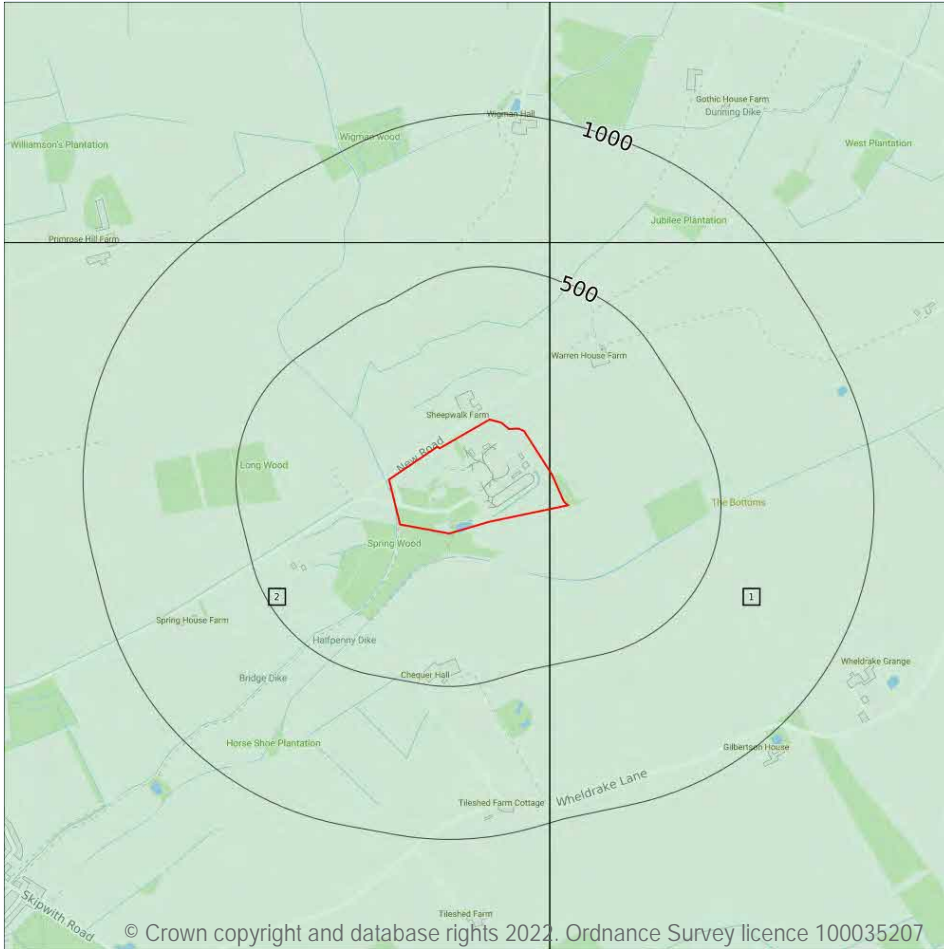


Capture Date: 20/05/1999

Site Area: 13.7ha



1 Geology 1:10,000 scale - Availability



1.1 10k Availability

Records within 500m

2

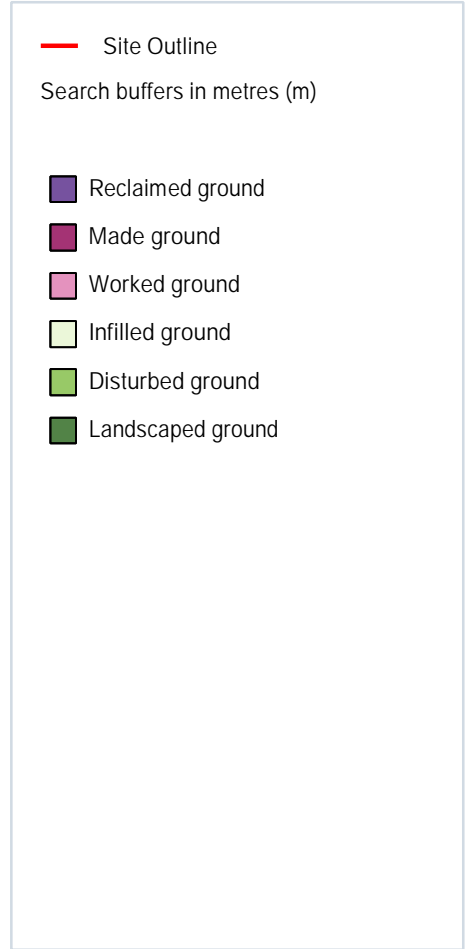
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on [page 9](#)

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	No coverage	SE64SE
2	On site	Full	Full	Full	No coverage	SE64SW

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground



1.2 Artificial and made ground (10k)

Records within 500m

9

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on [page 10](#)

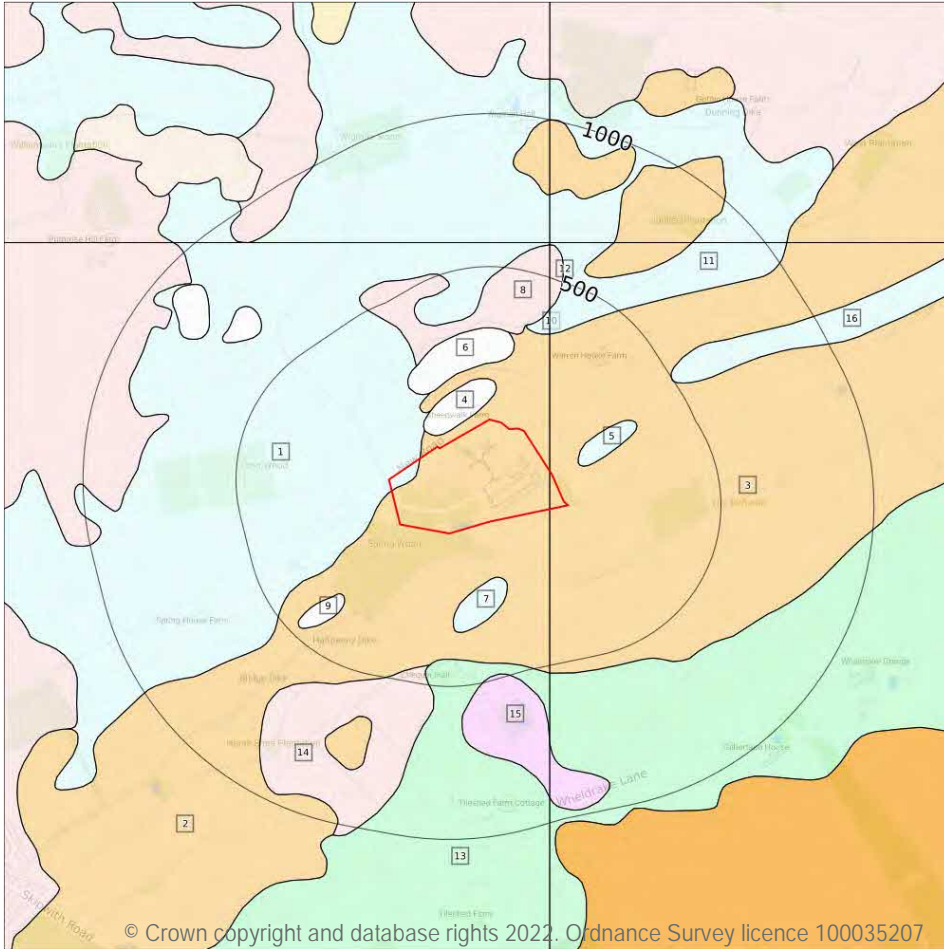
ID	Location	LEX Code	Description	Rock description
1	On site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	On site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
3	On site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	On site	LSGR-UKNOWN	Landscaped Ground (Undivided)	Unknown/unclassified Entry

ID	Location	LEX Code	Description	Rock description
A	362m NE	WGR-VOID	Worked Ground (Undivided)	Void
A	389m NE	WGR-VOID	Worked Ground (Undivided)	Void
A	390m NE	WGR-VOID	Worked Ground (Undivided)	Void
5	401m NE	WGR-VOID	Worked Ground (Undivided)	Void
A	441m NE	WGR-VOID	Worked Ground (Undivided)	Void

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial



- Site Outline
- Search buffers in metres (m)
- Landslip (10k)
- Superficial geology (10k)
Please see table for more details.

1.3 Superficial geology (10k)

Records within 500m

16

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on [page 12](#)

ID	Location	LEX Code	Description	Rock description
1	On site	VYORK-CSV	Vale Of York Formation - Sandy Gravelly Clay	Clay, Sandy, Gravelly
2	On site	ELV-CZ	Elvington Glaciolacustrine Formation - Silty Clay	Clay, Silty
3	On site	ELV-CZ	Elvington Glaciolacustrine Formation - Silty Clay	Clay, Silty
4	33m NW	SUTN-SZ	Sutton Sand Formation - Silty Sand	Sand, Silty

ID	Location	LEX Code	Description	Rock description
5	94m E	VYORK-CSV	Vale Of York Formation - Sandy Gravelly Clay	Clay, Sandy, Gravelly
6	172m NW	SUTN-SZ	Sutton Sand Formation - Silty Sand	Sand, Silty
7	180m S	VYORK-SCV	Vale Of York Formation - Clayey Gravelly Sand	Sand, Clayey, Gravelly
8	270m NW	NABS-SZ	Naburn Sand Member - Silty Sand	Sand, Silty
9	298m SW	SUTN-SZ	Sutton Sand Formation - Silty Sand	Sand, Silty
10	314m N	VYORK-CSV	Vale Of York Formation - Sandy Gravelly Clay	Clay, Sandy, Gravelly
11	325m NE	VYORK-CSV	Vale Of York Formation - Sandy Gravelly Clay	Clay, Sandy, Gravelly
12	404m NE	NABS-SZ	Naburn Sand Member - Silty Sand	Sand, Silty
13	411m S	ESKRM-CSV	Escrick Moraine Member - Sandy Gravelly Clay	Clay, Sandy, Gravelly
14	435m S	NABS-SZ	Naburn Sand Member - Silty Sand	Sand, Silty
15	487m S	ESKRM-SV	Escrick Moraine Member - Gravelly Sand	Sand, Gravelly
16	498m NE	VYORK-CSV	Vale Of York Formation - Sandy Gravelly Clay	Clay, Sandy, Gravelly

This data is sourced from the British Geological Survey.

1.4 Landslip (10k)

Records within 500m

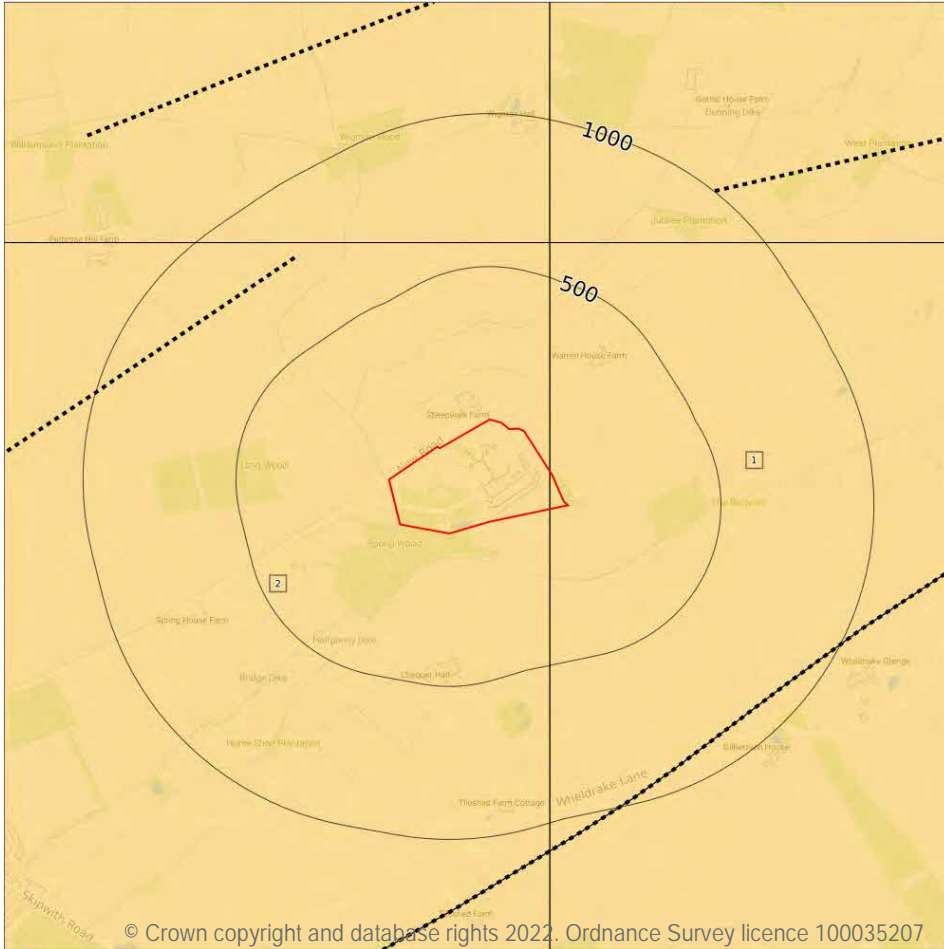
0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Bedrock



- Site Outline
- Search buffers in metres (m)
- Bedrock faults and other linear features (10k)
- Bedrock geology (10k)
Please see table for more details.

1.5 Bedrock geology (10k)

Records within 500m

2

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on [page 14](#)

ID	Location	LEX Code	Description	Rock age
1	On site	SSG-SDST	Sherwood Sandstone Group - Sandstone	Ladinian Age - Late Permian Epoch [Obsolete name]
2	On site	SSG-SDST	Sherwood Sandstone Group - Sandstone	Ladinian Age - Late Permian Epoch [Obsolete name]

This data is sourced from the British Geological Survey.



1.6 Bedrock faults and other linear features (10k)

Records within 500m

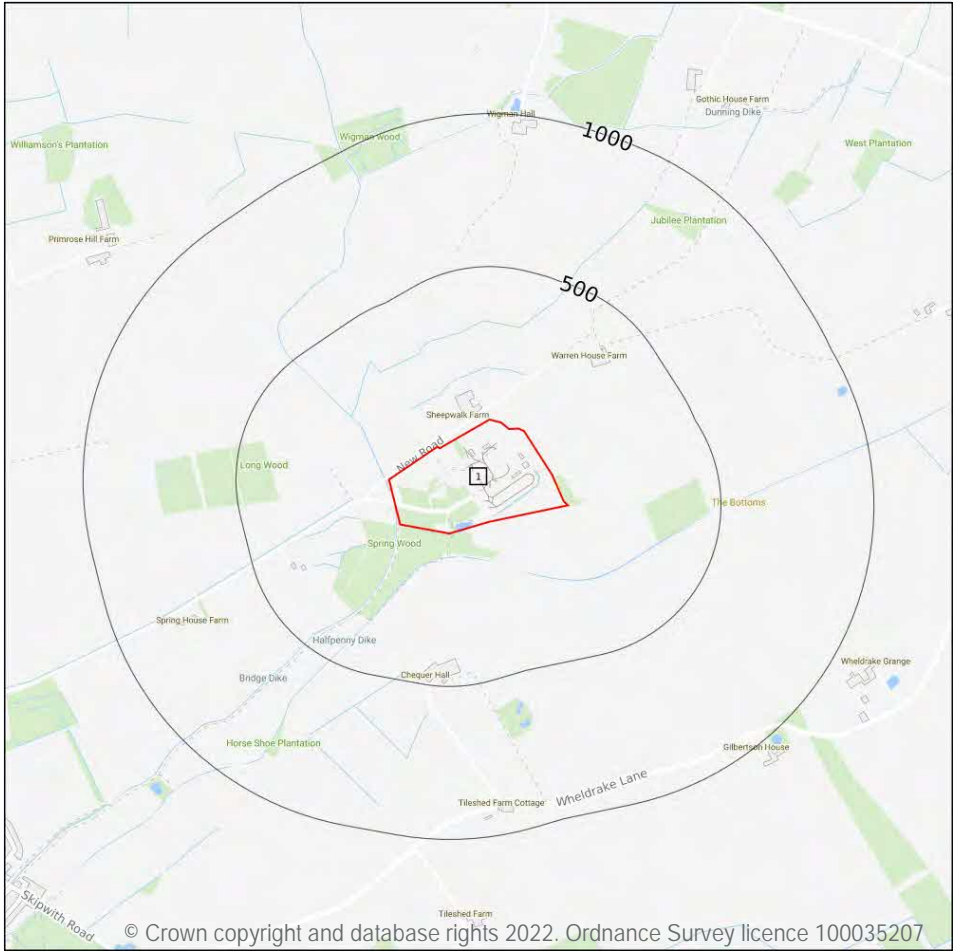
0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.



2 Geology 1:50,000 scale - Availability



— Site Outline

Search buffers in metres (m)

Geological map tile

2.1 50k Availability

Records within 500m 1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on [page 16](#)

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	No coverage	EW071_selby_v4

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground



— Site Outline
Search buffers in metres (m)

- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

2.2 Artificial and made ground (50k)

Records within 500m

2

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on [page 17](#)

ID	Location	LEX Code	Description	Rock description
1	On site	LSGR-ARTGR	LANDSCAPED GROUND (UNDIVIDED)	ARTIFICIALLY MODIFIED GROUND
2	On site	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

2.3 Artificial ground permeability (50k)

Records within 50m

3

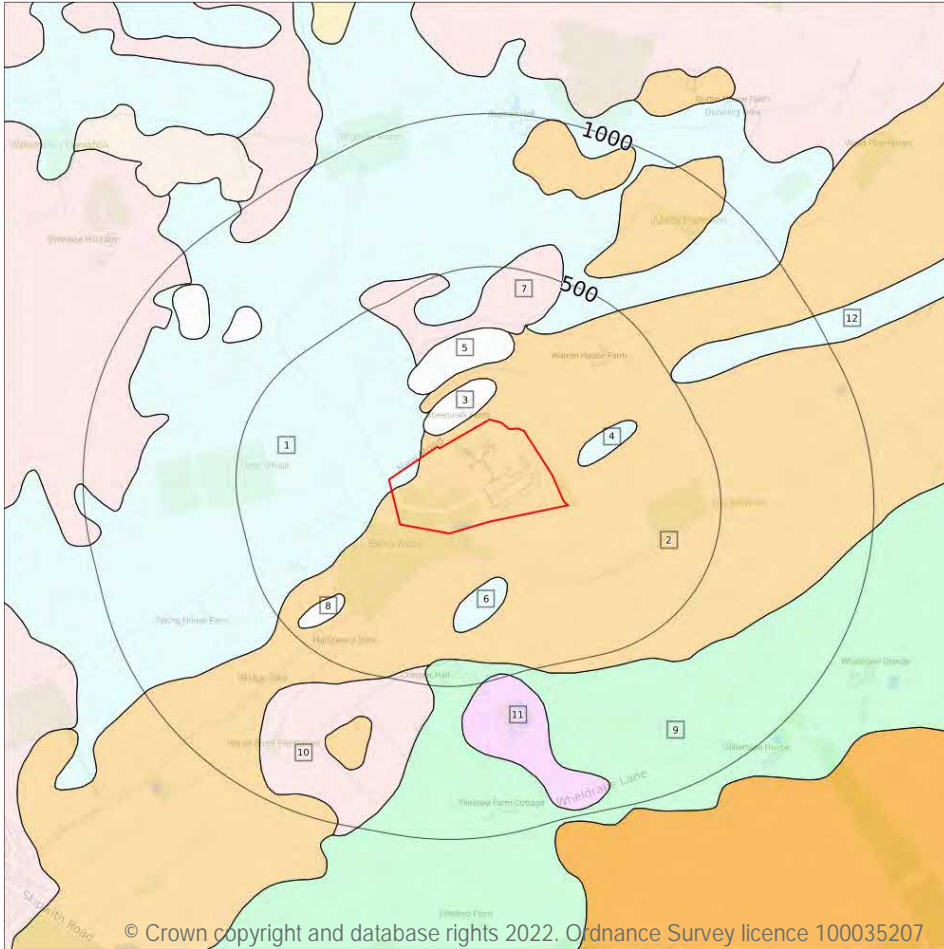
A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	Very High	Low
On site	Mixed	Very High	Low
On site	Mixed	Very High	Low

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Superficial



- Site Outline
- Search buffers in metres (m)
- Landslip (50k)
- Superficial geology (50k)
Please see table for more details.

2.4 Superficial geology (50k)

Records within 500m

12

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on [page 19](#)

ID	Location	LEX Code	Description	Rock description
1	On site	VYORK-CSV	VALE OF YORK FORMATION	CLAY, SANDY, GRAVELLY
2	On site	ELV-CZ	ELVINGTON GLACIOLACUSTRINE FORMATION	CLAY, SILTY
3	34m NW	SUTN-SZ	SUTTON SAND FORMATION	SAND, SILTY
4	94m E	VYORK-CSV	VALE OF YORK FORMATION	CLAY, SANDY, GRAVELLY



ID	Location	LEX Code	Description	Rock description
5	172m NW	SUTN-SZ	SUTTON SAND FORMATION	SAND, SILTY
6	180m S	VYORK-SCV	VALE OF YORK FORMATION	SAND, CLAYEY, GRAVELLY
7	271m NW	NABS-SZ	NABURN SAND MEMBER	SAND, SILTY
8	298m SW	SUTN-SZ	SUTTON SAND FORMATION	SAND, SILTY
9	411m S	ESKRM-CSV	ESCRICK MORAINE MEMBER	CLAY, SANDY, GRAVELLY
10	435m S	NABS-SZ	NABURN SAND MEMBER	SAND, SILTY
11	487m S	ESKRM-SV	ESCRICK MORAINE MEMBER	SAND, GRAVELLY
12	498m NE	VYORK-CSV	VALE OF YORK FORMATION	CLAY, SANDY, GRAVELLY

This data is sourced from the British Geological Survey.

2.5 Superficial permeability (50k)

Records within 50m

4

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	Low	Very Low
On site	Mixed	Low	Very Low
On site	Mixed	Moderate	Low
33m NW	Intergranular	High	Moderate

This data is sourced from the British Geological Survey.

2.6 Landslip (50k)

Records within 500m

0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.



2.7 Landslip permeability (50k)

Records within 50m

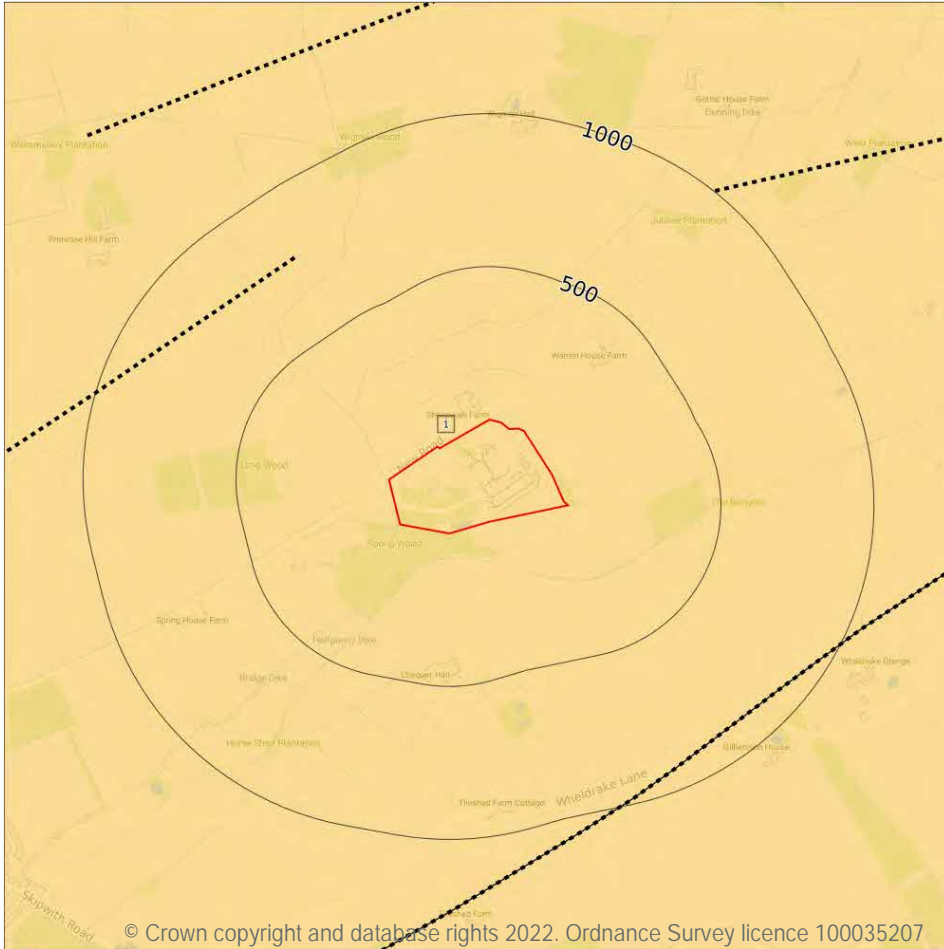
0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Bedrock



- Site Outline
- Search buffers in metres (m)
- Bedrock faults and other linear features (50k)
- Bedrock geology (50k)
Please see table for more details.

2.8 Bedrock geology (50k)

Records within 500m

1

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 22**

ID	Location	LEX Code	Description	Rock age
1	On site	SSG-SDST	SHERWOOD SANDSTONE GROUP - SANDSTONE	-

This data is sourced from the British Geological Survey.

2.9 Bedrock permeability (50k)

Records within 50m

2

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	High	High
On site	Mixed	High	High

This data is sourced from the British Geological Survey.

2.10 Bedrock faults and other linear features (50k)

Records within 500m

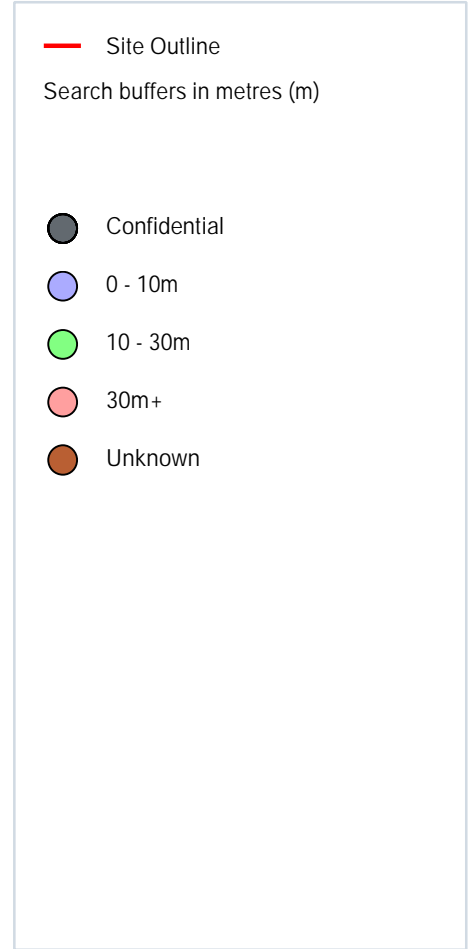
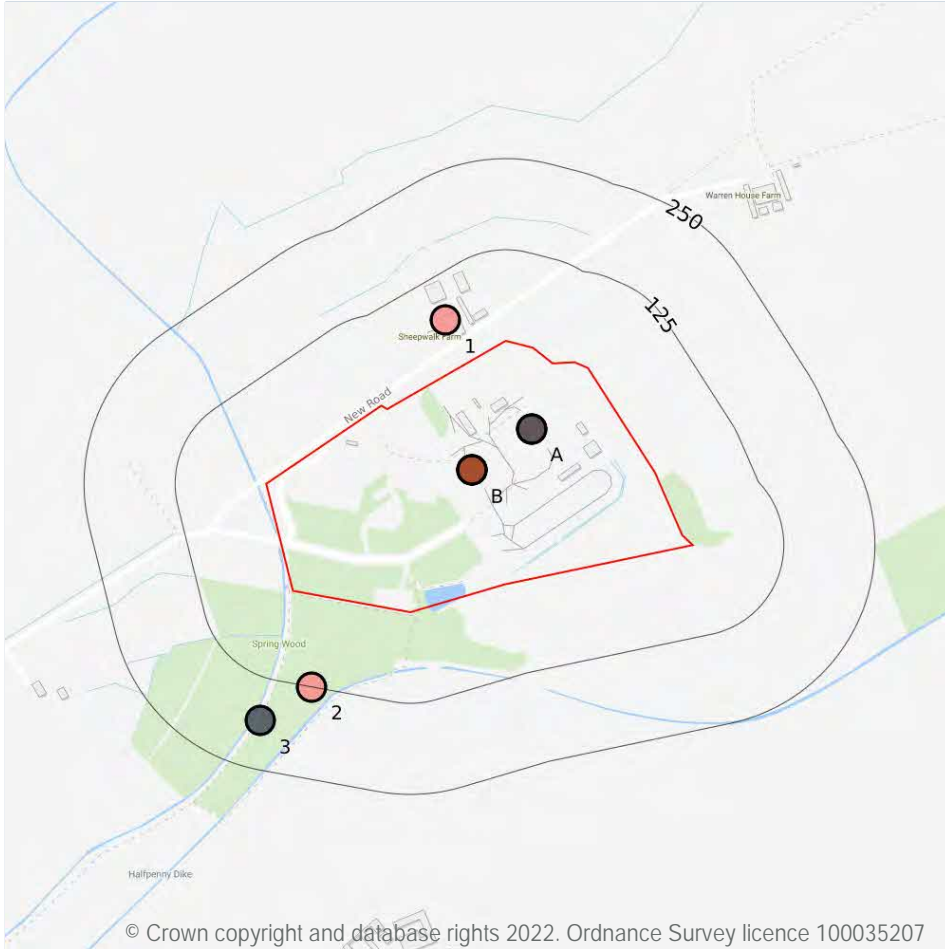
0

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.



3 Boreholes



3.1 BGS Boreholes

Records within 250m

7

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

Features are displayed on the Boreholes map on [page 24](#)

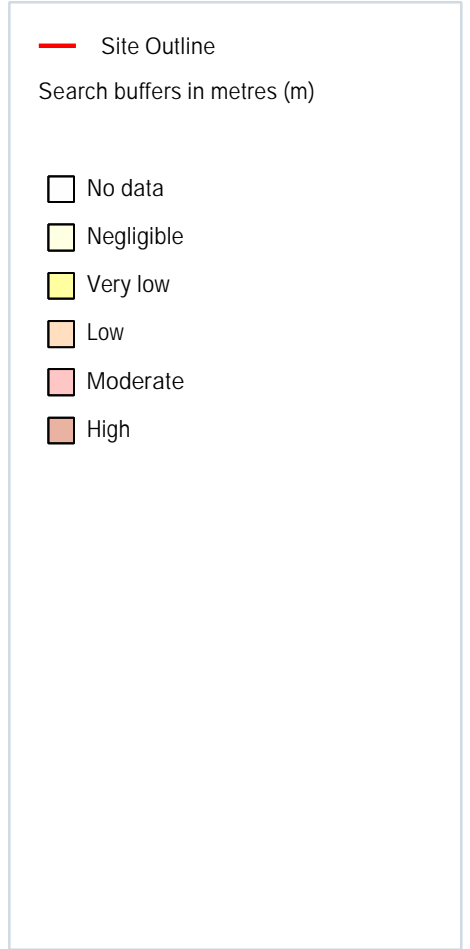
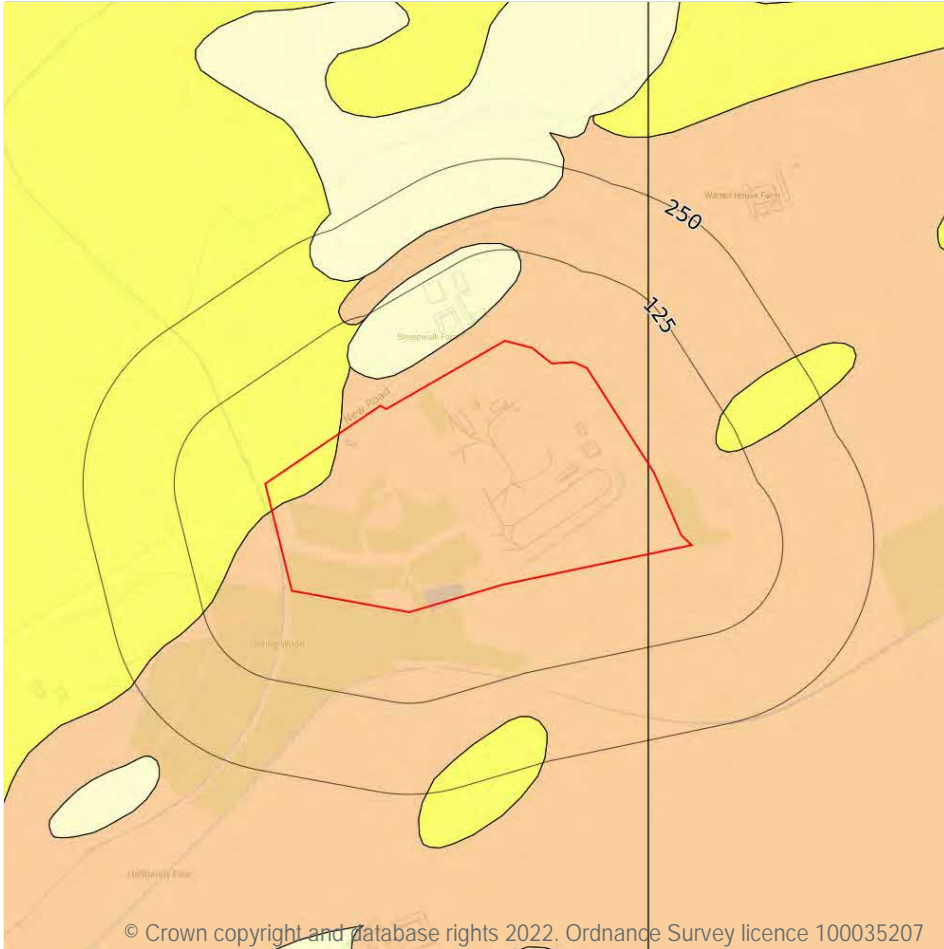
ID	Location	Grid reference	Name	Length	Confidential	Web link
A	On site	464838 444301	NORTH SELBY 2	649.53	N	122994
A	On site	464839 444301	KENTS THICK SEAM NO 2	-	Y	N/A
B	On site	464756 444244	NORTH SELBY 1	1035.0	N	122993

ID	Location	Grid reference	Name	Length	Confidential	Web link
B	On site	464756 444244	NORTH SELBY HIGH HAZEL NO 1	-1.0	N	<u>122999</u>
1	66m N	464720 444450	SHEEPWALK FARM, WHELDRAKE	45.72	N	<u>122979</u>
2	125m SW	464537 443947	NORTH SELBY UGBH NO 8	84.0	N	<u>123009</u>
3	183m SW	464466 443901	PILLAR SAMPLE BARNSELY SEAM. SW LOCO RD. N. S.MINE	-	Y	N/A

This data is sourced from the British Geological Survey.



4 Natural ground subsidence - Shrink swell clays



4.1 Shrink swell clays

Records within 50m

3

The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

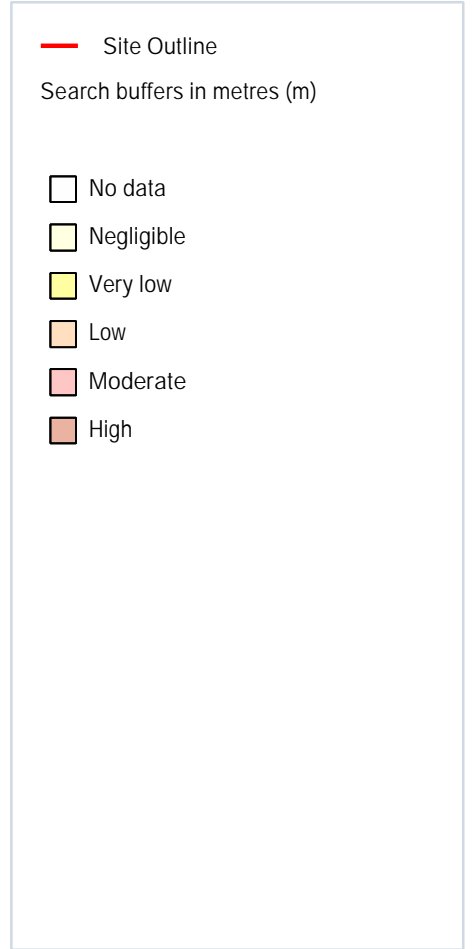
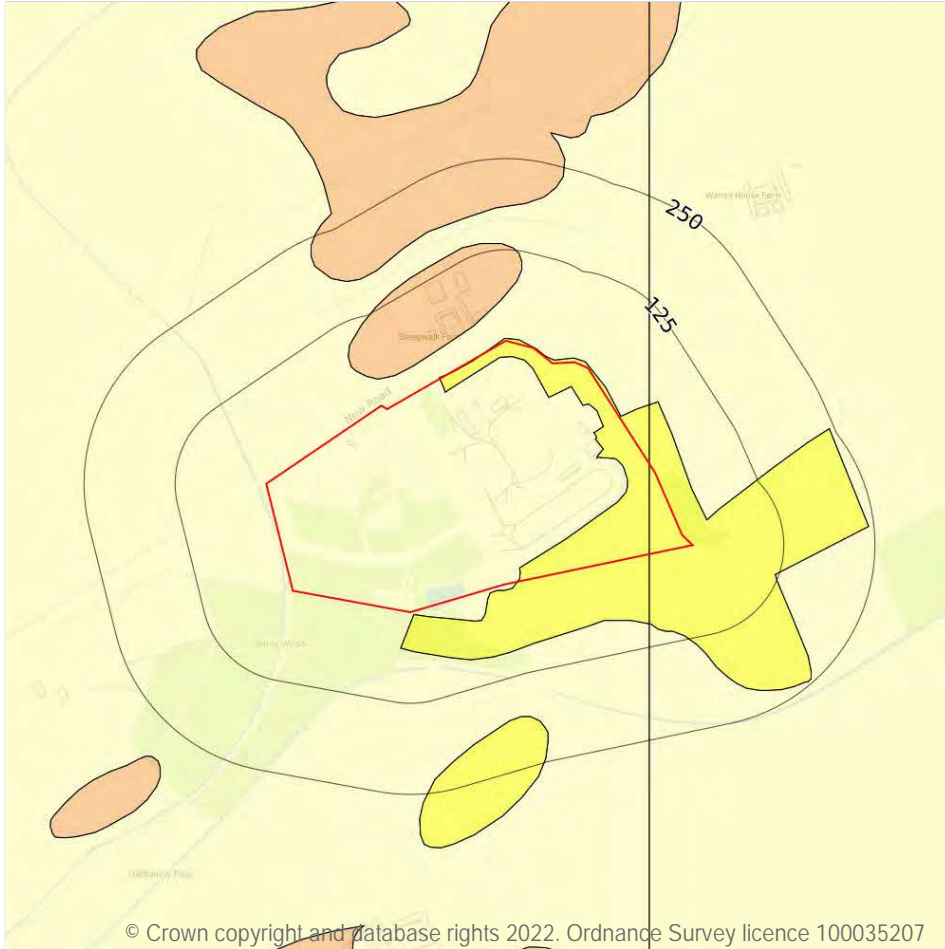
Features are displayed on the Natural ground subsidence - Shrink swell clays map on [page 26](#)

Location	Hazard rating	Details
On site	Very low	Ground conditions predominantly low plasticity.
On site	Low	Ground conditions predominantly medium plasticity.
34m NW	Negligible	Ground conditions predominantly non-plastic.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



4.2 Running sands

Records within 50m

4

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on [page 28](#)

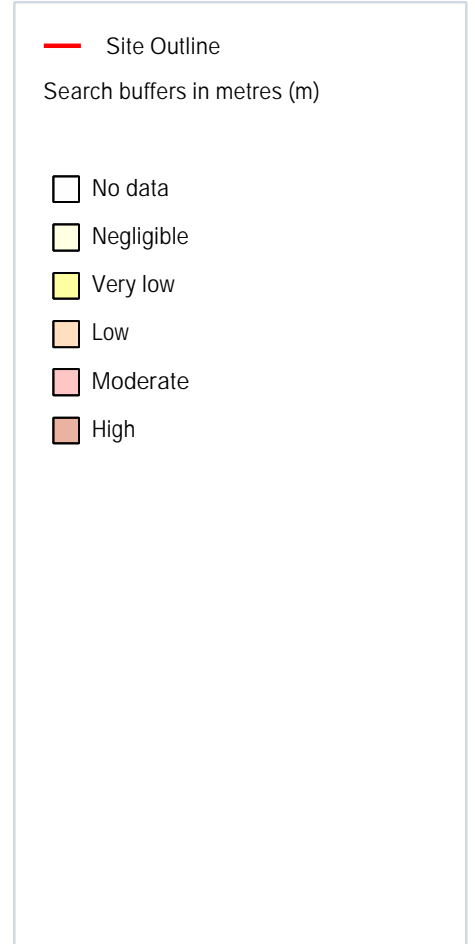
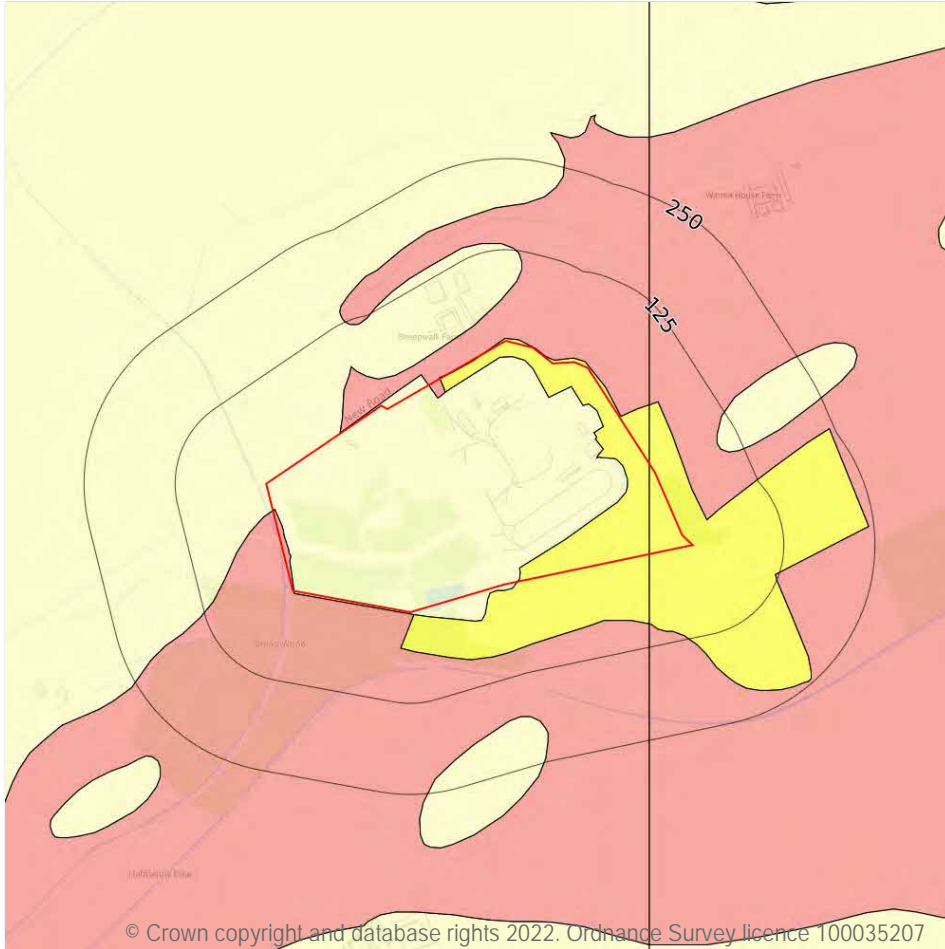
Location	Hazard rating	Details
On site	Negligible	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.

Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.
34m NW	Low	Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.
37m E	Negligible	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



4.3 Compressible deposits

Records within 50m

4

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 30**

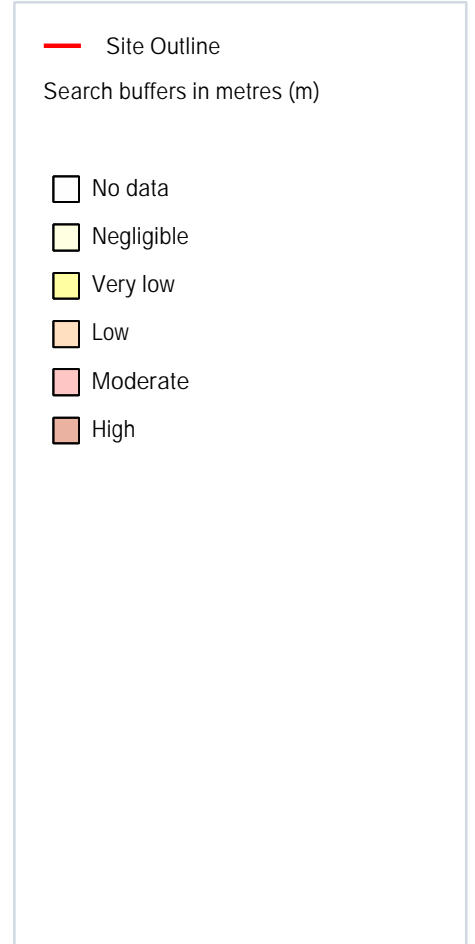
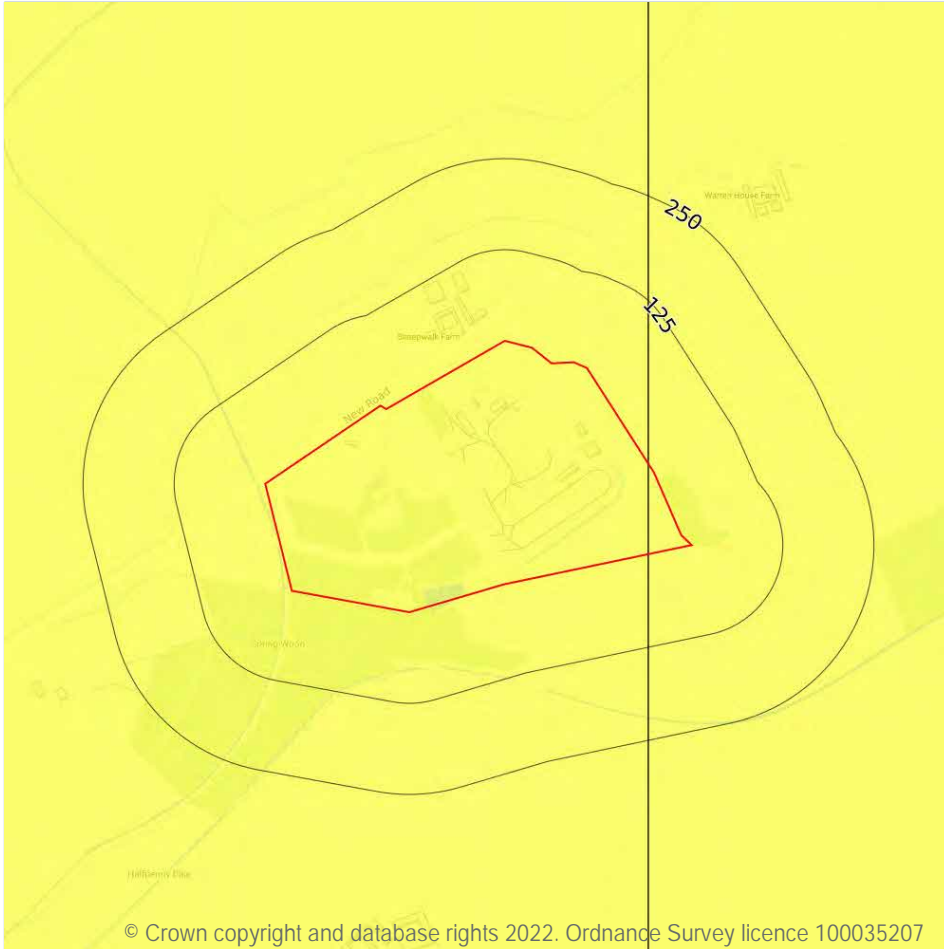
Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.
On site	Very low	Compressibility and uneven settlement problems are not likely to be significant on the site for most land uses.

Location	Hazard rating	Details
On site	Moderate	Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.
37m E	Moderate	Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



4.4 Collapsible deposits

Records within 50m

1

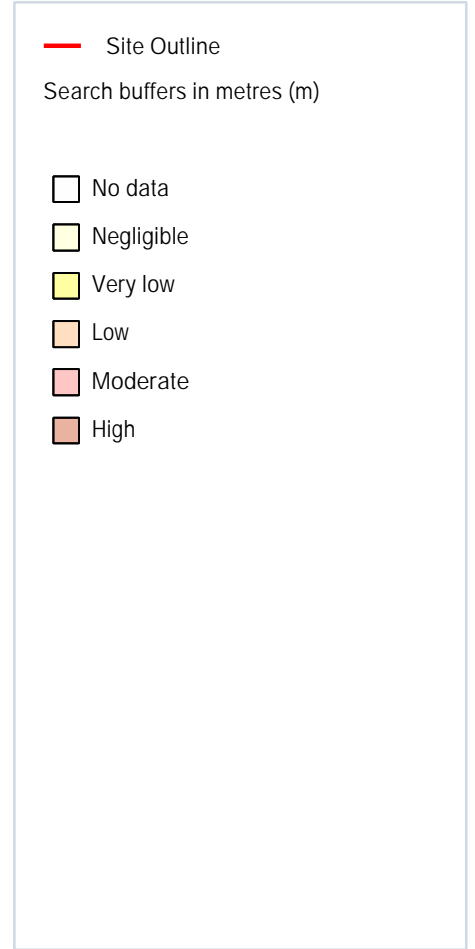
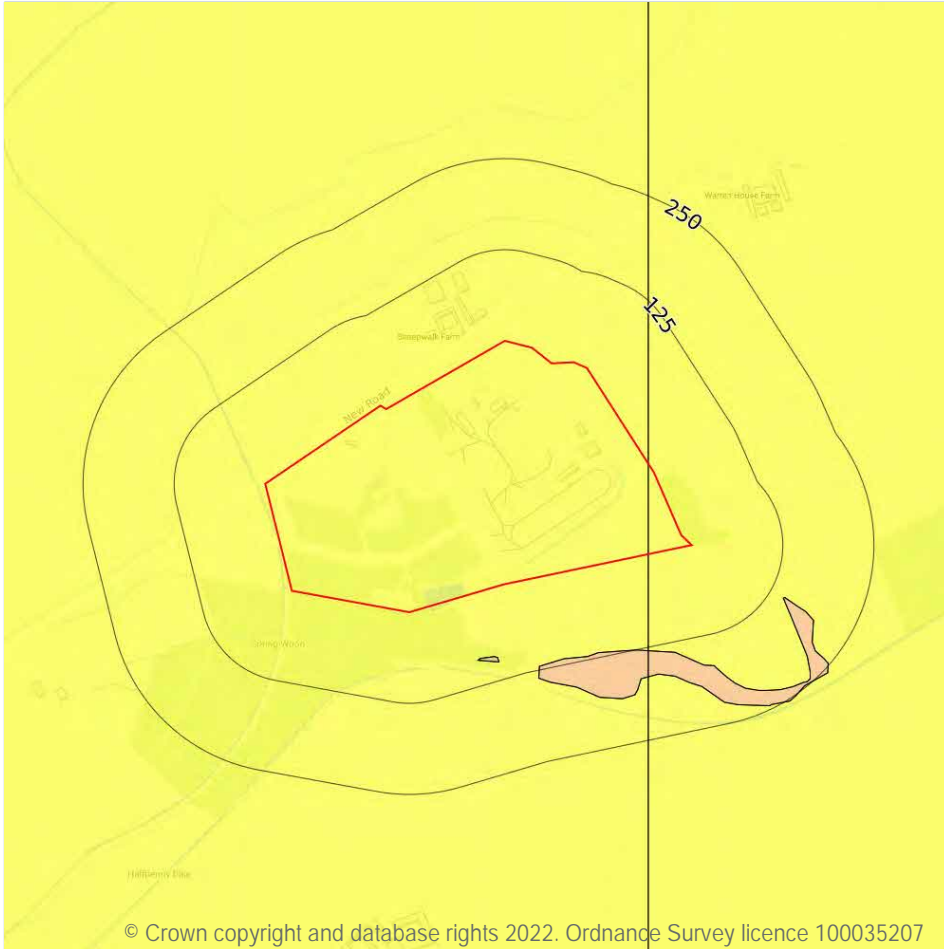
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on [page 32](#)

Location	Hazard rating	Details
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



4.5 Landslides

Records within 50m

1

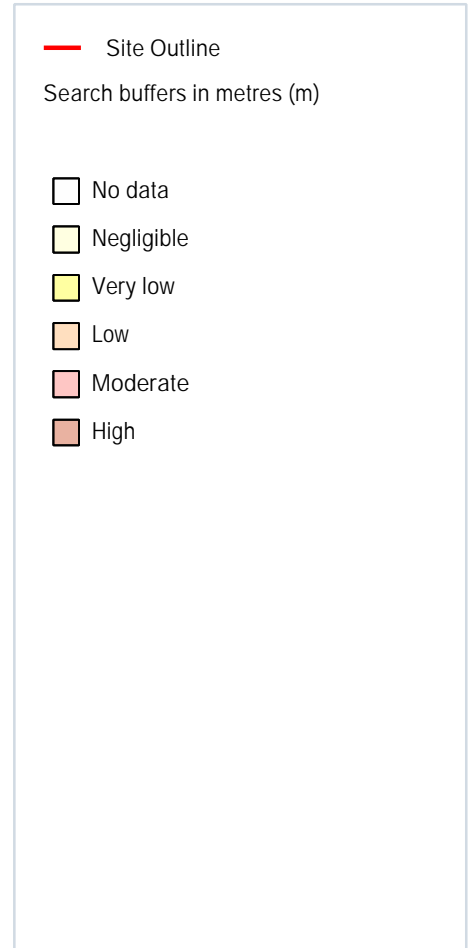
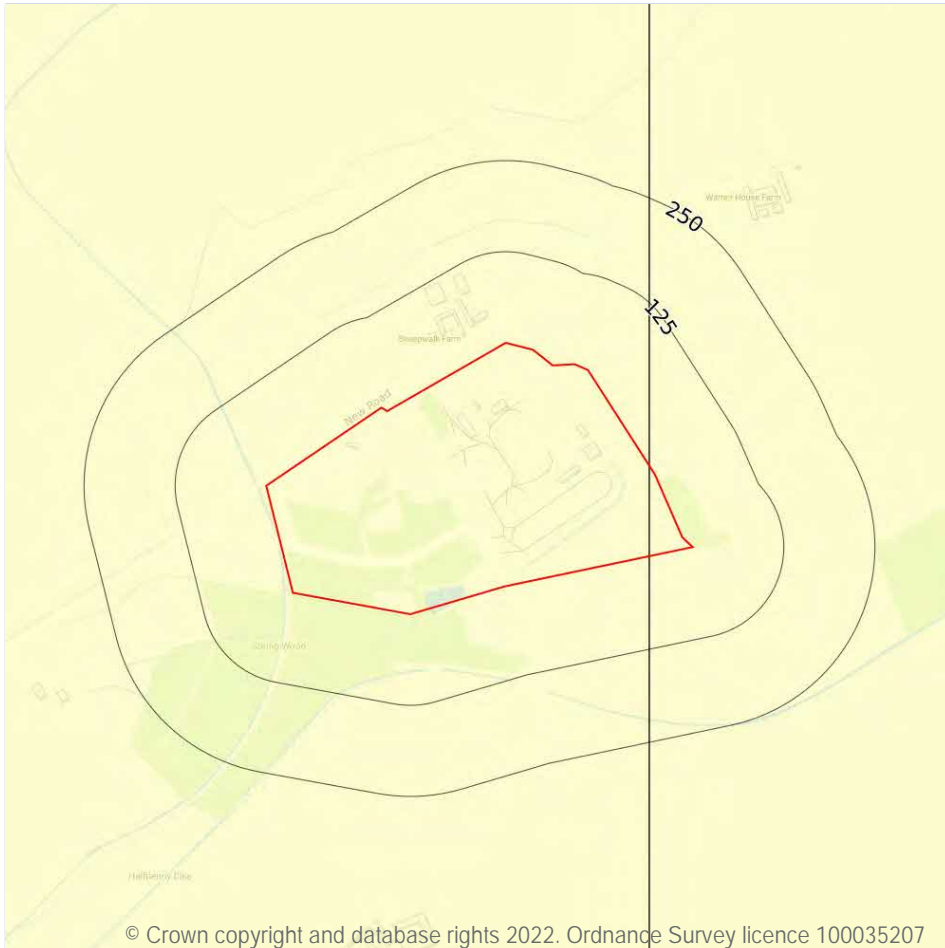
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 33**

Location	Hazard rating	Details
On site	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



4.6 Ground dissolution of soluble rocks

Records within 50m

1

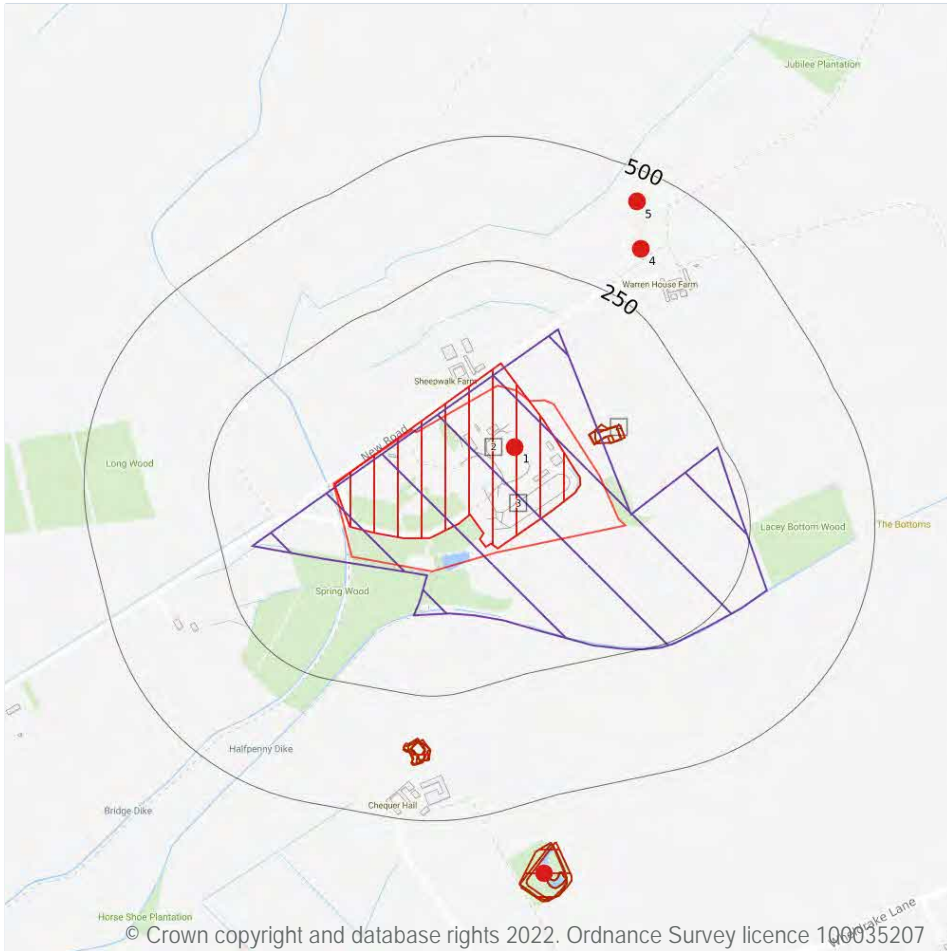
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on [page 34](#)

Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.

This data is sourced from the British Geological Survey.

5 Mining, ground workings and natural cavities



5.1 Natural cavities

Records within 500m

0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

5.2 BritPits

Records within 500m

3

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining, ground workings and natural cavities map on [page 35](#)

ID	Location	Details	Description
1	On site	Name: North Selby Mine Address: Escrick, YORK, North Yorkshire Commodity: Coal, Deep Status: Ceased	Type: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots) Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
4	356m NE	Name: Warren Farm Sand Pit Address: Escrick, YORK, North Yorkshire Commodity: Sand Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
5	438m NE	Name: Warren Farm Sand Pit Address: Escrick, YORK, North Yorkshire Commodity: Sand Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

5.3 Surface ground workings

Records within 250m

3

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on [page 35](#)



ID	Location	Land Use	Year of mapping	Mapping scale
A	25m E	Ponds	1950	1:10560
A	26m E	Ponds	1910	1:10560
A	31m E	Ponds	1977	1:10000

This is data is sourced from Ordnance Survey/Groundsure.

5.4 Underground workings

Records within 1000m

1

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

Features are displayed on the Mining, ground workings and natural cavities map on **page 35**

ID	Location	Land Use	Year of mapping	Mapping scale
2	On site	Unspecified Mine	1988	1:10000

This is data is sourced from Ordnance Survey/Groundsure.

5.5 Historical Mineral Planning Areas

Records within 500m

1

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

Features are displayed on the Mining, ground workings and natural cavities map on **page 35**

ID	Location	Site Name	Mineral	Type	Planning Status	Planning Status Date
3	On site	North Selby Mine	Coal	Working is wholly underground	Valid	Not available

This data is sourced from the British Geological Survey.



5.6 Non-coal mining

Records within 1000m

0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

5.7 Mining cavities

Records within 1000m

0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

5.8 JPB mining areas

Records on site

0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

5.9 Coal mining

Records on site

1

Areas which could be affected by past, current or future coal mining.

Location	Details
On site	The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.

This data is sourced from the Coal Authority.



5.10 Brine areas

Records on site	0
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The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

5.11 Gypsum areas

Records on site	0
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Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

5.12 Tin mining

Records on site	0
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Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

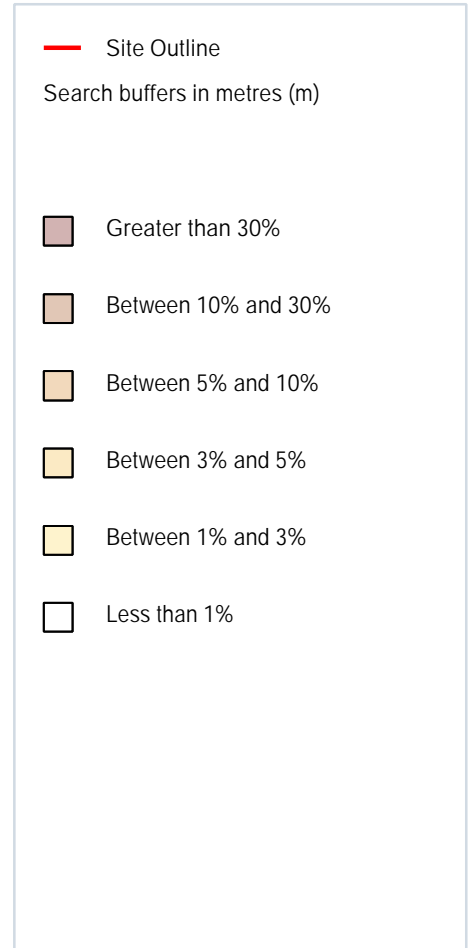
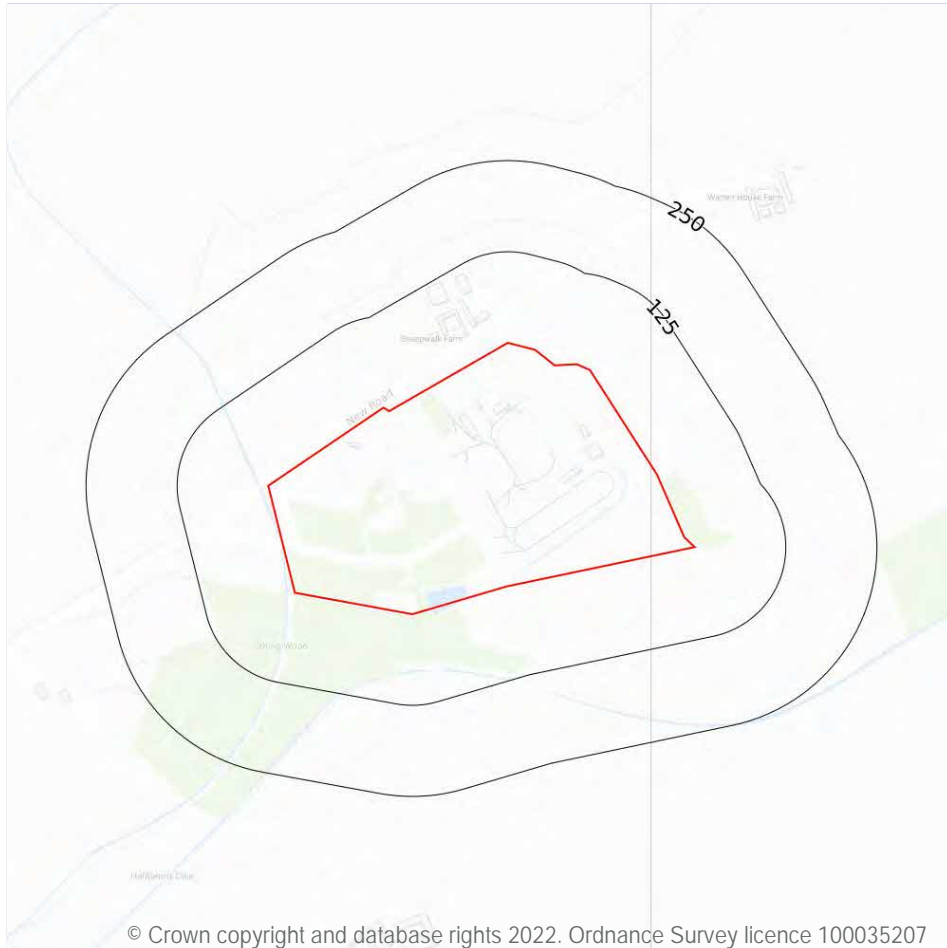
5.13 Clay mining

Records on site	0
-----------------	---

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

6 Radon



6.1 Radon

Records on site

1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on [page 40](#)

Location	Estimated properties affected	Radon Protection Measures required
On site	Less than 1%	None**

This data is sourced from the British Geological Survey and Public Health England.

7 Soil chemistry

7.1 BGS Estimated Background Soil Chemistry

Records within 50m

10

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km²; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
3m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
9m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
21m E	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
49m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

7.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.



7.3 BGS Measured Urban Soil Chemistry

Records within 50m

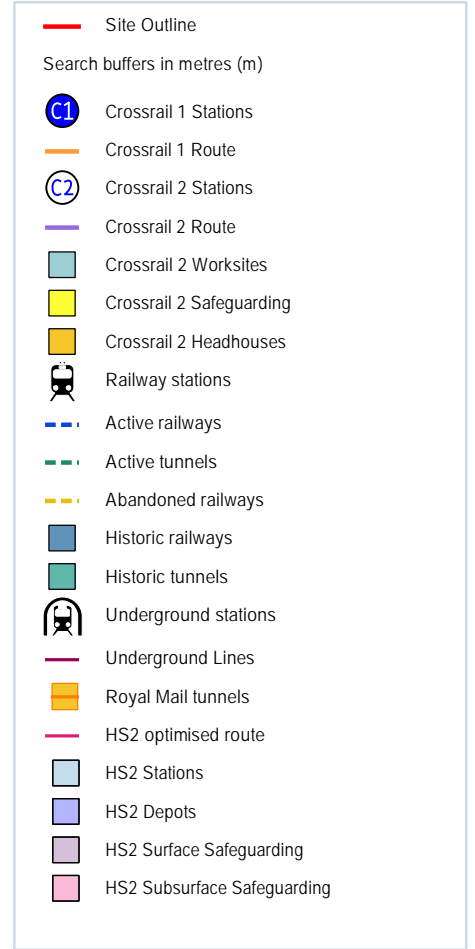
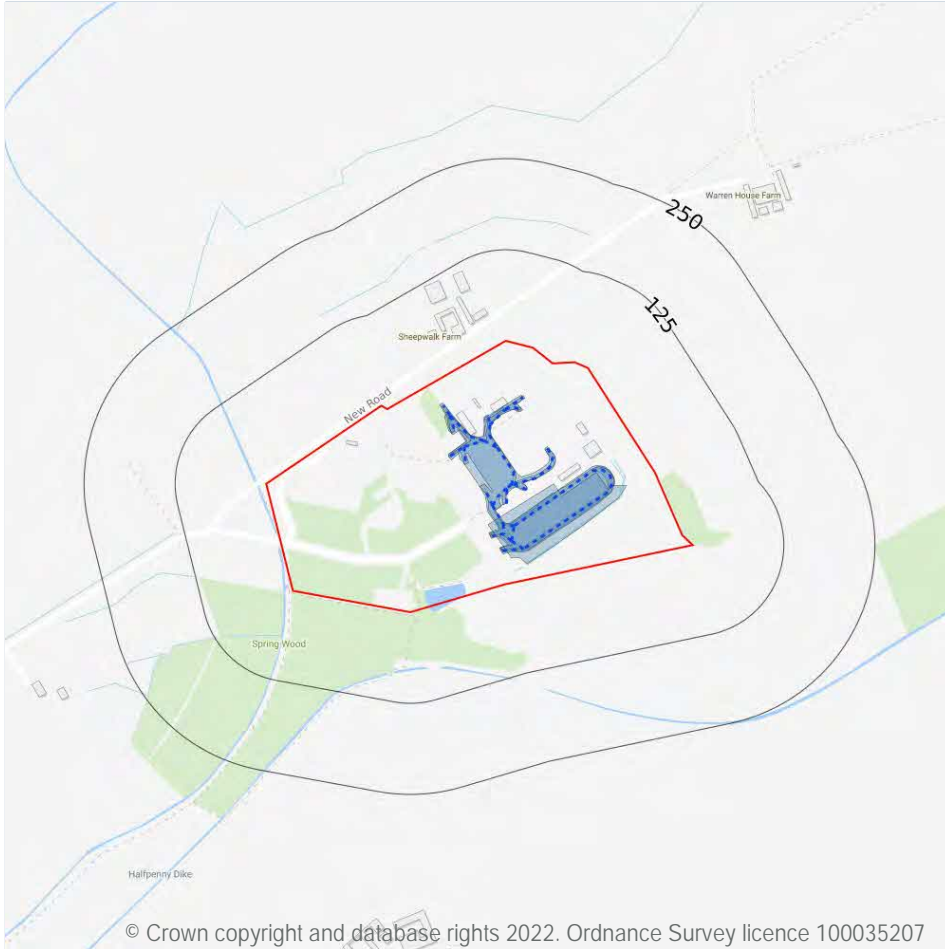
0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².

This data is sourced from the British Geological Survey.



8 Railway infrastructure and projects



8.1 Underground railways (London)

Records within 250m

0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

8.2 Underground railways (Non-London)

Records within 250m

0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

8.3 Railway tunnels

Records within 250m 0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

8.4 Historical railway and tunnel features

Records within 250m 4

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

Features are displayed on the Railway infrastructure and projects map on **page 43**

Location	Land Use	Year of mapping	Mapping scale
On site	Railway Sidings	1985	2500
On site	Railway Sidings	1991	2500
On site	Railway Sidings	1995	2500
On site	Railway Sidings	1988	10000

This data is sourced from Ordnance Survey/Groundsure.

8.5 Royal Mail tunnels

Records within 250m 0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

Location	Name	Type
On site	Not given	Narrow Gauge
On site	Not given	Narrow Gauge
On site	Not given	Narrow Gauge
On site	Not given	Narrow Gauge
On site	Not given	Narrow Gauge
On site	Not given	Narrow Gauge
On site	Not given	Narrow Gauge
On site	Not given	Narrow Gauge
On site	Not given	Narrow Gauge
On site	Not given	Narrow Gauge
On site	Not given	Narrow Gauge

This data is sourced from Ordnance Survey and OpenStreetMap.

8.8 Crossrail 1

Records within 500m	0
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The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

8.9 Crossrail 2

Records within 500m	0
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Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

8.10 HS2

Records within 500m	0
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HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.



This data is sourced from HS2 Ltd.



Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see <https://www.groundsure.com/sources-reference>.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: <https://www.groundsure.com/terms-and-conditions-jan-2020/>.



Appendix F

Human Risk Assessment Criteria for Allowed Development

Maximum Allowable Levels Human Health Risk Assessment Criteria – Residential with plant uptake

Determinant	Residential with plant uptake 1% SOM (mg/kg) LQM/CIEH S4ULs	Criteria
Arsenic	37	LQM/CIEH/S4ULs
Beryllium	1.7	LQM/CIEH/S4ULs
Boron	290	LQM/CIEH/S4ULs
Cadmium	11	LQM/CIEH/S4ULs
Chromium	910	LQM/CIEH/S4ULs
Copper	2400	LQM/CIEH/S4ULs
Mercury	<1	GAC
Molybdenum	4	GAC
Nickel	180	LQM/CIEH/S4ULs
Lead	200	(c4sl)
Selenium	250	LQM/CIEH/S4ULs
Vanadium	410	LQM/CIEH/S4ULs
Zinc	370	LQM/CIEH/S4ULs
SPECIATED TPH CWG		
Aliphatic		
EC 5-6	42	LQM/CIEH/S4ULs
EC> 6-8	100	LQM/CIEH/S4ULs
EC> 8-10	27	LQM/CIEH/S4ULs
EC> 10-12	130	LQM/CIEH/S4ULs
EC> 12-16	1100	LQM/CIEH/S4ULs
EC> 16-21	65000	LQM/CIEH/S4ULs
EC> 21-35	65000	LQM/CIEH/S4ULs
Aromatic		
EC 6-7(benzene)	70	LQM/CIEH/S4ULs
EC> 7-8 (toluene)	130	LQM/CIEH/S4ULs
EC>8-10	34	LQM/CIEH/S4ULs
EC<10-12	74	LQM/CIEH/S4ULs
EC<12-16	140	LQM/CIEH/S4ULs
EC<16-21	260	LQM/CIEH/S4ULs
EC<21-35	1100	LQM/CIEH/S4ULs
BTEX		
Benzene	0.087	LQM/CIEH/S4ULs
Toluene	130	LQM/CIEH/S4ULs
Ethylbenzene	47	LQM/CIEH/S4ULs
Xylenes	56	LQM/CIEH/S4ULs

SPECIATED PAH	mg/kg	
Acenaphthene	210	LQM/CIEH/S4ULs
Acenaphthylene	170	LQM/CIEH/S4ULs
Anthracene	2400	LQM/CIEH/S4ULs
Benzo(a)anthracene	7.2	LQM/CIEH/S4ULs
Benzo(a)pyrene	2.2	LQM/CIEH/S4ULs
Benzo(b)fluorathene	2.6	LQM/CIEH/S4ULs
Benzo(ghi)perylene	320	LQM/CIEH/S4ULs
Benzo(k)fluorathene	77	LQM/CIEH/S4ULs
Chrysene	15	LQM/CIEH/S4ULs
Dibenzo(ah)anthracene	0.24	LQM/CIEH/S4ULs
Fluoranthene	280	LQM/CIEH/S4ULs
Fluorene	170	LQM/CIEH/S4ULs
Indeno(123-ed) pyrene	27	LQM/CIEH/S4ULs
Naphthalene	2.3	LQM/CIEH/S4ULs
Phenanthrene	95	LQM/CIEH/S4ULs
Pyrene	620	LQM/CIEH/S4ULs

VOCs/SVOCs	mg/kg	
Vinyl Chloride	0.0064	LQM/CIEH/S4ULs 2021
Trichloroethene	0.0093	LQM/CIEH/S4ULs 2021
Tetrachloroethene	0.31	LQM/CIEH/S4ULs 2021

2021

Appendix G Contaminated Land & Waste Legislation

Contaminated Land Regime

Review of Part IIA Requirements

Statutory Framework

Part IIA was inserted into the Environmental Protection Act 1990 (The Act) by section 57 of the Environmental Act 1995. The purpose of The Act is to remove unacceptable risks to human health and the environment due to contaminated land and to bring this land back into beneficial use.

Statutory guidance (DETR Circular 02/2000 Ref 2) was issued to ensure a consistent and logical approach to the identification and remediation of contaminated land across England.

Definition of Contaminated Land

Land will be designated as contaminated if it is in such a condition that significant harm is being caused or there is a significant possibility of such harm being caused to a series of receptors defined in the statutory guidance. The land will also be designated as contaminated if the pollution of controlled waters is being or is likely to be caused.

The assessment of whether significant harm is or is likely to be caused is based on the concept of a pollutant linkage – that is a linkage between a contaminant on the land in question and a receptor, by means of a pathway. In assessing the likelihood of a pollution linkage being present the principles of risk assessment will apply. This will involve the consideration of the likelihood that harm or pollution will occur and what magnitude it will be. If a piece of land is to be designated as contaminated it must be proven that both a pollution linkage exists and that the linkage will result in significant harm or the pollution of controlled waters.

Receptors

The Statutory Guidance defined the receptors that need to be addressed when considering if significant harm or pollution is being caused, these are summarised below:

- Human Health.
- Any ecological system or organism forming part of such a system. The guidance provides a definition of such systems and includes Special Sites of Scientific Interest, National Nature Reserves, Special Protection Areas and Special Areas of Conservation, Ramsar Sites among others.
- Property including crops timber and livestock.
- Property in the form of buildings.

The Local Authority should not consider harm to any receptors that are not included on the list in the Statutory Guidance. For example, harm to ecological systems outside of the designations in the table should be disregarded. Only the receptors, which are likely to be present on and near the site given its current use should be considered. Current use is defined as any use, which is currently being made or is likely to be made that is consistent with the lands existing planning permission.

Pollution of controlled waters is defined as “*the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter*”. The term controlled waters covers

virtually all fresh and saline natural waters up to the UK offshore territorial limit, including rivers, streams, lochs, estuaries, coastal waters and groundwater. Groundwater is defined as any water below the surface of the ground and it therefore includes waters in both the saturated and unsaturated zones.

However, land should not be designated as contaminated land if the substance in question is already present in controlled waters or if its entry has now ceased and it is unlikely that further entry will take place. The above comments refer to legal powers under The Act, however, it should be noted that the site owner has wider responsibilities in common law and statutory nuisance for any adverse effects caused by the contaminated land on a third parties property.

Inspection Strategy

Under section 78B (1) of the Act, the Local Authority has a responsibility to develop an inspection strategy to identify land that merits detailed individual inspection. It is stated that this should be proportionate to the seriousness of the risk and should include some form of prioritisation. The strategy should therefore concentrate on existing evidence that a contaminant is likely to be present on a site and the extent to which receptors, as defined in the guidance, are likely to be exposed to a contaminant as a result of the use of the land or of the geological and hydrogeological features of the area.

This initial phase of inspection will result in the identification of land, which is likely to be contaminated and where a possible pollution linkage exists. The Local Authority must then undertake a detailed inspection of such sites, which could vary from collection of documentary information to an intrusive investigation. However, the land can only be designated as contaminated when a *“scientific and technical assessment of the risks arising from the pollution linkage, according to relevant, appropriate, authoritative and scientifically based guidance on such risk assessment”* has been completed and this assessment indicates that harm, the potential for such harm or pollution is being caused.

Human Health Risk Assessment

The UK Department for Environment, Food and Rural Affairs (DEFRA) and the Environment Agency (EA) have recently published guidance on the assessment of contaminated land from a human health perspective, including “The Contaminated Land Exposure Assessment Model” (CLEA) and “Soil Guideline Values” (SGVs) for selected heavy metals / metalloids. Soil Guideline Values are quoted in a “suitable for use” context, with four guideline values provided for four separate Standard Land Uses.

- Residential with plant uptake.
- Residential without plant uptake.
- Allotments.
- Commercial / Industrial.
- Public Open Space – Residential
- Public Open Space

Soil Guideline Values (SGV) and supporting technical guidance are intended to assist professionals in the assessment of long-term risk to health from human exposure to chemical contamination in soil. There are different SGVs according to land-use (residential, allotments, commercial) because people use land differently and this affects who and how people may be exposed to soil contamination. SGV are 'trigger values' for screening-out low

risk areas of land contamination. They give an indication of representative average levels of chemicals in soil below which the long-term health risks are likely to be minimal. Exceeding an SGV does not mean that remediation is always necessary, although in many cases some further investigation and evaluation of the risk will be carried out.

SGV should not be used where they are not representative of the site under investigation. They do not assess other types of risk to human health such as fire, suffocation, explosion, or short-term and acute exposures. They also cannot be used to assess risks to controlled waters, property, pets and livestock, or ecological receptors.

SGV are available only for a limited number of chemical substances. Reference should be made to the explanatory notes for each element provided in the DEFRA / EA Soil Guideline Value Reports SGV1 – 10 Soil Guideline Values for contamination in soils for specific substances. Phenol Values are subject to soil organic matter content (SOM) as noted above and outlined by the DEFRA / EA Soil Guideline Value Report SGV1 – 8.

In addition to the published SGVs use is made of widely adopted Land Quality Management generic assessment criteria (GACs) for chemical compounds not covered by the published SGVs. The following document and the proposed GAC have been adopted for heavy metals compared either against the LQM/CIEH/S4ULs Human Health Risk Assessment. (NATHANIAL, C.P, M^CCAFFREY, C. ASHMORE, M. CHENG, Y. GILLET, A. HOOKER, and P. OGDEN, R.C., 2015. Generic Assessment Criteria for Human Health Risk Assessment. Land Quality Press. Nottingham) - (ISBN 0-9547474-3-7), where available and Category 4 screening values.

Waste Management Legislation

Hazardous Waste Regulations – off-site disposal

In order to evaluate the various on-site soils for potential offsite disposal, soils are classified in accordance with the Hazardous Waste Directive (HWD) that enables the provision of a European Waste Catalogue (EWC) Code for use during offsite disposal and a Hazardous or Non-Hazardous Classification. Non-Hazardous material is suitable for disposal in a Non-Hazardous landfill; however disposal to an Inert Landfill requires further Waste Acceptance Criteria (WAC) testing in accordance with BS EN 12457–3. Material classed as Hazardous also requires WAC testing to assign a suitable hazardous classification.

It should be noted that WAC testing has not been undertaken at this time. Should offsite disposal of soils that are Hazardous or possibly Inert be required WAC testing should be undertaken by suitably qualified personnel. Further information on sampling and analysis of soils destined for offsite disposal can be provided by It is also recommended that prior to offsite disposal of the soils; the receiving landfill facility should be sent copies of all relevant chemical analysis and written confirmation of acceptance of soils provided.

The Landfill Directive requires that all Hazardous and Non-Hazardous solid waste must be treated prior to offsite disposal to landfill. Treatment can be defined by using the following 'three-point test'. All three criteria must be satisfied for all of the waste to qualify as being treated:

- 1. It must be a physical, thermal, chemical or biological process including sorting.**
- 2. It must change the characteristics of the waste.**
- 3. It must do so in order to:**
 - a. Reduce its volume; or**
 - b. Reduce its hazardous nature; or**
 - c. Facilitate its handling; or**
 - d. Enhance recovery.**

It is recommended that the Made Ground and underlying natural ground should be carefully segregated and stockpiled separately during earthworks and piling operations in order to prevent mixing of the waste streams. Careful segregation at the earliest stage may allow costs saving in offsite disposal costs to be realised. It is recommended that a qualified geoenvironmental/waste engineer undertakes the organisation of the removal of soils from the site in order to ensure that the relevant legislation is adhered to at all stages of the process. Improper management of the process or improper disposal may lead to prosecution by the Environment Agency.

Appendix H

Photofile PF02 – Previously completed site

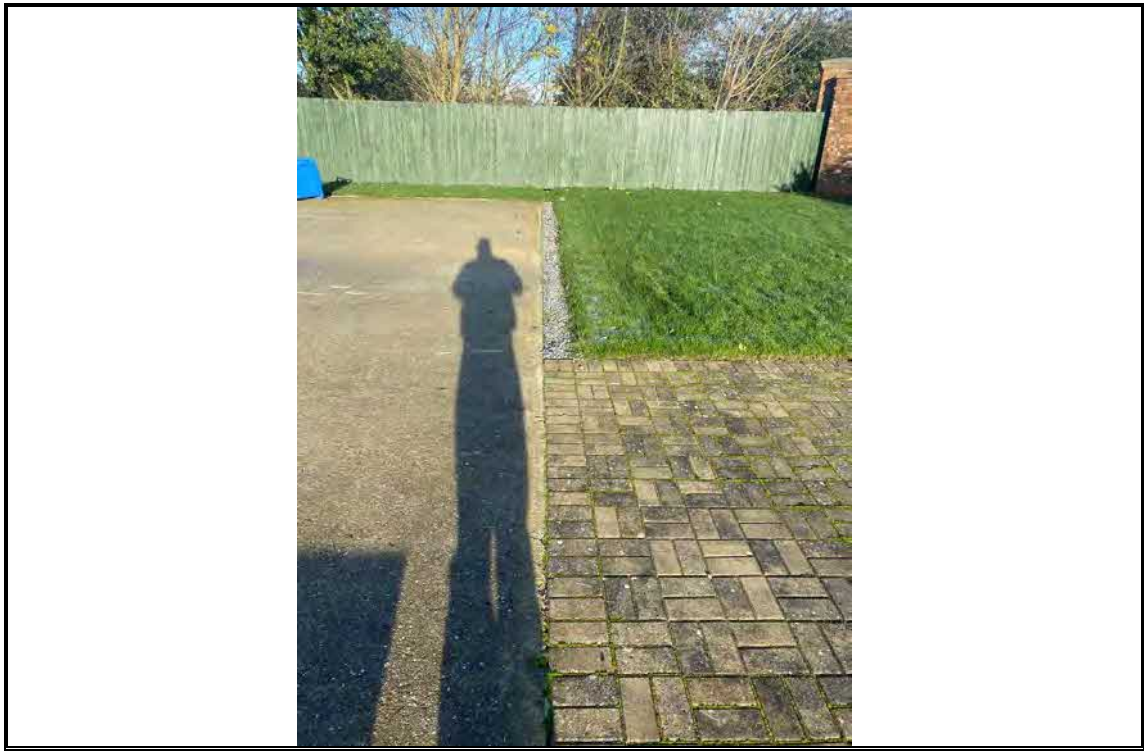


Photo OE/1702/1048 R1 PF2 – P01 – Parking area and rear lawn



Photo OE/1702/1048 R1 PF2 – P02 – 0.3m wide, 0.2 deep – gravel drainage at side of parking area

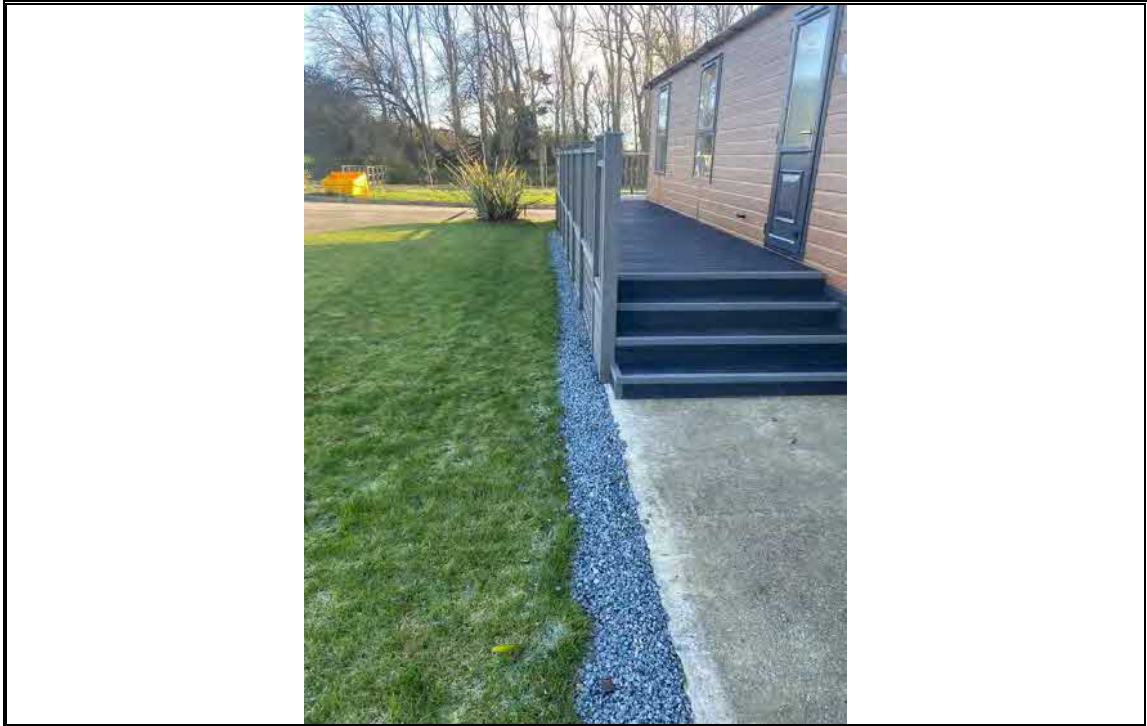


Photo OE/1702/1048 R1 PF2 – P03 – 0.3m wide, 0.2 deep – gravel drainage at side of footpath and static caravan

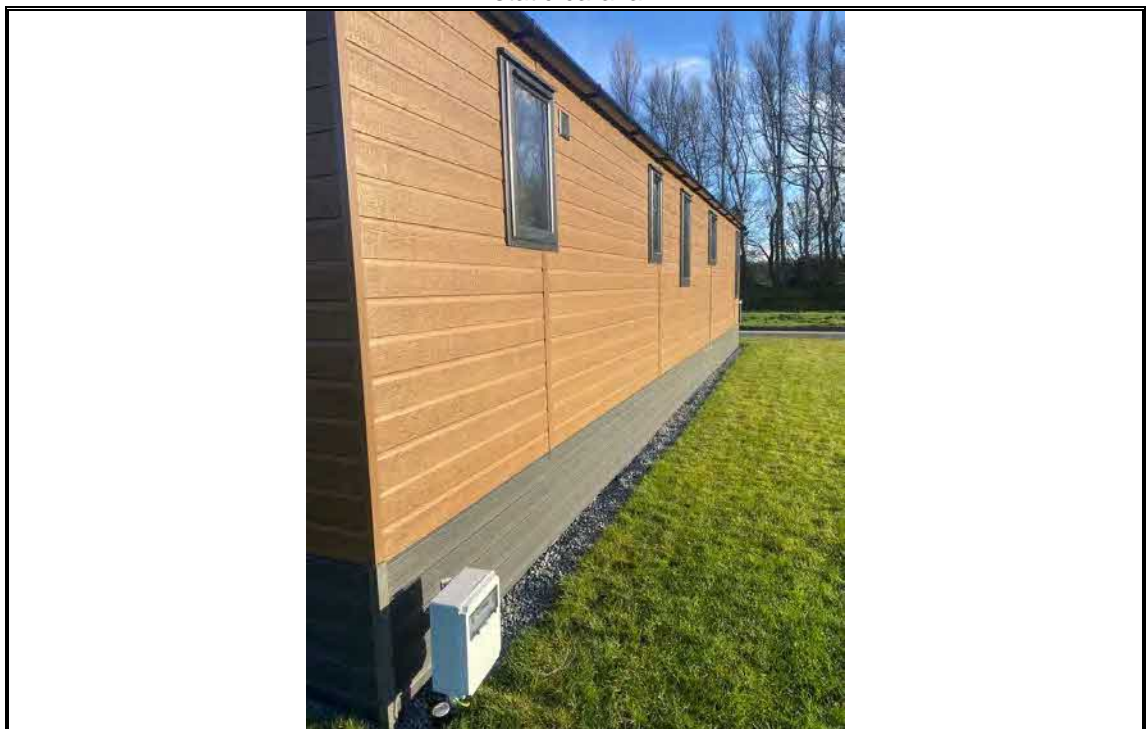


Photo OE/1702/1048 R1 PF2 – P04 – 0.3m wide, 0.2 deep – gravel drainage at side of static caravan



Photo OE/1702/1048 R1 PF2 – P05 –0.3m wide, 0.2 deep – gravel drainage at side of footpath and static caravan