McDonnell Cole

July 2024
Ref: 1763-HRA-R1

Hydrogeological Risk Assessment for Middleton Quarry, Pollington

Contents

APPENDICES

.

1. Introduction

Middleton Quarry, Pollington is a disused sandstone quarry in the East Riding of Yorkshire. It is located on the west side of Pollington Village, approximately 12km west of Goole and 14km north of Doncaster. The closest postcode is DN14 0DS. The site has an unauthorised waste deposit in the northeastern area of the quarry.

This hydrogeological risk assessment is being prepared at the request of AA Environmental Limited (AAe) to support a proposal to restore the quarry. It is proposed that restoration will be by inert landfilling. The proposed end uses will comprise a combination of residential areas, commercial areas and public open space.

The site has a public supply borehole within 20m of the northern boundary. This report will assess the feasibility of restoration by use of inert wastes close to the public water supply.

Revisions have been made to the original version of this report (December 2022) as a result of the permit application review process and Schedule 5 notice. Changes are highlighted in green.

2. The Site

2.1. Location

Middleton Quarry is situated on the south side of Heck and Pollington Lane, from which access is gained, on the west of the village of Pollington. The site can be located by postcode DN14 0DS and is centred on National Grid reference SE 609 201. The main area of the quarry is rectangular in shape, being approximately 250m from north to south and 210m from east to west. There is an area northeast of the proposed landfill, which extends along Heck and Pollington Lane by approximately a further 170m and is approximately 70m in width. Unauthorised wastes were placed in this northeastern area of the quarry, refer to Figure 1A, however, this is outside of the area proposed for landfilling, as explained in sections below, due to the proximity of a public water supply borehole.

The ground level along Heck and Pollington Lane is around 14 to 15m AOD. This falls to approximately 7m AOD at the southeastern perimeter of the quarry. Sandstone has been extracted to a depth of -1mAOD in the northwest of the quarry and to less than -5mAOD in the south. There remains an area of undisturbed sandstone in the central southern area.

The site is set in largely agricultural land, approximately 1km south of the M62. There are works to the north and west of the site. To the south are fields leading on to a residential area and the New Fleet Drain North is approximately 550m south of the southern boundary. There are further residential properties to the southeast. Pinfold Lane is at the northeastern boundary of the site. To the east of this lane are commercial premises. A public water supply and sewage pumping station are located directly north of the site.

Figure 1A: Site Location Plan (taken from Envirocheck Report)

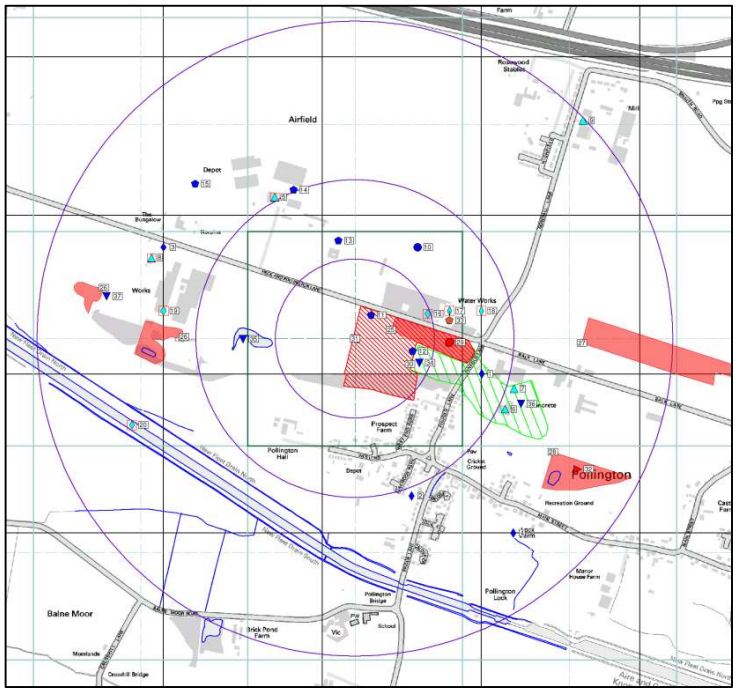
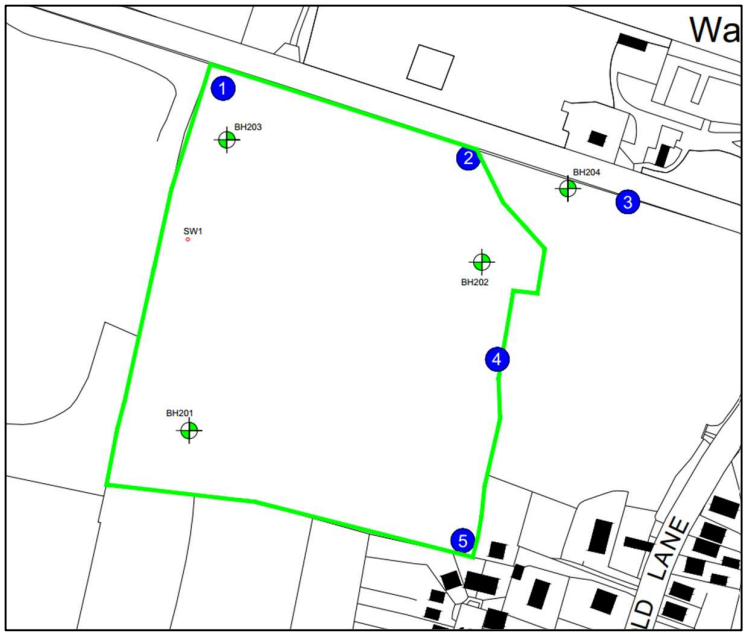


Figure 1B: Site Plan (taken from AAe drawing 163407/D/006)



2.2. Environmental Setting

The site is within a relatively low lying area, underlain by the Sherwood Sandstone principal aquifer. There is a public supply borehole directly north of the site and a further five public supplies within 6km of the site. Went Ings Meadows SSSI is 3.5km southeast of the site. Other local environmental features are presented in Table 1.

Table 1: Local Environmental Features

Feature	Nature of feature	Distance from site
Residential/Work-Place/Amenity -Within 50 m	Water works Residential properties Commercial units Commercial units	20m N 35m SE 20m E 100m N
Residential/Work-Place/Amenity - 50 - 250 m	Commercial buildings Residential buildings	150m NW 250m SW
Residential/Work-Place/Amenity > 250 m	Factory New Fleet Drain North M62 motorway	400m west 550m S 900m N
Habitats		
Habitats Directive sites	None within 2 km	
CROW Act 2000 sites	None within 2km Closest – West Ings Meadow SSSI	3.5 km E
Other habitat sites	None within 2 km	
Groundwater		
Aquifer	Sherwood Sandstone – principal aquifer	On site
Groundwater protection zone	SPZ2 – main site SPZ1 – NE extension	On site
Groundwater abstractions	Public water supply Celcon commercial borehole Pollington airfield Plasmor Limited	20m North 600m west 1.3km NW 1.8km NW
Surface Water		
Closest river	North Fleet Drain River Went River Aire	550m S 2.5km S 3.5km N
Direct runoff from site?	Surface water soakaway/pond	Within west of site
Surface water abstractions	Canal and Rivers Trust Canal and Rivers Trust	750m W 1.6km W
Nitrate vulnerable zone	Yes	
Wells and springs		
Wells	None identified on local maps, or by local council within 1km	
Springs	None identified on local maps within 1km	
Air quality management zone	No	
Flood zone	Flood zone 1 – low risk	

2.3. Site History

The site has been worked for sand and sandstone, with the central southern area remaining undisturbed. Historical maps indicate this began around the 1890s. The water works to the north was developed at the same time. Maps from the 1950s indicate the sand workings extended west of the site for approximately 1km.

The Envirocheck report, refer to Appendix 2, lists the site as a former inert landfill, named Middleton Quarry, licensed to C F Harris Limited from 1983 to 1993. The unauthorised wastes in the northeastern part of the quarry are understood to have been placed during the early 2000s.

2.4. Proposed Landfill Design

2.4.1. Environment Agency Guidance

The Environment Agency's (EA) approach to groundwater protection, 2018, gives the following guidance.

The EA will normally object to any proposed landfill site in a groundwater SPZ1.
For all other proposed landfill site locations, a risk assessment must be conducted based on the nature and quantity of the wastes and the natural setting and properties of the location. Where this risk assessment demonstrates that active long-term site management is essential to prevent long-term groundwater pollution, the Environment Agency will object to sites:

- *below the water table in any strata where the groundwater provides an important contribution to river flow, or other sensitive receptors*
- *within SPZ2 or 3*
- *on or in a principal aquifer.*

The quarry falls within SPZ1 and SPZ2, refer to section 3. There are unauthorised existing wastes placed within the area designated as SPZ1, closest to the public water supply. The management of these materials is outside the scope of this assessment.

The main area of the quarry is within SPZ2. Here it is proposed to infill with inert wastes above the prevailing groundwater level. As such the deposit will not require active long-term management to prevent ingress of groundwaters, or management of leachate.

2.4.2. Imported Waste Types

The permit application is for landfilling of inert wastes. The wastes will meet inert waste acceptance criteria and therefore, there will be no requirement for leachate management. Details of waste acceptance procedures are presented in the Operational Working Plan, AAe reference 163407/OP. The acceptable waste codes for landfilling are given in AAe report reference 163407/OP and are presented in Table 6 of this report.

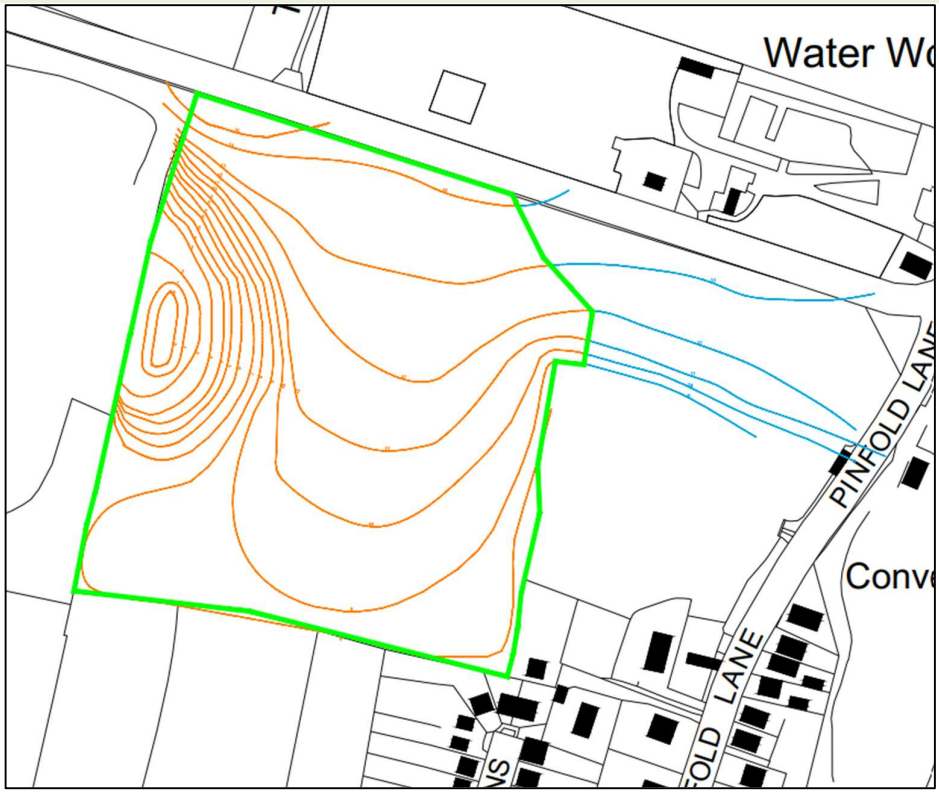
2.4.3. Basal Construction

This assessment and permit application is for a new inert landfill. The existing site has sand extraction to a depth of more than 5m below Ordnance Datum (OD) in places. The quarry base is uneven and has areas of undisturbed sandstone. The quarry will be developed to a level base. Those areas below 0m AOD will be backfilled with clean inert material. An engineered geological barrier of minimum 1m thickness and permeability of maximum 1 x 10^{-7} m/s will then be placed prior to the inert waste deposit.

2.4.4. Restoration

Landfilling will be completed to the profile presented in AAe drawing 163407/D/006, in accordance with a site-specific restoration plan as part of the environmental permit application, refer to Figure 2. An application is being made to modify the site's planning permission and this will include the landfill restoration contours.

Figure 2: Restoration Contours – AAe 163407/D/005



3. Geology and Hydrogeology

3.1. Geology

3.1.1. Site Geology

The British Geological Survey (BGS) Geology of Britain Viewer records superficial deposits at the site perimeter, where ground remains undisturbed by quarrying activities. The deposits are described as sand and gravel lacustrine beach deposits of the Quaternary period. The underlying bedrock geology is sandstone of the Sherwood Sandstone Group, formed during the Permian and Triassic Periods. The sandstone is fine to medium grained with thin mudstone lenses. It is thought to reach more than 450m in thickness in the area north of Goole.

The BGS holds details of borehole records for the public water supply boreholes, currently operated by Yorkshire Water, directly north of the site. Publicly available records are for the older wells from the early 1900s and from 1952. Sandstone is recorded to depths of 600 feet (183m).

3.1.2. Site Investigations

Site investigations were carried out by AAe during December 2020, refer to AAe Factual Report reference 163407/FR/001. This comprised a series of trial pits in the northeastern area of the site to investigate the waste deposit; four deep groundwater boreholes and further trial pitting for soakaway testing. The ground conditions encountered are summarised in Table 2.

Table 2: Ground Conditions

Stratum	Depth to base (m)	Thickness	Description
Made Ground	4 - 5	4 - 5	Mixed made ground/waste deposit composed of brick, concrete, soils with occasional tile, macadam, plastic, timber and fabric. Occasional black staining and weathered hydrocarbon odour. Odour of ammonia noted in TP204. Occasional asbestos fragments. Ash and burnt wood note in TP206.
Sandstone	35.5 (max)	31.5 penetrated	Dark orange to red medium grained sandstone. Sandstone with gravels recorded in upper 3m of BH202.

Samples from the wastes encountered within the trial pits were tested for both total and leachable concentrations of contaminants. Tables 3 and 4 summarise the soils and leachate data.

Table 3: Exceedances of Inert WAC in solid data

Location	Determinand	Concentration (mg/kg)	Inert WAC
TP201 1-2m	Total petroleum hydrocarbons	1100	500 mg/kg mineral oil
TP203 1.5-2m		890	
TP204 1-1.5m		500	
TP205 2.5-3m		570	
TP201 3-4m	Total PAHs (16)	180	100 mg/kg PAH Sum of 17
TP203 0-1m		150	
TP203 1.5 – 2m		100	
TP204 0-1m		300	
BH204	pH	4.8	>6 pH units

Table 4 presents the determinands that were found to exceed the inert WAC, or the UK Drinking Water Standards in the leachate analysis.

Table 4: Exceedances of the UKDWS in leachate data

Location	Determinand	Concentration (mg/l)	Environmental Assessment Level (mg/l)
TP201 1 – 2m	Ammoniacal nitrogen	1	0.39 [1]
TP201 2-3m		1.4	
TP201 3-4m		1	
TP202 1-2m		0.75	
TP202 3-4m		1.4	
TP204 0-1m		0.42	
TP204 1-1.5m		4.7	
TP204 2.8-4m		1.3	
TP204 1-1.5m	Arsenic	0.014	0.01 [1] (inert WAC = 0.05)
TP204 2.8-4m		0.029	
TP204 1-1.5	Mercury	0.0058	0.001 [1+2]
TP204 2.8-4		0.0014	
TP201 1-2m	Sulphate	300	100 [2] (UKDWS=250)
TP201 2-3m		300	
TP201 3-4m		150	
TP202 1-2m		1500	
TP202 3-4m		1600	
TP203 3-3.5m		190	
TP204 0-1m		480	
TP205 3-3.5m		420	
TP206 1-1		1400	
TP206 2-2.5		160	
TP206 3.5-4		130	
TP204 2.8-4	Vanadium	0.094	0.06 [3] (hardness > 200mg/l)

'1 UK Drinking Water Standard
2 Inert WAC equivalent leachability
3 Freshwater environmental quality standard in the absence of a drinking water standard, or inert WAC

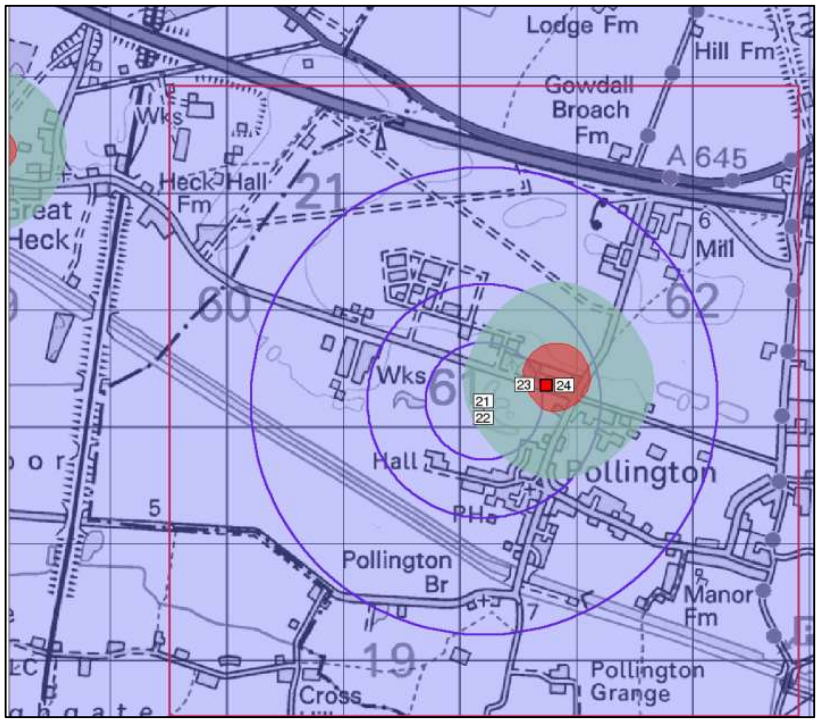
3.2. Hydrogeology

3.2.1. General Properties

The Sherwood Sandstone is designated as a principal aquifer. Surface soils are sandy and of high leaching potential. The region surrounding the site has several public supply boreholes abstracting from the Sherwood Sandstone. The closest is approximately 20m north of the site. There is a public supply at Great Heck, about 3km west and with a further four public supplies within 6km. Local businesses also use borehole water supplies, such as the factory (Celcon) approximately 600m to the west.

Figure 3 shows the location of the groundwater source protection zones 1 and 2 relative to the site, taken from the Envirocheck report. SPZ1, indicated in red, covers the area of the public water supply and extends below the northeastern area of the site. SPZ2, indicated in green extends to the boundary of the quarry in the southwest. The Great Heck public supply protection zones can be seen in part to the west.

Figure 3: Groundwater Source Protection Zones



The BGS hydrogeological sheet of South Yorkshire, 1982, records the potentiometric surface in the Sherwood Sandstone in the vicinity of the site as below 0mAOD. The zero metres contour

is plotted approximately 1-1.5 km distant from the cluster of public supply boreholes.

3.2.2. Aquifer characteristics derived from BGS borehole records

Records from the public supply boreholes north of the site dated 1952 give a rest water level of 50 feet (15.24m) below ground level (bgl) and a total depth of 183m. The ground level in the location of this well is approximately 10m AOD, giving a rest water level of around 5m below Ordnance Datum. The pumped water level is recorded as 142 feet bgl, which would be approximately 33m below OD. The well record gives a transmissivity of 320m2/day. Using a saturated aquifer thickness of between 150 and 165m this would give average hydraulic conductivities of 2.3 to 2.5 x 10^{-5} m/s.

The BGS, 1997, gives an interquartile range of 5.4 x 10^{-6} to 2.4 x 10^{-5} m/s for hydraulic conductivity of the Sherwood Sandstone aquifer, north region of the UK, with a geometric mean of 1.16 x 10^{-5} m/s. The local pump test data corresponds with the upper interquartile for the saturated aquifer. The unsaturated sandstone will naturally have a lower hydraulic conductivity, due to less well-developed flow paths. A value equivalent to the lower interquartile hydraulic conductivity is considered suitable for the unsaturated zone.

To the west of the site there are well records for Celcon, giving a rest water level of 45 feet bgl for the 1983 well. The ground level is not recorded, but based on local maps, this would suggest a rest water level of between -3 and 0m AOD.

3.2.3. Abstractions and Springs

In addition to the public supply boreholes and the Celcon factory, there are abstractions recorded for Pollington airfield approximately 1.3km to the northwest and Plasmor Limited, 1.8 km to the northwest.

There are no springs recorded on maps of the area close to the site. The local environmental health department has been contacted for records of private water supplies and have confirmed that they hold no records of private water supplies within 1km of the site.

3.2.4. Local Hydrogeology

A site investigation was undertaken by AAe in 2020. The trial pits used to investigate the wastes in the northeast of the quarry went to a maximum depth of 4.6m and all were recorded to be dry.

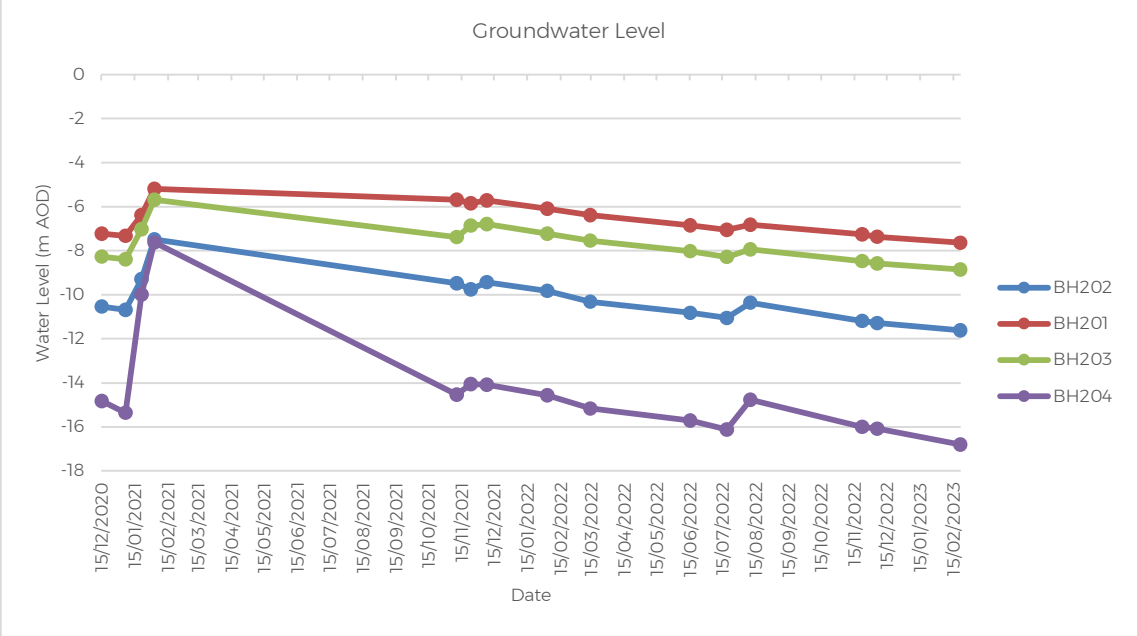
Soakaway testing was carried out in the west of the quarry in TP207 and revealed infiltration rates of between 1.09 x 10^{-5} and 2.13 x 10^{-5} m/s. Infiltration rates are not directly comparable to the hydraulic conductivity of a soil/stratum and tend to be higher than the unsaturated

hydraulic conductivity.

Four deep boreholes were constructed to depths below the prevailing groundwater level and have been monitored on four occasions since construction. Groundwater levels are presented in Figure 4. Groundwater is clearly deeper closer to the public water supply, however, the degree of drawdown is variable.

There have been two further groundwater level measurements since the first revision of the HRA: December 2022 and February 2023. Data is included in the graph below.

Figure 4: Groundwater Levels



A conceptual model of the site is presented in AAe Drawings reference 163407-CSM-001 and 002, refer to Appendix 1.

Groundwater contours are presented in Figures 5A and 5B. Figure 5A is plotted from data from 15 December 2020 and Figure 5B using data from 2 February 2021. This is to demonstrate how the hydraulic gradient changes across the site, presumably connected to the timings of the pumps in the public water supply. The data presented in Figure 5A gives hydraulic gradients of 0.02 for the main quarry area and 0.068 closer to the public supply borehole. Figure 5B gives a hydraulic gradient of approximately 0.0125.

Figure 5A: Groundwater Contours 15/12/20

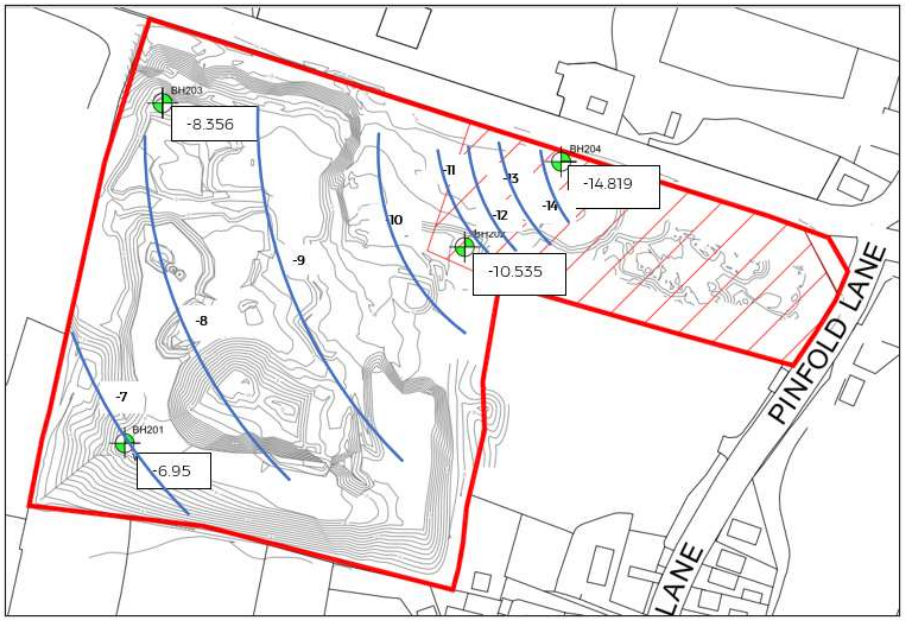
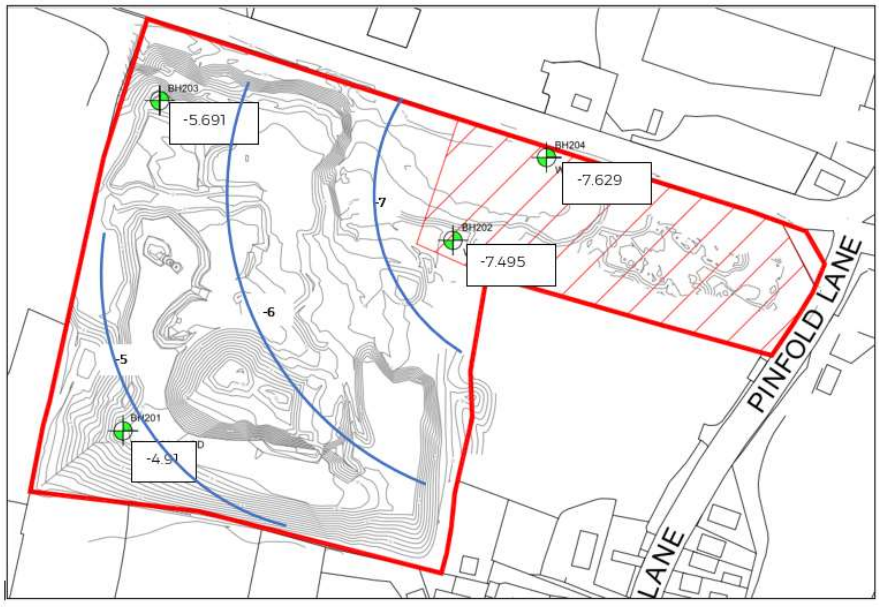


Figure 5B: Groundwater Contours 2/2/21



Groundwater quality is summarised in Table 5.

Table 5: Groundwater Quality Monitoring Data

Determinand (metals = dissoved concentration)	Units	Average BH201	Average BH202	Average BH203	Average BH204	UKDWS as EAL unless indicated
pH		8.01	7.94	8.14	7.99	6.5 – 9.5
Electrical Conductivity	µS/cm	973.33	867.50	527.50	802.50	-
Biochemical Oxygen Demand	mg O2/l	4.27	4.55	4.00	4.18	-
Chemical Oxygen Demand	mg O2/l	12.82	12.18	11.91	11.18	-
Chloride	mg/l	57.75	21.83	13.03	29.92	250
Fluoride	mg/l	0.11	0.10	0.12	0.14	1.5
Ammoniacal Nitrogen	mg/l	0.27	0.17	0.18	0.19	0.39
Sulphate	mg/l	121.08	70.83	37.33	93.75	250
Cyanide (Total)	mg/l	0.05	0.05	0.05	0.07	0.05
Total Hardness as CaCO3	mg/l	411.67	415.83	184.58	356.25	-
Arsenic	µg/l	2.33	1.07	1.73	1.07	10
Boron	µg/l	48.58	48.00	44.00	44.17	1000
Cadmium	µg/l	0.19	0.11	0.10	0.24	5
Chromium	µg/l	5.98	5.54	4.97	6.30	50
Copper	µg/l	1.54	1.55	3.18	1.58	2000
Mercury	µg/l	0.16	0.16	0.16	0.16	1
Nickel	µg/l	0.97	0.89	0.67	1.32	20
Lead	µg/l	1.10	1.08	0.63	1.35	10
Selenium	µg/l	1.39	1.26	0.63	1.70	10
Vanadium	µg/l	0.64	0.63	0.63	0.89	-
Zinc	µg/l	18.88	32.23	4.68	26.15	-
Chromium (Hexavalent)	µg/l	18.19	18.19	18.19	18.19	-

Table 5 shows only cyanide has exceeded the UKDWS and this relates to one sample only from BH204. Concentrations differ slightly between boreholes, with slightly higher concentrations of BOD, COD and sulphate in BH201. This borehole is where the highest electrical conductivity has also been recorded and is in the most upgradient position. The lowest concentrations are generally recorded in BH203.

Groundwater has also been tested for total petroleum hydrocarbons (TPH), polyaromatic

hydrocarbons (PAHs), BTEX compounds and phenol in all locations. Generally results are all lower than detection limit. There has been an exception in March 2022, when heavy chain aliphatic TPH was identified in BH201 and BH204. Phenol has also been identified above the laboratory limit of detection (LOD) in BH201 and BH204 on one occasion each, but on different dates. The full dataset is presented in Appendix 3.

The data used to generate Table 5 is provided in Excel format as part of the permit application process, file reference 1763 HRA Appendix 3 GWQ.

3.3. Hydrology

Ground levels surrounding the site fall from approximately 15m AOD to 5m AOD in a southerly direction. The North Fleet Drain North is located approximately 550m south of the site. Further south the ground is relatively flat and cut by drains. The River Went flows from west to east approximately 2.5km south of the site. The meandering course of the River Aire is approximately 3.5km north of the site.

There are no surface water features on the site itself. A small pond is located approximately 275m west of the site.

During construction, surface water will be directed to a soakaway on the west of the site. The final restoration will include a pond and soakaway feature in this location.

4. Conceptual Hydrogeological Site Model

4.1. Source

The source considered in this assessment is the landfilling of inert wastes within the main area of the quarry, which falls within SPZ2. The configuration of the source is illustrated in the conceptual cross sections AAe drawings 163407/CSM/001 and 002 in Appendix 1.

The area of the quarry is approximately 5 ha. The wastes will be placed above an engineered geological barrier, of thickness 1m and permeability no greater than 1 x 10^{-7} m/s. The base of geological barrier will be placed at 0m AOD. This will mean that should there be a rise in groundwater levels due to cessation of the public supply, the wastes will remain above the prevailing groundwater level. The proposed restoration contours for the main quarry fall from approximately 13m AOD in the north to 8m AOD in the south, giving a range of waste thickness from 7 to 12m.

Council Directive 2003/33/EC lists those wastes which may be accepted at inert landfills without testing. The proposed codes for the inert landfill are presented in Tables 6, which includes wastes that are considered inert without testing and wastes which will be subjected to testing in accordance with the site's waste acceptance procedures, refer to the Operational Working Plan, AAe report reference 163407/OP.

Table 6: Proposed Inert Waste Codes

Description	EWC code
Concrete	17 01 01
Bricks	17 01 02
Tiles and ceramics	17 01 03
Mixtures of concrete, bricks, tiles and ceramics	17 01 07
Natural soils and stones (must be proven prior to receipt)	17 05 04 20 02 02
Wastes from mineral non-metalliferous excavation	01 01 02
Waste gravel and crushed rocks	01 04 08
Waste sand and clays	01 04 09
Solids from physical treatment (limited to soil washing silts only)	19 02 06
Minerals from waste facilities	19 12 09
Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	19 12 12
Solids from soil remediation (limited to soil washing silts only)	19 13 02

WAC are expressed as mg/kg within the incoming wastes, but the majority of determinands are tested for their potential to leach from the waste. An equivalent leachate concentration in mg/l is 10% of the WAC concentration expressed in mg/kg. Council Directive 2003/33/EC

also presents "first flush" leachate concentrations (C_o) and these are incorporated into the leachate source term. For organic determinands an equivalent leachability and C_o concentration is available for phenol. Other organics are limited by a total soil concentration.

Table 7: Waste Acceptance Criteria for Leachates

Determinand	WAC Leachate Criteria (LS=10l/kg) (mg/kg)	Equivalent leachability (mg/l)	Co concentration 2.1.2.1 2003/33/EC (mg/l)	EAL (mg/l) UKDWS unless noted otherwise
Arsenic (total)	0.5	0.05	0.06	0.01
Barium (total)	20	2	4	0.7 [1]
Cadmium (total)	0.04	0.004	0.02	0.005
Chromium (total)	0.5	0.05	0.1	0.05
Copper (total)	2.0	0.2	0.6	2
Mercury (inorganic)	0.01	0.001	0.002	0.001
Molybdenum (total)	0.5	0.05	0.2	0.07 [1]
Nickel (total)	0.4	0.04	0.12	0.02
Lead (total)	0.5	0.05	0.15	0.01
Antimony (total)	0.06	0.006	0.1	0.005
Selenium (total)	0.1	0.01	0.04	0.01
Zinc (total)	4.0	0.4	1.2	0.0109 [2] bioavailable + background
Chloride (total)	800	80	460	250
Fluoride (total)	10	1	2.5	1.5
Sulphate (as SO4)*	1000	100	1500	250
TDS	4000	n/a	n/a	n/a
Phenol Index	1.0	0.1	0.3	0.0077 [2]

1- World Health Organisation (WHO) Molybdenum is a health-based value as no guideline available
2- EQS – freshwater environmental quality standard
The values of TDS can be used instead of Cl or SO4.

In most instances, as demonstrated by Table 7 the equivalent leachability, or Co concentration exceeds the EAL (see highlighted cells) and therefore, it must be demonstrated that sufficient attenuation is available below the wastes.

4.2. Pathway

The groundwater level depending on the rate of pumping from the nearby public supply has been observed to be between approximately -5 and -7m relative to OD in the southern area of the site furthest from the public supply and between -7 and -10m relative to OD in the north.

This gives a minimum unsaturated thickness of 5m below the 1m thickness of engineered geological barrier. The hydraulic conductivity and hydraulic gradient are described in section 3.2.

The saturated Sherwood Sandstone is designated as a principal aquifer. The Environmental Permitting Regulations 2016 require that there is no discernible discharge of hazardous substances to groundwater and therefore, the pathway for hazardous substances is limited to the base of the unsaturated zone. For non-hazardous pollutants it is required that input is limited to ensure there is no pollution. Non-hazardous pollutants are, therefore, assessed once they have entered the aquifer, but the length of pathway will be limited to a position on the downgradient boundary of the site. Refer to section 5 for more details of the risk assessment modelling.

4.3. Receptor

The receptor is the public supply borehole approximately 20m from the edge of the quarry. The modelled receptor will be a theoretical receptor on the boundary of the site.

Given that the groundwater in the Sherwood Sandstone is used locally for public water supply the UK Drinking Water Standards (UKDWS), given in the Water Supply (Water Quality) Regulations 2018, are considered to be the appropriate Environmental Assessment level (EAL).

5. Hydrogeological Risk Assessment

5.1. The Nature of the Hydrogeological Risk Assessment

Environment Agency guidance on landfill developments (EA webpage accessed March 2021 https://www.gov.uk/guidance/landfill-operators-environmental-permits/landfills-for-inert-waste) indicates that, if an inert waste landfill is in a sensitive area, such as in an aquifer, source protection zone (SPZ), or below the water table, then a simple risk assessment is insufficient and a more detailed risk assessment is required. Middleton Quarry, Pollington is in a SPZ1 and SPZ2. Landfilling with inert wastes is proposed in SPZ2 and therefore the potential risks posed to groundwater are assessed quantitatively. This is done using Landsim, for the proposed landfilled inert wastes.

5.2. The proposed assessment scenarios

It is proposed that the main quarry area will be an inert landfill, with a geological barrier and therefore, no long-term management controls. The geological barrier and underlying unsaturated zone will be assessed to determine the degree to which attenuation can be provided before potential contaminants reach the saturated zone. Scenario 1 will assess the site as it is designed to operate, with incoming waste meeting inert WAC. Additional modelled scenarios (models RLA1 and RLA2) will examine the potential for wastes to be received unknowingly in exceedance of the inert WAC. This is often referred to as a rogue load assessment.

5.3. The Priority Contaminants

The priority contaminants are considered to be those listed within the inert waste acceptance criteria to which a leachate limit is applied and where this limit exceeds the EAL as presented in Table 7. These determinands are listed below:

Non-hazardous pollutants: Barium, Cadmium, Chromium, Molybdenum, Nickel, Antimony, Selenium, Zinc, Chloride, Fluoride, Sulphate,
Hazardous substances: Arsenic, Lead and Mercury
Organic contaminant: Phenol

5.4. Review of Technical Precautions

The technical precautions appropriate to an inert landfill are:

- A geological barrier, of 1m thickness and a maximum permeability of 1 x 10^{-7} m/s;
- Suitable capping to support the designated end use.

A leachate containment system is not required. The permeability of the geological barrier will

control the rate of release of any leachate, but prevent a build-up, which would require long term management.

Landsim requires a fixed head of leachate to be entered into the model in order for the contaminant model to be run. It can be difficult to obtain a realistic leachate head for an inert landfill within Landsim and this is acknowledged by the EA. A manual water balance is presented below, which indicates that a build up of leachate is unlikely at Pollington.

The surface area of the landfill is approximately 5.35 ha (53500 m^2).
The effective rainfall is 150 mm per annum (4.76 x 10^{-9} m/s).
Therefore, the rainfall infiltration is 2.5 x 10^{-4} m^3/s..... Q_{rain}

The base of the landfill, is approximately 34000m^2.
The maximum permeability is 1 x 10^{-7} m/s.
Therefore, the basal seepage is 3.4 x 10-3 m^3/s..... Q_{seep}

The basal seepage (Q_{seep}) is 13 times greater than the rainfall infiltration (Q_{rain}). Therefore, it is unlikely that there will be a build-up of leachate at the base of the landfill.

In order for the model to run, a low nominal range of heads is used, which have been selected as a triangular distribution of 0.05, 0.1 and 0.2m.

5.5. Justification for Modelling Approach and Software

Landsim has been selected as the assessment tool for the inert landfill. This is also an Environment Agency approved assessment tool. The Landsim model allows the selection of properties for the geological barrier separate to those of the rest of the unsaturated zone.

5.6. Model Parameterisation

Input parameters are sourced from site information where possible. Where there is insufficient site specific data, values are sourced from literature, much of which is described in the preceding sections of this report. The leachate source term is derived from inert waste acceptance criteria and includes the higher Co values, to include conservatism to the leachate concentration. The leachate source chemistry is presented in Table 10. For metals, which are generally more easily attenutated, the Co concentration is used as the source concentration. For other determinands a range is used between the inert WAC equivalent leachability and the higher EQS, or Co values. General input parameters are presented in Table 11.

Table 10: Landsim Input Criteria, Leachate

Determinand	Modelled concentration	Comment	Partition coefficient (ml/g)	Justification
Arsenic	0.06	Co	117 [1]	Consim - unspecified
Barium	4	Co	Uni (11,52) [2]	Range from USEPA as no value for sand, or unspecified in Consim
Cadmium	0.02	Co	LogTri (3.7, 74, 1500) [1]	Consim range for sand
Chromium	0.1	Co	LogTri (1, 67, 4400) [1]	Consim range for sand
Mercury	0.002	Co	450 [1]	Consim range for sand
Molybdenum	0.2	Co	110 [1]	Consim unspecified as no value for sand
Nickel	0.12	Co	LogTri (20, 400, 8100) [1]	Consim value for sand
Lead	0.15	Co	LogTri (27, 270, 2.7e4)	Consim value for sand
Antimony	0.1	Co	Uni(45,550) [2]	US EPA used as no data in Consim
Selenium	0.04	Co	9.5 [1]	Consim unspecified as no data for sand
Zinc	1.2	Co	LogTri (1.1, 200, 3.6e4) [1]	Consim values for sand
Chloride	Tri (80, 230, 460)	Inert WAC - Co	-	No retardation assumed
Fluoride	Tri (1, 1.25, 2.5)	Inert WAC - Co	0.8 [1]	Consim unspecified as no value for sand
Sulphate (as SO4)	Tri (100, 400, 800)	Inert WAC, EQS, 2xEQS	-	No retardation assumed
Phenol	Tri (0.1, 0.2, 0.3)	Inert WAC - Co	Koc=27, foc for sandstone = 0.007 [1]	Conservatively low from Consim
Phenol half life	Engineered barrier: Uni (0.03, 0.82) [1]			Aerobic to anaerobic
Phenol half life	Unsaturated: Uni (0.03, 0.27) [1]			Aerobic- as less compacted
Notes	Phenol half life: potential anaerobic conditions allowed for at base of waste in engineered barrier			

1 = Consim Help File
2 = US EPA : 1996 : Soil Screening Guidelines: Technical Background Document

Table 11: Landsim Input Parameters

Parameter	Unit	Value	Source
Waste			
Infiltration to open waste	mm/yr	Norm (150,15)	Effective rainfall: ADAS 1982. Site is borderline Area 16 + Area 12. Take worst case to be conservative.
Cap design infiltration	mm/yr	Norm (150,15)	Low permeability capping not required. Value equal to effective rainfall to remain conservative

Parameter	Unit	Value	Source
End of filling	yr	10	Operational life of the site assumed to be 10 years
Cell dimensions	ha	5.35	Top area from site plan=5.35 ha (L=250m, W=210m approx.). Base area from site plan= 3.4 ha (L=200m, W=170m approx..)
Thickness	m	Tri (7,10,12)	Based on restoration contours and a base at 0m AOD
Waste porosity	fraction	Uni (0.2, 0.4)	Inert waste
Waste Dry Density	g/cm^3	Uni (1.15, 1.25)	Inert waste
Waste field capacity	fraction	Uni (0.2, 0.4)	Inert waste
Head of leachate when breakout occurs	m	7	Minimum thickness of waste, which is on southwest boundary
Drainage System			
Head on EBS	m	Tri (0.05, 0.1, 0.2)	Initial starting point as leachate build up unlikely – refer to water balance calculations, section 5.4 and model results for head on EBS after management control ceases
Waste hydraulic conductivity	m/s	Uni (1e^{-7}, 1e^{-3})	Silt to gravel
Primary drainage system		None	No leachate drainage required for inert landfills
Sump diameter	m	160	No sump. Value input to represent whole cell base.
Geological barrier			
Thickness	m	1	Landfill design requirement
Moisture content	fraction	0.22	Assumed for silty sand
Hydraulic conductivity	m/s	1e^{-7}	Landfill design requirement
Longitudinal dispersivity	m	0.1	10% pathway length
Density	kg/l	2	Assumed for silty sand
Unsaturated zone – Sherwood Sandstone			
Thickness	m	5 m	Minimum thickness of unsaturated zone based on water levels in SW corner furthest from pumping well, with landfill base at 0m AOD
Moisture content	fraction	0.12	Assumed for unsaturated sandstone
Hydraulic conductivity	m/s	5.4e^{-6}	Lower interquartile value for Sherwood Sandstone North Region. Note that where groundwater is highest in SW the unsaturated zone will be partially backfilled with clean, naturally arising fill, likely to be of a lower hydraulic conductivity
Longitudinal dispersivity	m	0.5	10% of path length
Aquifer Pathway			
Pathway width	m	210	Site dimensions
Thickness	m	180	Local borehole record shows depth of

Parameter	Unit	Value	Source
			182.88m – all sandstone
Density	kg/l	2	Assumed for sandstone
Mixing zone thickness	m	15	Based on difference in water levels observed across the site, as affected by the proximity to the public supply borehole and allowing for further drawdown close to well
Relative vertical dispersivity	-		1% of pathway length
Hydraulic conductivity	m/s	Uni (5.4e-6, 2.4e-5)	Interquartile range, Sherwood Sandstone, North Region, BGS Major Aquifers
Hydraulic gradient	-	Uni (0.0125, 0.02)	Site monitoring data, winter 2020/21. It is unclear how often the hydraulic gradient changes with pumping. Conservative values from range observed.
Pathway porosity	fraction	Uni(0.1,0.3)	Assumed range for sandstone
Distance to receptor	m	20	Distance to default receptor
Longitudinal dispersivity	m	2	10% of pathway length
Lateral dispersivity	m	0.2	10% of longitudinal

5.7. Landsim Sensitivity Analysis and Results

5.7.1. Results

Modelled outputs are presented in Table 13. Results are displayed for arsenic, lead and mercury at the base of the unsaturated zone. Results for all other determinands are assessed at the monitor well. The position of the monitor well is fixed by Landsim to be 5 m downgradient of each landfill phase. In the instance of Middleton Quarry, Pollington the whole site is represented as one cell and therefore, the monitor well is the appropriate point of assessment. The results presented are the 95th percentile peak concentrations, as determined from Landsim graphical outputs.

In addition to the main modelled scenario the sensitivity of two key parameters is assessed.

- The thickness of the unsaturated zone is reduced to 4m (Sensitivity 1)
- The hydraulic conductivity of the unsaturated zone is increased to 1.2e-5 m/s (Sensitivity 2).

The results show very little difference in concentrations between sensitivity runs.

Table 13: Landsim Model Results and Sensitivity Analysis (mg/l)

Determinand	Scenario 1	Sensitivity 1 Unsat. zone = 4m	Sensitivity 2 Unsat hc = 1.2e-5 m/s	EAL (mg/l) UKDWS unless stated	LOQ (mg/l)
Arsenic	4e-6	4e-6	4e-6	0.01	0.005
Barium	6.8e-5	6.3e-5	6.8e-5	0.7 [1]	
Cadmium	<1e-8	<1e-8	<1e-8	0.005	
Chromium	7.8e-5	1.7e-4	7.7e-5	0.05	
Mercury	1.4e-7	1.4e-7	1.38e-7	0.001	0.0005
Molybdenum	1.2e-5	1.2e-5	1.2e-5	0.07 [1]	
Nickel	<1e-8	<1e-8	<1e-8	0.02	
Lead	<1e-8	<1e-8	<1e-8	0.01	0.005
Antimony	8e-8	6e-8	8e-8	0.005	
Selenium	3.5e-5	3.5e-5	3.4e-5	0.01	
Zinc	<1e-8	<1e-8	<1e-8	0.0109 [2] bioavailable + background	
Chloride	108	109	108	250	
Fluoride	0.62	0.62	0.62	1.5	
Sulphate (as SO4)	193	194	195	250	
Phenol	5.8e-4	9e-4	5.4e-4	0.0077 [2]	
	Hazardous substance				

[1] – WHO; [2] - EQS

Results for hazardous substances are assessed at the base of the unsaturated zone. Results for non-hazardous pollutants are assessed at the monitor well

5.7.2. Climate Change

Current research into climate change (e.g. UKCP18 and BGS future flows data) indicates that with a changing climate we are likely to have drier summers, with more risk of drought and wetter winters, with the period of recharge being shorter and more intense. This could result in short term groundwater rebound in the winter months. With rainfall intensity likely to increase, the potential effects of 40% more rainfall should now be considered within hydrogeological risk assessments.

A review of the BGS future flows data for Permo-Triassic Sandstone indicates that for the period 2041 – 2070, maximum predicted rebound is of the order of 1m, using Heathlanes as the closest sandstone borehole with future flows data. Sensitivity analysis 1 considers a reduction of 1m in the thickness of the unsaturated zone. The potential for groundwater rebound has been assessed by the model and results are found to be acceptable.

The Landsim model has been revised to model an increase of 40% infiltration. Results are presented in Table 14 and show that all concentrations remain below the EAL.

5.7.3. Additional Schedule 5 Assessment – Hydraulic Conductivity

The hydraulic conductivity of the aquifer has been modelled as a uniform distribution between the lower and upper inter quartiles for the Sherwood Sandstone aquifer based on transmissivity data from the British Geological Survey Major Aquifers publication. It is noted that there is site specific pump test data from the public supply borehole, which would put the hydraulic conductivity of the aquifer on site at the upper end of the BGS interquartile data. Modelling the full interquartile range within the Landsim model is a conservative approach, as this will give lower rates of dilution than the site specific data would derive. Given that there is less than an order of magnitude between the lower and upper interquartile values, a logarithmic distribution of hydraulic conductivities within the model does not appear appropriate. The model is, however, rerun using a triangular distribution, including the geometric mean:

Tri (5.4e-6, 1.16e-5, 2.4e-5) m/s.

For the unsaturated zone the modelled hydraulic conductivity used is 5.4e-6 m/s. Using a similar order of magnitude for variation between lowest and highest values used for the aquifer, the following triangular distribution is used for the unsaturated zone

Tri (1e-6, 5.4e-6, 1e-5) m/s.

The results of this additional scenario are also presented in Table 14 and show very little difference to the originally modelled Scenario 1.

Table 14: Results for additional sensitivity scenarios

Determinand	Scenario 1	Scenario 1 + 140% infiltration	Scenario 1 + hc distributions	EAL (mg/l) UKDWS unless stated	LOQ (mg/l)
Arsenic	4e-6	4.3e-6	4e-6	0.01	0.005
Barium	6.8e-5	1e-4	7.5e-5	0.7 [1]	
Cadmium	<1e-8	<1e-8	<1e-8	0.005	
Chromium	7.8e-5	1.3e-4	8.3e-5	0.05	
Mercury	1.4e-7	1.3e-7	1.5e-7	0.001	0.0005
Molybdenum	1.2e-5	1.4e-5	1.3e-5	0.07 [1]	
Nickel	<1e-8	<1e-8	<1e-8	0.02	
Lead	<1e-8	<1e-8	<1e-8	0.01	0.005
Antimony	8e-8	1.7e-7	8.2e-8	0.005	
Selenium	3.5e-5	7.7e-5	3.5e-5	0.01	
Zinc	<1e-8	5.3e-8	<1e-8	0.0109 [2] bioavailable + background	
Chloride	108	127	100	250	
Fluoride	0.62	0.78	0.56	1.5	
Sulphate	193	225	176	250	
Phenol	5.8e-4	0.0019	5.4e-4	0.0077 [2]	
	Hazardous substance				

5.7.4. Model Validation

The model suggests that there will be very little potential for build up of leachate within the wastes. Ongoing visual inspections of the site once operational will be used to validated this assumption.

The model predicts a low likelihood of deterioration in groundwater quality relative to the existing background conditions. Future groundwater monitoring of the site will be used to validate these predictions.

5.7.5. Accidents and their consequences

An accident which requires assessment within an inert landfill is the potential for the site to receive non-inert waste. In order to assess the consequence of such a scenario the Landsim model has been run iteratively to determine the increase in concentrations within the leachate which could be tolerated without adverse impact at the appropriate point of assessment. Leachate concentrations used in the initial scenario have been varied by a factor of up to 2 in rogue load assessment one (RLA1) and up to 10 in RLA2. The increased leachate source concentrations and results are presented in Table 15 below.

It should be noted that, for many determinands, these increases in leachate concentrations for the rogue load assessment are increases above the Co leachate concentration, which is already higher than inert WAC.

The results indicate no exceedances of the EAL for metallic determinands for an increase in concentration of a factor of 10.

For the non-metallic determinands the following increase in concentrations can be tolerated without exceedance of the EAL at the monitor well:

- Chloride – total leachate concentration equal to Co concentration;
- Fluoride – total leachate concentration equal to Co concentration;
- Sulphate – most likely concentration = 700 mg/l;
- Phenol – total leachate concentration = 2 x Co concentration.

It should be noted that this is a whole site assessment and therefore, a worst case scenario, as the waste acceptance procedures on site will minimise the likelihood that non-inert waste is accepted and should this occur it is unlikely to affect the entire waste mass. Leachate concentrations used in all models have included the C_o concentrations, which are much higher than the inert WAC criteria. This builds further conservatism into the assessment.

Table 15: Assessment of receipt of non-inert waste

Determinand	Initial Modelled concentration = Co	RLA1 input Source x 2, or as stated	RLA2 input Source x 10, or as stated	RLA1 results	RLA2 results	EAL (mg/l) UKDWS unless stated	LOQ (mg/l)
Arsenic	0.06	0.12	0.6	3.4e-6	3.4e-5	0.01	0.005
Barium	4	8	40	1e-4	6.4e-4	0.7 [1]	
Cadmium	0.02	0.04	0.2	<1e-8	1.8e-8	0.005	
Chromium	0.1	0.2	1	6.7e-5	1e-5	0.05	
Mercury	0.002	0.004	0.02	1.1e-7	1.2e-6	0.001	0.0005
Molybdenum	0.2	0.4	2	1e-5	9.3e-5	0.07 [1]	
Nickel	0.12	0.24	1.2	<1e-8	<1e-8	0.02	
Lead	0.15	0.3	1.5	<1e-8	<1e-8	0.01	0.005
Antimony	0.1	0.2	1	8.7e-8	1e-6	0.005	
Selenium	0.04	0.08	0.4	2.6e-5	2e-4	0.01	
Zinc	1.2	2.4	12	5.8e-8	3.3e-6	0.0109 [2] bioavailable + background	
Chloride	Tri (80, 230, 460)	Most likely = 345	Single 460	127	191	250	
Fluoride	Tri (1, 1.25, 2.5)	Most likely= 1.875	Single 2.5	0.67	0.94	1.5	
Sulphate (as SO4)	Tri (100, 400, 800)	Most likely = 600	Most likely 700	210	238	250	
Phenol	Tri (0.1, 0.2, 0.3)	Single 0.3	Single 0.6	8e-4	0.0013	0.0077 [2]	
	Hazardous substance						

[1] – WHO; [2] - EQS

Results for hazardous substances are assessed at the base of the unsaturated zone. Results for non-hazardous pollutants are assessed at the monitor well.

5.8. Emissions to Groundwater

5.8.1. Hazardous Substances

The Landsim modelling and sensitivity analysis shows that the acceptance of inert waste to landfill at Middleton Quarry, Pollington should not release discernible concentrations of hazardous substances in to the groundwater. The assessment of accidents in the form of receipt of non-inert waste indicates that there is some tolerance in the inert waste acceptance criteria in relation to this site and the accidental receipt of non-inert waste may not cause discernible discharge of hazardous substances.

5.8.2. Non-hazardous pollutants

The Landsim modelling and sensitivity analysis shows that the acceptance of inert waste at Middleton Quarry, Pollington should not cause pollution of groundwater by non-hazardous pollutants. The assessment of accidents in the form of receipt of non-inert waste indicates that there is some tolerance in the inert waste acceptance criteria in relation to this site and the accidental receipt of non-inert waste will not automatically lead to pollution, depending on the volume and concentration of contaminants in the rogue load.

5.8.3. Surface water management

There are no surface water bodies on site. Perimeter ditches will be used to direct rainfall away from the open waste during filling.

5.9. Hydrogeological Completion Criteria

The site will receive inert waste and will have no active leachate controls. The Landsim modelling indicates that the site is unlikely to fail to comply with the requirement of the Environmental Permitting Regulations in the absence of leachate control. Therefore, no hydrogeological completion criteria are required.

6. Requisite Surveillance

6.1. The Risk Based Monitoring Scheme

6.1.1. Leachate Monitoring

Leachate infrastructure is not required for an inert landfill and therefore, no leachate monitoring will be undertaken. Visual inspections of the site will be made on a regular basis as good working practice. This will include checks for any unusual seepages, or discolouration in low lying areas of the site that might indicate the landfill is generating unexpected leachate. This will enable investigation and any corrective measures to be undertaken. While this is an unlikely scenario, routine inspections should include such checks rather than assume that the potential for leachate generation is so low as to be disregarded.

6.1.2. Groundwater Monitoring – control and compliance levels

Groundwater monitoring has been undertaken on ten occasions since December 2020. Using this data, groundwater quality compliance levels are set for the following substances:

Hazardous substance – arsenic
Non-hazardous pollutants – chloride, chromium, sulphate
Organic – phenol

The groundwater quality has been assessed using the ESI Soil and Groundwater Statistics Calculator version 2, to determine whether there are outliers in the data. This uses the same techniques as the Environment Agency R+D technical report P1-471, A.3 Statistical Analysis. The outputs are summarised in Appendix 4. The mean and standard deviation are derived after excluding outliers. Control and compliance levels are derived as described below.

Non-hazardous substances
The derived control levels are set at the mean + 2 x standard deviation.
The derived compliance levels are set at the mean + 3 x standard deviation.

Hazardous substances
The selected hazardous substance for compliance is arsenic. The UK Technical Advisory Group on the Water Framework Directive (UKTAG) gives the limit of quantification (LOQ) for arsenic as 5ug/l. All measured concentrations of arsenic are below the LOQ. Therefore, the control level has been set as the maximum. The compliance level has been set as the LOQ.

Data presented includes BH201, however, this is in an upgradient position and therefore, compliance levels are not required.

Table 16: Control and Compliance Levels

		BH201 [1]	BH202	BH203	BH204
Arsenic (ug/l)	Mean	0.54	0.44	1.11	0.80
	Std Dev.	0.35	0.36	0.12	0.37
	Control	1.24	1.16	1.36	1.54
	Compliance	5	5	5	5
Chloride (mg/l)	Mean	47.30	21.83	13.03	29.92
	Std Dev.	11.36	10.31	7.11	13.32
	Control	70.03	42.46	27.26	56.55
	Compliance	81.39	52.77	34.38	69.87
Chromium (ug/l)	Mean	5.98	5.54	4.97	6.03
	Std Dev.	3.39	3.19	3.15	4.79
	Control	12.77	11.92	11.26	15.61
	Compliance	16.16	15.11	14.41	20.41
Phenol (ug/l)	Mean	0.03	0.03	0.03	0.03
	Std Dev.	0.00	0.00	0.00	0.00
	Control	0.03	0.03	0.03	0.03
	Compliance	0.033	0.033	0.033	0.033
Sulphate (mg/l)	Mean	121.08	70.83	37.33	93.75
	Std Dev.	35.75	28.21	28.30	34.53
	Control	192.57	127.25	93.93	162.81
	Compliance	228.32	155.45	122.23	197.34

1 - upgradient borehole – data for information only
2 – Control and compliance levels calculated after removal of outliers using ESI spreadsheet

6.1.3. Surface Water Monitoring

There are no surface water bodies on site.

7. Conclusions

7.1. Conceptual Model of the Site

The conceptual model of the site comprises a proposed inert landfill cell, with an engineered geological barrier, in the main area of the quarry, which is SPZ2. The landfill has been quantitatively assessed using Landsim.

7.2. Compliance with Environment Agency Position Statements

Landfilling within SPZ2 is permitted if there is no requirement for long term management controls. The proposed landfill is inert and as such there is little likelihood of gas, or leachate generation and therefore, no need for long term management controls.

7.3. Compliance with the Environmental Permitting Regulations

A quantitative hydrogeological risk assessment of the proposed new landfill cell has been undertaken using the Environment Agency approved assessment tool. This indicates that the new landfill is unlikely to cause discernible discharge of hazardous substances, or pollution by non-hazardous pollutants. The new phase will be engineered with a 1m geological barrier to a maximum permeability of 1 x 10^{-7} m/s. This is, therefore, considered to be compliant with the Environmental Permitting Regulations, 2016.

Groundwater compliance levels have been derived for downgradient monitoring boreholes.

REFERENCES

1. AAe : 2021 : Pollington Quarry, Factual Summary Report for Ground Investigation. Reference 163407FR/001.
2. ADAS: 1982: Reference Book 434. Climate and Drainage.
3. BGS : 1982 : Hydrogeological Map of South Yorkshire, 1:100,000 scale.
4. BGS : 1997 : Technical report WD/97/34. The physical properties of major aquifers in England and Wales
5. Environment Agency: 2008: Science Report SC050021/SR7, Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values
6. Howard et al. 1991. Handbook of Environmental Degradation Rates. Lewis Publishers
7. TPHCWG, 1997 Selection of Representative TPH Fractions Based on Fate and Transport Considerations. Total Petroleum Hydrocarbon Criteria Working Group Series Volume 3.
8. World Health Organisation (CL:AIRE: 2017: Petroleum hydrocarbons in groundwater. Guidance on assessing petroleum hydrocarbons using existing hydrogeological risk assessment methodologies.)

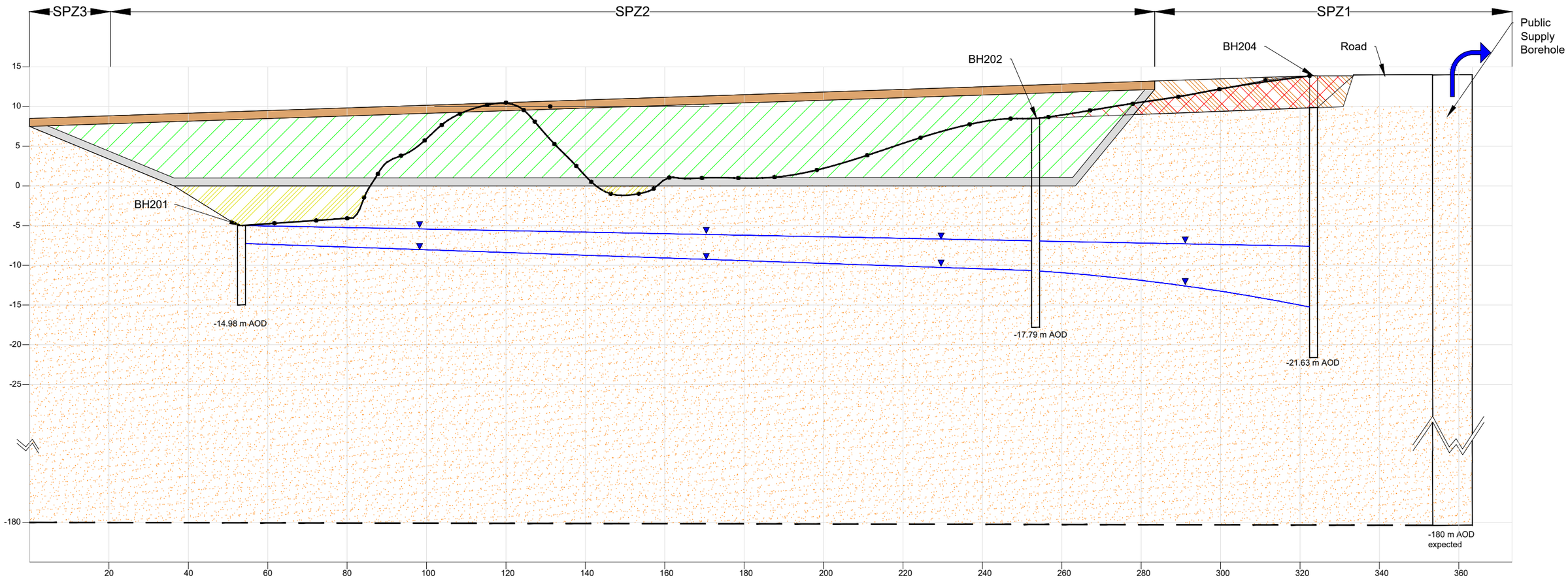
McDonnell Cole

36 Dunster Road
West Bridgford
Nottingham
NG2 6JE.

APPENDIX 1
Drawings

Borehole Plan
Conceptual Site Model

SW NE



Key

- Sandstone
- Existing ground level
- Engineered barrier
- Surface fill (hardstanding and soft landscaping)
- Clean natural arising infill
- Inert landfilled waste
- Groundwater level
- Public supply abstraction borehole
- Fly-tipped waste to be removed - non-waste activity and not relevant to the landfilling operations.
- Clean natural arising infill - non-waste activity and not relevant to the landfilling operations.

Notes:
1. The conceptual model has a 2:1 vertical exaggeration and 1:1 horizontal exaggeration.

Rev.	Details	Drawn / Chkd.	Date

Project
163407
Pollington Lane Quarry

Title
Conceptual Site Model
South West to North East

AA Environmental Ltd
Units 4-8
Cholswell Court
Shippon Abingdon
Oxon OX13 6HX

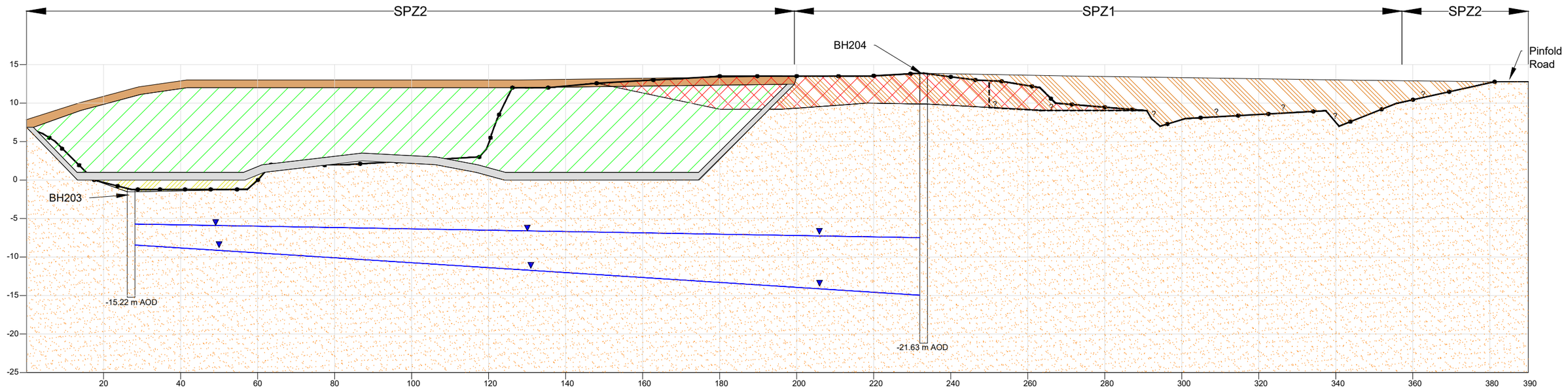
T:(01235) 536042
F:(01235) 523849
info@aae-ltd.co.uk
www.aae-ltd.co.uk

Environmental Consultants

Scale	Date	Drg. No.	Rev.
NTS	Jul'24	163407/CSM/001	
	Drawn: JM / Chkd.: ML		

W

E



Key:

- Sandstone
- Existing ground level
- Engineered barrier
- Surface fill (hardstanding and soft landscaping)
- Clean natural arising infill
- Inert landfilled waste
- Groundwater level
- ? Depth/presence of historic made ground unknown
- Fly-tipped waste to be removed - non-waste activity and not relevant to the landfilling operations.
- Clean natural arising infill - non-waste activity and not relevant to the landfilling operations.

Notes:
1. The conceptual model has a 2:1 vertical exaggeration and 1:1 horizontal exaggeration.

Rev.	Details	Drawn / Chkd.	Date

Project
163407
Pollington Lane Quarry

Title
Conceptual Site Model
West to East

AA Environmental Ltd
Units 4-8
Cholswell Court
Shippon Abingdon
Oxon OX13 6HX

T:(01235) 536042
F:(01235) 523849
info@aae-ltd.co.uk
www.aae-ltd.co.uk

Environmental Consultants

Scale	Date	Drawn	Chkd.	Drg. No.	Rev.
NTS	Jul'24	JM	ML	163407/CSM/002	

APPENDIX 2
Envirocheck Report

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
115060751_1_1

Customer Reference:
163407

National Grid Reference:
461100, 420110

Slice:
A

Site Area (Ha):
0.01

Search Buffer (m):
1000

Site Details:

Site at 461110, 420110

Client Details:

Miss S Muir
AA Environmental Ltd
4-8 Cholswell Court
Shippon
Abingdon
OX13 6HX

Envirocheck®
LANDMARK INFORMATION GROUP®

Contents

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

Copyright Notice

Natural England Copyright Notice

Ove Arup Copyright Notice

Peter Brett Associates Copyright Notice

Radon Potential dataset Copyright Notice

Report Version v50.0

Envirocheck®
LANDMARK INFORMATION GROUP®

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes		n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1			1	3
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 2				8
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 3			Yes	
Pollution Incidents to Controlled Waters	pg 3			1	
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality	pg 3				1
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register	pg 3		2	1	2
Water Abstractions	pg 4		3	10	8 (*7)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 11	Yes	n/a	n/a	n/a
Drift Deposits			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 11	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 11	Yes	n/a	n/a	n/a
Source Protection Zones	pg 11	2	1	1	
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
Detailed River Network Lines					n/a
Detailed River Network Offline Drainage					n/a

Envirocheck®
LANDMARK INFORMATION GROUP®

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites	pg 13		1		3
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)	pg 13			2	
Local Authority Landfill Coverage	pg 14	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 14		1		
Potentially Infilled Land (Water)					
Registered Landfill Sites	pg 14	1			1
Registered Waste Transfer Sites	pg 15			1	
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

Envirocheck®
LANDMARK INFORMATION GROUP®

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 16	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 16	Yes		Yes	Yes
BGS Recorded Mineral Sites	pg 16		1	1	2
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 17		Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 17	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 17	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards				n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 19			7	14
Fuel Station Entries					
Points of Interest - Commercial Services	pg 20			5	1
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 21			7	29
Points of Interest - Public Infrastructure	pg 24				3
Points of Interest - Recreational and Environmental					
Gas Pipelines					
Underground Electrical Cables					

Envirocheck®
LANDMARK INFORMATION GROUP®

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas	pg 25	1			
Nitrate Vulnerable Zones	pg 25	2			1
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (NE)	0	2	461103 420112
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (W)	3	2	461100 420112
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (N)	39	2	461103 420150
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (NE)	61	2	461150 420150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	78	2	461150 420050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (E)	98	2	461200 420112
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (S)	112	2	461103 420000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	112	2	461100 420000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	122	2	461150 420000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (S)	169	2	461150 419950
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	227	2	461300 420000
1	**Discharge Consents** Operator: Arc Concrete Ltd Property Type: Not Given Location: Authority: Environment Agency, North East Region Catchment Area: Not Given Reference: 41290040 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Trade Effluent Discharge Environment: Freshwater Stream/River Receiving Water: Not Supplied **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A14SW (E)	414	3	461501 420001
2	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: PUMPING STATION ON SEWERAGE NETWORK (WATER COMPANY) Location: Pollington (Central) (Brdge Ln) Sps, Bridge Lane, Pollington, East Riding Of Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Ywucd1/74 Permit Version: 1 Effective Date: 12th November 1997 Issued Date: 12th November 1997 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Pumping Station - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: New Fleet Drain North **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A8NE (S)	527	3	461280 419616

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Discharge Consents** Operator: Celcon Ltd Property Type: Not Given Location: Authority: Environment Agency, North East Region Catchment Area: Not Given Reference: 41290410 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Trade Effluent Discharge Environment: Freshwater Stream/River Receiving Water: Not Supplied **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A12NE (NW)	669	3	460500 420400
4	**Discharge Consents** Operator: Cpm Group Limited Property Type: Undefined Or Other Location: Precast Concrete Stock Yard, Balk Lane, Pollington, Goole Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra7213 Permit Version: 1 Effective Date: 16th May 1996 Issued Date: 16th May 1996 Revocation Date: Not Supplied Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of Carr Drain **Status: New Consent, by Application (Water Resources Act 1991, Section 88)** Positional Accuracy: Located by supplier to within 100m	A9NW (SE)	789	3	461600 419500
5	**Local Authority Pollution Prevention and Controls** Name: H.T. Tennison Location: Gowdall Lane, Pollington, GOOLE, DN14 0BA Authority: East Riding of Yorkshire Council, Public Protection Division Permit Reference: 028/6.7/300492 Dated: 22nd February 1993 Process Type: Local Authority Air Pollution Control Description: PG6/2 Manufacture of timber and wood-based products **Status: Authorised** Positional Accuracy: Manually positioned to the address or location	A18SW (NW)	510	4	460850 420554
5	**Local Authority Pollution Prevention and Controls** Name: H T Tennison & Co Ltd Location: Heck Lane, Pollington, Goole, North Humberside, DN14 0BA Authority: East Riding of Yorkshire Council, Public Protection Division Permit Reference: Not Supplied Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG6/2 Manufacture of timber and wood-based products **Status: Authorisation revokedRevoked** Positional Accuracy: Automatically positioned to the address	A18SW (NW)	523	4	460847 420568
6	**Local Authority Pollution Prevention and Controls** Name: Arc Pipes Location: Balk Lane, Pollington, GOOLE, North Humberside, DN14 0DU Authority: East Riding of Yorkshire Council, Public Protection Division Permit Reference: Not Given Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG3/1Blending, packing, loading and use of bulk cement **Status: Authorised** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	524	4	461575 419886
7	**Local Authority Pollution Prevention and Controls** Name: Hanson Concrete Location: Balk Lane, Pollington, Goole Authority: East Riding of Yorkshire Council, Public Protection Division Permit Reference: 038/3.1/240392 Dated: 22nd March 1993 Process Type: Local Authority Pollution Prevention and Control Description: PG3/1Blending, packing, loading and use of bulk cement **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A14SW (E)	526	4	461603 419950

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Local Authority Pollution Prevention and Controls** Name: H & H Celcon Ltd Location: Heck Lane, Pollington, Goole Authority: East Riding of Yorkshire Council, Public Protection Division Permit Reference: 0167/1.3/190400 Dated: 1st May 2000 Process Type: Local Authority Pollution Prevention and Control Description: PG1/3 Boilers and furnaces, 20-50MW net rated thermal input **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A12NE (W)	688	4	460462 420362
8	**Local Authority Pollution Prevention and Controls** Name: H & H Celcon Ltd Location: Heck Lane, Pollington , Goole Authority: East Riding of Yorkshire Council, Public Protection Division Permit Reference: 042/3.1/260392 Dated: 5th April 1993 Process Type: Local Authority Pollution Prevention and Control Description: PG3/1Blending, packing, loading and use of bulk cement **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A12NE (W)	688	4	460462 420362
8	**Local Authority Pollution Prevention and Controls** Name: Celcon Blocks Ltd Location: Heck Lane, Pollington, GOOLE, North Humbeside, DN14 0BA Authority: East Riding of Yorkshire Council, Public Protection Division Permit Reference: Not Given Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG3/1Blending, packing, loading and use of bulk cement **Status: Authorisation revokedRevoked** Positional Accuracy: Automatically positioned to the address	A12NE (W)	689	4	460462 420362
9	**Local Authority Pollution Prevention and Controls** Name: Burgess Endeavour Plc Location: Cherry Tree Mill, Gowdall Lane, POLLINGTON, Goole, DN14 0AZ Authority: East Riding of Yorkshire Council, Public Protection Division Permit Reference: 0055/6.9/050192 Dated: 22nd November 1993 Process Type: Local Authority Air Pollution Control Description: PG6/26 Animal feed compounding **Status: Authorised** Positional Accuracy: Manually positioned to the address or location	A19NE (NE)	991	4	461820 420795
	Nearest Surface Water Feature	A13SW (W)	260	-	460843 420097
10	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Sewage Treatment Works Location: Gowdall P S /Hirst Courtney Aire 07 Authority: Environment Agency, North East Region Pollutant: Sewage Sludge Note: Not Supplied Incident Date: 18th December 1989 Incident Reference: 106303 Catchment Area: Not Given Receiving Water: Groundwater Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	350	3	461300 420400
	River Quality Name: Aire_&_Calder_Navigation(GQA Grade: River Quality E Reach: Se508239_New_Junction_Cana Estimated Distance (km): 15.7 Flow Rate: Flow greater than 80 cumecs Flow Type: Canal Year: 2000	A8NW (SW)	606	3	460789 419595
11	**Substantiated Pollution Incident Register** Authority: Environment Agency - North East Region, Yorkshire Area Incident Date: 28th January 2009 Incident Reference: 649414 Water Impact: Category 4 - No Impact Air Impact: Category 4 - No Impact Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 10m Pollutant: Inert : Construction / Demolition Material	A13NE (NE)	89	3	461153 420185

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	**Substantiated Pollution Incident Register** Authority: Environment Agency - North East Region, Yorkshire Area Incident Date: 10th December 2008 Incident Reference: 639926 Water Impact: Category 4 - No Impact Air Impact: Category 4 - No Impact Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 10m Pollutant: Inert : Construction / Demolition Material Pollutant: Inert Materials And Wastes: Rocks And Gravel Pollutant: Inert Materials And Wastes: Soils And Clay Pollutant: Specific Waste Materials: Commercial Waste	A13SE (E)	186	3	461284 420073
13	**Substantiated Pollution Incident Register** Authority: Environment Agency - North East Region, Yorkshire Area Incident Date: 9th November 2004 Incident Reference: 276815 Water Impact: Category 4 - No Impact Air Impact: Category 3 - Minor Incident Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 10m Pollutant: General Biodegradable : Other Pollutant: Specific Waste MaterialsElectrical Equipment Pollutant: Specific Waste Materials: Household Waste Pollutant: Specific Waste Materials: Vehicles And Vehicle Parts	A13NW (N)	314	3	461051 420421
14	**Substantiated Pollution Incident Register** Authority: Environment Agency - North East Region, Yorkshire Area Incident Date: 27th July 2002 Incident Reference: 94935 Water Impact: Category 1 - Major Incident Air Impact: Category 3 - Minor Incident Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 10m Pollutant: Oils - Diesel (Including Agricultural)	A18SW (N)	507	3	460910 420580
15	**Substantiated Pollution Incident Register** Authority: Environment Agency - North East Region, Yorkshire Area Incident Date: 10th November 2004 Incident Reference: 276903 Water Impact: Category 3 - Minor Incident Air Impact: Category 3 - Minor Incident Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m Pollutant: Specific Waste Materials: Household Waste	A17SE (NW)	701	3	460600 420600
16	**Water Abstractions** Operator: Yorkshire Water Services Ltd Licence Number: 2/27/18/078 Permit Version: 103 Location: Borehole 3 - Sherwood Sandstone - Pollington Authority: Environment Agency, North East Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 23rd April 2015 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13NE (E)	250	3	461340 420190
16	**Water Abstractions** Operator: Yorkshire Water Services Ltd Licence Number: 2/27/18/078 Permit Version: 102 Location: Borehole 3 - Sherwood Sandstone - Pollington Authority: Environment Agency, North East Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th August 2006 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13NE (E)	250	3	461340 420190

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	**Water Abstractions** Operator: Yorkshire Water Services Ltd Licence Number: 2/27/18/078 Permit Version: 101 Location: Borehole(3)-Sherwood Sandstone-Pollington Authority: Environment Agency, North East Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2005 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13NE (E)	250	3	461340 420190
17	**Water Abstractions** Operator: Yorkshire Water Services Ltd Licence Number: 2/27/18/078 Permit Version: 103 Location: Borehole 1 - Sherwood Sandstone - Pollington Authority: Environment Agency, North East Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 23rd April 2015 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13NE (E)	286	3	461380 420180
17	**Water Abstractions** Operator: Yorkshire Water Services Ltd Licence Number: 2/27/18/078 Permit Version: 102 Location: Borehole 1 - Sherwood Sandstone - Pollington Authority: Environment Agency, North East Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th August 2006 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13NE (E)	286	3	461380 420180
17	**Water Abstractions** Operator: Yorkshire Water Services Ltd Licence Number: 2/27/18/078 Permit Version: 101 Location: Borehole(1)-Sherwood Sandstone-Pollington Authority: Environment Agency, North East Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2005 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13NE (E)	286	3	461380 420180

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
17	**Water Abstractions** Operator: Yorkshire Water Services Licence Number: 2/27/18/021 Permit Version: Not Supplied Location: Boreholes, POLLINGTON Authority: Environment Agency, North East Region Abstraction: Water Undertaking Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): 9728 Yearly Rate (m3): 3550880 Details: Not Supplied Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A13NE (E)	311	3	461400 420200
18	**Water Abstractions** Operator: Yorkshire Water Services Ltd Licence Number: 2/27/18/078 Permit Version: 100 Location: Borehole 2 - Sherwood Sandstone - Pollington Authority: Environment Agency, North East Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 15000 Yearly Rate (m3): 5000000 Details: N/A Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 3rd April 1995 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A14NW (E)	407	3	461500 420200
18	**Water Abstractions** Operator: Yorkshire Water Services Ltd Licence Number: 2/27/18/078 Permit Version: 100 Location: Borehole 3 - Sherwood Sandstone Authority: Environment Agency, North East Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 3rd April 1995 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A14NW (E)	407	3	461500 420200
18	**Water Abstractions** Operator: Yorkshire Water Services Ltd Licence Number: 2/27/18/078 Permit Version: 100 Location: Borehole 3 - Pollington - Sherwood Sandstone Authority: Environment Agency, North East Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 3rd April 1995 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A14NW (E)	407	3	461500 420200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
18	**Water Abstractions** Operator: Yorkshire Water Services Ltd Licence Number: 2/27/18/078 Permit Version: 103 Location: Borehole 2 - Sherwood Sandstone - Pollington Authority: Environment Agency, North East Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 23rd April 2015 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A14NW (E)	423	3	461520 420180
18	**Water Abstractions** Operator: Yorkshire Water Services Ltd Licence Number: 2/27/18/078 Permit Version: 102 Location: Borehole 2 - Sherwood Sandstone - Pollington Authority: Environment Agency, North East Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th August 2006 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A14NW (E)	423	3	461520 420180
18	**Water Abstractions** Operator: Yorkshire Water Services Ltd Licence Number: 2/27/18/078 Permit Version: 101 Location: Borehole(2)-Sherwood Sandstone-Pollington Authority: Environment Agency, North East Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: N/A Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2005 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A14NW (E)	423	3	461520 420180
19	**Water Abstractions** Operator: Celcon Limited Licence Number: 2/27/18/012 Permit Version: 101 Location: Borehole - Triassic Sandstone - Pollington Authority: Environment Agency, North East Region Abstraction: Other Industrial/Commercial/Public Services: General Use (Medium Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 230 Yearly Rate (m3): 73000 Details: Pollington Quarry, Heck Lane, Pollington, Humberside Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 23rd October 1998 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A12NE (W)	610	3	460500 420200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
19	**Water Abstractions** Operator: Celcon Limited Licence Number: 2/27/18/012 Permit Version: 101 Location: Borehole - Triassic Sandstone - Pollington Authority: Environment Agency, North East Region Abstraction: Other Industrial/Commercial/Public Services: General Use (Medium Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Pollington Quarry, Heck Lane, Pollington, Humberside Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 23rd October 1998 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12NE (W)	610	3	460500 420200
19	**Water Abstractions** Operator: Celcon Limited Licence Number: 2/27/18/012 Permit Version: 101 Location: Borehole - Sherwood Sandstone - Pollington Authority: Environment Agency, North East Region Abstraction: Mineral Products: General Use (Medium Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Pollington Quarry, Heck Lane, Pollington, Humberside Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 23rd October 1998 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12NE (W)	610	3	460500 420200
19	**Water Abstractions** Operator: H & H Celcon Ltd Licence Number: 2/27/18/012 Permit Version: 102 Location: Borehole - Sherwood Sandstone - Pollington Authority: Environment Agency, North East Region Abstraction: Mineral Products: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Pollington Quarry, Heck Lane, Pollington, Humberside Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 13th April 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12NE (W)	644	3	460470 420230
20	**Water Abstractions** Operator: Canal And River Trust Licence Number: 2/27/09/178/R01 Permit Version: 1 Location: Aire & Calder Navigation - Goole Authority: Environment Agency, North East Region Abstraction: Mineral Products: General use relating to Secondary Category (High Loss) Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st April 2015 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12SW (W)	744	3	460406 419851

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	**Water Abstractions** Operator: Canal And River Trust Licence Number: 2/27/09/178 Permit Version: 2 Location: Aire & Calder Navigation - Goole Authority: Environment Agency, North East Region Abstraction: Mineral Products: General Use(High Loss) Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: H & H Celcon Ltd, Heck Lane, Pollington, Goole, Dn14 0ba Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 21st January 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12SW (W)	754	3	460400 419840
20	**Water Abstractions** Operator: British Waterways Board Licence Number: 2/27/09/178 Permit Version: 1 Location: Aire & Calder Navigation - Goole Authority: Environment Agency, North East Region Abstraction: Other Industrial/Commercial/Public Services: General Use (High Loss) Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: H & H Celcon Ltd, Heck Lane, Pollington, Goole, Dn14 0ba Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 16th February 2001 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12SW (W)	754	3	460400 419840
20	**Water Abstractions** Operator: British Waterways Licence Number: 2/27/09/178 Permit Version: 1 Location: Aire & Calder Navigation - Goole Authority: Environment Agency, North East Region Abstraction: Mineral Products: General Use(High Loss) Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: H & H Celcon Ltd, Heck Lane, Pollington, Goole, Dn14 0ba Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 16th February 2001 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12SW (W)	754	3	460400 419840
	Water Abstractions Operator: C G Bayston & Son Licence Number: Ne/027/0009/015 Permit Version: 1 Location: Borehole - Sherwood Sandstone - Pollington Airfield Authority: Environment Agency, North East Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Land Near Pollington Airfield, Heck Authorised Start: 01 April Authorised End: 30 September Permit Start Date: 29th April 2014 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A16NE (NW)	1272	3	460036 420804

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Canal And River Trust Licence Number: Ne/027/0018/013 Permit Version: 1 Location: Canal Known As Aire & Calder Navigation Authority: Environment Agency, North East Region Abstraction: Production of Energy: Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Dalkia Biomass Power Station At Great Heck Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 20th July 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A11NW (W)	1594	3	459539 420418
	Water Abstractions Operator: Canal And River Trust Licence Number: Ne/027/0018/013 Permit Version: 1 Location: Canal Known As Aire & Calder Navigation Authority: Environment Agency, North East Region Abstraction: Production Of Energy: Non-Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Dalkia Biomass Power Station At Great Heck Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 20th July 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A11NW (W)	1594	3	459539 420418
	Water Abstractions Operator: Canal And River Trust Licence Number: Ne/027/0018/013 Permit Version: 1 Location: Canal Known As Aire & Calder Navigation Authority: Environment Agency, North East Region Abstraction: Production of Energy: Process water Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Dalkia Biomass Power Station At Great Heck Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 20th July 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A11NW (W)	1594	3	459539 420418
	Water Abstractions Operator: Plasmor Ltd Licence Number: 2/27/18/044 Permit Version: 101 Location: Borehole - Sherwood Sandstone - Heck Authority: Environment Agency, North East Region Abstraction: Mineral Products: General Use (Medium Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Quarry, Green Lane, Great Heck Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 12th May 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A21SE (NW)	1804	3	459840 421400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Plasmor Ltd Licence Number: 2/27/18/044 Permit Version: 101 Location: Borehole - Sherwood Sandstone - Heck Authority: Environment Agency, North East Region Abstraction: Mineral Products: Mineral Washing Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Quarry, Green Lane, Great Heck Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 12th May 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A21SE (NW)	1804	3	459840 421400
	Water Abstractions Operator: Plasmor Ltd Licence Number: 2/27/18/044 Permit Version: 100 Location: Borehole - Sherwood Sandstone - Heck Authority: Environment Agency, North East Region Abstraction: Mineral Products: Mineral Washing Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 2508 Yearly Rate (m3): 420500 Details: Quarry, Green Lane, Great Heck Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 14th June 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A21SE (NW)	1833	3	459800 421400
	Groundwater Vulnerability Soil Classification: Soils of High Leaching Potential (H2) - Deep, permeable, coarse textured soils which readily transmit a wide range of pollutants because of their rapid drainage and low attenuation potential Map Sheet: Sheet 12 Vale of York Scale: 1:100,000	A13NE (NE)	0	3	461103 420112
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	A13NE (NE)	0	2	461103 420112
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13NE (NE)	0	2	461103 420112
21	**Source Protection Zones** Name: Pollington Source: Environment Agency, Head Office Reference: Ne003 Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	A13NE (NE)	0	3	461103 420112
22	**Source Protection Zones** Name: Various Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone III (Total Catchment): The total area needed to support the discharge from the protected groundwater source.	A13NE (NE)	0	3	461103 420112
23	**Source Protection Zones** Name: Pollington Source: Environment Agency, Head Office Reference: Ne003 Type: Zone I (Inner Protection Zone): Travel time of 50 days or less to the groundwater source.	A13NE (E)	190	3	461279 420183
24	**Source Protection Zones** Name: Pollington Source: Environment Agency, Head Office Reference: Ne003 Type: Groundwater Source	A13NE (E)	276	3	461370 420180
	Extreme Flooding from Rivers or Sea without Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
	Detailed River Network Lines None				
	Detailed River Network Offline Drainage None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
25	**Historical Landfill Sites** Licence Holder: C F Harris Limited Location: Pollington Name: Middleton Quarry Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD05039 First Input Date: 1st January 1983 Last Input Date: 31st December 1993 Specified Waste Type: Deposited Waste included Inert Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 2000/0060 BGS Ref: Not Supplied Other Ref: 55/19/0165, 2000/A165	A13NE (E)	117	3	461216 420139
26	**Historical Landfill Sites** Licence Holder: Not Supplied Location: Pollington Name: Pollington West Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD05038 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Not Supplied EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 2000/0496 BGS Ref: Not Supplied Other Ref: 2000/A449, 55/16/0449	A12NE (W)	539	3	460564 420119
27	**Historical Landfill Sites** Licence Holder: Not Supplied Location: Pollington Name: Longlane NCB Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD05040 First Input Date: 1st January 1979 Last Input Date: 31st December 1990 Specified Waste Type: Deposited Waste included Inert and Industrial Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 2000/0527 BGS Ref: Not Supplied Other Ref: 2000/A121, 55/20/0121	A14SE (E)	715	3	461817 420098
28	**Historical Landfill Sites** Licence Holder: ARC Concrete Limited Location: Pollington, North Humberside Name: Pollington Works Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD05764 First Input Date: 31st December 1979 Last Input Date: 1st May 1994 Specified Waste Type: Deposited Waste included Inert and Industrial Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 2000/0061 BGS Ref: Not Supplied Other Ref: 55/19/141/2, 2000/A141	A9NW (SE)	717	3	461724 419755
29	**Licensed Waste Management Facilities (Locations)** Licence Number: 0 Location: Gowdall Lane, Pollington, Goole, DN14 0AZ Operator Name: Yorkshire Water Services Limited Operator Location: 2 The Embankment, Leeds, LS1 4BG Authority: Environment Agency - North East Region, Ridings Area Site Category: In-house Storage Facilities **Licence Status: Surrendered** Issued: 22nd February 1994 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A13SE (E)	298	3	461400 420100

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
29	**Licensed Waste Management Facilities (Locations)** Licence Number: 60922 Location: Gowdall Lane, Pollington, Goole, East Yorkshire, DN14 0AZ Operator Name: Yorkshire Water Services Ltd Operator Location: Not Supplied Authority: Environment Agency - North East Region, Yorkshire Area Site Category: In-house Storage Facilities **Licence Status: Surrendered** Issued: 22nd February 1994 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A13SE (E)	298	3	461400 420100
	Local Authority Landfill Coverage Name: East Riding of Yorkshire Unitary Authority - Has no landfill data to supply		0	4	461103 420112
30	**Potentially Infilled Land (Non-Water)** Bearing Ref: SE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1971	A13SE (SE)	190	-	461275 420032
31	**Registered Landfill Sites** Licence Holder: C F Harris Ltd Licence Reference: 55/19/165/2 M Site Location: Middleton Quarry, Pollington, Goole, East Yorkshire Licence Easting: Not Supplied Licence Northing: Not Supplied Operator Location: High Street, South Milford, LEEDS, West Yorkshire, LS25 5AA Authority: Environment Agency - North East Region, Ridings Area Site Category: Landfill Max Input Rate: Undefined Waste Source Restrictions: Waste produced/controlled by licence holder Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 8th November 1983 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Positioned by the supplier Boundary Accuracy: Moderate Authorised Waste Prohibited Waste: Constr'N/Demol. Inert/Non-Haz/Non-Tox Biodegradable/Putrescible Waste Paper/Cardboard Waste Plasterboard/Plaster	A13NE (NE)	0	3	461103 420112
32	**Registered Landfill Sites** Licence Holder: Arc Concrete (Northern) Licence Reference: A 141 Site Location: Charcon Pipes (A.R.C Concrete) Works, Pollington, GOOLE, East Yorkshire, DN14 0DU Licence Easting: 461800 Licence Northing: 419700 Operator Location: As Site Address Authority: Environment Agency - North East Region, Ridings Area Site Category: Landfill Max Input Rate: Undefined Waste Source Restrictions: Waste produced/controlled by licence holder Status: Site exempt from licenceExempt Dated: 20th December 1976 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Inert Waste Ex Concrete Prod. Manuf.	A9NE (SE)	810	3	461800 419700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
33	**Registered Waste Transfer Sites** Licence Holder: Yorkshire Water Services Ltd Licence Reference: C 902 MAR97 Site Location: Yorkshire Water Depot, Gowdall Lane, Pollington, GOOLE, East Yorkshire, DN14 0AU Operator Location: 2 The Embankment, Sovereign Street, LEEDS, West Yorkshire, LS1 4BG Authority: Environment Agency - North East Region, Ridings Area Site Category: Transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: Waste produced/controlled by licence holder Licence Status: Licence has completion certificateSurrendered Dated: 22nd February 1994 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Excav'N Waste Cont. Asbestos Cement Max.Waste Permitted By Licence Non-Haz. Excavation Waste Prohibited Waste: Liquid Wastes Poisonous, Noxious And Polluting N.O.S Putrescible Waste Special Wastes (As In '96 Regs) Waste N.O.S.	A13NE (E)	311	3	461400 420200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Triassic Rocks (Undifferentiated)	A13NE (NE)	0	2	461103 420112
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: <15 mg/kg	A13NE (NE)	0	2	461103 420112
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: <15 mg/kg	A13SW (SW)	320	2	460903 419862
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: <15 mg/kg	A8SE (S)	718	2	461190 419400
34	**BGS Recorded Mineral Sites** Site Name: Heck & Pollington Lane Location: Heck & Pollington Lane, Pollington, Goole, East Riding Of Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 12995 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Quaternary Geology: Lacustrine Beach Deposits Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A13SE (E)	215	2	461305 420040
35	**BGS Recorded Mineral Sites** Site Name: Heck No 3 Location: Heck & Pollington Lane, Pollington, Goole, East Riding Of Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 12996 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Quaternary Geology: Lacustrine Beach Deposits Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A12NE (W)	353	2	460750 420115
36	**BGS Recorded Mineral Sites** Site Name: Pollington Location: , Pollington, Goole, East Riding Of Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 12994 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Quaternary Geology: Lacustrine Beach Deposits Commodity: Sand Positional Accuracy: Located by supplier to within 10m	A14SW (E)	554	2	461620 419915

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
37	**BGS Recorded Mineral Sites** Site Name: Heck Location: Heck & Pollington Lane, Pollington, Goole, East Riding Of Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 12997 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Quaternary Geology: Lacustrine Beach Deposits Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A12NW (W)	795	2	460320 420250
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	2	461103 420112
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	37	2	461127 420085
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	112	2	461103 420000
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	114	2	461121 420000
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	204	2	461126 419910
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	223	2	461180 420320
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	2	461103 420112
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	112	2	461103 420000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	2	461103 420112
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	112	2	461103 420000
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	2	461103 420112
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	112	2	461103 420000
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	2	461103 420112
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	37	2	461127 420085

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	112	2	461103 420000
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	114	2	461121 420000
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	223	2	461180 420320
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	2	461103 420112
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	112	2	461103 420000
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	2	461103 420112
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	2	461103 420112

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
38	**Contemporary Trade Directory Entries** Name: Lewis Tank Transport Ltd Location: Quarry Lodge, Pinfold Lane, Pollington, Goole, North Humberside, DN14 0DR Classification: Freight Forwarders **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	310	-	461360 419939
39	**Contemporary Trade Directory Entries** Name: Pollington Transport Company Ltd Location: The Leylands, West End, Pollington, Goole, North Humberside, DN14 0DP Classification: Road Haulage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NW (S)	381	-	461085 419732
40	**Contemporary Trade Directory Entries** Name: Sensory & Imaging Location: 4, West End, Pollington, Goole, North Humberside, DN14 0DP Classification: Laboratories **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	395	-	461294 419767
41	**Contemporary Trade Directory Entries** Name: Haigh Agri Location: 18, Pinfold Lane, Pollington, Goole, North Humberside, DN14 0DR Classification: Agricultural Machinery - Sales & Service **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	395	-	461405 419858
42	**Contemporary Trade Directory Entries** Name: Gaskin V S Ltd Location: Pollington, DN14 0BA Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (NW)	439	-	460885 420492
43	**Contemporary Trade Directory Entries** Name: C P M Group Ltd Location: Balk Lane, Pollington, Goole, North Humberside, DN14 0GU Classification: Concrete Products **Status: Active** Positional Accuracy: Automatically positioned to the address	A14SW (E)	463	-	461555 420017
43	**Contemporary Trade Directory Entries** Name: Cpm Group Location: Balk Lane, Pollington, Goole, North Humberside, DN14 0GU Classification: Concrete Products **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (E)	463	-	461550 419994
44	**Contemporary Trade Directory Entries** Name: Truck Hydraulics Ltd Location: Pollington, Goole, North Humberside, DN14 0DB Classification: Hydraulic Engineers **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A8NE (SE)	514	-	461323 419648
45	**Contemporary Trade Directory Entries** Name: Hanson Packed Products Location: Balk Lane, Pollington, Goole, North Humberside, DN14 0DU Classification: Packaging Materials Manufacturers & Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	517	-	461570 419891
45	**Contemporary Trade Directory Entries** Name: J Hayward & Sons Ltd Location: Rainbow Works, Pollington, Goole, North Humberside, DN14 0DU Classification: Road Haulage Services **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A14SW (SE)	517	-	461570 419891
45	**Contemporary Trade Directory Entries** Name: Hanson Concrete Products Location: Pollington, Goole, North Humbersid, DN14 0DU Classification: Concrete Products **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A14SW (SE)	529	-	461560 419846
46	**Contemporary Trade Directory Entries** Name: Kelkay Ltd Location: Heck Lane, Pollington, Goole, North Humberside, DN14 0BA Classification: Sand, Gravel & Other Aggregates **Status: Active** Positional Accuracy: Automatically positioned to the address	A18SW (NW)	523	-	460847 420568

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
46	**Contemporary Trade Directory Entries** Name: Howarth Enviromentel Location: Building One, Pollington Airfield, Heck & Pollington Lane, Great Heck, Goole, North Humberside, DN14 0DA Classification: Wood Recycling **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (NW)	523	-	460847 420568
47	**Contemporary Trade Directory Entries** Name: Cpm Group Location: Balk La, Pollington, Goole, North Humbersid, DN14 0DU Classification: Concrete Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A14SW (E)	556	-	461655 420048
48	**Contemporary Trade Directory Entries** Name: J Hayward & Sons Of Walsall Ltd Location: Pollington, Goole, North Humberside, DN14 0DU Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A14SW (E)	571	-	461647 419940
49	**Contemporary Trade Directory Entries** Name: H H Uk Ltd Location: Heck Lane, Pollington, Goole, North Humberside, DN14 0BA Classification: Building Block Manufacturers & Distributors **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NE (W)	688	-	460462 420362
49	**Contemporary Trade Directory Entries** Name: H & H Celcon Ltd Location: Heck Lane, Pollington, Goole, DN14 0BA Classification: Builders' Merchants **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	688	-	460462 420362
50	**Contemporary Trade Directory Entries** Name: S Birkitt Location: The Pines, Main Street, Pollington, Goole, North Humberside, DN14 0DN Classification: Dairies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	773	-	461644 419560
51	**Contemporary Trade Directory Entries** Name: Anco Diesel Services Location: 1, Highfield, Pollington, Goole, North Humberside, DN14 0AY Classification: Commercial Vehicle Bodybuilders & Repairers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	786	-	461675 420650
52	**Contemporary Trade Directory Entries** Name: C G Commercials Location: Pollington, Goole, East Riding, DN14 0DZ Classification: Commercial Vehicle Dealers **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A8SW (S)	879	-	461068 419234
53	**Contemporary Trade Directory Entries** Name: Rosewood Equestrian Services Location: Old Gowdall Broach, Pollington, Goole, North Humberside, DN14 0AF Classification: Pet Foods & Animal Feeds **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	993	-	461674 420923
54	**Points of Interest - Commercial Services** Name: Lvb Logistics Location: Quarry Lodge, Pinfold Lane, Pollington, Goole, DN14 0DR Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A13SE (SE)	310	6	461360 419939
54	**Points of Interest - Commercial Services** Name: L V B Logistics Location: Quarry Lodge, Pinfold Lane, Pollington, Goole, DN14 0DR Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A13SE (SE)	310	6	461359 419939

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
55	**Points of Interest - Commercial Services** Name: Snaith Automotive Services Location: 5 West End Gardens, Pollington, Goole, DN14 0EZ Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13SE (SE)	312	6	461254 419839
56	**Points of Interest - Commercial Services** Name: Pollington Transport Co Ltd Location: The Leylands, West End, Pollington, Goole, DN14 0DP Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A8NW (S)	381	6	461085 419732
56	**Points of Interest - Commercial Services** Name: Pollington Transport Company Ltd Location: The Leylands, West End, Pollington, Goole, DN14 0DP Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A8NW (S)	382	6	461084 419731
57	**Points of Interest - Commercial Services** Name: Howarth Enviromentel Ltd Location: Building One Pollington Airfield, Heck & Pollington Lane, Great Heck, Goole, DN14 0DA Category: Recycling Services Class Code: Recycling, Reclamation and Disposal Positional Accuracy: Positioned to address or location	A18SW (NW)	523	6	460847 420568
58	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A13NE (E)	299	6	461392 420187
59	**Points of Interest - Manufacturing and Production** Name: A Sweeting & Son Location: Pollington Hall, West End, Pollington, Goole, DN14 0DP Category: Farming Class Code: Arable Farming Positional Accuracy: Positioned to address or location	A13SW (SW)	340	6	460890 419848
59	**Points of Interest - Manufacturing and Production** Name: A Sweeting & Son Location: Pollington Hall Farm, West End, Pollington, Goole, DN14 0DP Category: Farming Class Code: Arable Farming Positional Accuracy: Positioned to address or location	A13SW (SW)	341	6	460889 419847
60	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A14SW (E)	421	6	461518 420048
60	**Points of Interest - Manufacturing and Production** Name: Works Location: DN14 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to address or location	A14SW (E)	466	6	461558 420017
60	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A14SW (E)	473	6	461567 420026
61	**Points of Interest - Manufacturing and Production** Name: Tanks Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A14SW (SE)	495	6	461555 419911
61	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A14SW (SE)	504	6	461563 419907

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
61	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A14SW (SE)	510	6	461568 419905
61	**Points of Interest - Manufacturing and Production** Name: Concrete Works Location: DN14 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A14SW (E)	550	6	461613 419907
61	**Points of Interest - Manufacturing and Production** Name: Concrete Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A14SW (E)	575	6	461641 419912
62	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	601	6	460509 420204
62	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	604	6	460506 420205
62	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	608	6	460503 420206
62	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	610	6	460501 420207
62	**Points of Interest - Manufacturing and Production** Name: Works Location: DN14 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to address or location	A12NE (W)	610	6	460518 420284
62	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12NE (W)	611	6	460515 420277
62	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	613	6	460498 420208
62	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	616	6	460495 420210
62	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	619	6	460492 420211

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
62	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	622	6	460489 420211
62	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	625	6	460486 420213
62	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	629	6	460483 420214
62	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	632	6	460480 420215
62	**Points of Interest - Manufacturing and Production** Name: Tanks Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A12NE (W)	633	6	460476 420194
62	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	634	6	460478 420216
62	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	642	6	460469 420212
62	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	644	6	460468 420220
62	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	650	6	460463 420224
62	**Points of Interest - Manufacturing and Production** Name: Tanks Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A12NE (W)	655	6	460458 420222
63	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	620	6	460526 420338
63	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	621	6	460529 420347

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
63	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12NE (W)	629	6	460517 420341
63	**Points of Interest - Manufacturing and Production** Name: Tanks Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A12NE (W)	641	6	460508 420349
64	**Points of Interest - Manufacturing and Production** Name: Tank Location: DN14 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A12SE (W)	664	6	460439 420097
65	**Points of Interest - Manufacturing and Production** Name: Land at Pollington Airfield - Solar Photovoltaics (DECC) Location: Land At Pollington Airfield, Gowdall Lane, Polling, Goole, Humberside, DN14 Category: Industrial Features Class Code: Energy Production Positional Accuracy: Positioned to address or location	A18NW (N)	716	6	460940 420809
66	**Points of Interest - Public Infrastructure** Name: Howarth Enviromentel Ltd Location: Building One Pollington Airfield, Heck & Pollington Lane, Great Heck, Goole, DN14 0DA Category: Infrastructure and Facilities Class Code: Recycling Centres Positional Accuracy: Positioned to address or location	A18SW (NW)	523	6	460847 420568
67	**Points of Interest - Public Infrastructure** Name: Spoil Heap Location: DN14 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A12NW (W)	841	6	460274 420252
68	**Points of Interest - Public Infrastructure** Name: Sluice Location: DN14 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A9SW (SE)	926	6	461468 419261

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
69	**Nitrate Sensitive Areas** Name: Pollington Multiple Area: N Area (m2): 35821579.92 Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A13NE (NE)	0	8	461103 420112
70	**Nitrate Vulnerable Zones** Name: Not Supplied Description: Surface Water Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A13NE (NE)	0	8	461103 420112
71	**Nitrate Vulnerable Zones** Name: Not Supplied Description: Groundwater Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A13NE (NE)	0	8	461103 420112
72	**Nitrate Vulnerable Zones** Name: Not Supplied Description: Surface Water Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A18NE (N)	845	8	461150 420955

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Doncaster Metropolitan Borough Council - Environmental Services	April 2014	Annual Rolling Update
East Riding of Yorkshire Council - Public Protection Division	December 2014	Annual Rolling Update
Selby District Council - Environmental Health	March 2014	Annual Rolling Update
Discharge Consents		
Environment Agency - North East Region	October 2016	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - North East Region	March 2013	As notified
Integrated Pollution Controls		
Environment Agency - North East Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control		
Environment Agency - North East Region	January 2017	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Selby District Council - Environmental Health	April 2014	Annual Rolling Update
Doncaster Metropolitan Borough Council - Environmental Services	June 2014	Annual Rolling Update
East Riding of Yorkshire Council - Public Protection Division	March 2013	Annual Rolling Update
Local Authority Pollution Prevention and Controls		
Selby District Council - Environmental Health	April 2014	Annual Rolling Update
Doncaster Metropolitan Borough Council - Environmental Services	June 2014	Annual Rolling Update
East Riding of Yorkshire Council - Public Protection Division	November 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Selby District Council - Environmental Health	April 2014	Annual Rolling Update
Doncaster Metropolitan Borough Council - Environmental Services	June 2014	Annual Rolling Update
East Riding of Yorkshire Council - Public Protection Division	November 2014	Annual Rolling Update
Nearest Surface Water Feature		
Ordnance Survey	July 2012	Quarterly
Pollution Incidents to Controlled Waters		
Environment Agency - North East Region	December 1998	Not Applicable
Prosecutions Relating to Authorised Processes		
Environment Agency - North East Region	March 2013	As notified
Prosecutions Relating to Controlled Waters		
Environment Agency - North East Region	March 2013	As notified
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	July 2012	Annually
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	July 2012	Annually
Substantiated Pollution Incident Register		
Environment Agency - North East Region - Dales Area	January 2017	Quarterly
Environment Agency - North East Region - Ridings Area	January 2017	Quarterly
Environment Agency - North East Region - Yorkshire Area	January 2017	Quarterly
Water Abstractions		
Environment Agency - North East Region	October 2016	Quarterly
Water Industry Act Referrals		
Environment Agency - North East Region	January 2017	Quarterly
Groundwater Vulnerability		
Environment Agency - Head Office	April 2015	Not Applicable
Drift Deposits		
Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations		
British Geological Survey - National Geoscience Information Service	August 2015	As notified

Agency & Hydrological	Version	Update Cycle
Superficial Aquifer Designations British Geological Survey - National Geoscience Information Service	August 2015	As notified
Source Protection Zones Environment Agency - Head Office	February 2017	Quarterly
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	November 2016	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	November 2016	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	November 2016	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	November 2016	Quarterly
Flood Defences Environment Agency - Head Office	November 2016	Quarterly
Detailed River Network Lines Environment Agency - Head Office	September 2014	Annually
Detailed River Network Offline Drainage Environment Agency - Head Office	March 2012	Annually
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	October 2013	As notified
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	October 2013	As notified
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	October 2013	As notified
Surface Water Suitability Environment Agency - Head Office	October 2013	As notified
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	Annually

Data Currency

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites		
Environment Agency - Head Office	January 2017	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - North East Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - North East Region - Dales Area	August 2016	Quarterly
Environment Agency - North East Region - Ridings Area	August 2016	Quarterly
Environment Agency - North East Region - Yorkshire Area	August 2016	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - North East Region - Dales Area	October 2016	Quarterly
Environment Agency - North East Region - Ridings Area	October 2016	Quarterly
Environment Agency - North East Region - Yorkshire Area	October 2016	Quarterly
Local Authority Landfill Coverage		
Doncaster Metropolitan Borough Council - Environmental Services	May 2000	Not Applicable
East Riding of Yorkshire Council - Public Protection Division	May 2000	Not Applicable
North Yorkshire County Council	May 2000	Not Applicable
Selby District Council - Environmental Health	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
Doncaster Metropolitan Borough Council - Environmental Services	May 2000	Not Applicable
East Riding of Yorkshire Council - Public Protection Division	May 2000	Not Applicable
North Yorkshire County Council	May 2000	Not Applicable
Selby District Council - Environmental Health	May 2000	Not Applicable
Potentially Infilled Land (Non-Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Registered Landfill Sites		
Environment Agency - North East Region - Dales Area	March 2003	Not Applicable
Environment Agency - North East Region - Ridings Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - North East Region - Dales Area	March 2003	Not Applicable
Environment Agency - North East Region - Ridings Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency - North East Region - Dales Area	March 2003	Not Applicable
Environment Agency - North East Region - Ridings Area	March 2003	Not Applicable

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	July 2016	Bi-Annually
Explosive Sites		
Health and Safety Executive	September 2016	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
Selby District Council	February 2016	Annual Rolling Update
North Yorkshire County Council	October 2007	Annual Rolling Update
Doncaster Metropolitan Borough Council	October 2015	Annual Rolling Update
East Riding of Yorkshire Council	October 2015	Annual Rolling Update
Planning Hazardous Substance Consents		
Selby District Council	February 2016	Annual Rolling Update
North Yorkshire County Council	October 2007	Annual Rolling Update
Doncaster Metropolitan Borough Council	October 2015	Annual Rolling Update
East Riding of Yorkshire Council	October 2015	Annual Rolling Update

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology		
British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Estimated Soil Chemistry		
British Geological Survey - National Geoscience Information Service	October 2015	As notified
BGS Recorded Mineral Sites		
British Geological Survey - National Geoscience Information Service	October 2016	Bi-Annually
CBSCB Compensation District		
Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Coal Mining Affected Areas		
The Coal Authority - Property Searches	March 2014	As notified
Mining Instability		
Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain		
British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Compressible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Ground Dissolution Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Landslide Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Running Sand Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	Annually
Radon Potential - Radon Affected Areas		
British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures		
British Geological Survey - National Geoscience Information Service	July 2011	As notified

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	January 2017	Quarterly
Fuel Station Entries Catalist Ltd - Experian	November 2016	Quarterly
Gas Pipelines National Grid	July 2014	Quarterly
Points of Interest - Commercial Services PointX	December 2016	Quarterly
Points of Interest - Education and Health PointX	December 2016	Quarterly
Points of Interest - Manufacturing and Production PointX	December 2016	Quarterly
Points of Interest - Public Infrastructure PointX	December 2016	Quarterly
Points of Interest - Recreational and Environmental PointX	December 2016	Quarterly
Underground Electrical Cables National Grid	December 2015	Bi-Annually

Sensitive Land Use	Version	Update Cycle
Ancient Woodland Natural England	August 2016	Bi-Annually
Areas of Adopted Green Belt Doncaster Metropolitan Borough Council Selby District Council	February 2017 February 2017	As notified As notified
Areas of Unadopted Green Belt Doncaster Metropolitan Borough Council Selby District Council	February 2017 February 2017	As notified As notified
Areas of Outstanding Natural Beauty Natural England	January 2017	Bi-Annually
Environmentally Sensitive Areas Natural England	January 2017	Annually
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	January 2017	Bi-Annually
Marine Nature Reserves Natural England	January 2017	Bi-Annually
National Nature Reserves Natural England	January 2017	Bi-Annually
National Parks Natural England	February 2017	Bi-Annually
Nitrate Sensitive Areas Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	April 2016	Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	October 2015	Annually
Ramsar Sites Natural England	January 2017	Bi-Annually
Sites of Special Scientific Interest Natural England	January 2017	Bi-Annually
Special Areas of Conservation Natural England	January 2017	Bi-Annually
Special Protection Areas Natural England	January 2017	Bi-Annually
World Heritage Sites English Heritage - National Monument Record Centre	September 2015	Bi-Annually

Data Suppliers

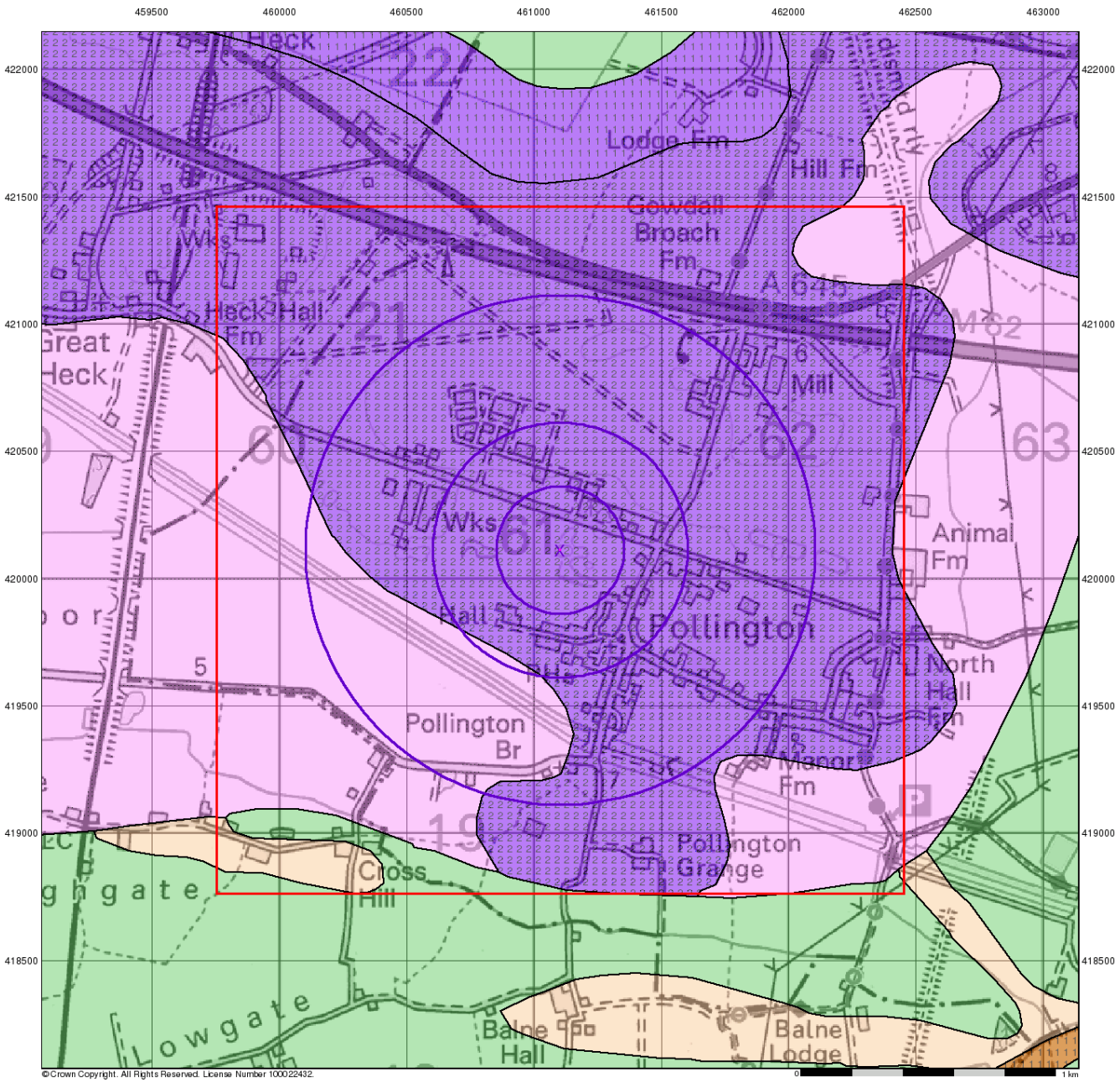
A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Peter Brett Associates	

Useful Contacts

Contact	Name and Address	Contact Details
2	**British Geological Survey - Enquiry Service** British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
3	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
4	**East Riding of Yorkshire Council - Public Protection Division** Council Offices, Church Street, GOOLE, East Riding Of Yorks, DN14 5BG	Telephone: 08457 887700 Fax: 01482 396104 Website: www.eastriding.gov.uk/
5	**The Coal Authority - Property Searches** 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG	Telephone: 0345 762 6848 Fax: 01623 637 338 Email: groundstability@coal.gov.uk
6	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
7	**Selby District Council** Civic Centre, Portholme Road, Selby, North Yorkshire, YO8 0SB	Telephone: 01757 705101 Fax: 01757 210118 Website: www.selby.gov.uk
8	**Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)** Government Buildings, Otley Road, Lawnswood, Leeds, West Yorkshire, LS16 5QT	Telephone: 0113 2613333 Fax: 0113 230 0879
9	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.



Envirocheck®

LANDMARK INFORMATION GROUP®

Groundwater Vulnerability

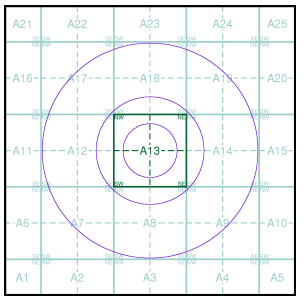
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes	Soil Classes
Major Aquifer (Highly Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Minor Aquifer (Variably Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Non Aquifer (Negligibly Permeable)	
Water or Sea	
Drift Deposit	

Site Sensitivity Context Map - Slice A



Order Details

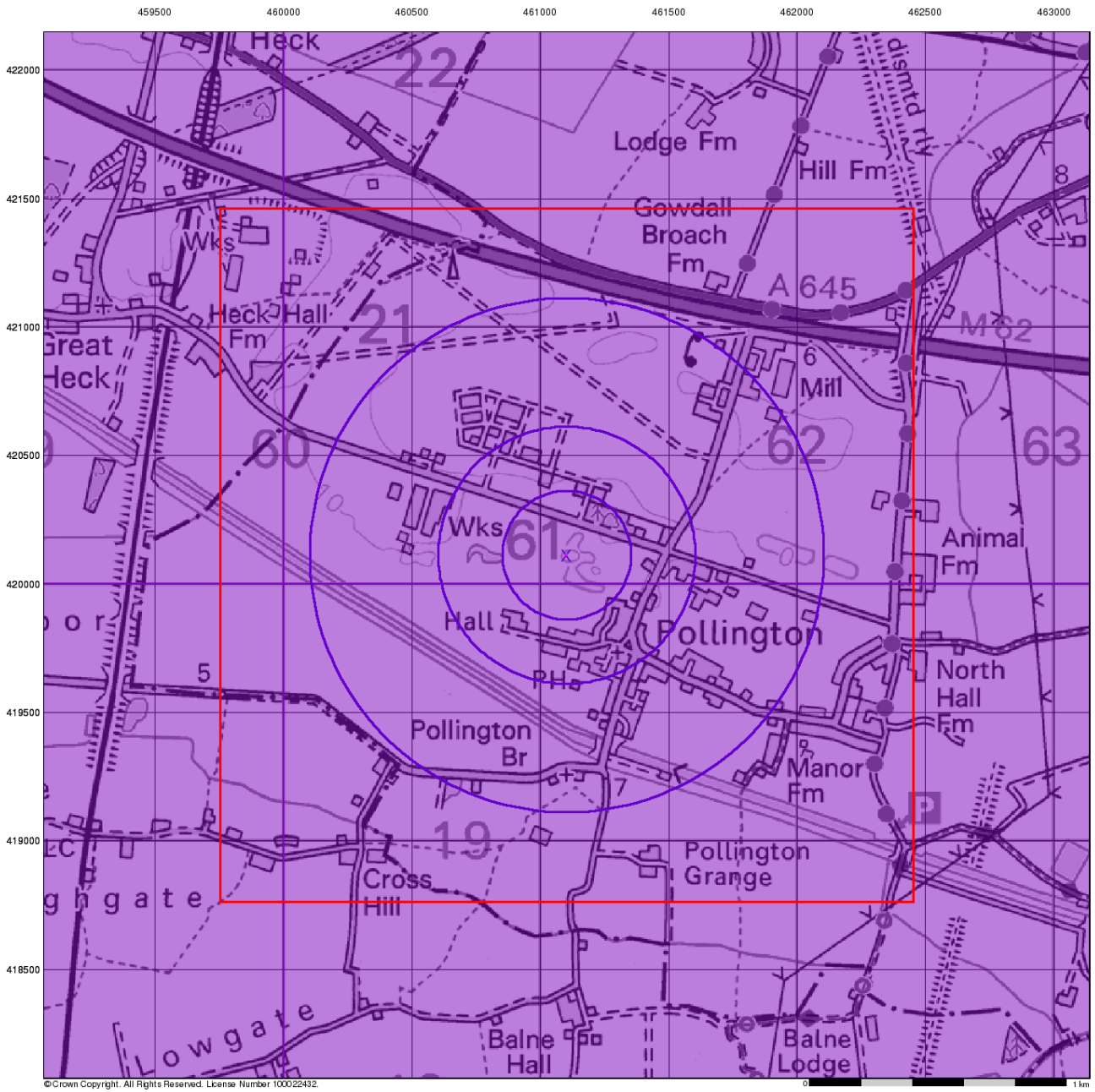
Order Number:	115060751_1_1
Customer Ref:	163407
National Grid Reference:	461100, 420110
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details

Site at 461110, 420110

Landmark® INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Envirocheck®

LANDMARK INFORMATION GROUP®

Bedrock Aquifer Designation

General

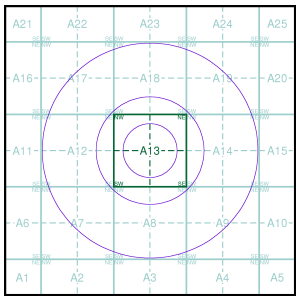
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A

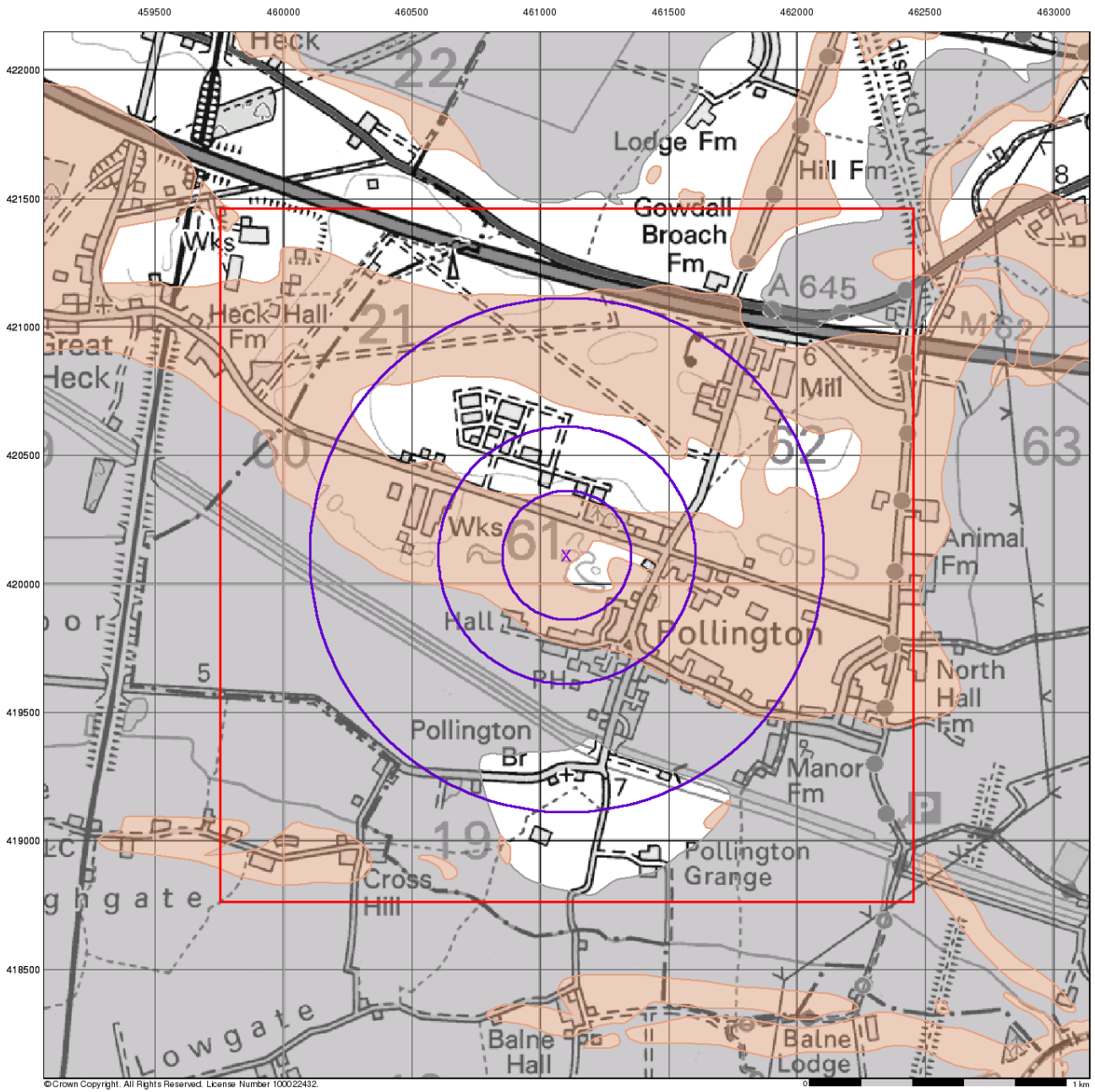


Order Details

Order Number:	115060751_1_1
Customer Ref:	163407
National Grid Reference:	461100, 420110
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details

Site at 461110, 420110



Envirocheck®

LANDMARK INFORMATION GROUP®

Superficial Aquifer Designation

General

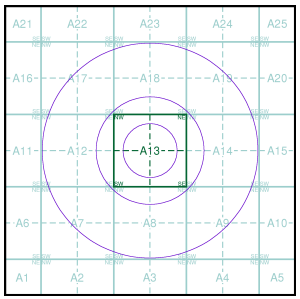
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



Order Details

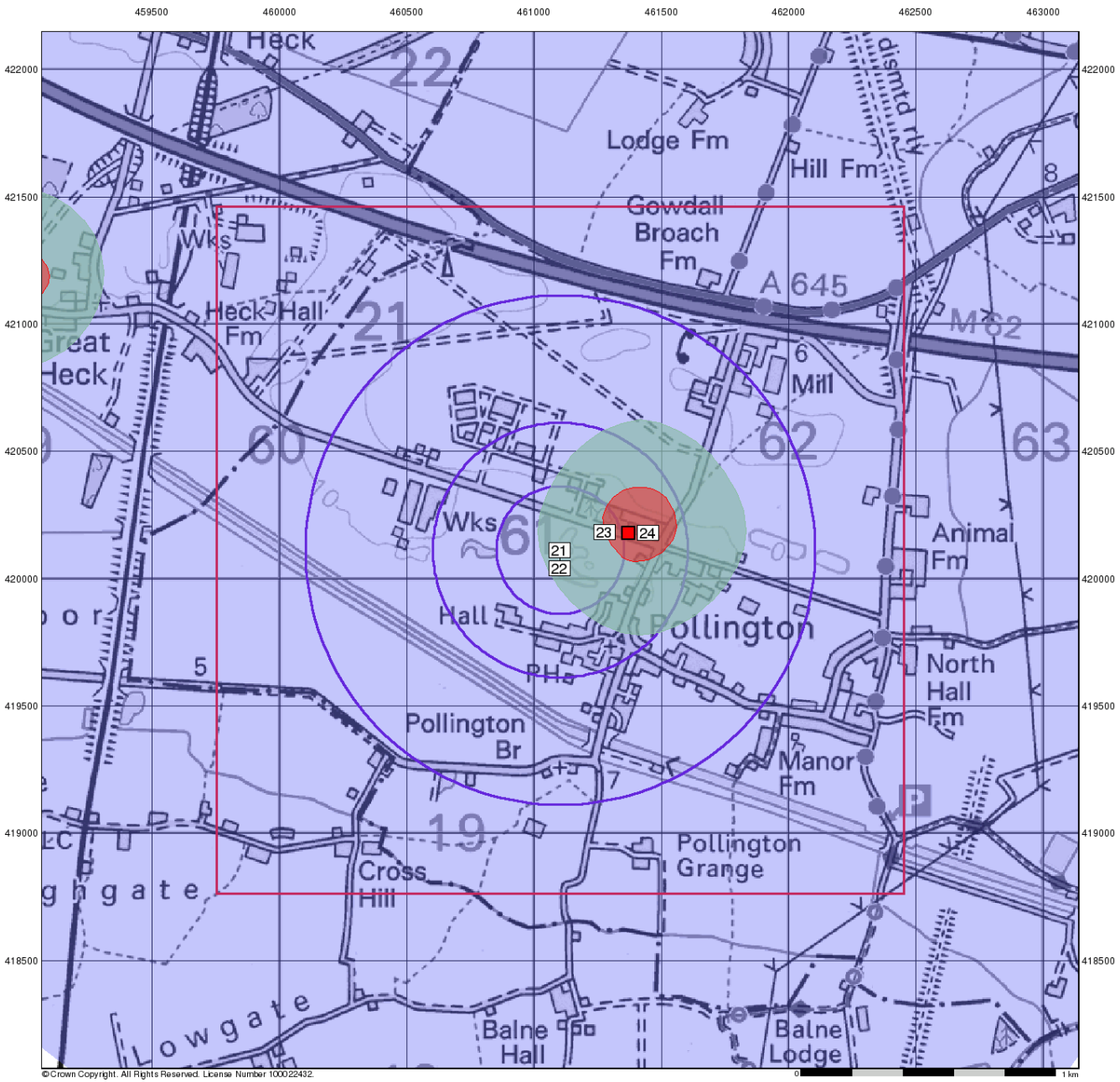
Order Number:	115060751_1_1
Customer Ref:	163407
National Grid Reference:	461100, 420110
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details

Site at 461110, 420110

Landmark® INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Envirocheck®

LANDMARK INFORMATION GROUP®

Source Protection Zones

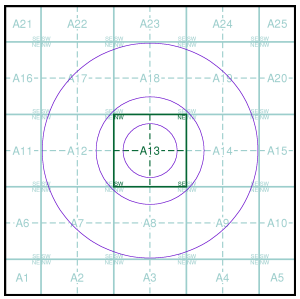
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)
- Source Protection Zone Borehole

Site Sensitivity Context Map - Slice A



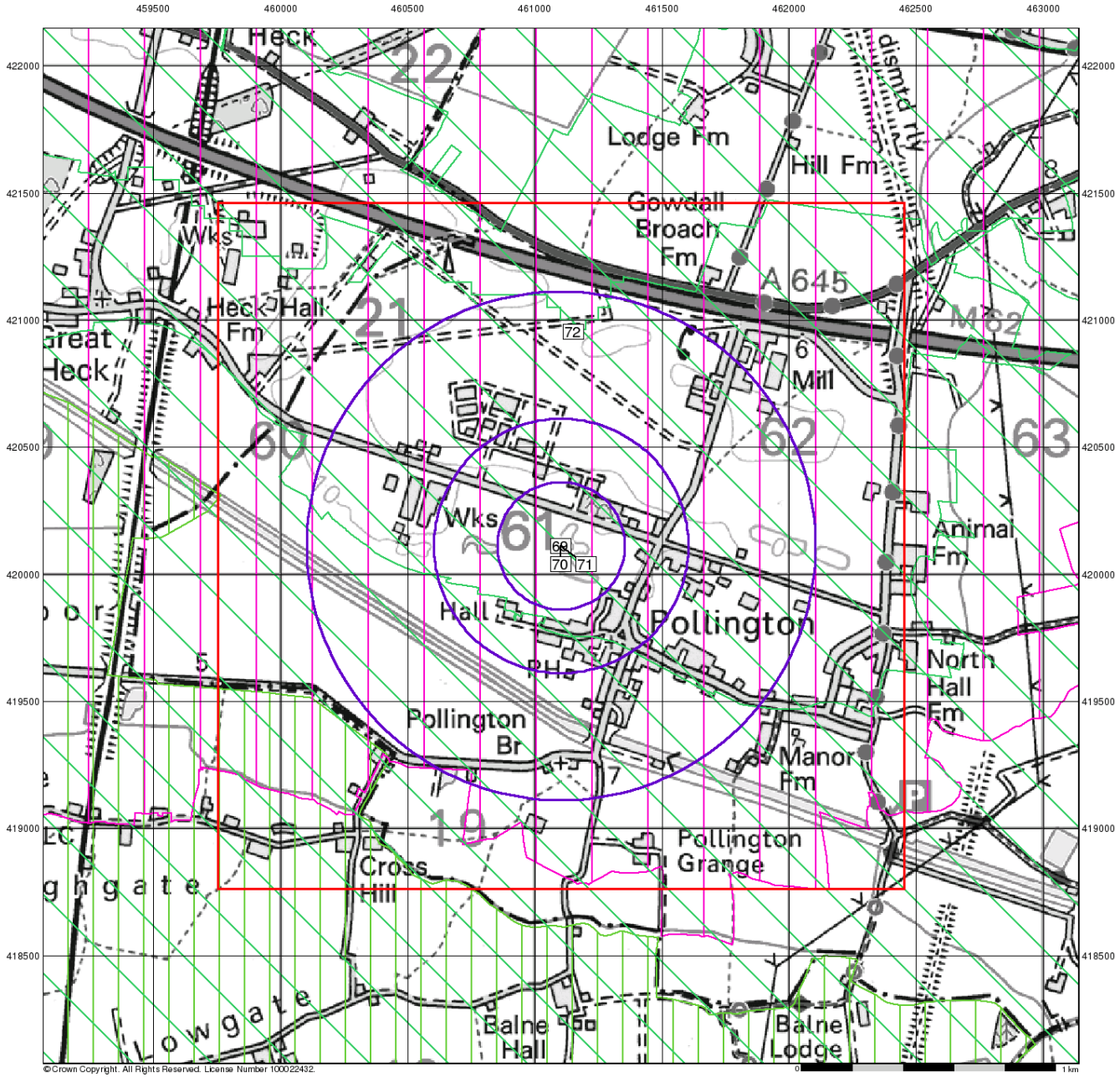
Order Details

Order Number:	115060751_1_1
Customer Ref:	163407
National Grid Reference:	461100, 420110
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details

Site at 461110, 420110

Landmark® INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Envirocheck®

LANDMARK INFORMATION GROUP®

Sensitive Land Uses

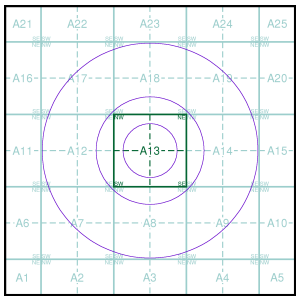
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Sensitive Land Uses

- Ancient Woodland
- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area
- World Heritage Sites

Site Sensitivity Context Map - Slice A



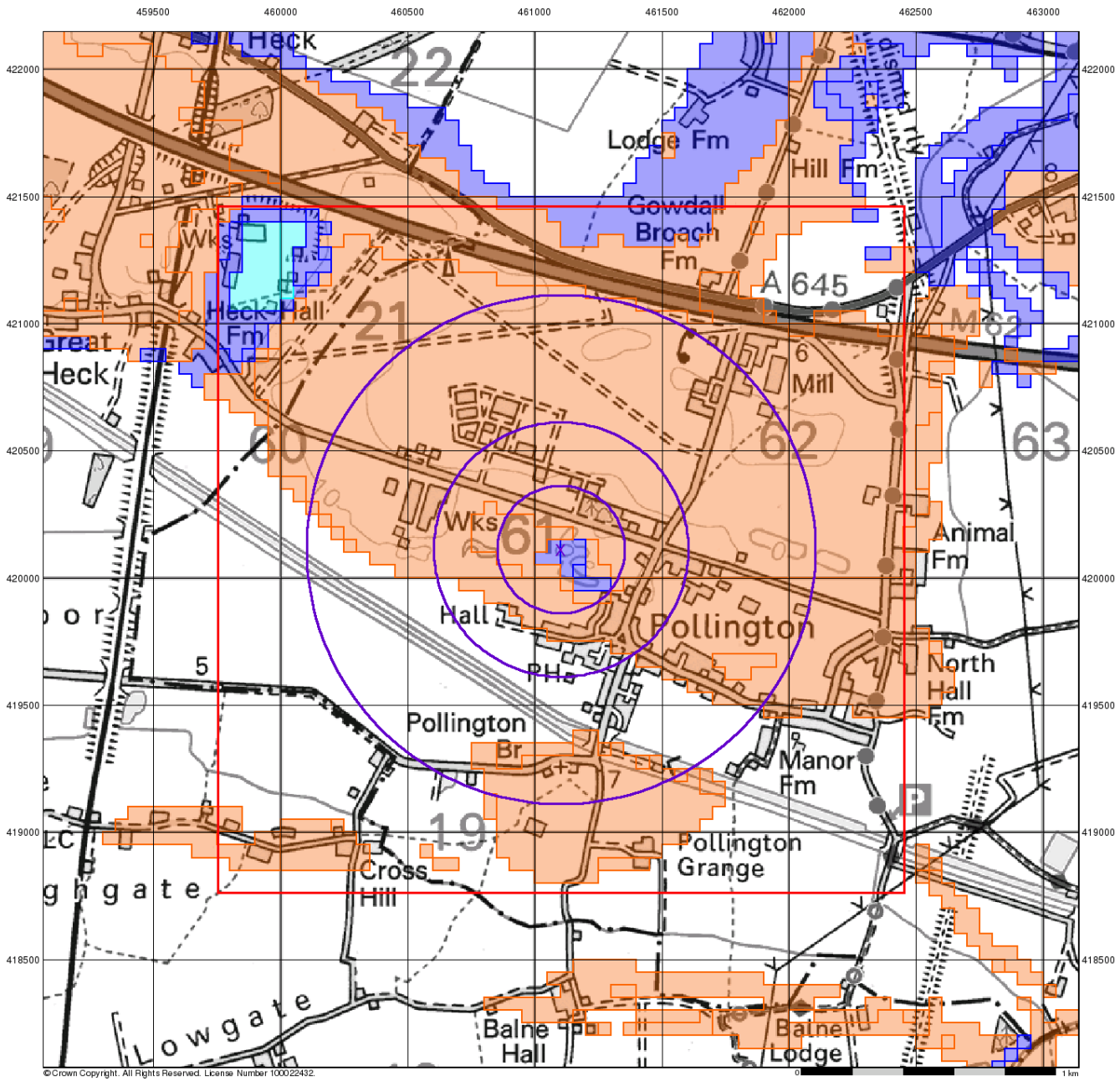
Order Details

Order Number:	115060751_1_1
Customer Ref:	163407
National Grid Reference:	461100, 420110
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details

Site at 461110, 420110

Landmark® INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Envirocheck®

LANDMARK INFORMATION GROUP®

BGS Flood GFS Data

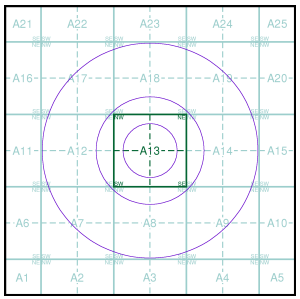
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	115060751_1_1
Customer Ref:	163407
National Grid Reference:	461100, 420110
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details

Site at 461110, 420110

Landmark® INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Geology 1:50,000 Maps Legends

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Flandrian - Flandrian
	LABD	Lacustrine Beach Deposits	Sand and Gravel	Holocene - Holocene
	BREI	Breighton Sand Formation	Sand	Devensian - Devensian
	HEM	Hemingbrough Glaciolacustrine Formation	Clay, Silty [Unlithified Deposits Coding Scheme]	Devensian - Devensian

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	SSG	Sherwood Sandstone Group	Sandstone	Ladinian - Late Permian
		Faults		

Envirocheck®

LANDMARK INFORMATION GROUP®

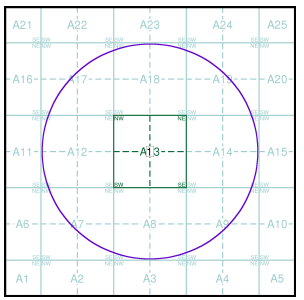
Geology 1:50,000 Maps

This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.
The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	**1**
Map Sheet No:	**079**
Map Name:	**Goole**
Map Date:	**1982**
Bedrock Geology:	**Available**
Superficial Geology:	**Available**
Artificial Geology:	**Not Available**
Faults:	**Not Supplied**
Landslip:	**Not Available**
Rock Segments:	**Not Supplied**

Geology 1:50,000 Maps - Slice A



Order Details:

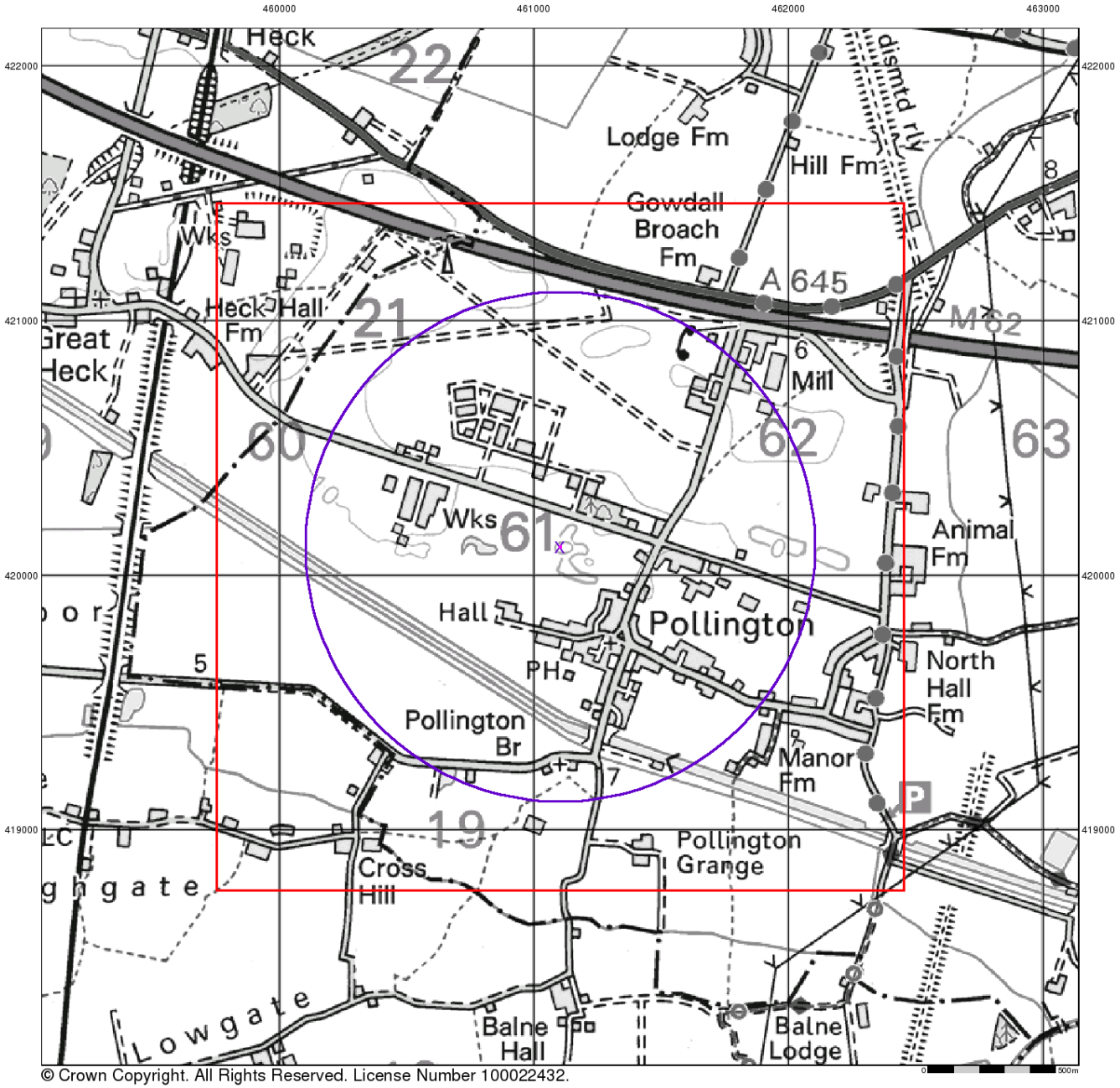
Order Number:	115060751_1_1
Customer Reference:	163407
National Grid Reference:	461100, 420110
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details:

Site at 461110, 420110

Landmark® INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Envirocheck®

LANDMARK INFORMATION GROUP®

Artificial Ground and Landslip

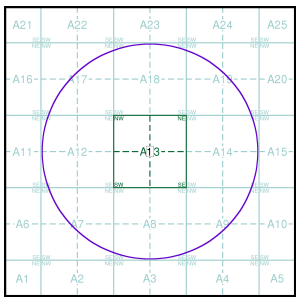
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



Order Details:

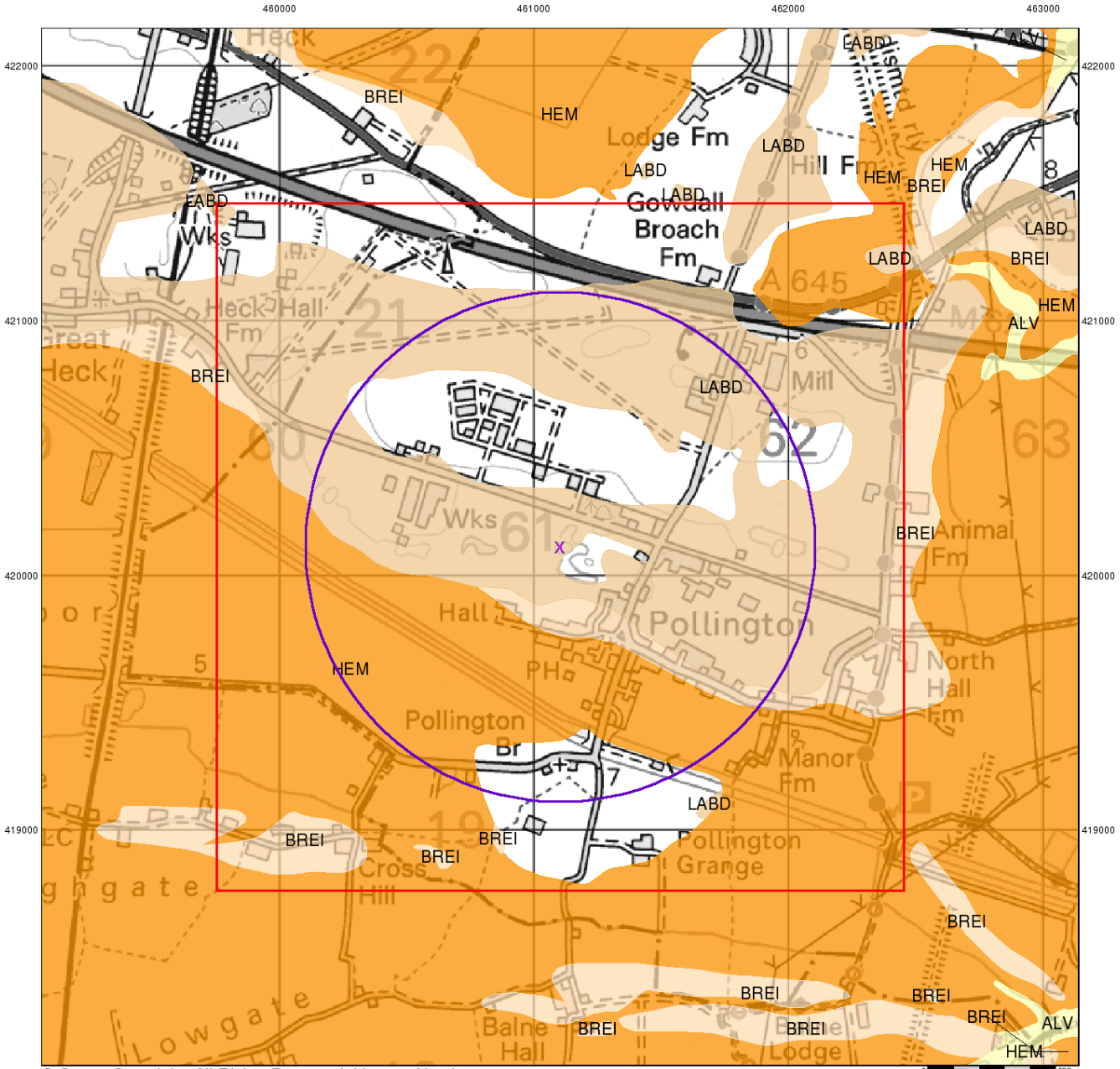
Order Number:	115060751_1_1
Customer Reference:	163407
National Grid Reference:	461100, 420110
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details:

Site at 461110, 420110

Landmark® INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Envirocheck®

LANDMARK INFORMATION GROUP®

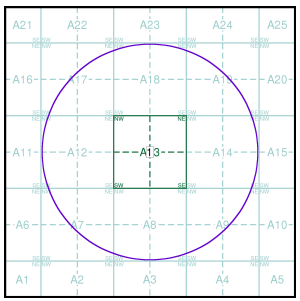
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



Order Details:

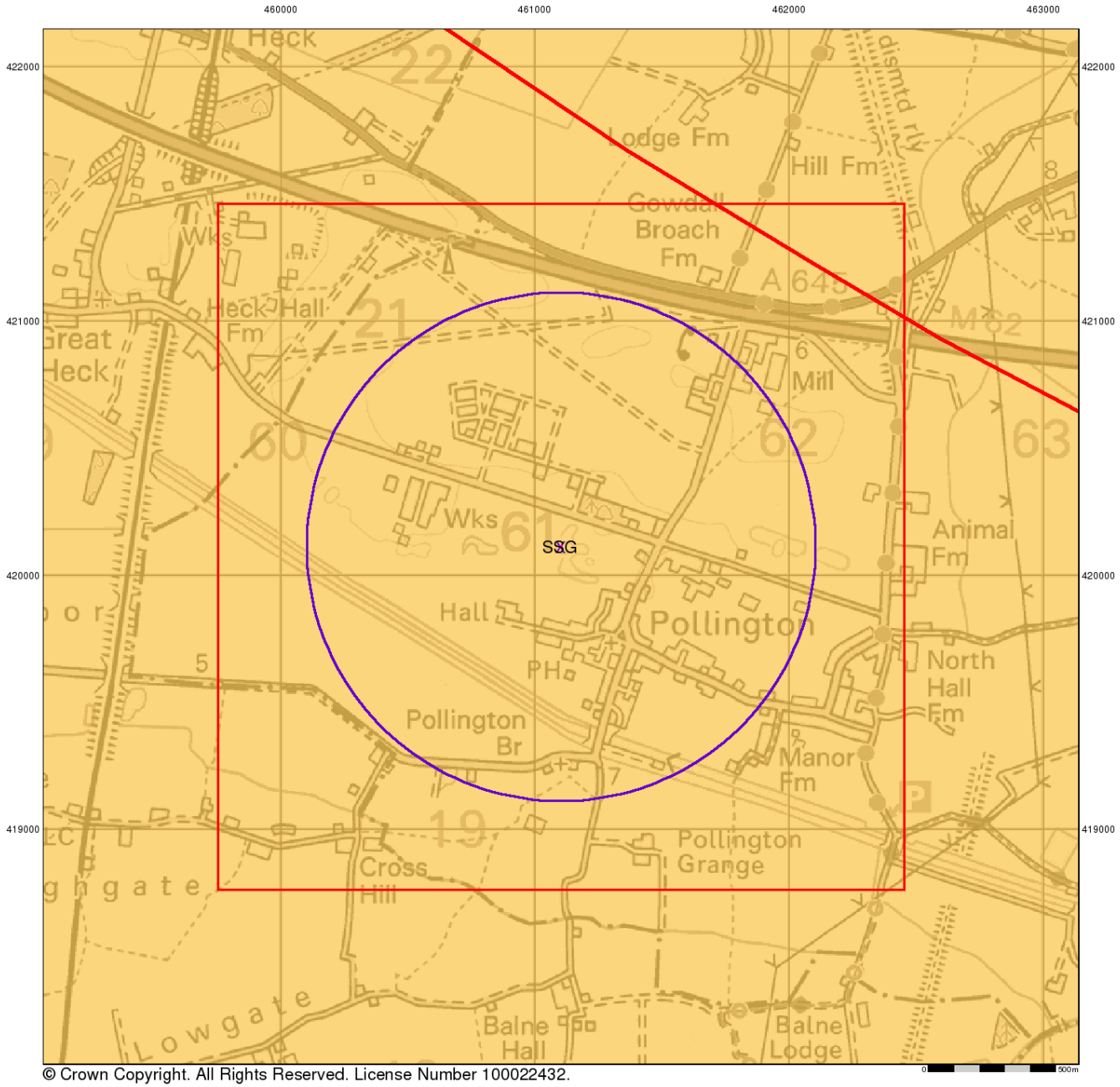
Order Number:	115060751_1_1
Customer Reference:	163407
National Grid Reference:	461100, 420110
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details:

Site at 461110, 420110

Landmark® INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Envirocheck®

LANDMARK INFORMATION GROUP®

Bedrock and Faults

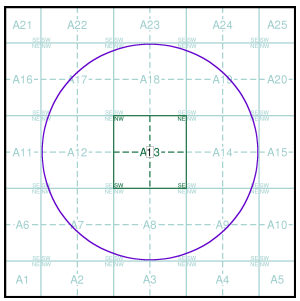
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



Order Details:

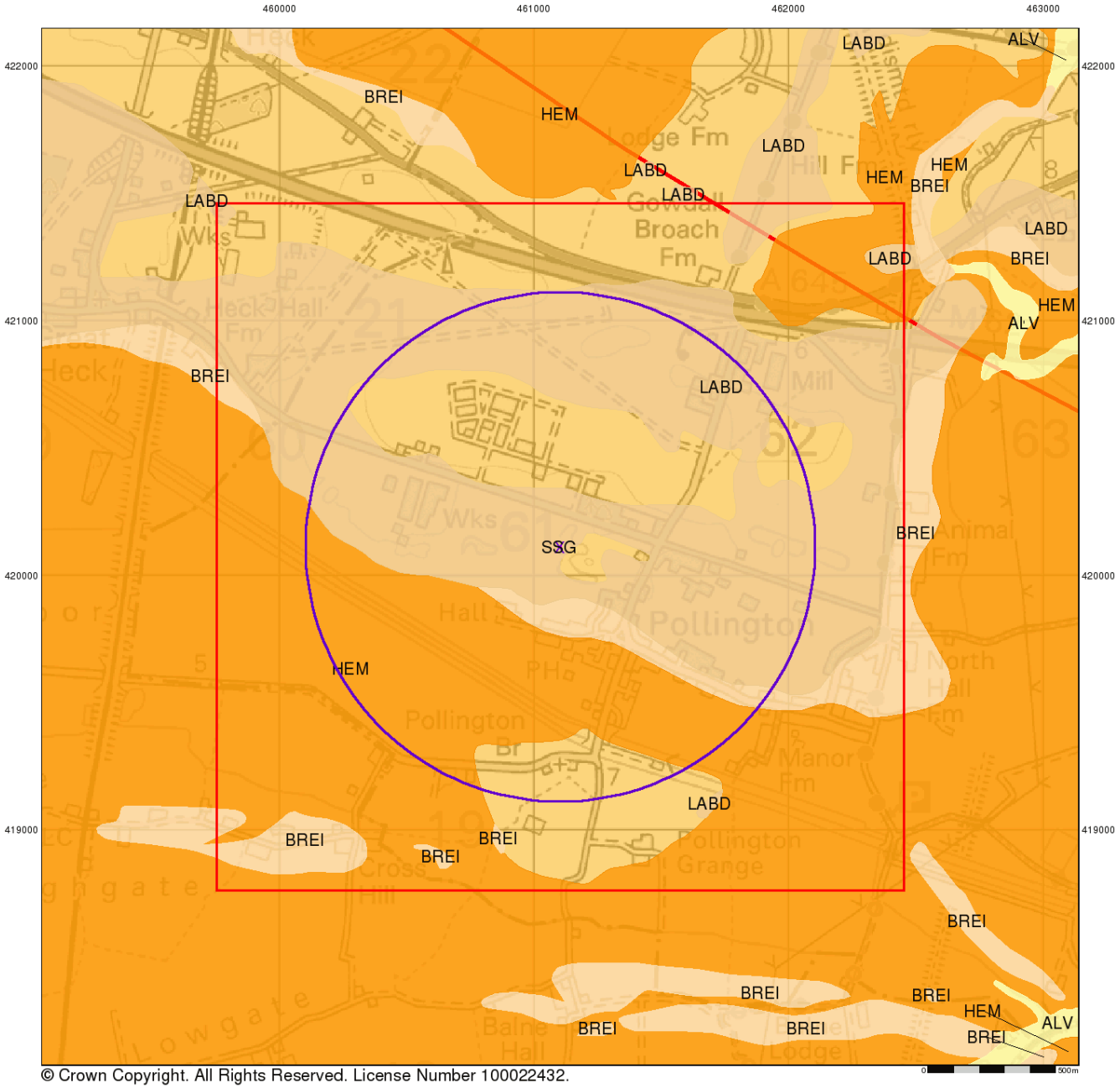
Order Number:	115060751_1_1
Customer Reference:	163407
National Grid Reference:	461100, 420110
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details:

Site at 461110, 420110

Landmark® INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Envirocheck®

LANDMARK INFORMATION GROUP®

Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

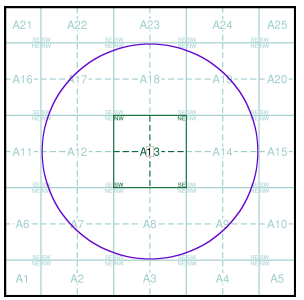
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details:

Order Number:	115060751_1_1
Customer Reference:	163407
National Grid Reference:	461100, 420110
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details:

Site at 461110, 420110

APPENDIX 3
Groundwater Quality

Project: 163407 Pollington Quarry - Consolidated BH201 Data

Client: AA Environmental Ltd								**Chemtest Job No.:**	21-00348	21-01928	21-03147	21-39537	21-41163	21-43611	22-03856	22-09639	22-22460	22-27523	22-30736	22-45073
Quotation No.: Q20-20954								**Chemtest Sample ID.:**	1121920	1129518	1135444	1317499	1325762	1337153	1364681	1391232	1449653	1471926	1486489	1551208
								Sample Location:	BH201	BH201	BH201	BH201	BH101	BH 201	BH201	BH201	BH201	BH201	BH201	BH201
								Sample Type:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
								Date Sampled:	06-Jan-2021	21-Jan-2021	02-Feb-2021	10-Nov-2021	22-Nov-2021	08-Dec-2021	02-Feb-2022	14-Mar-2022	15-Jun-2022	19-Jul-2022	10-Aug-2022	22-Nov-2022
Determinand	**Accred.**	**SOP**	**Units**	**Min**	**Max**	**Average**	**LOD**													
pH	U	1010		7.6	8.50	8.01	N/A	8.30	8.10	7.60	7.70	8.20	8.50	7.90	7.90	7.90	8.10	8.10	7.80
Electrical Conductivity	U	1020	µS/cm	630.0	1500.00	973.33	1	630.00	1300.00	1300.00	1100.00	970.00	1500.00	910.00	830.00	820.00	750.00	700.00	870.00
Biochemical Oxygen Demand	N	1090	mg O2/l	4.0	7.00	4.27	4	[B] 5.7	4.00	4.00	4.00	4.00	4.00	4.00	7.00	4.00	4.00	4.00	4.00
Chemical Oxygen Demand	U	1100	mg O2/l	10.0	23.00	12.82	10	[B] 10	10.00	23.00	10.00	10.00	15.00	10.00	12.00	11.00	10.00	13.00	17.00
Chloride	U	1220	mg/l	31.0	120.00	57.75	1	34.00	120.00	100.00	58.00	59.00	58.00	46.00	37.00	31.00	38.00	54.00	58.00
Fluoride	U	1220	mg/l	0.1	0.17	0.11	0.05	0.13	0.09	0.10	0.09	0.10	0.10	0.13	0.13	0.05	0.11	0.17	0.11
Ammoniacal Nitrogen	U	1220	mg/l	0.1	1.20	0.27	0.05	0.29	0.05	0.06	0.05	0.26	1.20	0.12	0.31	0.62	0.05	0.07	0.11
Sulphate	U	1220	mg/l	60.0	180.00	121.08	1	60.00	180.00	180.00	140.00	140.00	130.00	120.00	110.00	110.00	100.00	83.00	100.00
Cyanide (Total)	U	1300	mg/l	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Total Hardness as CaCO3	U	1270	mg/l	220.0	630.00	411.67	15	250.00	550.00	630.00	470.00	440.00	450.00	410.00	380.00	390.00	380.00	370.00	220.00
Arsenic (Dissolved)	U	1450	µg/l	0.2	22.00	2.33	1	1.00	1.10	1.00	0.33	0.28	0.30	0.20	0.20	0.68	0.27	22.00	0.56
Boron (Dissolved)	U	1450	µg/l	26.0	180.00	48.58	20	37.00	27.00	68.00	33.00	180.00	30.00	34.00	26.00	35.00	32.00	35.00	46.00
Cadmium (Dissolved)	U	1450	µg/l	0.1	1.10	0.19	0.08	0.08	0.08	0.08	0.11	0.11	0.11	0.11	0.11	0.11	0.11	1.10	0.13
Chromium (Dissolved)	U	1450	µg/l	0.5	11.00	5.98	1	2.80	10.00	11.00	7.70	7.70	7.60	6.80	0.50	6.50	6.90	3.80	0.50
Copper (Dissolved)	U	1450	µg/l	0.5	2.80	1.54	1	1.30	2.10	2.80	1.80	2.10	0.95	1.80	0.50	1.40	0.50	1.70	1.50
Mercury (Dissolved)	U	1450	µg/l	0.1	0.50	0.16	0.5	0.50	0.50	0.50	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Nickel (Dissolved)	U	1450	µg/l	0.5	3.70	0.97	1	1.00	2.30	3.70	0.50	0.66	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Lead (Dissolved)	U	1450	µg/l	0.5	6.70	1.10	1	1.00	1.00	6.70	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Selenium (Dissolved)	U	1450	µg/l	0.5	3.70	1.39	1	1.00	3.70	2.80	1.10	1.00	1.40	1.20	0.75	1.40	1.00	0.50	0.83
Vanadium (Dissolved)	U	1450	µg/l	0.5	1.00	0.64	1	1.00	1.00	1.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.63
Zinc (Dissolved)	U	1450	µg/l	2.5	120.00	18.88	1	5.60	13.00	60.00	5.60	3.80	3.20	3.50	2.50	4.30	2.50	120.00	2.50
Chromium (Hexavalent)	U	1490	µg/l	0.1	20.00	18.19	20	[B] 20	20.00	20.00	0.10	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Aliphatic TPH >C5-C6	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.1	200.00	16.76	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	200.00	0.10	0.10	0.10	0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	200.00	21.25	5	5.00	5.00	5.00	5.00	5.00	5.00	5.00	200.00	5.00	5.00	5.00	5.00
Aromatic TPH >C5-C7	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	5.00	5.00	5	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Total Petroleum Hydrocarbons	N	1675	µg/l	10.0	200.00	25.83	10	10.00	10.00	10.00	10.00	10.00	10.00	10.00	200.00	10.00	10.00	10.00	10.00
Naphthalene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Acenaphthylene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Acenaphthene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Fluorene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Phenanthrene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Anthracene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Fluoranthene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Pyrene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Benzo[a]anthracene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Chrysene	N	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Benzo[a]pyrene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Total Of 16 PAH's	N	1700	µg/l	2.0	2.00	2.00	2	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Benzene	U	1760	µg/l	1.0	1.00	1.00	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Toluene	U	1760	µg/l	1.0	1.00	1.00	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ethylbenzene	U	1760	µg/l	1.0	1.00	1.00	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
m & p-Xylene	U	1760	µg/l	1.0	1.00	1.00	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
o-Xylene	U	1760	µg/l	1.0	1.00	1.00	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Phenols	U	1920	mg/l	0.0	0.88	0.10	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.88	0.03	0.03	0.03

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd							**Chemtest Job No.:**	21-00348	21-01928	21-03147	21-39537	21-41163	21-43611	22-03856	22-09639	22-22460	22-27523	22-30736	22-45073
Quotation No.: Q20-20954							**Chemtest Sample ID.:**	1121921	1129519	1135445	1317500	1325763	1337154	1364682	1391233	1449654	1471927	1486490	1551208
							Sample Location:	BH202	BH202	BH202	BH202	BH102	BH 202	BH202	BH202	BH202	BH202	BH202	BH202
							Sample Type:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
							Date Sampled:	06-Jan-2021	21-Jan-2021	02-Feb-2021	10-Nov-2021	22-Nov-2021	08-Dec-2021	02-Feb-2022	14-Mar-2022	15-Jun-2022	19-Jul-2022	10-Aug-2022	22-Nov-2022
Determinand	**Accred.**	**SOP**	**Units**	**Min**	**Max**	**Average**	**LOD**												
pH	U	1010		7.6	8.50	7.94	N/A	8.10	8.30	7.70	7.60	8.10	8.50	7.70	7.80	7.80	7.90	7.90	7.90
Electrical Conductivity	U	1020	µS/cm	730.0	1000.00	867.50	1	920.00	860.00	810.00	1000.00	1000.00	1000.00	900.00	820.00	730.00	800.00	730.00	840.00
Biochemical Oxygen Demand	N	1090	mg O2/l	4.0	10.00	4.55	4	[B] 4.0	4.00	4.00	4.00	4.00	4.00	4.00	10.00	4.00	4.00	4.00	4.00
Chemical Oxygen Demand	U	1100	mg O2/l	10.0	17.00	12.18	10	[B] 10	10.00	17.00	10.00	10.00	17.00	10.00	13.00	11.00	10.00	10.00	16.00
Chloride	U	1220	mg/l	1.0	42.00	21.83	1	20.00	42.00	38.00	19.00	23.00	20.00	18.00	21.00	1.00	24.00	17.00	19.00
Fluoride	U	1220	mg/l	0.1	0.14	0.10	0.05	0.12	0.08	0.10	0.10	0.11	0.11	0.13	0.14	0.05	0.11	0.11	0.10
Ammoniacal Nitrogen	U	1220	mg/l	0.1	0.86	0.17	0.05	0.86	0.05	0.05	0.05	0.19	0.37	0.11	0.10	0.05	0.05	0.05	0.07
Sulphate	U	1220	mg/l	1.0	110.00	70.83	1	65.00	110.00	110.00	67.00	89.00	77.00	71.00	78.00	1.00	58.00	59.00	65.00
Cyanide (Total)	U	1300	mg/l	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Total Hardness as CaCO3	U	1270	mg/l	350.0	530.00	415.83	15	350.00	360.00	410.00	480.00	440.00	440.00	400.00	530.00	380.00	400.00	390.00	410.00
Arsenic (Dissolved)	U	1450	µg/l	0.2	8.00	1.07	1	1.00	1.00	1.00	0.28	0.20	0.20	0.20	0.20	0.30	0.20	8.00	0.26
Boron (Dissolved)	U	1450	µg/l	22.0	93.00	48.00	20	66.00	26.00	54.00	47.00	93.00	40.00	43.00	22.00	44.00	45.00	44.00	52.00
Cadmium (Dissolved)	U	1450	µg/l	0.1	0.17	0.11	0.08	0.08	0.08	0.08	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.17	0.11
Chromium (Dissolved)	U	1450	µg/l	0.5	9.90	5.54	1	4.70	8.10	9.90	8.10	7.90	7.70	6.80	1.80	0.50	6.30	4.20	0.50
Copper (Dissolved)	U	1450	µg/l	0.5	2.80	1.55	1	1.40	1.60	1.70	2.60	2.60	1.70	2.80	0.50	0.89	0.67	0.66	1.50
Mercury (Dissolved)	U	1450	µg/l	0.1	0.50	0.16	0.5	0.50	0.50	0.50	0.05	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.05
Nickel (Dissolved)	U	1450	µg/l	0.5	2.70	0.89	1	1.00	1.30	1.30	0.57	0.50	0.50	0.79	2.70	0.50	0.50	0.50	0.50
Lead (Dissolved)	U	1450	µg/l	0.5	5.90	1.08	1	1.00	1.00	1.00	0.50	0.50	0.50	0.50	5.90	0.50	0.50	0.50	0.50
Selenium (Dissolved)	U	1450	µg/l	0.5	5.90	1.26	1	1.00	5.90	3.10	0.54	0.50	0.50	0.50	0.50	0.83	0.50	0.50	0.76
Vanadium (Dissolved)	U	1450	µg/l	0.5	1.00	0.63	1	1.00	1.00	1.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Zinc (Dissolved)	U	1450	µg/l	2.5	190.00	32.23	1	34.00	11.00	9.90	27.00	20.00	20.00	22.00	190.00	15.00	3.40	32.00	2.50
Chromium (Hexavalent)	U	1490	µg/l	0.1	20.00	18.19	20	[B] 20	20.00	20.00	0.10	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Aliphatic TPH >C5-C6	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	5.00	5.00	5	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Aromatic TPH >C5-C7	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	5.00	5.00	5	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Total Petroleum Hydrocarbons	N	1675	µg/l	10.0	10.00	10.00	10	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Naphthalene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Acenaphthylene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Acenaphthene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Fluorene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Phenanthrene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Anthracene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Fluoranthene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Pyrene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Benzo[a]anthracene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Chrysene	N	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Benzo[a]pyrene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.1	0.10	0.10	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Total Of 16 PAH's	N	1700	µg/l	2.0	2.00	2.00	2	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Benzene	U	1760	µg/l	1.0	1.00	1.00	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Toluene	U	1760	µg/l	1.0	1.00	1.00	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ethylbenzene	U	1760	µg/l	1.0	1.00	1.00	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
m & p-Xylene	U	1760	µg/l	1.0	1.00	1.00	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
o-Xylene	U	1760	µg/l	1.0	1.00	1.00	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Phenols	U	1920	mg/l	0.0	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd							**Chemtest Job No.:**	21-00348	21-01928	21-03147	21-39537	21-41163	21-43611	22-03856	22-09639	22-22460	22-27523	22-30736	22-45073
Quotation No.: Q20-20954							**Chemtest Sample ID.:**	1121922	1129520	1135446	1317501	1325764	1337155	1364683	1391234	1449655	1471928	1486491	1551210
							Sample Location:	BH203	BH203	BH203	BH203	BH103	BH 203	BH203	BH203	BH203	BH203	BH203	BH203
							Sample Type:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
							Date Sampled:	06-Jan-2021	21-Jan-2021	02-Feb-2021	10-Nov-2021	22-Nov-2021	08-Dec-2021	02-Feb-2022	14-Mar-2022	15-Jun-2022	19-Jul-2022	10-Aug-2022	22-Nov-2022
Determinand	**Accred.**	**SOP**	**Units**	**Min**	**Max**	**Average**	**LOD**												
pH	U	1010		7.6	8.60	8.14	N/A	8.30	8.40	8.20	7.80	8.40	8.60	8.00	8.00	7.60	8.10	8.20	8.10
Electrical Conductivity	U	1020	µS/cm	270.0	760.00	527.50	1	620.00	310.00	270.00	690.00	760.00	610.00	540.00	500.00	610.00	490.00	420.00	510.00
Biochemical Oxygen Demand	N	1090	mg O2/l	4.0	4.00	4.00	4	[B] 4.0	*4.00*	*4.00*	*4.00*	*4.00*	*4.00*	*4.00*	*4.00*	*4.00*	*4.00*	*4.00*	*4.00*
Chemical Oxygen Demand	U	1100	mg O2/l	10.0	18.00	11.91	10	[B] 10	*10.00*	*10.00*	15.00	*10.00*	18.00	*10.00*	12.00	*10.00*	*10.00*	*10.00*	16.00
Chloride	U	1220	mg/l	1.0	28.00	13.03	1	16.00	7.20	8.50	21.00	28.00	19.00	11.00	12.00	*1.00*	13.00	9.70	10.00
Fluoride	U	1220	mg/l	0.1	0.36	0.12	0.05	0.11	0.08	0.09	0.09	0.10	0.10	0.12	0.36	*0.05*	0.11	0.11	0.09
Ammoniacal Nitrogen	U	1220	mg/l	0.1	0.44	0.18	0.05	0.30	0.08	0.44	*0.05*	0.25	0.32	0.27	0.08	*0.05*	*0.05*	0.08	0.14
Sulphate	U	1220	mg/l	1.0	95.00	37.33	1	58.00	7.80	6.20	73.00	95.00	54.00	32.00	36.00	*1.00*	34.00	22.00	29.00
Cyanide (Total)	U	1300	mg/l	0.1	0.05	0.05	0.05	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*
Total Hardness as CaCO3	U	1270	mg/l	15.0	230.00	184.58	15	210.00	120.00	140.00	230.00	220.00	230.00	200.00	210.00	200.00	230.00	210.00	*15.00*
Arsenic (Dissolved)	U	1450	µg/l	0.9	6.10	1.73	1	1.60	2.30	1.90	1.10	1.20	1.10	1.10	*0.91*	1.20	*1.00*	6.10	1.30
Boron (Dissolved)	U	1450	µg/l	20.0	81.00	44.00	20	80.00	*20.00*	42.00	42.00	81.00	38.00	37.00	33.00	37.00	40.00	34.00	44.00
Cadmium (Dissolved)	U	1450	µg/l	0.1	0.11	0.10	0.08	*0.08*	*0.08*	*0.08*	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Chromium (Dissolved)	U	1450	µg/l	0.5	8.40	4.97	1	2.90	7.50	8.40	7.90	7.50	7.20	5.10	*0.50*	*0.50*	7.40	4.20	*0.50*
Copper (Dissolved)	U	1450	µg/l	0.8	8.60	3.18	1	3.30	1.90	2.10	7.80	8.60	4.00	2.90	1.60	1.40	2.40	*0.81*	1.40
Mercury (Dissolved)	U	1450	µg/l	0.1	0.50	0.16	0.5	*0.50*	*0.50*	*0.50*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*
Nickel (Dissolved)	U	1450	µg/l	0.5	1.00	0.67	1	*1.00*	*1.00*	*1.00*	*0.77*	*0.71*	*0.53*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*
Lead (Dissolved)	U	1450	µg/l	0.5	1.00	0.63	1	*1.00*	*1.00*	*1.00*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*
Selenium (Dissolved)	U	1450	µg/l	0.5	1.00	0.63	1	*1.00*	*1.00*	*1.00*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*
Vanadium (Dissolved)	U	1450	µg/l	0.5	1.00	0.63	1	*1.00*	*1.00*	*1.00*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*
Zinc (Dissolved)	U	1450	µg/l	2.5	13.00	4.68	1	7.40	5.70	4.00	3.50	2.50	4.50	2.60	2.80	4.70	2.50	13.00	2.90
Chromium (Hexavalent)	U	1490	µg/l	0.1	20.00	18.19	20	[B] 20	*20.00*	*20.00*	*0.10*	*20.00*	*20.00*	*20.00*	*20.00*	*20.00*	*20.00*	*20.00*	*20.00*
Aliphatic TPH >C5-C6	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aliphatic TPH >C6-C8	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aliphatic TPH >C8-C10	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aliphatic TPH >C10-C12	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aliphatic TPH >C12-C16	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aliphatic TPH >C16-C21	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aliphatic TPH >C21-C35	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aliphatic TPH >C35-C44	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	5.00	5.00	5	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*
Aromatic TPH >C5-C7	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aromatic TPH >C7-C8	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aromatic TPH >C8-C10	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aromatic TPH >C10-C12	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aromatic TPH >C12-C16	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aromatic TPH >C16-C21	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aromatic TPH >C21-C35	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aromatic TPH >C35-C44	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	5.00	5.00	5	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*
Total Petroleum Hydrocarbons	N	1675	µg/l	10.0	10.00	10.00	10	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*
Naphthalene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Acenaphthylene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Acenaphthene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Fluorene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Phenanthrene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Anthracene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Fluoranthene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Pyrene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Benzo[a]anthracene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Chrysene	N	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Benzo[b]fluoranthene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Benzo[k]fluoranthene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Benzo[a]pyrene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Dibenz(a,h)Anthracene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Benzo[g,h,i]perylene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Total Of 16 PAH's	N	1700	µg/l	2.0	2.00	2.00	2	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*
Benzene	U	1760	µg/l	1.0	1.00	1.00	1	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Toluene	U	1760	µg/l	1.0	1.00	1.00	1	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Ethylbenzene	U	1760	µg/l	1.0	1.00	1.00	1	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
m & p-Xylene	U	1760	µg/l	1.0	1.00	1.00	1	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
o-Xylene	U	1760	µg/l	1.0	1.00	1.00	1	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Total Phenols	U	1920	mg/l	0.0	0.03	0.03	0.03	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*

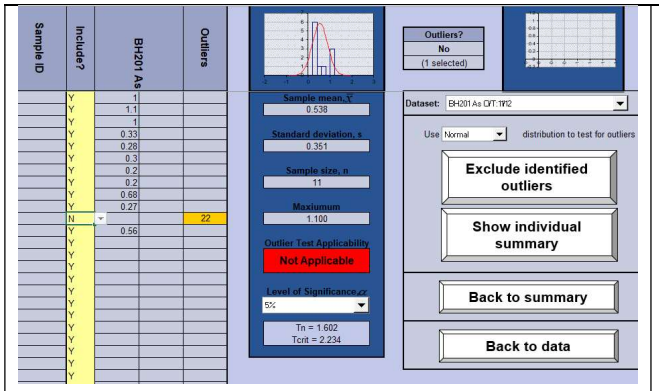
Project: 163407 Pollington Quarry

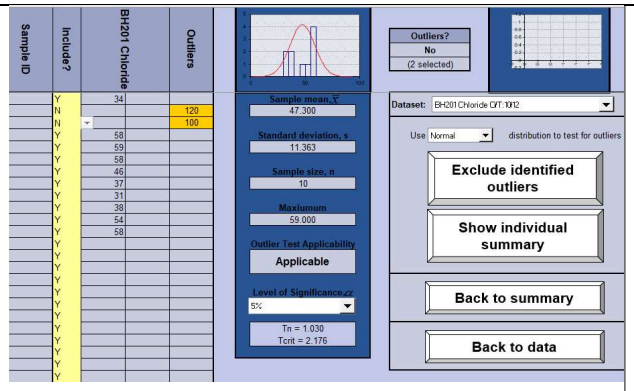
Client: AA Environmental Ltd							Chemtest Job No.:	21-00348	21-01928	21-03147	21-39537	21-41163	21-43611	22-03856	22-09639	22-22460	22-27523	22-30736	22-45073
Quotation No.: Q20-20954							Chemtest Sample ID.:	1121923	1129521	1135447	1317502	1325765	1337156	1364684	1391235	1449656	1471929	1486492	1551211
							Sample Location:	BH204	BH204	BH204	BH204	BH104	BH 204	BH204	BH204	BH204	BH204	BH204	BH204
							Sample Type:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
							Date Sampled:	06-Jan-2021	21-Jan-2021	02-Feb-2021	10-Nov-2021	22-Nov-2021	08-Dec-2021	02-Feb-2022	14-Mar-2022	15-Jun-2022	19-Jul-2022	10-Aug-2022	22-Nov-2022
Determinand	**Accred.**	**SOP**	**Units**	**Min**	**Max**	**Average**	**LOD**												
pH	U	1010		7.0	8.50	7.99	N/A	8.10	8.20	7.80	7.70	8.40	8.50	7.90	8.00	7.00	8.00	8.20	8.10
Electrical Conductivity	U	1020	µS/cm	570.0	900.00	802.50	1	800.00	810.00	870.00	870.00	890.00	900.00	790.00	780.00	570.00	830.00	680.00	840.00
Biochemical Oxygen Demand	N	1090	mg O2/l	4.0	5.00	4.18	4	[B] 4.0	*4.00*	*4.00*	*4.00*	*4.00*	*4.00*	*4.00*	5.00	5.00	*4.00*	*4.00*	*4.00*
Chemical Oxygen Demand	U	1100	mg O2/l	10.0	17.00	11.18	10	[B] 10	*10.00*	*10.00*	*10.00*	*10.00*	14.00	*10.00*	*10.00*	12.00	*10.00*	*10.00*	17.00
Chloride	U	1220	mg/l	1.0	55.00	29.92	1	23.00	48.00	55.00	25.00	34.00	31.00	31.00	30.00	*1.00*	32.00	23.00	26.00
Fluoride	U	1220	mg/l	0.1	0.55	0.14	0.05	0.12	0.09	0.10	0.10	0.10	0.10	0.12	0.55	*0.05*	0.11	0.10	0.10
Ammoniacal Nitrogen	U	1220	mg/l	0.1	0.61	0.19	0.05	0.20	*0.05*	0.15	*0.05*	0.30	0.25	0.27	0.61	*0.05*	0.12	0.09	0.10
Sulphate	U	1220	mg/l	1.0	130.00	93.75	1	82.00	120.00	130.00	97.00	130.00	120.00	96.00	95.00	*1.00*	80.00	81.00	93.00
Cyanide (Total)	U	1300	mg/l	0.1	0.27	0.07	0.05	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	0.27	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*
Total Hardness as CaCO3	U	1270	mg/l	15.0	440.00	356.25	15	300.00	330.00	390.00	420.00	370.00	420.00	370.00	400.00	410.00	440.00	410.00	*15.00*
Arsenic (Dissolved)	U	1450	µg/l	0.4	4.10	1.07	1	*1.00*	1.20	1.20	*0.51*	*0.46*	*0.58*	*0.44*	1.50	*0.82*	*0.47*	4.10	*0.60*
Boron (Dissolved)	U	1450	µg/l	21.0	73.00	44.17	20	72.00	21.00	41.00	40.00	73.00	43.00	37.00	34.00	38.00	42.00	39.00	50.00
Cadmium (Dissolved)	U	1450	µg/l	0.1	1.50	0.24	0.08	*0.08*	*0.08*	*0.08*	0.11	0.11	0.11	0.11	0.39	1.50	0.11	0.11	0.11
Chromium (Dissolved)	U	1450	µg/l	0.5	17.00	6.30	1	3.30	8.60	9.00	8.50	8.00	8.40	6.90	*0.50*	17.00	*0.54*	4.40	*0.50*
Copper (Dissolved)	U	1450	µg/l	0.5	2.50	1.58	1	1.90	2.20	1.80	2.00	2.00	2.00	1.70	*0.50*	2.50	*0.93*	*0.50*	*0.87*
Mercury (Dissolved)	U	1450	µg/l	0.1	0.50	0.16	0.5	*0.50*	*0.50*	*0.50*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*
Nickel (Dissolved)	U	1450	µg/l	0.5	6.40	1.32	1	*1.00*	*1.00*	1.30	*0.56*	*0.50*	*0.93*	*0.90*	1.80	6.40	*0.50*	*0.50*	*0.50*
Lead (Dissolved)	U	1450	µg/l	0.5	6.40	1.35	1	*1.00*	*1.00*	*1.00*	*0.50*	*0.50*	*0.50*	*0.50*	3.30	6.40	*0.50*	*0.50*	*0.50*
Selenium (Dissolved)	U	1450	µg/l	0.5	5.90	1.70	1	1.10	3.30	2.70	*0.83*	*0.62*	*0.58*	*0.81*	5.90	2.30	*0.50*	*0.50*	1.20
Vanadium (Dissolved)	U	1450	µg/l	0.5	2.50	0.89	1	*1.00*	*1.00*	*1.00*	*0.50*	*0.50*	*0.50*	*0.50*	2.50	1.70	*0.50*	*0.50*	*0.50*
Zinc (Dissolved)	U	1450	µg/l	2.5	88.00	26.15	1	19.00	8.20	12.00	16.00	2.60	24.00	88.00	46.00	79.00	2.50	14.00	2.50
Chromium (Hexavalent)	U	1490	µg/l	0.1	20.00	18.19	20	[B] 20	*20.00*	*20.00*	*0.14*	*20.00*	*20.00*	*20.00*	*20.00*	*20.00*	*20.00*	*20.00*	*20.00*
Aliphatic TPH >C5-C6	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aliphatic TPH >C6-C8	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aliphatic TPH >C8-C10	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aliphatic TPH >C10-C12	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aliphatic TPH >C12-C16	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aliphatic TPH >C16-C21	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aliphatic TPH >C21-C35	N	1675	µg/l	0.1	250.00	20.93	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	250.00	*0.10*	*0.10*	*0.10*	*0.10*
Aliphatic TPH >C35-C44	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	250.00	25.42	5	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	250.00	*5.00*	*5.00*	*5.00*	*5.00*
Aromatic TPH >C5-C7	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aromatic TPH >C7-C8	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aromatic TPH >C8-C10	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aromatic TPH >C10-C12	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aromatic TPH >C12-C16	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aromatic TPH >C16-C21	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aromatic TPH >C21-C35	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Aromatic TPH >C35-C44	N	1675	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	5.00	5.00	5	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*
Total Petroleum Hydrocarbons	N	1675	µg/l	10.0	250.00	30.00	10	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*	*10.00*	250.00	*10.00*	*10.00*	*10.00*	*10.00*
Naphthalene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Acenaphthylene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Acenaphthene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Fluorene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Phenanthrene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Anthracene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Fluoranthene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Pyrene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Benzo[a]anthracene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Chrysene	N	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Benzo[b]fluoranthene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Benzo[k]fluoranthene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Benzo[a]pyrene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Dibenz(a,h)Anthracene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Benzo[g,h,i]perylene	U	1700	µg/l	0.1	0.10	0.10	0.1	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*	*0.10*
Total Of 16 PAH's	N	1700	µg/l	2.0	2.00	2.00	2	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*	*2.00*
Benzene	U	1760	µg/l	1.0	1.00	1.00	1	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Toluene	U	1760	µg/l	1.0	1.00	1.00	1	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Ethylbenzene	U	1760	µg/l	1.0	1.00	1.00	1	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
m & p-Xylene	U	1760	µg/l	1.0	1.00	1.00	1	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
o-Xylene	U	1760	µg/l	1.0	1.00	1.00	1	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Total Phenols	U	1920	mg/l	0.0	0.04	0.03	0.03	*0.03*	0.04	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*

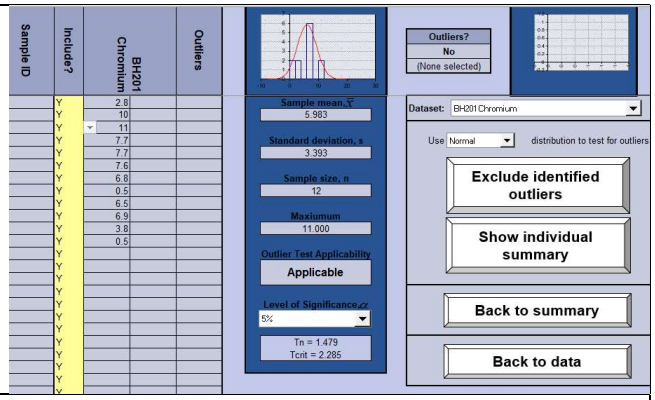
APPENDIX 4

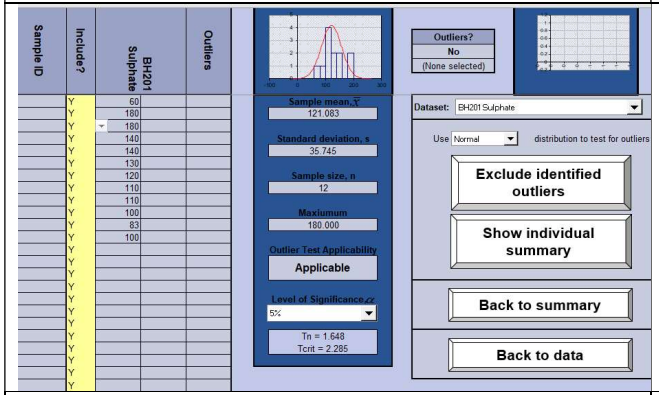
ESI Spreadsheet Outputs

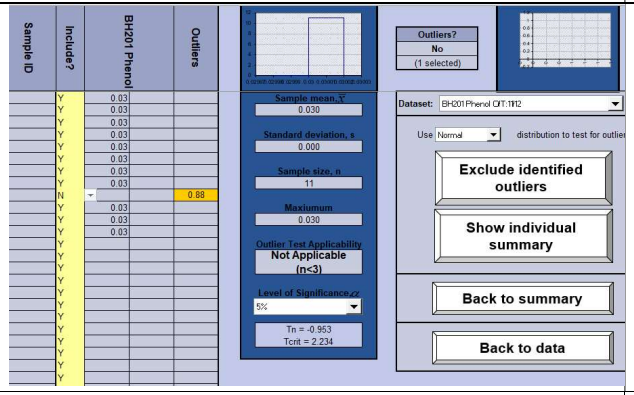
Statistical analysis of groundwater quality data for BH201, using the ESI Statistics calculator



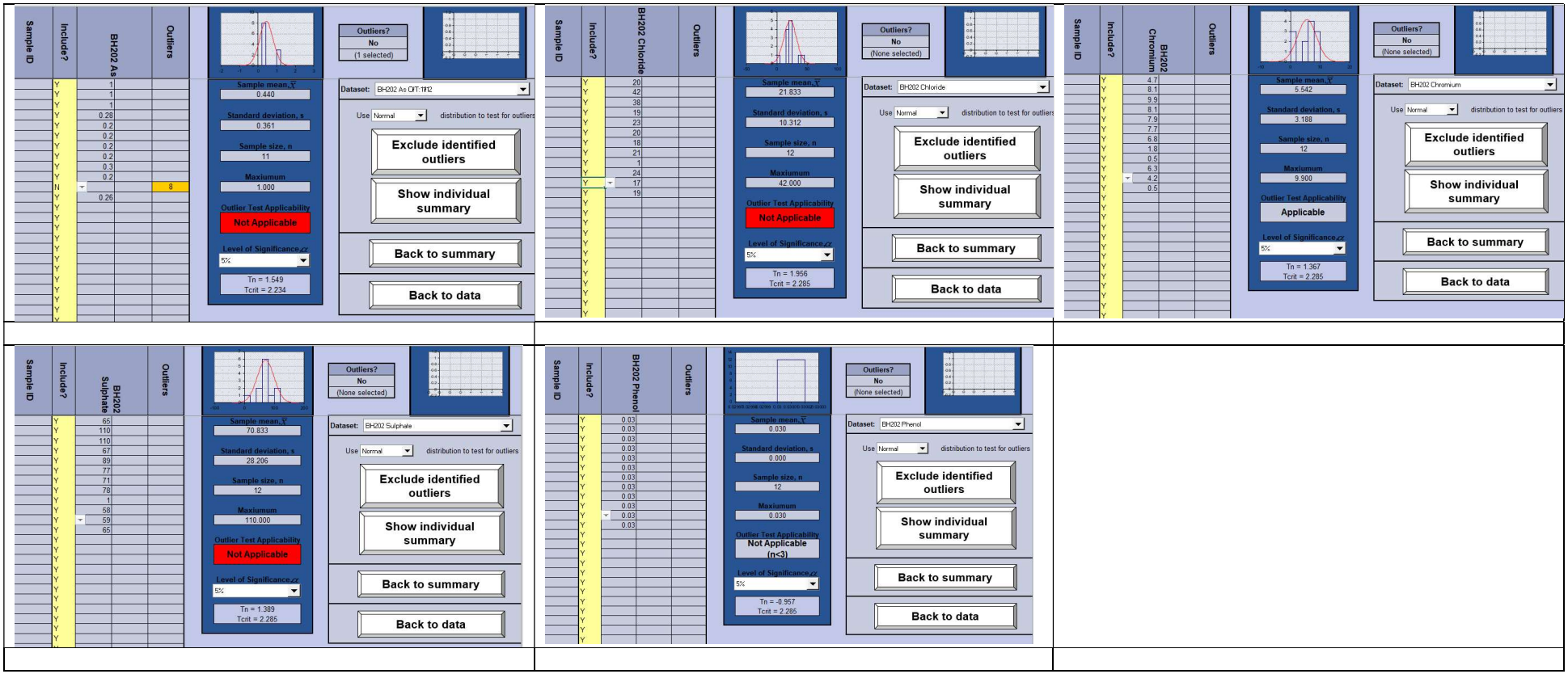




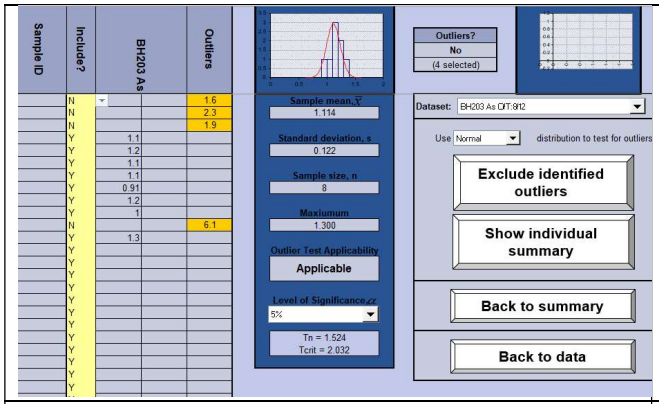


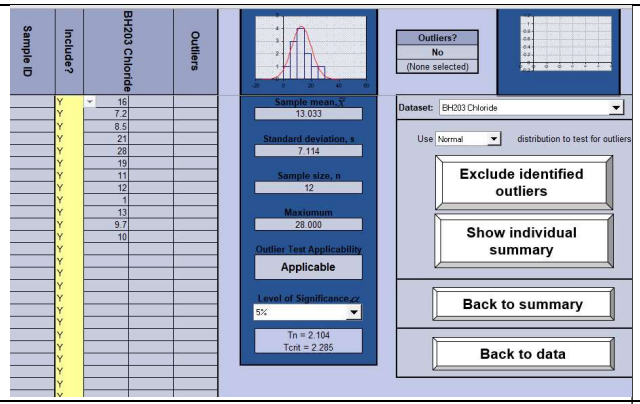


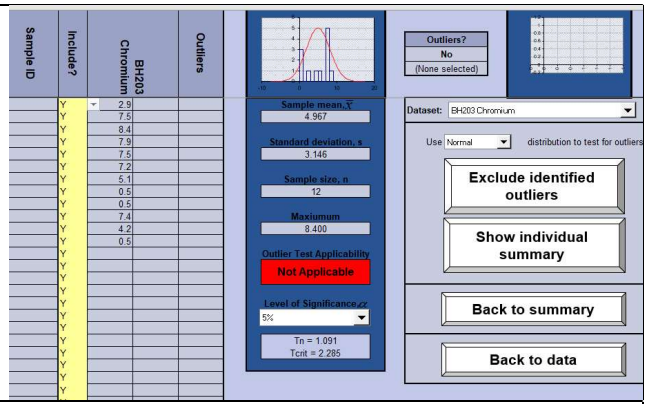
Statistical analysis of groundwater quality data for BH202, using the ESI Statistics calculator

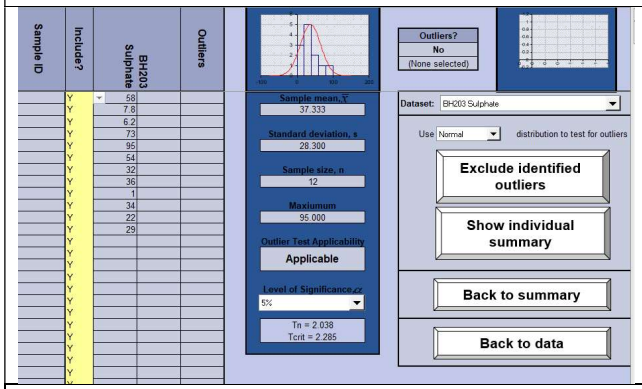


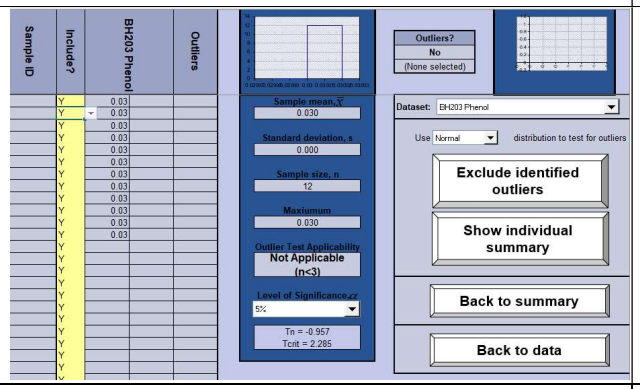
Statistical analysis of groundwater quality data for BH203, using the ESI Statistics calculator











Statistical analysis of groundwater quality data for BH204, using the ESI Statistics calculator