MATRIX AGGREGATES LIMITED

Pollington Quarry, Pollington

Detailed Quantitative Risk Assessment (Land Contamination)

DRAFT

Job No: 163407

April 2021

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Jack Taylor is a Registered Risk Assessor with the Society of Brownfield Risk Assessment (SoBRA). Jack Taylor has successfully demonstrated to SoBRA, through provision of evidence and peer-scrutiny, that they have the necessary skills and knowledge to perform and critically evaluate Generic Quantitative Land Contamination Risk Assessments in the following practice areas: HUMAN HEALTH RISK/PERMANENT GROUND GAS RISK. Confirmation of registration can be found on the SoBRA website at www.sobra.org.uk.

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1.0 INTRODUCTION

Overview

1.1 AA Environmental Limited (AAe) has been commissioned by Matrix Aggregates Limited (hereafter referred to as the 'Client') to carry out a Detailed Quantitative Risk Assessment for the proposed redevelopment of land at Pollington Quarry, East Riding, Yorkshire, DN14 0DS (nearest postcode). The site is centred at National Grid Reference SE 61203 20090 and is shown on Figure 1.

1.2 The site is located in the village of Pollington in the East Riding of Yorkshire and can be accessed from Heck and Pollington Lane to the north. The site is located approximately 12 km west of Goole and 14 km north of Doncaster. Originally an opencast quarry for the extraction of sand and gravels, the north-eastern area of the site later became infilled with an unauthorised waste deposit in the early 2000's. The main quarry void remains open and comprises unrestored quarry workings, with an undulating surface and some steep embankments. The site layout is presented on Figure 2.

1.3 It is understood that this report will support a planning application for the restoration of the site, comprising the removal/treatment of the historic unauthorised waste deposit, the continued extraction of the remaining sand and gravel mineral deposits, and the restoration of the quarry to facilitate a range of different end land uses. It is proposed that these new land uses will comprise a combination of residential, commercial and public open space. The outline development plans are presented in Appendix B.

1.4 The site has been subject to two phases of investigation by AAe in 2017 and 2020. The investigations comprised the excavation of trial pits and installation of boreholes. The trial pits and boreholes were logged in general accordance with BS5930 (2020) and representative environmental samples collected for laboratory analysis in accordance with quality control requirements. Following the 2020 investigation, three rounds of gas and groundwater monitoring were completed.

1.5 The purpose of this report is to present a summary of the desktop study (site history, potential contaminants and baseline setting), the environmental findings of the site investigations, assess the ground conditions and evaluate the chemical results against current standards. A Conceptual Site Model (CSM) is presented and the need for any further assessment of the site determined, dependent on the presence of any potential contaminant linkages. Potential environmental risks are identified and, if required, further investigation, remediation and mitigation measures to alleviate those risks are specified.

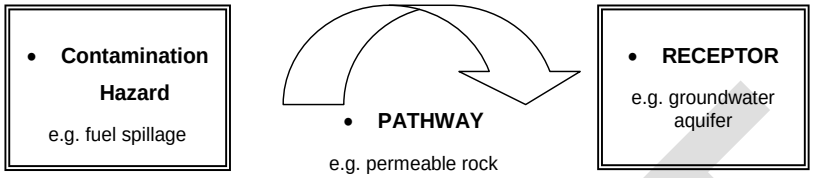
Methodology

1.6 The following legislation and policy has been consulted to provide the basis of the assessment:

- Part 2A of *The Environmental Protection Act 1990 (as amended)* is a legal framework introduced to identify and remediate contaminated land. *The Contaminated Land Statutory Guidance (2012)* issued by Department for Environment, Food and Rural Affairs (DEFRA) should be read in accordance with Part 2A;
- British Standard (BS) *BS 10175:2011 - Investigation of potentially contaminated sites. Code of practice*; and
- Environment Agency *Land contamination: risk management (LCRM)* guidance. *P*rovides the technical framework for applying a risk management process when dealing with land affected by contamination.

1.7 The potential environmental impacts have been quantitatively assessed by considering the sensitivity of the site in relation to the geology, hydrogeology and general environment. The historical uses of the site have also been considered to inform the environmental risk assessment using contaminant-pathway-receptor-analysis.

1.8 Current guidance (BS10175 and LCRM) in the assessment of contamination risk advocates the use of a CSM, to establish connecting links between a contaminant source and a sensitive receptor, via an exposure pathway. An element of contamination, a receptor and a pathway can all exist independently. However, a risk is only present when all three elements are linked together so a contaminant impacts upon a receptor via an exposure pathway, termed a contaminant linkage. Thus, the mere presence of a contamination hazard at a particular site does not necessarily imply the existence of associated risks. A contaminant linkage schematic is presented overleaf.



1.9 If the contaminant and/or sensitivity of the receptor is such that significant harm can occur then the outcome is called a Significant Contaminant Linkage (SCL). In such circumstances, the level of contaminant or the available pathway must be modified in some manner to reduce the severity of the impact to an acceptable level. The detailed assessment methodology is set out in Appendix A.

1.10 Evaluation of the existing baseline environment has been assessed through a desk-based study, considering the following sources of information:

- Ordnance Survey (OS) Explorer Map Series (1:25,000 scale);
- British Geological Survey (BGS) OpenGeoscience Geology of Britain Viewer (Solid and Drift) (Contains British Geological Survey materials © NERC 2021) accessed March 2021;
- Envirocheck Report (purchased February 2017);
- UK Radon Interactive Map (*www.ukradon.org/information/ukmaps*), Public Health England (accessed March 2021); and
- Multi-Agency Geographic Information for the Countryside website (*www.magic.gov.uk*) accessed March 2021.

Project Limitations

1.11 The findings of this report are based upon information from a range of sources which are believed to be reliable. However, AAe do not guarantee the reliability or authenticity of the information taken from third-party data sets.

1.12 Environmental assessments place a significant emphasis on results of laboratory analyses, which have been sampled and managed according to established protocols. Whilst the work has been completed in line with industry guidance and quality requirements, it is possible that the ground investigation and assessment carried out does not identify, or fully determine, the extent of conditions beneath the site and the existence of other important contamination sources. The advice given in this report with respect to contamination is based on published guidelines available at the time of writing.

1.13 The information presented in this report should not be relied upon for engineering or foundation design purposes.

2.0 ENVIRONMENTAL SETTING AND POTENTIAL CONTAMINANTS

Environmental Setting

2.1 Table 2.1 presents a summary of the site environmental and baseline setting.

Table 2.1. Environmental Setting		
Site location and Description		
Location	To the west of the village of Pollington, approximately 12 km west of Goole and 14 km north of Doncaster.	
Site Area	Approximately 6.4 hectares.	
Topography	The ground level on Heck and Pollington Lane is around 14 to 15 m Above Ordnance Datum (AOD) and drops to around 7 m AOD on the southern boundary. Within the quarry void, sand has been extracted to a maximum of -5 m AOD in the south.	
Soils and Geology		
Topsoil	None. Previous mineral extraction at the site is likely to have removed or reworked any natural topsoil.	
Bedrock	Sherwood Sandstone Group (Sandstone) – Triassic and Permian Periods	
Superficial Deposits	To the west: Lacustrine Beach Deposits (Sand and Gravel) – Quaternary Period To the east: No Superficial Deposits.	
BGS Borehole Records – Nearest two records (with public information)		
ID and Location	SE62SW46, *250m W*	SU62SW91, *20 m NE*
Geological Descriptions	Constructed in 1983 with groundwater recorded at 13.72 m BGL. Geology recorded as follows: concrete to 0.3 m BGL; over sand and gravel to 2.8 m BGL; over sand to 4.4 m BGL; over sandstone to 60.6 m BGL.	Constructed in 1952 with groundwater encountered at 15.47 m BGL. Geology recorded as sandstone to 182.88 m BGL.
Hydrogeology and Hydrology		
Aquifer Status Bedrock	Principal Aquifer	
Aquifer Status Superficial Deposits	To the west: Secondary 'A' Aquifer To the east: None.	
Groundwater Source Protection Zones (GWSPZ)	The north- east of the site is within GWSPZ 1. The remaining areas of the site are within GWSPZ 2-3.	
Flood Zone	The site is located outwith Flood Zones 2 & 3. The site is not considered at risk of fluvial flooding.	
Surface Waters	'New Fleet Drain North' is located approximately 550 m south of the site. The River Went flows west to east approximately 2.5 km south of the site.	
Water Abstractions	There are no licenced water abstractions at the site. There are 21 licensed water abstractions within 1 km of the site. The nearest of these is located approximately 50 m north-east of the of the site, registered to Yorkshire Water Services for the abstraction of groundwater for direct potable water supply (public). The supplied start date is April 2015, with no provided end date.	
Discharge Consents	There are four registered discharge consents within 1 km of the centre of the site. The nearest of these is located approximately 400 m east of the site centre, registered to Arc Concrete Ltd for the discharge of trade effluent into an unnamed stream/river. No further information is supplied.	
Other Matters		
Ecosystems	There are no statutory ecological destinations (SSSI, SAC or SPA) on or within 1 km of the site.	
Landfill & Waste	The north-eastern area of the site is a registered Historic Landfill called Middleton Quarry, operated by CF Harris Limited. Inert materials were accepted at the site between 01 January 1983 and 31 December 1993. There are four more historic landfills within 1 km of the site, located approximately 500 m to the east, south east and west. The Envirocheck Report shows the entire site to be a Registered Landfill. The licence has lapsed/been cancelled, and it is not clear if any waste was deposited. The licence was held by CF Harris Limited. The north-east area of the site had an unauthorised waste deposit placed on it in the mid-to-late 2000's.	

Pollution incidents	There are two Substantiated Pollution Incident Register entries relating to the site. Registered in December 2008 and January 2009, involving construction/demolition materials and commercial waste causing a significant impact to land. This is believed to relate to the unauthorised waste deposit on the north-east of the site. There are no Pollution Incidents to Controlled Waters registered to the site. The nearest recorded pollution incident to controlled waters is located approximately 350 m north-east of the site centre. It is registered to a Sewage Treatment Works and involved the pollution of an unnamed river with sewage sludge in 1989 – classified as a 'minor incident'.
Mining	The site is not within a coal mining affected area.
Radon	The site has been assessed for the potential presence of radon. The radon database shows that 0-1% of homes within the area are above the Action Level. Under the relevant guidance, there is no specific mitigation necessary for radon.
Neighbouring Receptors	There are residential uses immediately south-east of the site.
Asbestos	Asbestos is a known carcinogen, and was used extensively as a building material in the UK from the 1950's through to the mid 1980's. The historic landfill in the north-east accepted inert waste in the 1980-1990's and was subsequently covered with an unauthorised waste deposit that could potentially contain Asbestos Containing Materials (ACM).
m BGL is metres Below Ground Level	

Historic Land Use

2.2 Historic maps in relation to the proposed development site have been reviewed, with a summary of the findings presented in Table 2.2. Extracts of the historical maps are presented in Appendix C.

Table 2.2 Notable Historical Site Uses

Date (Scale)	On site	Off site
1853 (1:10,560)	The site comprises three adjacent agricultural fields with a windmill located in the north-eastern corner.	Heck and Pollington Lane borders the north of the site. The surrounding land is primarily in agricultural use. A sand pit borders the eastern site boundary. Pollington village is located 300 m south-east of the centre of the site. The Coley and Goole Canal is located approximately 530 m south-west of the site centre.
1890 (1:2,500)	As above. The windmill on the north-east of the site is now disused.	The sand pit is now disused.
1982 (1:10,560)	As above.	There is a waterworks located to the north-east of the site, on the opposite side of Heck and Pollington Lane.
1948 - 1950(1:10,560)	As above.	There has been some residential/commercial expansion in Pollington.
1955 - 1956 (1:10,000)	The site forms part of a quarry.	An airfield has been developed to the north of Heck and Pollington Lane. Sand pits extend eastward from the site for approximately 800 m, and some buildings likely associated with the works located approximately 500 m north-west of the site.
1970 - 1971 (1;2,500)	The site is recorded as a Sand Pit.	There has been industrial development to the north of Heck and Pollington Lane. A tank and chimney are identified at the waterworks.
1972-1973 (1:10,000)	As above.	The airfield is disused. Cement Works are identified approximately 500 m east and west of the site centre.
1978 – 1984 (1:2,500)	As above.	There has been residential development immediately south-east of the site.
1983 - 1984(1:10,000)	As above.	The industrial developments located to the north of Heck and Pollington Lane are identified as a depot. The cement works 500 m west of the site has expanded. The M62

Table 2.2 Notable Historical Site Uses		
Date (Scale)	**On site**	**Off site**
		has been constructed approximately 1 km north of the site.
1996 (1:2,500)	The site is recorded as a disused pit.	As above.

2.3 The historical maps show that the site was first developed between 1948 and 1956 for the quarrying of sand and gravel. The site remained an unrestored quarry until present day, with some infilling/historic landfill on the north-east.

2.4 The historical maps show sand quarries to the east and west of the site, with gradual industrial development (incl. an airfield, depot, water station and unspecified works) to the north of Heck and Pollington Lane in the mid to late 1980's, and a cement works east of Pollington village.

2.5 Pollington village has been established since at least 1890, with gradual residential and commercial development since.

Unauthorised Waste Deposit

2.6 It is understood that the north-eastern area of the site was subject to unauthorised waste deposit between 2008 and 2009. The source of the waste is not known; however, anecdotally may include construction and demolition wastes (soils, concrete, brick) and residual waste from transfer stations. The area of tipped material is shown on Figure 2.

Potentially Contaminating Land Uses

2.7 Potential contaminants associated with current and former land uses at the site are presented in Table 2.3.

Table 3.2 Potential contaminants associated with the current and historic site land uses	
Land uses	**Key Potential Contaminants**
ONSITE Mineral Extraction, Historic Landfill, Unauthorised Waste Deposit. **OFF-SITE** Mineral Extraction, Landfill/Infilling of voids.	• TPH (Total Petroleum Hydrocarbons) – potential spills and leaks from vehicles/plant/tanks. Unauthorised disposal of contaminated waste. • Metals and metalloids – potential incorporation of ashes and metals in historic landfill. Unauthorised disposal of contaminated waste. • PAHs (Polycyclic Aromatic Hydrocarbons) – potential incorporation of ashes and residues of combustion in waste deposits. Unauthorised disposal of contaminated waste. • Sulphates and Ammoniacal Nitrogen – Present in unauthorised wastes and/or from breakdown of waste. • Asbestos – Inappropriate disposal or burial. Unauthorised disposal of contaminated waste.

3.0 SITE INVESTIGATION AND TESTING

Scope of investigations

3.1 Table 3.1 presents a summary of the AAe 2017 and 2020 investigations.

Table 3.1. Schedule of investigations	
Exploratory Hole I.D	**Purpose**
AAe 2017	
TP101 – TP110	To provide initial characterisation of the unauthorised waste deposit.
AAe 2020	
TP201 - TP206	To further characterise and refine the extent of the unauthorised waste deposit.
SA201	To determine the infiltration rate of the underlying soils.
BH201 – BH204	To facilitate ground gas and groundwater monitoring.

3.2 The exploratory hole locations are presented on the Site Investigation Plan (Figure 3).

3.3 The Trial Pits and Boreholes from both investigations, were logged by AAe to record the depth and types of strata, any groundwater ingress, and any visual or olfactory evidence of contamination.

3.4 Representative samples were collected from the exploratory hole locations by AAe in accordance with quality control requirements and submitted to a UKAS accredited laboratory for chemical analysis.

Geology

3.5 The site investigation exploratory hole logs and photo plates from both the 2017 and 2020 ground investigations are presented in Appendix D. The geology encountered in the trial pits and boreholes from the two ground investigations can be summarised as:

- Unauthorised waste deposit - variable Made Ground (predominantly mixed waste) ranging between 3.50 m and 5.00 m thickness, overlying the Sherwood Sandstone Group (Bedrock Geology).
- Made Ground/Topsoil – the wider site is underlain by a shallow layer of Made Ground/Topsoil, overlying the Sherwood Sandstone Group (Bedrock Geology). In some areas the sandstone is exposed at surface.
- Natural Sandstone – dark orange sandstone, weathered at surface.

3.6 The Made Ground/waste deposit constituents identified across the north-east of site typically comprised brick, concrete, tile, macadam, plastic, timber, ash, hessian, metal and fabric.

Visual and Olfactory Contamination

3.7 The 2020 ground investigation recorded slight weathered hydrocarbon odours in the Made Ground of each trial pit (TP201 – TP206) in the waste deposit, in addition to the presence of sporadic macadam. No free-phase hydrocarbons (liquid oils and/or fuels) were recorded in the soils. Furthermore, visible fragments of suspected Asbestos Containing Materials (ACM) were identified in the Made Ground at TP201 and TP203.This corroborates evidence from the Environment Agency that indicated ACM to be present in the unauthorised waste deposit.

3.8 The 2017 ground investigation recorded black Made Ground soils in trial pits TP4 and TP6. A mild and slight odour was recorded between 2.40 m – 2.90 m BGL in TP4 and between 0.70

m – 1.60 m BGL in TP6, respectively. Suspected trommel fines were recorded in the waste deposit.

Hydrogeology

3.9 Table 3.2 presents the schedule of groundwater ingress/strike depths recorded from the AAe ground investigations.

Table 3.2. Schedule of groundwater strikes		
Borehole	**Ingress/Strike depth (m BGL)**	**Strata**
AAe December 2020		
BH201	2.00	Sherwood Sandstone Group
BH202	23.00	Sherwood Sandstone Group
BH203	8.00	Sherwood Sandstone Group
BH204	28.60	Sherwood Sandstone Group
AAe March 2017		
TP1	3.00 m	Made Ground

3.10 Monitoring standpipes were installed within the boreholes drilled in the 2020 investigation to facilitate groundwater and ground gas monitoring. Table 3.3 presents a schedule of the installations. Full details of the installations are presented on the exploratory hole logs (Appendix D).

Table 3.3. Schedule of installations		
Borehole	**Standpipe**	**Response Zone m BGL (Strata)**
AAe December 2020		
BH201	50 mm ID HDPE	1.00 to 10.00 (Sherwood Sandstone Group)
BH202	50 mm ID HDPE	4.00 to 26.30 (Sherwood Sandstone Group)
BH203	50 mm ID HDPE	1.00 to 14.00 (Sherwood Sandstone Group)
BH204	50 mm ID HDPE	6.00 to 35.50 (Sherwood Sandstone Group)

Chemical Analysis

3.1 3.11 Representative soil samples were collected from the Boreholes and Trial Pits by AAe in accordance with quality control procedures and sent to UKAS/MCERTS accredited laboratories, for soil and leachate analysis. Tables 3.4 and 3.5 set out the chemical analysis which has been undertaken. The chemical Certificates of Analysis for both ground investigations are presented in Appendix E.

Table 3.4 Summary of chemical laboratory testing – March 2017 Site Investigation		
Type of Test	**Number**	**Laboratory Report(s)**
Full Environmental Solids Suite (TPH, PAH, Metals, other inorganics, and an asbestos screen) **– SOILS**	10	17-06365-1
Waste Acceptance Criteria (WAC) Testing - **SOILS**	10	

Table 3.5 Summary of chemical laboratory testing – December 2020 Site Investigation		
Type of Test	**Number**	**Laboratory Report(s)**
Full Environmental Solids Suite (TPH, PAH, Metals, other inorganics, and an asbestos screen) **– SOILS**	22	20-34085 20-34111 20-34116
Leachate Prep (10:1) and Full Water Suite (TPH, PAH, Metals and other inorganics) - **SOILS**	22	20-34071
Asbestos Bulk ID (Suspected ACM Fragments) **- Asbestos**	2	

4.0 RISK ASSESSMENT (HUMAN HEALTH)

4.1 It is proposed that the site will be re-developed as a mixed used development comprising a combination of residential, commercial and public open space land uses. The adopted Tier 1 Soil Guidance Values (SGVs) are conservative and are assessed to be the most appropriate set of screening values for this site based on the most sensitive end use. The Tier 1 SGVs are presented in Appendix G. The following Tier 1 SGVs are considered applicable to the assessment:

- Residential Units – Conservatively assessed as 'Residential with homegrown produce' for shared enclosed garden areas (not accessible to public).
- Shared landscaping – 'Public Open Space (POS) Residential' – selected due to proximity to new residential dwellings and potential for tracking back of soil.
- Commercial premises – Conservatively assessed as 'Commercial and Industrial' land use scenario.

4.2 These guidance values have been sourced from industry-accepted models and standards, including the latest 2014 LQM/CIEH S4UL Generic Assessment Criteria (GAC) and the DEFRA C4SL threshold values. Where available, the most stringent LQM/CIEH GAC by organic matter content has been used. The use of guidance values is considered a conservative level of assessment to determine whether further work is required.

4.3 The chemical data from the 2017 and 2020 investigations have been consolidated and basic statistical analysis undertaken, as presented in Appendix F. The results have been split into Made Ground and Natural Strata datasets.

Tier 1 Human Health SGV Exceedances (Residential) – Made Ground

4.4 Table 4.1 presents the Tier 1 exceedances against the human health assessment for the Made Ground dataset.

Table 4.1 Tier 1 Human Health SGV Exceedances (Residential) – Made Ground

Determinant	SGV (mg/kg) Resi	No. of Exceedances	Max Concentration (mg/kg unless stated)	Max Location (m BGL)
Nickel	180	1	240	TP206 (3.50 – 4.00)
Lead	200	1	260	TP204 (0.00 – 1.00)
Naphthalene	2.3	3	4.70	TP203 (1.50 – 2.00)
Benzo(a)anthracene	7.2	3	19.00	TP204 (0.00 – 1.00)
Chrysene	15	1	17.00	TP204 (0.00 – 1.00)
Benzo(b)fluoranthene	2.6	17	15.00	TP204 (0.00 – 1.00)
Benzo(a)pyrene	2.2	19	15.00	TP204 (0.00 – 1.00)
Dibenzo(a,h)anthracene	0.24	23	2.90	TP204 (0.00 – 1.00)
Asbestos (Fragment)	If present	2	N/A	TP201 (3.00) TP203 (1.00 – 2.00)

4.5 The assessment records Tier 1 exceedances for metals, PAH and asbestos within the Made Ground. These are identified as Contaminants of Potential Concern (COPC).

Contaminants of Potential Concern – Human Health (Residential) – Made Ground

4.6 The identified COPC's with Tier 1 SGV exceedances (excluding asbestos) within the Made Ground dataset have been statistically evaluated to determine the Upper Confidence Limit (UCL) or true mean (based on 95% evidence level) and whether the exceedance is significant or not. The ESI statistical output sheets are presented in Appendix F and summarised in Table 4.2.

Table 4.2 Statistical Results (Residential) - Made Ground					
Determinant	**Tier 1 SGV (mg/kg)**	**Total samples**	**Data Distribution**	**UCL (mg/kg)**	**Outlier**
Nickel	180	29	Non-Normal	74.47	Yes
Lead	200	29	Non-Normal	115.24	Yes
Naphthalene	2.3	29	Non-Normal	1.67	Yes
Benzo(a)anthracene	7.2	29	Non-Normal	7.44	Yes
Chrysene	15	29	Non-Normal	7.39	Yes
Benzo(b)fluoranthene	2.6	29	Non-Normal	7.05	Yes
Benzo(a)pyrene	2.2	29	Non-Normal	6.21	Yes
Dibenzo(a,h)anthracene	0.24	29	Non-Normal	1.28	Yes

UCL lower than the Tier 1 SGV
UCL higher than the Tier 1 SGV

Benzo(a)anthracene, Benzo(b)Fluoranthene, Benzo(a)Pyrene and Dibenzo(ah)Anthracene

4.7 For the above determinants the UCL is above the Tier 1 SGV's. The statistical analysis shows that these datasets contain outliers; however, due to the non-normal distributions they cannot be excluded and the UCL is considered applicable. Further assessment, remediation or mitigation of the risks posed by these contaminants of concern is considered necessary.

Nickel, Lead, Naphthalene and Chrysene

4.8 For the above determinants the UCL is below the respective Tier 1 SGV. The datasets contain outliers, however, due to the non-normal distribution, the outliers cannot be excluded. The UCL is therefore considered applicable and no further assessment, remediation or mitigation for risks posed by these determinants is considered necessary.

Tier 1 Human Health SGV Exceedances (Residential) – Natural

4.9 Table 4.3 presents the Tier 1 exceedances against the human health assessment for the Natural soil dataset.

Table 4.3 Tier 1 Human Health SGV Exceedances (Residential) – Natural				
Determinant	**SGV (mg/kg) Resi**	**No. of Exceedances**	**Max Concentration (mg/kg unless stated)**	**Max Location (m BGL)**
Naphthalene	2.3	1	3.00	TP7 (0.00 – 1.50)
Benzo(b)fluoranthene	2.6	1	7.20	TP7 (0.00 – 1.50)
Benzo(a)pyrene	2.2	1	5.40	TP7 (0.00 – 1.50)
Dibenzo(a,h)anthracene	0.24	1	1.00	TP7 (0.00 – 1.50)

4.10 The assessment records Tier 1 exceedances for PAH within the Natural soils. These are identified as Contaminants of Potential Concern (COPC).

Contaminants of Potential Concern – Human Health (Residential) – Natural

4.11 The identified COPC's with Tier 1 SGV exceedances within the Natural soil dataset have been statistically evaluated to determine the Upper Confidence Limit (UCL) or true mean (based on 95% evidence level) and whether the exceedance is significant or not. The ESI statistical output sheets are presented in Appendix F and summarised in Table 4.4.

Table 4.4 Statistical Results (Residential) – Natural					
Determinant	**Tier 1 SGV (mg/kg)**	**Total samples**	**Data Distribution**	**UCL (mg/kg)**	**Outlier**
Naphthalene	2.3	3	Non-Normal	5.28	Yes
Benzo(b)fluoranthene	2.6	3	Non-Normal	12.78	Yes
Benzo(a)pyrene	2.2	3	Non-Normal	9.57	Yes
Dibenzo(a,h)anthracene	0.24	3	Non-Normal	1.71	Yes
UCL lower than the Tier 1 SGV					
UCL higher than the Tier 1 SGV					

Naphthalene, Benzo(b)Fluoranthene, Benzo(a)Pyrene and Dibenzo(ah)Anthracene

4.12 For the above determinants the UCL is above the Tier 1 SGV's. The statistical analysis shows that these datasets contain outliers; however, due to the non-normal distributions they cannot be excluded and the UCL is considered applicable. Further assessment, remediation or mitigation of the risks posed by these contaminants of concern is considered necessary.

Tier 1 Human Health SGV Exceedances (POS – Residential) – Made Ground

4.13 Table 4.5 presents the Tier 1 exceedances against the human health assessment for the Made Ground dataset.

Table 4.5 Tier 1 Human Health SGV Exceedances (POS – Residential) – Made Ground				
Determinant	**SGV (mg/kg) Resi**	**No. of Exceedances**	**Max Concentration (mg/kg unless stated)**	**Max Location (m BGL)**
Nickel	230	1	240	TP206 (3.50 – 4.00)
Benzo(b)fluoranthene	7.10	5	15.00	TP204 (0.00 – 1.00)
Benzo(a)pyrene	5.70	4	15.00	TP204 (0.00 – 1.00)
Dibenzo(a,h)anthracene	0.57	16	2.90	TP204 (0.00 – 1.00)
Asbestos (Fragment)	If present	2	N/A	TP201 (3.00) TP203 (1.00 – 2.00)

4.14 The assessment records Tier 1 exceedances for metals, PAH and asbestos within the Made Ground. These are identified as Contaminants of Potential Concern (COPC).

Contaminants of Potential Concern – Human Health (POS – Residential) – Made Ground

4.15 The identified COPC's with Tier 1 SGV exceedances (excluding asbestos) within the Made Ground dataset have been statistically evaluated to determine the Upper Confidence Limit (UCL) or true mean (based on 95% evidence level) and whether the exceedance is significant or not. The ESI statistical output sheets are presented in Appendix F and summarised in Table 4.6.

Table 4.6 Statistical Results (POS – Residential) – Made Ground					
Determinant	**Tier 1 SGV (mg/kg)**	**Total samples**	**Data Distribution**	**UCL (mg/kg)**	**Outlier**
Nickel	230	29	Non-Normal	74.47	Yes
Benzo(b)fluoranthene	7.10	29	Non-Normal	7.05	Yes
Benzo(a)pyrene	5.70	29	Non-Normal	6.21	Yes
Dibenzo(a,h)anthracene	0.57	29	Non-Normal	1.28	Yes
UCL lower than the Tier 1 SGV					
UCL higher than the Tier 1 SGV					

Nickel and Benzo(b)Fluoranthene

4.16 For the above determinants the UCL is below the respective Tier 1 SGV. The datasets contain outliers, however, due to the non-normal distribution, the outliers cannot be excluded. The UCL is therefore considered applicable and no further assessment, remediation or mitigation for risks posed by these determinants is considered necessary.

Benzo(a)pyrene and Dibenzo(ah) Anthracene

4.17 For the above determinants the UCL is above the Tier 1 SGV's. The statistical analysis shows that the dataset contains outliers, however, due to the non-normal distribution, the outliers cannot be excluded and the UCL is considered applicable. Further assessment, remediation or mitigation of the risks posed by these determinants is considered necessary.

Tier 1 Human Health SGV Exceedances (POS – Residential) – Natural

4.18 Table 4.7 presents the Tier 1 exceedances against the human health assessment for the Natural soil dataset.

Table 4.7 Tier 1 Human Health SGV Exceedances (POS – Residential) – Natural

Determinant	SGV (mg/kg) Resi	No. of Exceedances	Max Concentration (mg/kg unless stated)	Max Location (m BGL)
Benzo(b)fluoranthene	7.10	1	7.20	TP7 (0.00 – 1.50)
Dibenzo(a,h)anthracene	0.57	1	1.00	TP7 (0.00 – 1.50)

4.19 The assessment records Tier 1 exceedances for PAH within the Natural soils. These are identified as Contaminants of Potential Concern (COPC).

Contaminants of Potential Concern – Human Health (POS – Residential) – Natural

4.20 The identified COPC's with Tier 1 SGV exceedances within the Natural soil dataset have been statistically evaluated to determine the Upper Confidence Limit (UCL) or true mean (based on 95% evidence level) and whether the exceedance is significant or not. The ESI statistical output sheets are presented in Appendix F and summarised in Table 4.8.

Table 4.8 Statistical Results (POS – Residential) – Natural

Determinant	Tier 1 SGV (mg/kg)	Total samples	Data Distribution	UCL (mg/kg)	Outlier
Benzo(b)fluoranthene	7.10	3	Non-Normal	12.78	Yes
Dibenzo(a,h)anthracene	0.57	3	Non-Normal	1.71	Yes

UCL lower than the Tier 1 SGV
UCL higher than the Tier 1 SGV

Benzo(b)Fluoranthene and Dibenzo(ah)Anthracene

4.21 For the above determinants the UCL is above the Tier 1 SGV's. The statistical analysis shows that these datasets contain outliers; however, due to the non-normal distributions they cannot be excluded and the UCL is considered applicable. Further assessment, remediation or mitigation of the risks posed by these contaminants of concern is considered necessary.

Tier 1 Human Health SGV Exceedances (Commercial) – Made Ground/Natural

4.22 No exceedances in the Made Ground and/or natural soil datasets against the commercial and industrial land use scenario were recorded.

Summary of Risk to Human Health and Remedial Requirements – Future Users

4.23 The site investigation and chemical analysis has recorded elevations of residual contaminants in the underlying soils which are assessed to pose a risk to future site users in residential and POS landscaping.

Preliminary Ground Gas/Vapour Risk Assessment

Hydrocarbon Vapour Risk

4.24 The site investigation and chemical analysis has not identified any elevations of hydrocarbons which are assessed to pose a risk to future site users.

Ground Gas Monitoring

4.25 Following the installation of the boreholes, three rounds of ground gas monitoring have been undertaken in general accordance with CIRIA 665 '*Assessing risks posed by hazardous ground gases to buildings'*. The consolidated results are presented in Appendix H.

4.26 The monitoring has recorded peak carbon dioxide concentrations of 7.6% and methane of 0%. The highest concentrations of carbon dioxide are recorded in the boreholes in the unauthorised waste deposit. The north-eastern area of the site is underlain by deep variable Made Ground and when considered in conjunction with the preliminary monitoring results, indicates ground gases could pose a risk to future site users. The site is to be restored as an Inert Landfill and further ground gas risk assessment will be required to assess risks to future site users and determine if ground gas protection measures are required in proposed buildings.

Phytotoxic Assessment – Risk to Plants

4.27 The soil results have been screened against published industry-accepted assessment criteria and natural background concentrations for phytotoxic elements (MAFF Code of Good Agricultural Practice for the Protection of Soil [1998] and BS3882:2015). Table 4.9 below presents the phytotoxic assessment for the soils.

Table 4.9. Phytotoxic Element SGV Exceedances - Soils

Determinant	SGV (mg/kg	Source	No. of Exceedances	Maximum Recorded Concentration (mg/kg)	Location of maximum recorded concentration (m bgl)
Nickel	110	BS3882:2015	1	240	TP206 (3.50 – 4.00)
Arsenic	250	MAFF: 1998	0	N/A	N/A
Chromium	400	MAFF: 1998	0	N/A	N/A
Copper	200	BS3882:2015	2	790	TP201 (2.00 – 3.00)
Zinc	300	BS3882:2015	3	490	TP204 (2.80 – 4.00)

4.28 Based on the above assessment, the residual Made Ground/waste deposit at the site is considered to pose a potential risk to planting schemes and/or introduced plants.

Services Assessment – Risk to Potable Supply Pipes

4.29 The soil results have been screened against the specification for 'non-barrier' polyethylene water supply pipes presented in UKWIR Guidance for the Selection of Water Supply Pipes to be Used in Brownfield Sites. Table 4.10 presents the assessment.

Table 4.10 Potable supply assessment

Determinant	Threshold Standard PE Pipe (mg/kg)	Maximum Recorded Site Concentration (mg/kg)	Location of Maximum (m bgl)
SVOC (includes PAH)	2	300 (sum of 16 PAH's)	TP204 (0.00 – 1 .00)
Phenols	2	N/A	N/A
TPH C11-C20	10	160	TP203 (0.00 – 1.00)
TPH C21-C40	500	790	TP201 (1.00 – 2.00)

4.30 Based on the above thresholds, it is considered likely that a polyethylene barrier pipe (with aluminium barrier layer) will be required for potable water supply pipes to the new development due to elevations of PAH and TPH recorded within the shallow soils on site. The specifications for potable water supply pipes should be confirmed with the Designer and Statutory Undertakers.

5.0 RISK ASSESSMENT (CONTROLLED WATERS)

5.1 The site has been subject to a standalone Hydrogeological Risk Assessment (HRA) by McDonnell Cole (1763-HRA-1), presented as Attachment 1. The following section presents a summary of the HRA.

Controlled water receptors

5.2 The closest surface watercourse is the North Fleet Drain 550 m south of the site. The nearest main watercourse is the River Went 2.50 km south of the site.

5.3 The Sherwood Sandstone bedrock is classified as a Principal Aquifer. The north-eastern corner of the site is within a Zone 1 Groundwater Source Protection Zone (GSPZ). The nearest potable abstraction is located approximately 20 m north-east of the site. The main site area is within Zone 2 GSPZ. Given the proximity of the abstraction, the most significant controlled water receptor to the site is assessed to be groundwater.

Assessment of Soil and Leachate Results

5.4 Representative soil samples, including from the unauthorised waste deposit, have been submitted for solids and leachate analysis. A full assessment of the results is presented in the HRA (Attachment 1).

5.5 The leachate results have been assessed against Tier 1 UK Drinking Water Standards (DWS) and Inert WAC eluate limits. The results record exceedances for Ammoniacal Nitrogen, Arsenic, Mercury, Sulphate and Vanadium. The exceedances are recorded in the soil samples obtained from the unauthorised waste deposit on the north-east of the site.

5.6 The solids results have been compared against Inert WAC solids limits. The results record exceedances for Mineral Oil, Total Polycyclic Aromatic Hydrocarbons (PAH) and pH. The exceedances are recorded in the soil samples obtained from the unauthorised waste deposit on the north-east of the site.

Borehole monitoring and sampling

5.7 Three rounds of groundwater monitoring were completed by AAe in January and February 2021. The groundwater levels were recorded using a dip meter and samples collected using low-flow sampling methodology.

Borehole monitoring - Groundwater flow direction

5.8 The groundwater levels have been correlated to m AOD which indicates a gradient from the south-west to north-east (towards the off-site abstraction borehole). This indicates the abstraction boreholes is causing a draw-down on the water table. The groundwater levels were shallower in February, indicating changes in the hydraulic gradient connected to the timing of pumping from the abstraction borehole. A detailed review of groundwater flow direction is provided within the McDonnell Cole HRA.

Borehole monitoring - Visual and olfactory evidence of contamination

5.9 No visual or olfactory evidence of contamination was recorded on the groundwater samples.

Assessment of Water Results – Groundwater

5.10 The groundwater certificates of analysis are presented in Appendix E. The groundwater results have been assessed against Tier 1 UK Drinking Water Standards (DWS). The results record an exceedance for Ammoniacal Nitrogen in BH202 on the southern edge of the unauthorised waste deposit.

Summary of Hydrogeological Risk Assessment (Controlled Waters)

5.11 The HRA has determined that the unauthorised waste deposit in the north-east of the site poses a potential risk to groundwater. The unauthorised waste deposit is located with Zone 1 GSPZ and does not comply with the Environment Agency position of the landfill of wastes.

5.12 The design of the restoration includes the importation and placement of natural uncontaminated fill material in GSPZ1. In GSPZ2 the quarry void is to be restored by Inert waste, as presented on Figure 4.

5.13 The quantitative HRA has demonstrated that the proposed restoration of the quarry as an Inert Landfill is unlikely to cause a risk to groundwater resources or cause a discernible discharge of hazardous substances or pollution by non-hazardous pollutants. The new landfill will be engineered with a low-permeability geological barrier to restrict the leaching of pollutants to the underlying deeper groundwater resources.

6.0 CONCEPTUAL SITE MODEL AND SIGNIFICANT CONTAMINANT LINKAGES

Introduction

6.1 The risks that potential contamination within the underlying strata pose to the current and futures uses of the site and the wider environment are assessed within this section of the report.

6.2 The assessment is undertaken in accordance with the standard methodology set out in Appendix A.

6.3 Table 6.1 below sets out the potential receptors at, and surrounding, the site from the information from Section 2 'Baseline Setting' and the available pathways. These are subsequently evaluated as the potential Significant Contaminant Linkages (SCL).

Table 6.1. Summary of receptors and available pathways

Receptor	Pathways
A. Human health	
• On-site usage (Proposed mixed commercial/residential use with gardens and soft landscaping)	Dermal contact Ingestion of soil Inhalation of fugitive dusts and gases Puncture Dermal contact with ground water
• Off-site land uses (Residential/Commercial Industrial)	Inhalation of vapours and gases. Dermal contact (following migration) Ingestion of soil (following migration)
• Construction worker – in the event of excavation and groundworks	Dermal contact Ingestion of soil Inhalation of fugitive dusts and gases Puncture Dermal contact of ground water
B. Ecology	
• On site planting	Direct absorption of phytotoxic compounds from soils
C. Controlled waters	
• Groundwater • Surface Water	Leaching of contaminants from the soil matrix
D. Buildings and Services	
• Concrete • Services • Potable pipes	Contact with aggressive soil conditions

6.4 Table 6.2 below sets out the potential SCL and assesses the consequences on the receptor of the pollution linkages. Table 6.2 provides the Conceptual Model for the site.

Table 6.2 Conceptual Site Model					
Receptor	**Pathway**	**Hazard**	**Effect**	**Risk Classification**	**Discussion, Remediation or Mitigation Solution**
Humans Future users of the site	Dermal contact, ingestion of contaminated soils, puncture and inhalation of fugitive dusts via air.	Existing contaminated soils / Made Ground (metals, PAH and asbestos) Potential contaminants in imported fill placed in Inert Landfill.	Toxic, carcinogenic or hazardous to human health.	Significance: Severe Likelihood: Possible Risk: **High**	Contamination can give rise to human health concerns if users of the site come into direct contact with affected soil, ingest contaminated particles or inhale fugitive dusts which include contaminated particles. The ground investigation and chemical analysis has recorded exceedances of Tier 1 SGVs in the residual Made Ground/unauthorised waste deposit at the site. The site is to be restored as an Inert Landfill. Without appropriate control there is a risk imported fill could contain contaminants that pose a risk to future site users. The proposed redevelopment and restoration of the site includes soft landscaping and garden areas, which could create a pathway between residual contaminants and future site users. The risk to future site users is assessed to be **high** without remediation and/or mitigation. The unauthorised waste deposit will be removed/treated. All imported soils and materials placed in the Inert Landfill will comply to the standards presented in the Importation Protocol included in the Permit application. All residual and imported soils (Made Ground/Landfill) will need to be capped by buildings, permanent hardstanding or suitable imported soils within areas of soft landscaping. Capping soils in soft landscaping will need to comply to the guidance values presented in Appendix G and be underlain by a geotextile marker layer. The capping thickness should be 600 mm in private enclosed gardens or 300 mm in shared amenity landscaping – public open space (POS)). It is considered that with the incorporation of suitable design mitigation and control of imported fill the risks to human health from ingestion, dermal contact and inhalation of particulates can be fully mitigated. Residual risk post mitigation is assessed as **Low.**

Table 6.2 Conceptual Site Model					
Receptor	**Pathway**	**Hazard**	**Effect**	**Risk Classification**	**Discussion, Remediation or Mitigation Solution**
	Migration through soils and foundations and accumulation in enclosed spaced (buildings)	Presence of elevated levels of ground gas from the Made Ground and proposed Landfill Deposit.	Toxic, carcinogenic or hazardous to human health.	Significance: Severe Likelihood: Possible Risk: **High**	Methane, Carbon Dioxide and Hydrogen Sulphide can be present in Made Ground and landfill deposits and can cause gas risk within enclosed spaces without appropriate control and mitigation. The ground investigation has recorded the north-east of site to be underlain by variable Made Ground (unauthorised waste) up to approximately 5.00 m in thickness. Initial ground gas monitoring indicates that the site may be classified as Gas Characteristic Situation 2 and basic protection measures may be required in the proposed buildings. Furthermore, the site is to be restored as an Inert Landfill and the risk to future site users from ground gases is assessed to be **high.** Following restoration of the site, further ground gas monitoring and risk assessment will be completed as part of the Permit surrender. This will determine the final characterisation of the site and requirement for protection measures in new buildings. With the implementation of suitable controls and verification of the installation the risks can be fully mitigated. The residual risk post mitigation is **Low.**
Humans Users and occupiers of adjacent land	Off-site migration of contamination in dusts, vapours and leaching through soils.	Contaminants in Made Ground (metals, PAH and asbestos).	Toxic, carcinogenic, hazardous to human health.	Significance: Severe Likelihood: Very Unlikely Risk: **Low**	Contamination can give rise to human health concerns if adjacent land users come into direct contact with affected soil, ingest contaminated particles or inhale fugitive dusts which include contaminated particles. The site investigation and chemical analysis has identified some residual contamination within the Made Ground at the site; however, no free-phase contamination have been recorded. In the absence of significant shallow groundwater in contact with the Made Ground/unauthorised waste deposit it is considered very unlikely that the recorded contamination could be mobilised at sufficient concentration to pose a risk to adjacent land users. The risk to adjacent land users is therefore assessed to be **Low** and no specific remediation/mitigation is considered necessary. Isolated fragments of asbestos containing materials have been recorded in the unauthorised waste deposit. It is proposed that the deposit will be removed/treated to mitigate any low term risks to adjacent land users. Furthermore, the site will be restored as an Inert Landfill to cap over all existing Made Ground. The control of dust during earthworks can be controlled through design and selection of appropriate construction techniques. Suitable working controls should be adopted for works within asbestos fragment/fibre impacted soils. Once the soft landscaping is complete, the risk of fugitive contaminated dusts impacting upon third parties is negligible. The residual risk is considered to be **very low** and acceptable.

Table 6.2 Conceptual Site Model					
Receptor	**Pathway**	**Hazard**	**Effect**	**Risk Classification**	**Discussion, Remediation or Mitigation Solution**
Humans Construction workers	Dermal contact, ingestion of contaminated soils, puncture and inhalation of fugitive dusts, gasses and vapours via air.	Contamination within the Made Ground (metals, PAH and asbestos fragment/fibre)	Toxic, carcinogenic or hazardous to human health.	Significance: Severe Likelihood: Possible Risk: **High**	Contamination can give rise to human health concerns if construction workers come into direct contact with affected soil, ingest contaminated particles or inhale fugitive dusts which include contaminated particles. During the quarry restoration and construction phase, excavation of the underlying strata (including the unauthorised waste deposit) could create a potential linkage between construction workers and the recorded residual contamination; therefore, the risk is deemed **High** without control and further investigation. Contractors should ensure suitable Personal Protective Equipment (PPE) and Respiratory Protective Equipment (RPE) is worn by operatives to prevent against skin puncture, inhalation of dusts and vapours, ingestion of contaminants and dermal contact. The Contractor is advised that all groundworks within soils impacted with asbestos fragments and low-level asbestos fibre should be undertaken in accordance with the Control of Asbestos Regulations (2012). With the correct PPE/RPE and training the residual risks to construction workers is considered to be **Low** and acceptable.
Controlled waters – groundwater (abstraction borehole – Zone 1 GSPZ)	Increased leaching or mobilisation of non-aqueous phase liquids and dissolved phase contamination through soil to groundwater. Migration of impacted groundwater to off-site abstraction borehole.	Leachable contamination in soil matrix or migration of dissolved pollutants.	Contamination of a controlled water	Significance: Severe Likelihood: Possible Risk: **High**	Contaminants can pose a risk to controlled waters (groundwater and surface waters) if they are leached or directly entre the surface water drainage network. The proposed development has the potential to mobilise residual contaminants and/or increase risk through the restoration of the site as an Inert Landfill, the design of the final landform (inclusion of permeable soft landscaping), proposed drainage design (soakaways) and the construction works (pile/foundation design). The site investigation and chemical analysis has recorded some residual contamination within the unauthorised waste deposit on the north-east of the site. Solids and leachate testing of the Made Ground/waste has recorded Tier 1 DWS and Inert WAC eluate/solids exceedances. The unauthorised waste deposit is within a Zone 1 GSPZ and is considered to pose a **high** risk to controlled water receptors. The unauthorised waste deposit will be removed/treated and restored with clean naturally occurring materials. The remainder of the site will be restored as an Inert Landfill with a low-permeability geological barrier. The supporting HRA has demonstrated that the restoration of the site with inert waste will not pose a risk to controlled waters. All imported waste will need to comply to the standards presented in the Importation Protocol. With the remediation of the unauthorised waste deposit and implementation of controls on waste import the risk to controlled waters is assessed to be **low.**

Table 6.2 Conceptual Site Model					
Receptor	**Pathway**	**Hazard**	**Effect**	**Risk Classification**	**Discussion, Remediation or Mitigation Solution**
Built Services and structures	Contact with contaminated soils and waters.	Presence of hydrocarbons (TPH and PAH) in Made Ground.	Damage to services and structures.	Significance: Moderate Likelihood: Possible Risk: **Medium**	The site investigation and chemical analysis has recorded some elevations of PAHs and TPHs in residual soils which may necessitate the use of a barrier pipe for potable water supply to the proposed properties. The site is to be restored with imported waste and, without control, could contain contaminants which pose a risk to structures and services. The risk to structures and services is assessed to be **Medium** without control and mitigation. It is recommended that the existing test results should be provided to the Designer and Statutory Undertakers to ensure all services and structures are suitably protected from the recorded ground conditions. Following restoration of the site with Inert waste, additional verification testing will be completed as part of the Permit surrender to establish soil conditions. Through the inclusion of suitable design controls the residual risk is assessed to be **Low**.
Ecosystems - Proposed planting and soft landscaping	Root uptake from soils	Contaminants (metals) present in Made Ground	Damage and restrictive growth.	Significance: Moderate Likelihood: Possible Risk: **Medium**	Certain contaminants can damage and/or restrict growth if absorbed by plants; these are referred to as Phytotoxic Contaminants. The redevelopment proposals incorporate areas of soft landscaping and introduced plants. The site investigation and chemical analysis have recorded known phytotoxic contaminants within the existing soils underlying the site; therefore, the risk to planting and landscaping is assessed to be **Medium** without control and mitigation. The site is to be restored with imported waste and, without control, could contain contaminants which pose a risk to structures and services. It is recommended that the existing test results should be provided to the Designer to ensure suitable mitigation controls for the protection of landscaping and plants. Following restoration of the site with Inert waste, additional verification testing will be completed as part of the Permit surrender to establish soil conditions. The provision of a clean capping layer for the protection of human health will provide a suitable growing medium for introduced plants. Subject to the implementation of suitable design controls the residual risk is considered **Low** and acceptable.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 AA Environmental Limited (AAe) has been commissioned by Matrix Aggregates Limited to carry out a Detailed Quantitative Risk Assessment for the proposed redevelopment of land at Pollington Quarry, East Riding, Yorkshire.

7.2 The site is located in the village of Pollington in the East Riding of Yorkshire and can be accessed from Heck and Pollington Lane to the north. Originally an opencast quarry for the extraction of sand and gravels, the north-eastern area of the site later became infilled with an unauthorised waste deposit in the mid-to-late 2000's. The main quarry void remains open and comprises unrestored quarry workings, with an undulating surface and some steep embankments.

7.3 This report will supports a planning application for the restoration of the site, comprising the removal/treatment of the historic unauthorised waste deposit, the continued extraction of the remaining sand and gravel mineral deposits, and the restoration of the quarry as an Inert Landfill to facilitate a range of different end land uses. It is proposed that these new land uses will comprise a combination of residential, commercial and public open space.

7.4 The site has been subject to two phases of investigation by AAe to assess the composition of the unauthorised waste deposit, establish soil quality on the wider site and undertake groundwater quality monitoring. The site is underlain by a Principal Aquifer (Sherwood Sandstone) and the north-eastern area of the site where the unauthorised waste deposit is located is within a Zone 1 (Inner) Groundwater Source Protection Zone (GSPZ) associated with an off-site potable abstraction approximately 20 m to the north. The risk assessment, standalone Hydrogeological Risk Assessment (HRA) and conceptual site model has identified source of residual contamination that are assessed to pose a risk to future site users and surrounding receptors. Risks are primarily associated with the existing soils in the unauthorised waste deposit in the north-east of the site.

7.5 The HRA demonstrates that the restoration of the site as an Inert Landfill, including low permeability geological barrier, will not pose a to the deeper groundwater and controlled water receptors.

7.6 Table 7.1 presents the remediation and recommendations for further works.

Table 7.1. Remediation and further works

Ref	Item	Description/Requirements
1	Removal/treatment of unauthorised waste deposit.	The unauthorised waste deposit in the north-east corner of the site will be removed or treated to mitigate long-term risks to future site users and controlled waters. The resulting excavation within Zone 1 GSPZ will be backfilled with clean naturally occurring materials. Following completion of the remediation works, a validation report will be issued demonstrating the quality of restoration materials and inspection/testing records for the removal/treatments. Any on-site treatment will be undertaken in accordance with the Environmental Permitting Regulations.
2a	Restoration of site as an Inert Landfill.	It is proposed that the site will be restored as an Inert Landfill, in accordance with the Environmental Permitting Regulations. The landfill will be installed with an engineered geological barrier to restrict the downward leaching of contaminants to the deeper groundwater and Principal Aquifer. A Construction Quality Assurance (CQA) report for the installation of the geological barrier will be issued. All imported waste will need to comply to Inert limits and the standards presented in the Importation Protocol, prepared and submitted with the Permit application.

Table 7.1. Remediation and further works		
Ref	**Item**	**Description/Requirements**
3	Capping of Made Ground/Landfill Deposit.	Within the proposed final development, all residual Made Ground/imported (inert) landfill waste will need to be capped by buildings, permanent hardstanding or clean imported soils (capping) over a geotextile marker layer. Within areas of soft landscaping, Made Ground/landfill waste will need to be covered with a geotextile marker layer and suitable thickness of clean soil (topsoil/subsoil) – 600 mm in private enclosed garden or 300 mm in shared amenity landscaping. Private gardens will meet the Soil Guidance Values for Residential with home grown produce. The open areas of soft landscaping will meet Public Open Space (Residential) criteria.
4	Specification of imported capping soils.	Topsoil or subsoil required to be imported to complete the proposed landscaping should be from certified sources and comply with the specification presented in Appendix G and the soil guidance values set out in Item 3. Chemical test results from suppliers should be reviewed before import. Verification testing and inspection of the soils (capping thickness and quality) in the final development will be completed for inclusion in the final validation report.
5	Ground Gas Risk Assessment	Following the completion of the restoration of the site as an Inert Landfill, further ground gas monitoring and risk assessment will be completed as part of the Permit surrender process to characterise the gas risk at the site. The gas risk assessment will determine if any ground gas protection measures will be required in the proposed buildings. within the floor slabs of the proposed buildings and structures.
6	Protection of structures and services – potable supply pipes	Test results will be provided to the Designer and Statutory Undertakers to ensure structures and services are suitably protected from ground conditions.
7	Unexpected contamination	If any unexpected contamination is encountered during the restoration of the quarry or development of the site, then further testing and/or assessment should be completed as necessary.
8	Waste disposal	If any soils or demolition wastes are to be removed off-site as part of the restoration or construction phase, they should be suitably characterised in accordance with the waste regulatory regime and Duty of Care requirements. Transfer Notes for all wastes disposed off-site should be maintained.

Summary

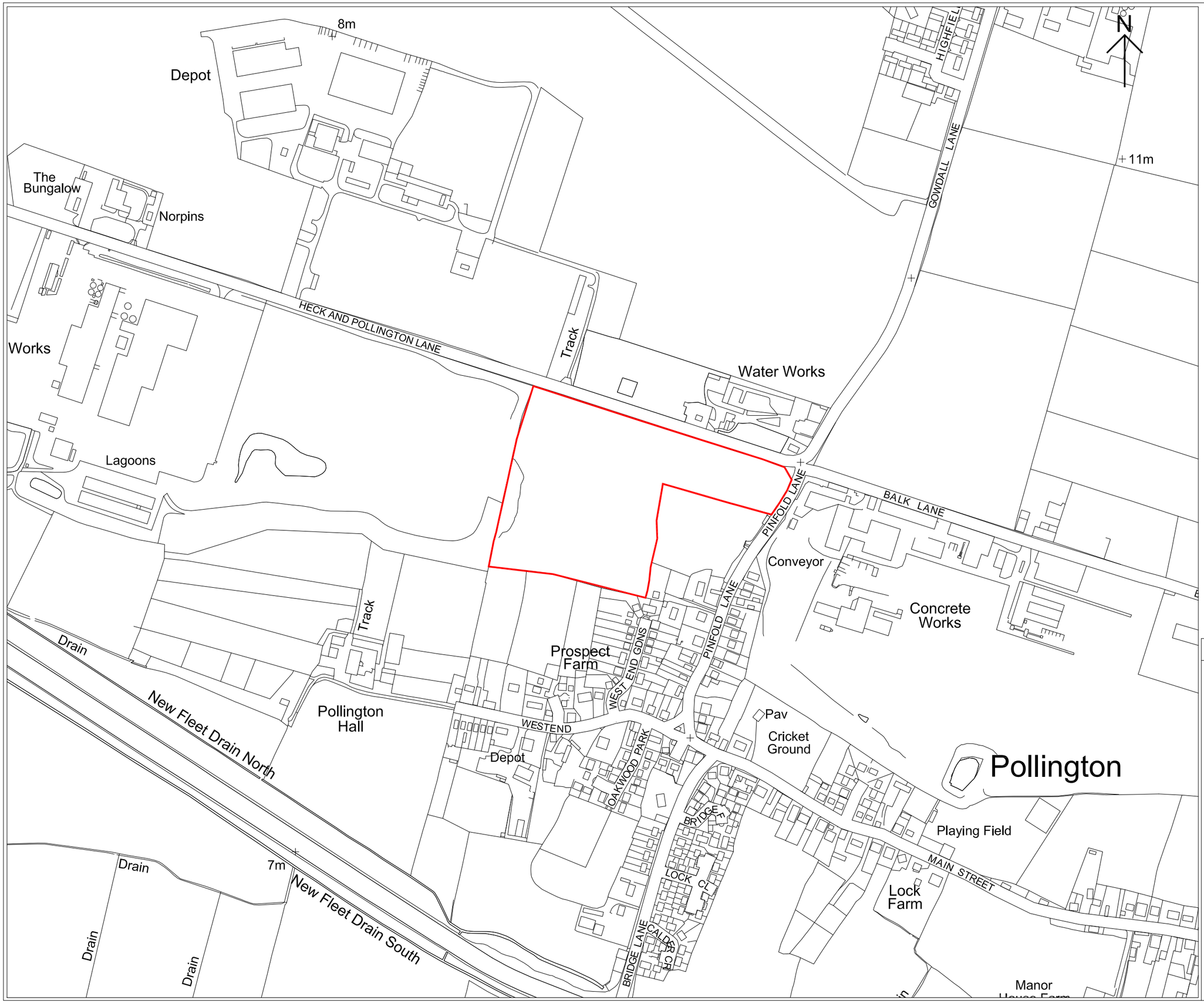
7.7 The risk assessment undertaken by AAe has identified some residual contamination which is assessed to pose a risk to future site users and surrounding environmental receptors. It is recommended that the remediation and further works specified within this report are adopted for the protection of human health and surrounding sensitive receptors. All proposed remedial and mitigation solutions should be agreed with the Local Authority and Regulators.

7.8 It is anticipated that all risks can be appropriately mitigated through the design controls and remediation solutions presented in this report which would not adversely affect the proposals. The removal of the unauthorised waste deposit and restoration of the site will provide long-term betterment in the risks to site users and controlled waters. A Validation Report should be produced following completion of the redevelopment to demonstrate that all remediation, mitigation and design controls have been completed to the required standard.

163407/JNT AA ENVIRONMENTAL LIMITED

April 2021

FIGURES



Key:

Site boundary

Rev.	Details	Drawn / Chkd.	Date

Project

163407
Pollington Lane Quarry

Title

Site Location Plan

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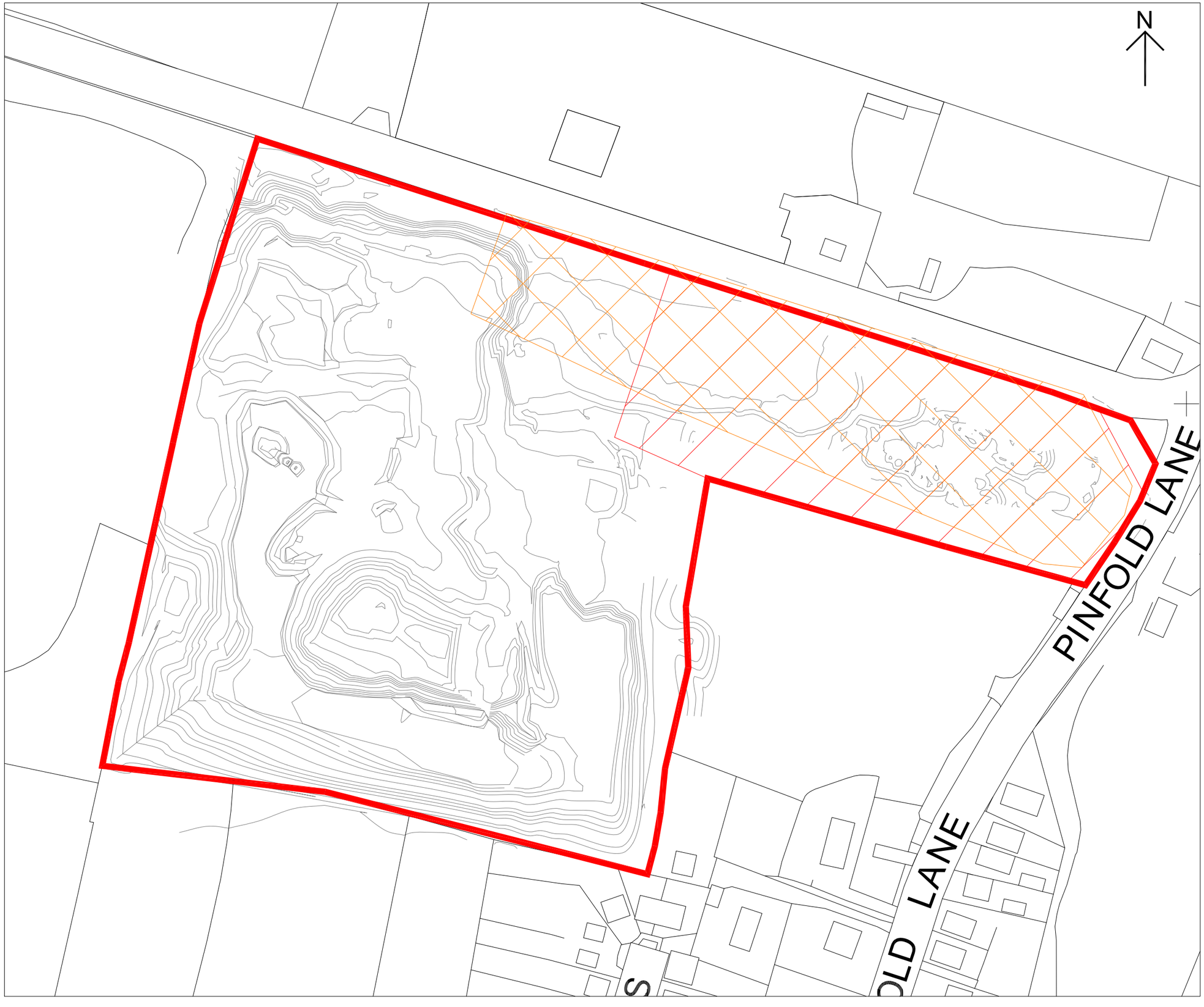
Scale	Date	Drawn	Chkd.	Drg. No.	Rev.
1:5,000@A3	Apr '21	JM	ML	Figure 1	



Key:

- Site boundary
- Historic landfill location
- Indicative illegal waste deposit location
- Existing ground level

Rev.	Details	Drawn / Chkd.	Date

Project

163407
Pollington Lane Quarry

Title

Historic Landfill and Illeagal Waste Deposit

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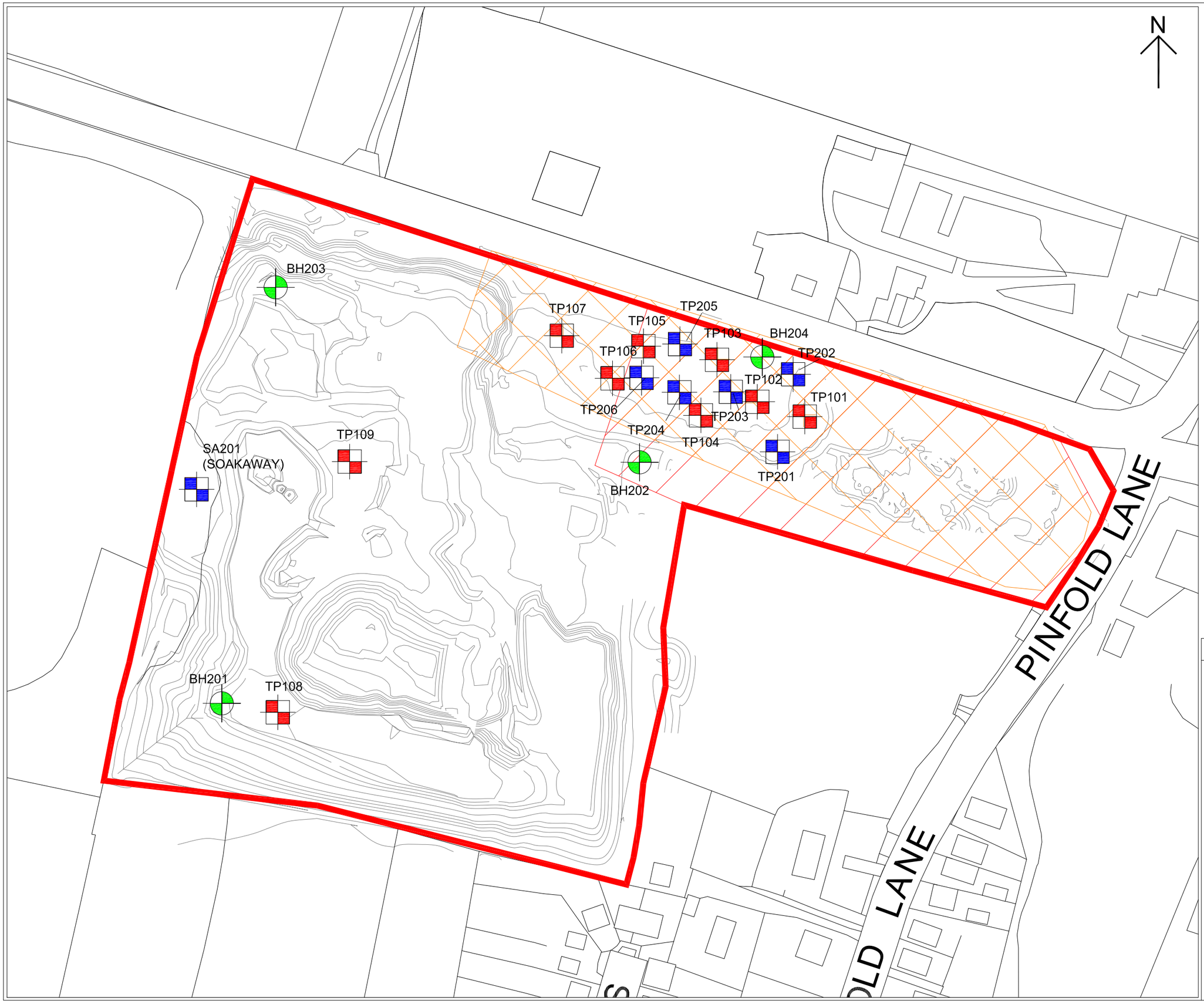
Scale	Date	Drg. No.	Rev.
1:1,500@A3	Apr '21	Figure 2	
	Drawn: JM / Chkd.: ML		



Key:

- Site boundary
- Existing contours (m AOD)
- Trial pit location (AAe, 2017)
- Trial pit location (AAe, 2020)
- Borehole location (AAe. 2020)
- Historic landfill location
- Indicative illegal waste deposit location

Rev.	Details	Drawn / Chkd.	Date

Project

163407
Pollington Lane Quarry

Title

Site Investigation Plan

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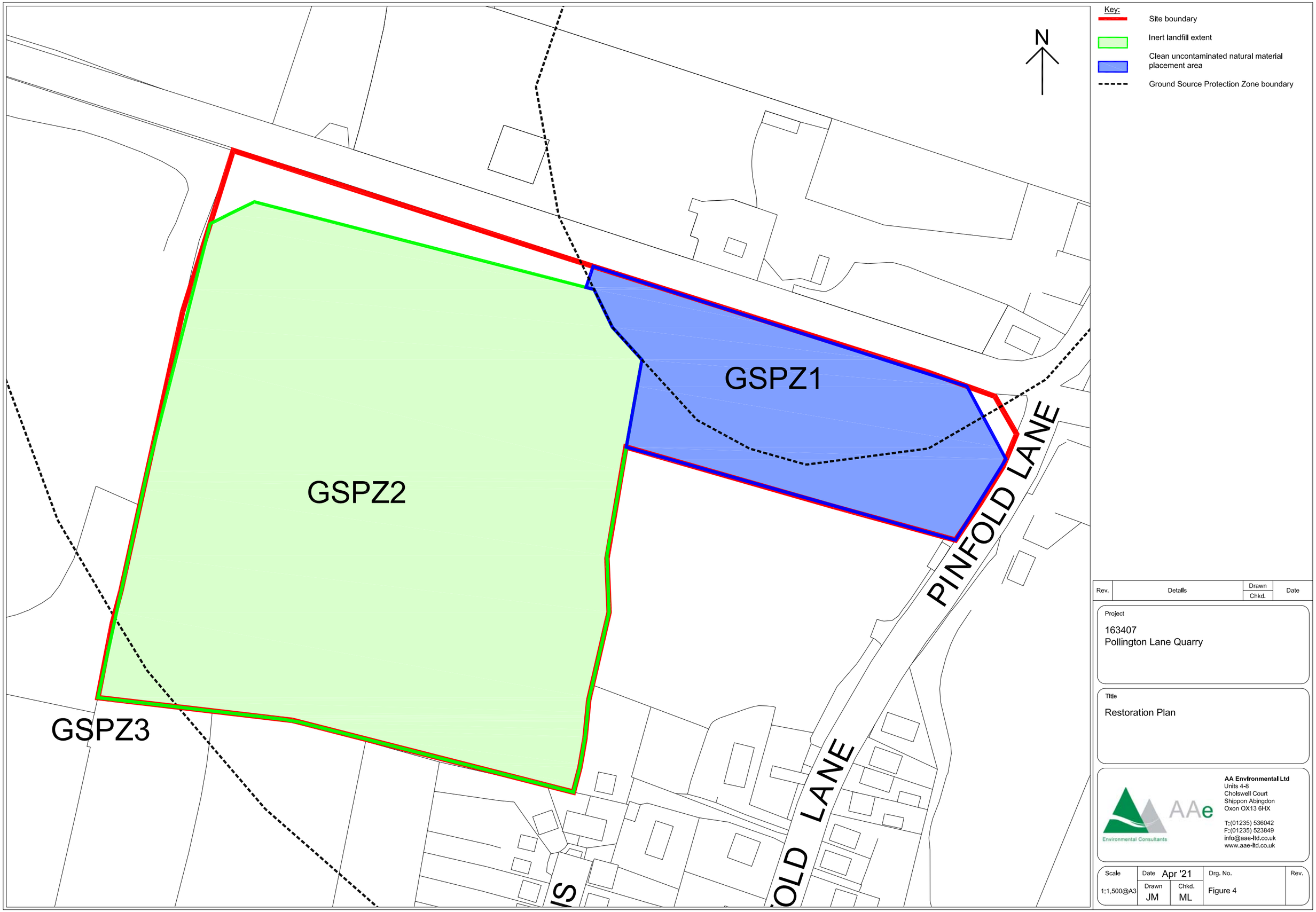
Scale	Date	Drg. No.	Rev.
1:1,500@A3	Apr '21	Figure 3	
	Drawn: JM / Chkd.: ML		



Key:

- Site boundary
- Inert landfill extent
- Clean uncontaminated natural material placement area
- Ground Source Protection Zone boundary

Rev.	Details	Drawn / Chkd.	Date

Project

163407
Pollington Lane Quarry

Title

Restoration Plan

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www.aae-ltd.co.uk

Environmental Consultants

Scale	Date	Drg. No.	Rev.
1:1,500@A3	Apr '21	Figure 4	
	Drawn: JM / Chkd.: ML		

APPENDIX A
Conceptual Site Model Methodology

Introduction

A.1 To determine the Significant Contaminant Linkages (SCL) at a site requires the review of potential contaminants, the associated available pathways and the characteristics of the associated receptors. The review of all the SCL is determined is termed as the development of a Conceptual Site Model (CSM).

A.2 The CSM for the site is presented in Chapter 6. The method for its development has been undertaken in accordance with this Appendix. Chapter 6 also determines the potential for any remediation/mitigation works required to make the site suitable for the proposed use.

Methodology

A.3 A series of potential receptors are assessed, together with linking pathways and suspected contaminant sources. Table A1 sets out the potential consequences of the contaminant linkage and the associated classification of the effect. Typical receptors evaluated are as follows:

- Human health
- Proposed/current usage:
    - Open spaces;
    - Residential with gardens;
    - Residential without gardens;
    - Commercial;
    - Industrial;
    - Off-site human health (linked to the typical land uses as defined above);
    - Construction workers;
- Ecological resource:
    - Current habitats and species;
    - proposed habitats and species;
- Controlled waters:
    - Surface waters;
    - Groundwater;
- Buildings and structures:
    - Aggressive ground conditions creating corrosion or impairment to building/structure.

Table A1. Potential Consequence of Contaminant Linkage

Classification	Human Health	Controlled water	Built Environment	Ecosystems
Severe	Irreversible damage to human health.	Significant pollution to a sensitive or important controlled water.	Damage to a building or structure that would require repair or remedial measures in excess of £20,000.	Irreversible change to an existing ecological species, habitat or ecosystem. Prohibit proposed growth of species, ecosystem or habitat.
Moderate	Reversible long-term damage to human health.	Pollution to a controlled water.	Damage to a building or structure that would require repair or remedial measures below £20,000.	Will impair the development of an existing species, ecosystem or habitat. Permit limited growth of a proposed species, ecosystem or habitat.

Classification	Human Health	Controlled water	Built Environment	Ecosystems
Mild	Reversible but short-term damage to human health.	Minor pollution to a non-sensitive controlled water.	Repairable damage to building or structures which would not require excessive cost.	Minor change or effects of development on species or habitat but does create long term effects on ecosystem.
Negligible	No discernible damage to human health.	No discernible pollution likely to a non-sensitive controlled water.	Insubstantial damage not requiring repair.	No significant effects on existing or proposed species, habitats or ecosystems.

A.4 The risk assessment examines impact of a contaminant on a receptor against the likelihood of its occurrence. The likelihood is rated accordingly:

Certain: > 90% of contaminant receptor linkage
Likely: 60-90% of contaminant receptor linkage
Possible: 30-60% of contaminant receptor linkage
Unlikely: 15-30% of contaminant receptor linkage
Very unlikely 2.5-15% of a contaminant receptor linkage
Negligible: <2.5% of contaminant receptor linkage

A.5 The available pathways are considered as follows:

- Human health
  - Dermal contact
  - Ingestion
  - Inhalation
  - Explosion
  - Puncture
- Ecology
  - Absorption of contaminants through roots and leaves;
- Controlled waters
  - Direct ingress of contaminants;
  - Leaching of contaminants from soils;
- Buildings
  - Direct contact with contaminated water or soils

A.6 Using the information derived about the availability of a contaminant to a receptor, a risk classification is then undertaken in accordance with Table A2.

Table A2. Risk Classification

		Potential consequence of contaminant linkage			
		Severe	**Moderate**	**Mild**	**Negligible**
Likelihood of contaminant receptor linkage	**Certain**	High	High	Medium	Very low
	Likely	High	High	Low	Negligible
	Possible	High	Medium	Low	Negligible
	Unlikely	Medium	Low	Very low	Negligible
	Very Unlikely	Low	Very low	Very low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

A.7 The assessed risk classification definitions are:

High: it is likely that the contaminant source could cause harm to a designated receptor and harm would be significant.
Medium: it is possible that the contaminant source could cause harm to a designated receptor, but it is unlikely that the harm would be significant.
Low: it is possible that the contaminant source could cause significant harm to a designated receptor, however it is likely to be mild.

Very low: it is considered unlikely that significant harm could be caused and any impact would be mild.

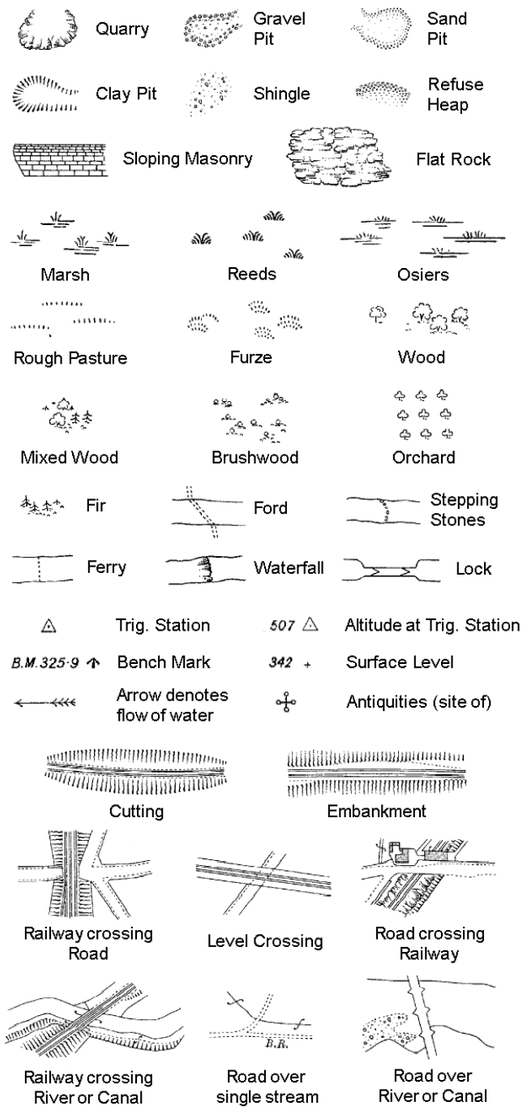
Negligible: the potential contaminant source cannot cause significant harm to the receptor.

APPENDIX B
Outline Development Plans

APPENDIX C
Envirocheck Report

Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



County Boundary (Geographical)

County & Civil Parish Boundary

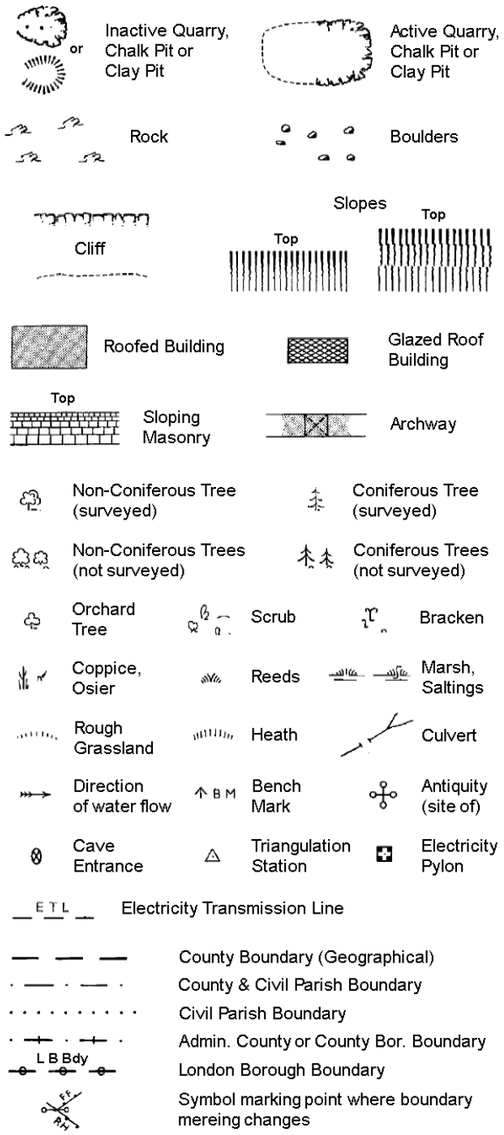
Administrative County & Civil Parish Boundary

Co. Boro. Bdy. County Borough Boundary (England)

Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

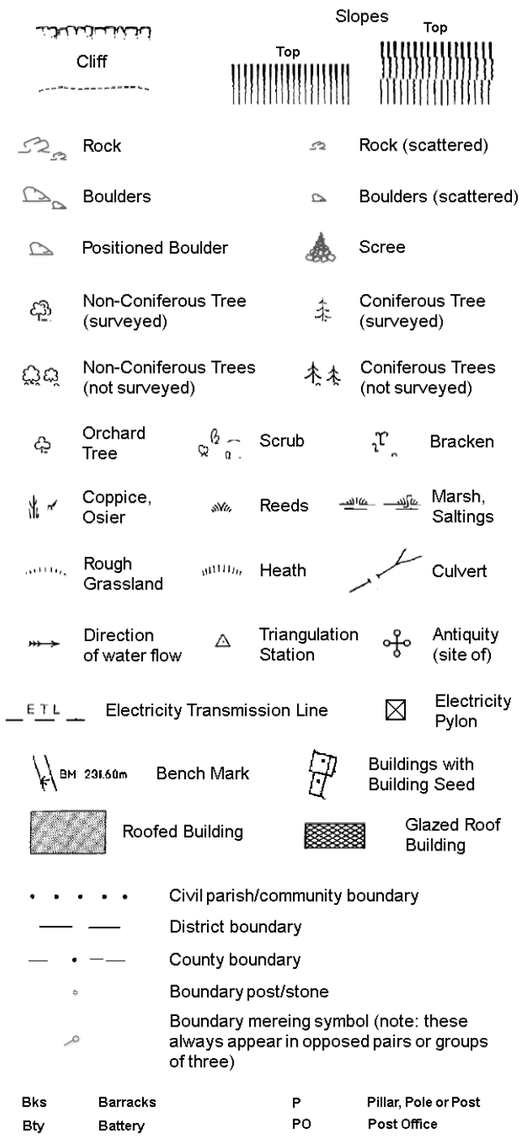
Admin. County or County Bor. Boundary

L B Bdy London Borough Boundary

Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

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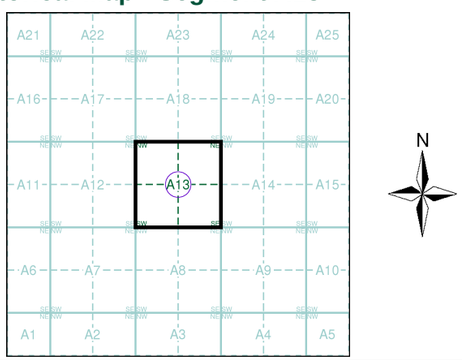
Historical Mapping & Photography included:

Historical Map - Segment A13



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Search Buffer (m):	100

Site Details

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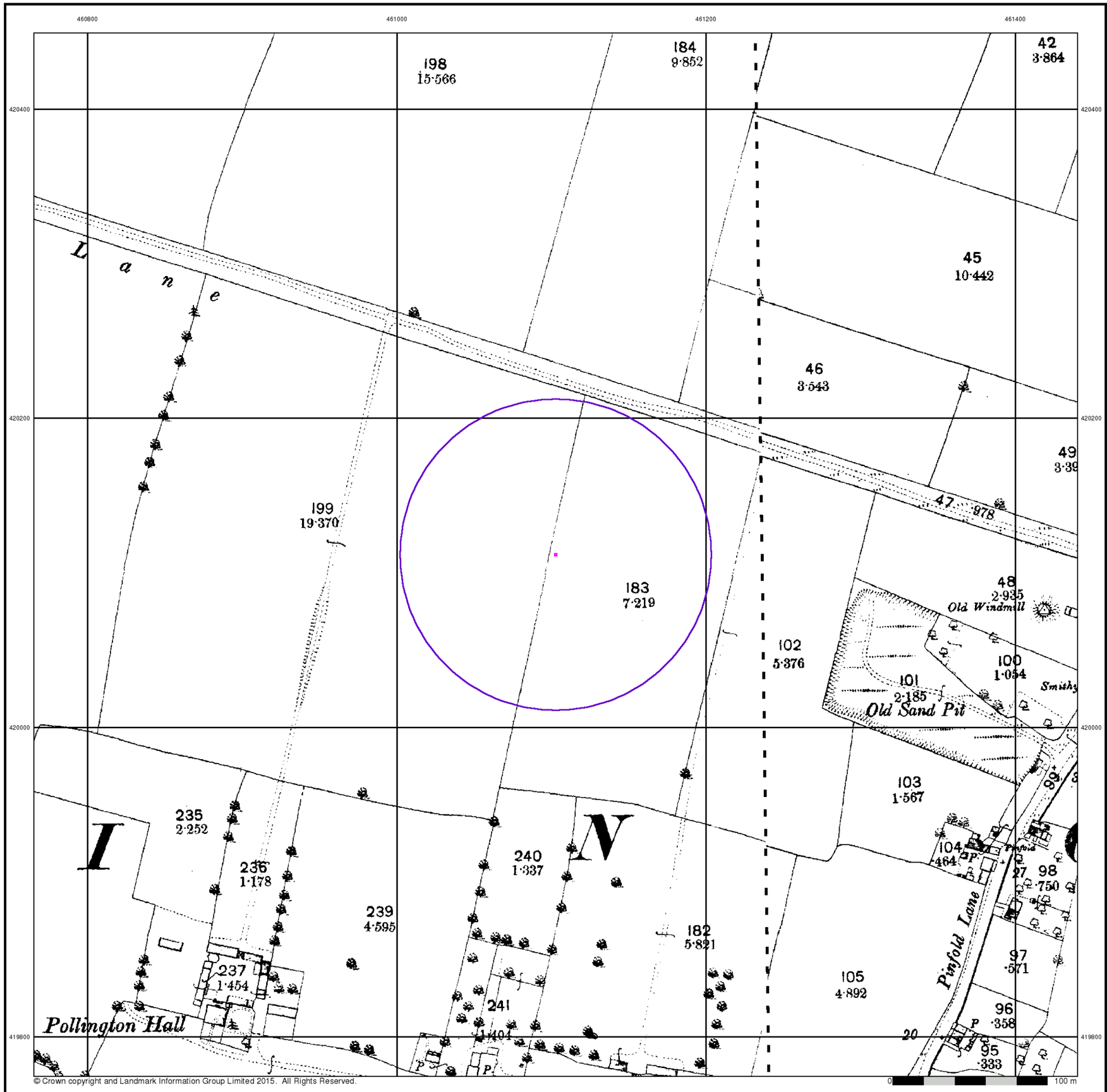

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Yorkshire

Published 1890

Source map scale - 1:2,500

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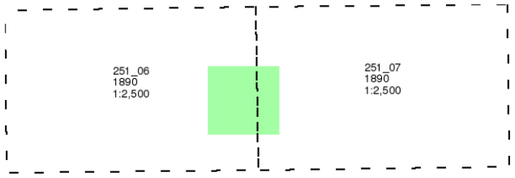
Map Name(s) and Date(s)



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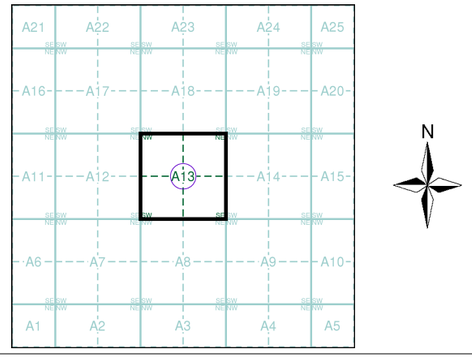

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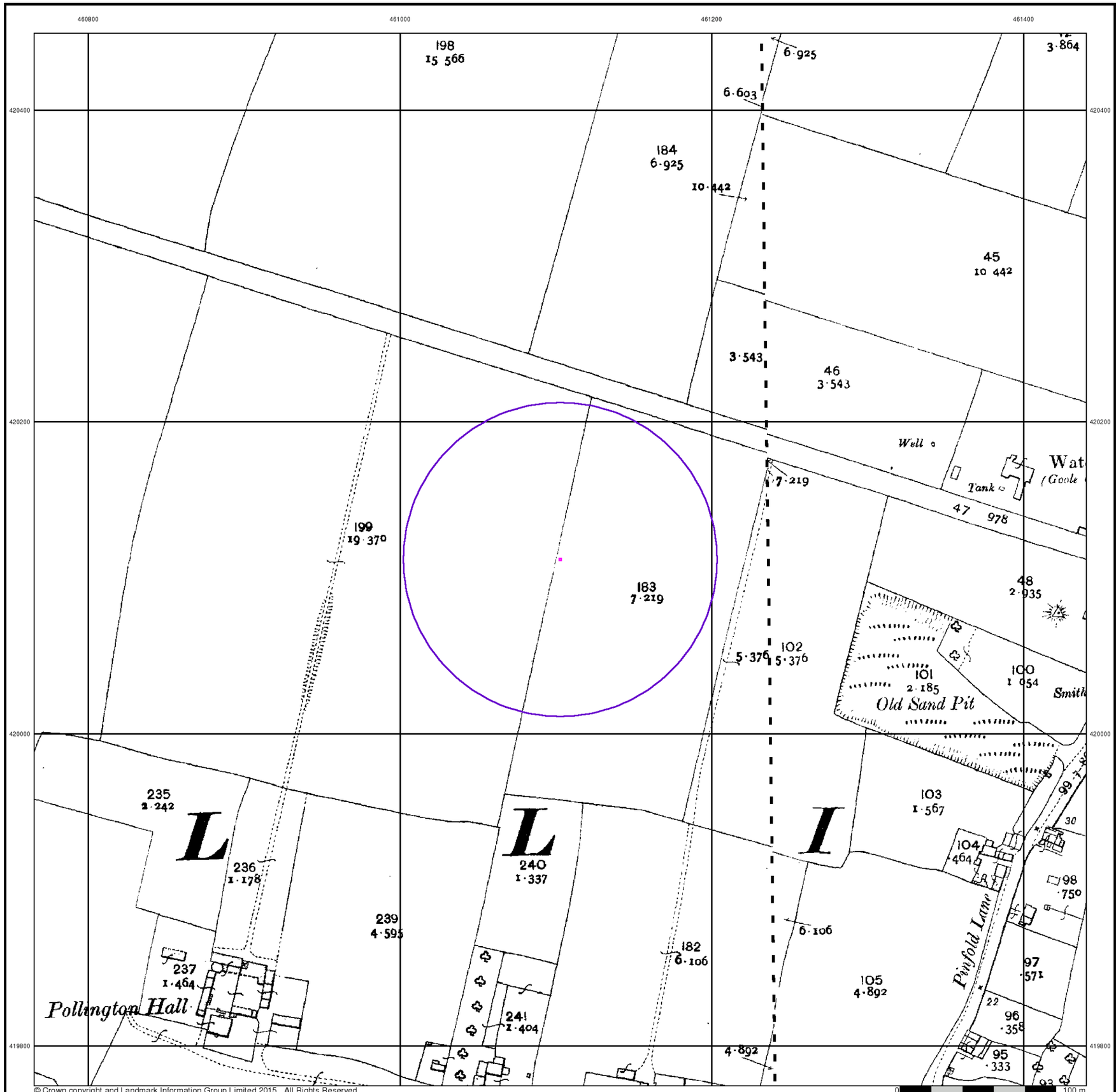

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Yorkshire

Published 1906

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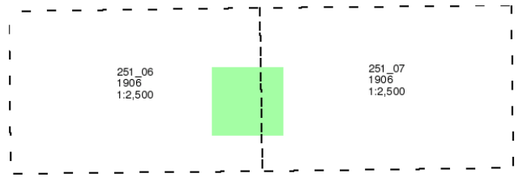

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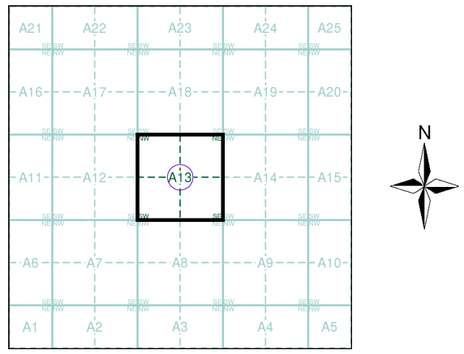

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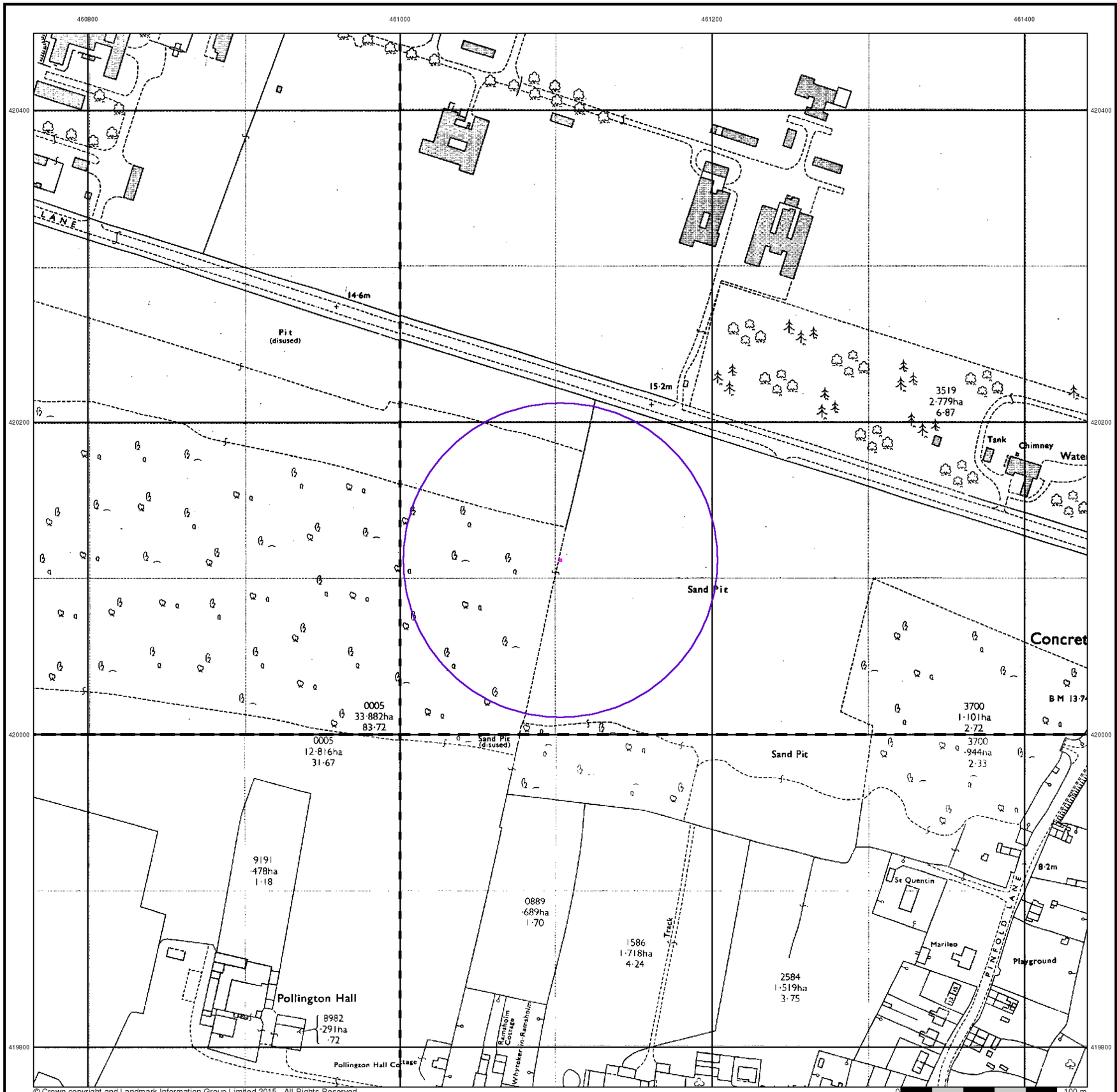

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Ordnance Survey Plan

Published 1970 - 1971

Source map scale - 1:2,500

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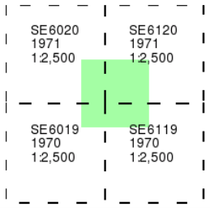

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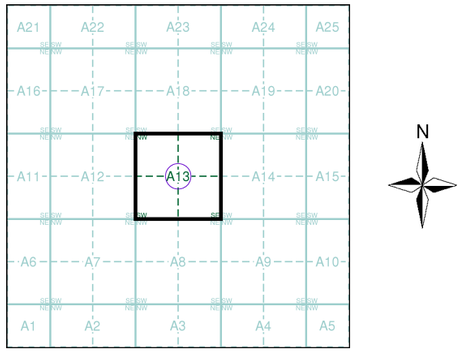

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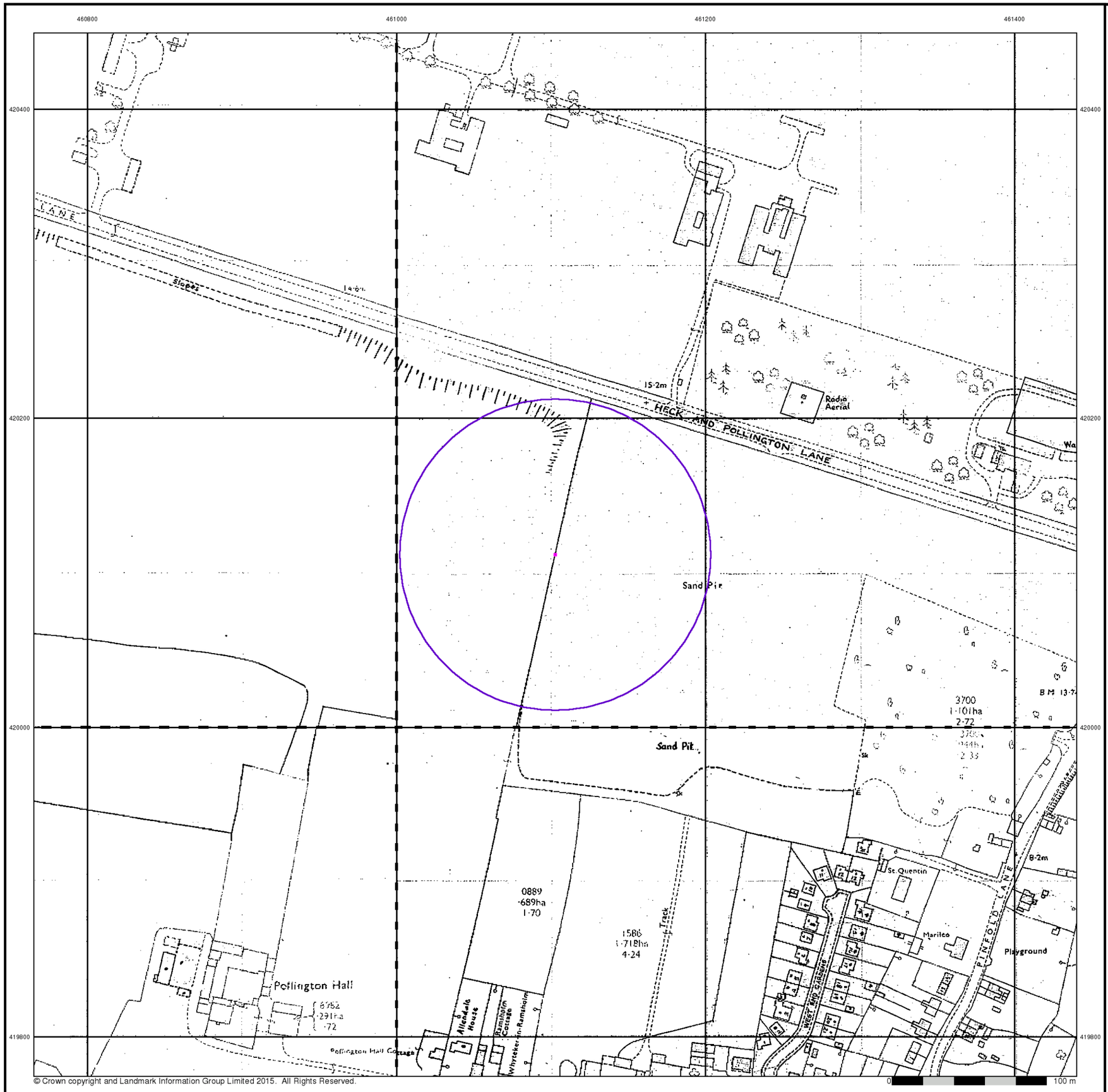

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Additional SIMs

Published 1978 - 1984

Source map scale - 1:2,500

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

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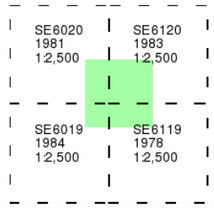

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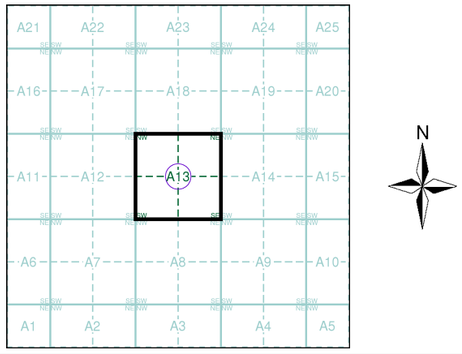

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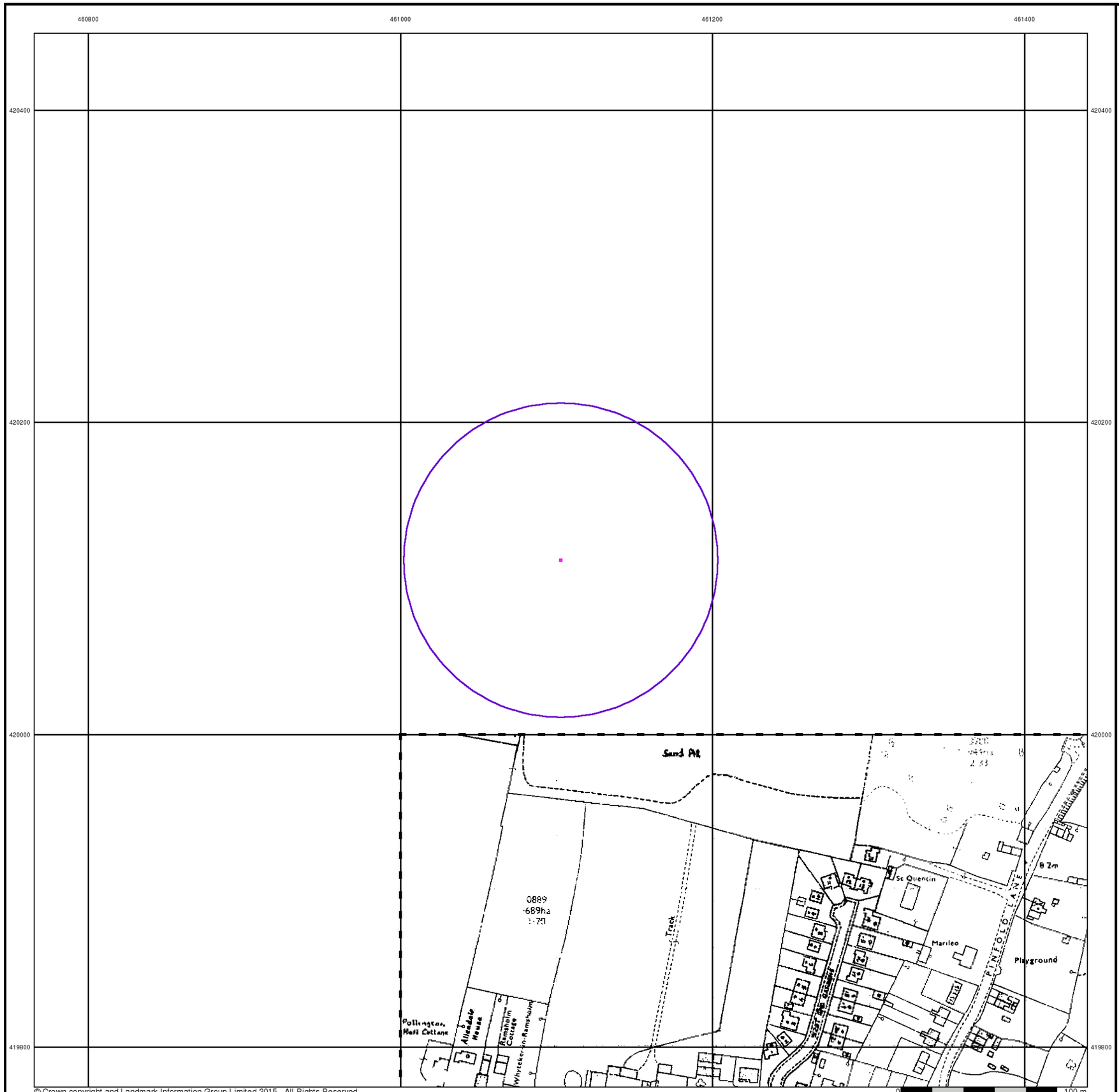

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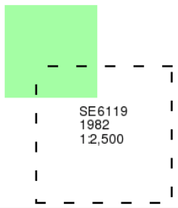

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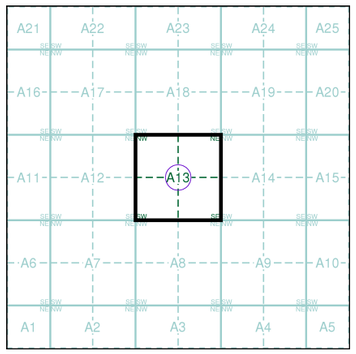

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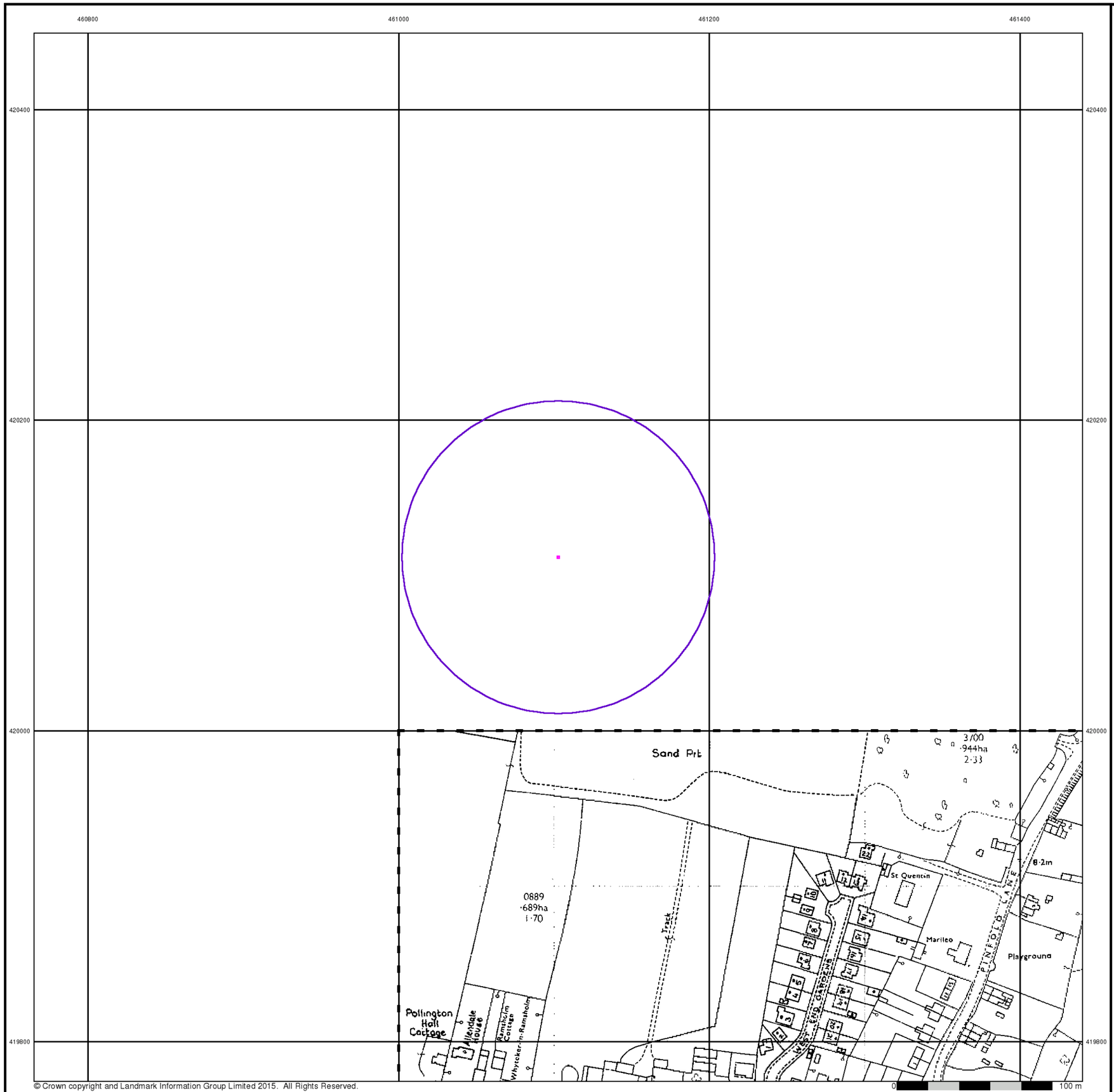

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Additional SIMs

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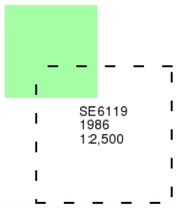

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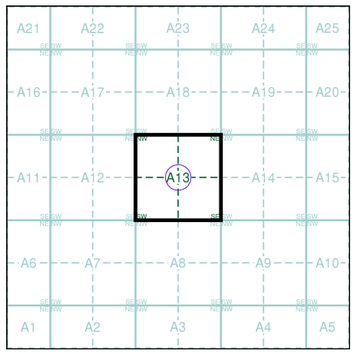

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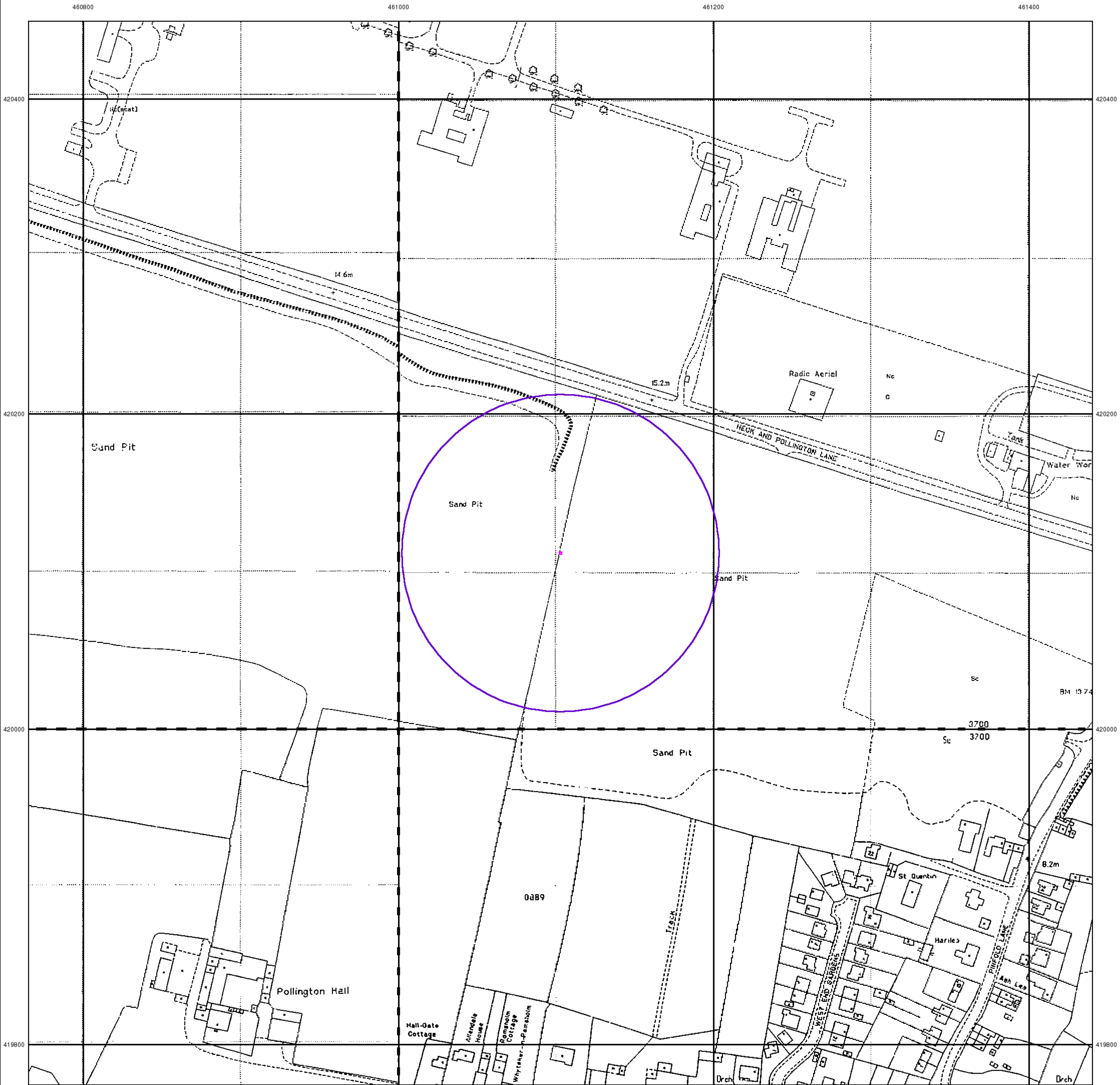

0 100 m

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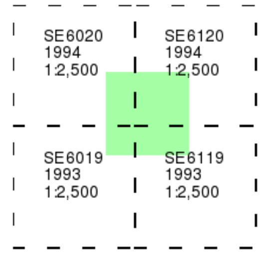
Large-Scale National Grid Data

Published 1993 - 1994

Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



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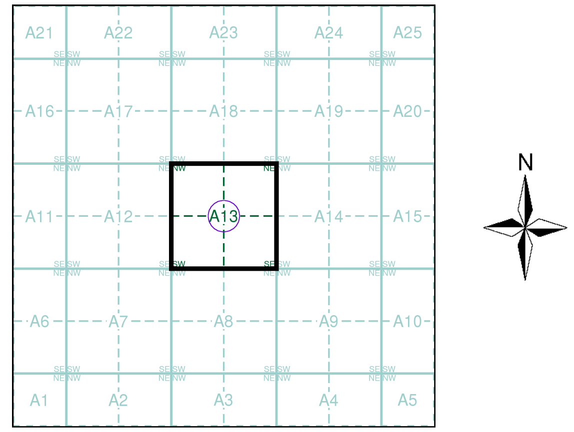

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Site Details

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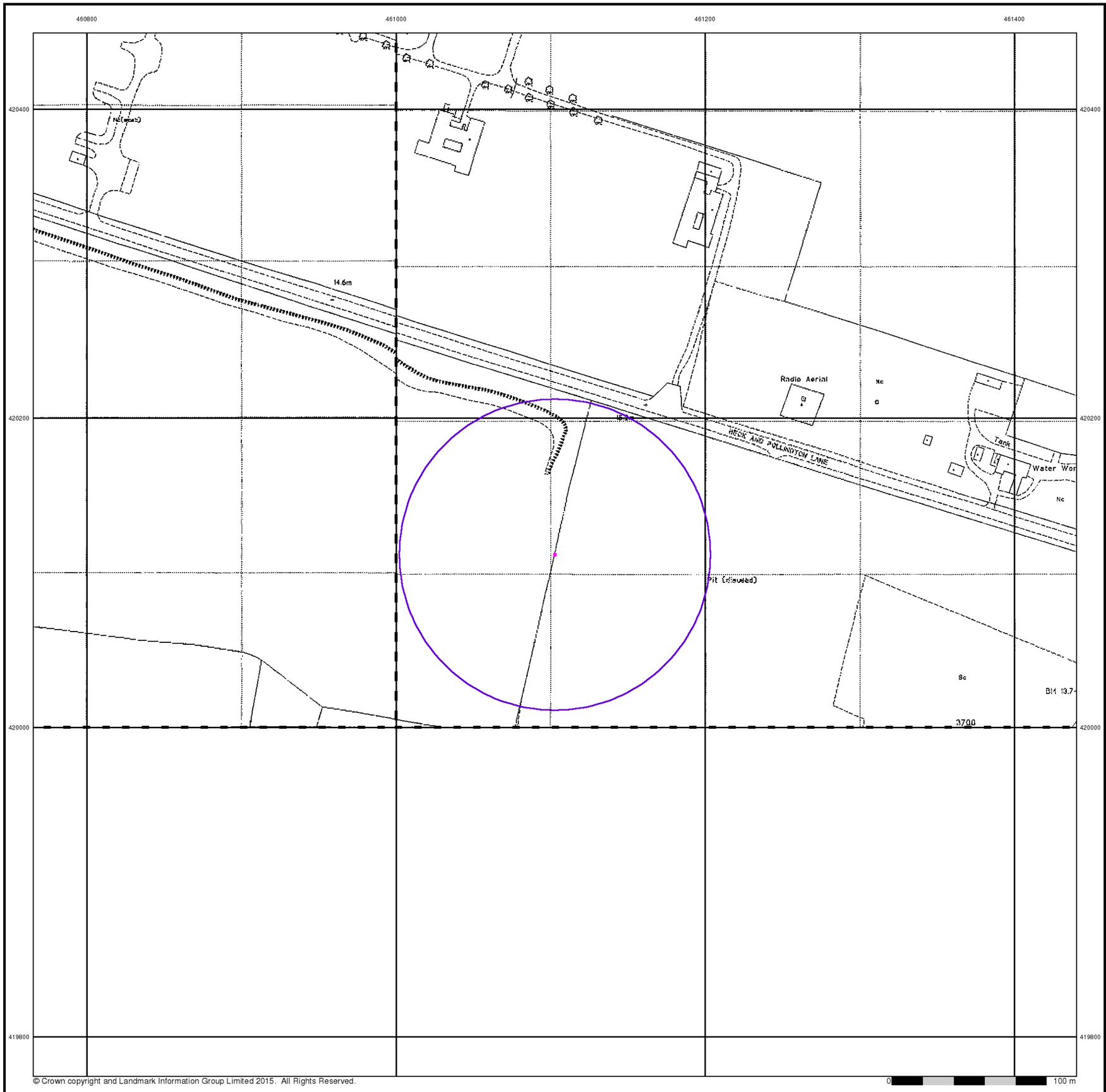

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Large-Scale National Grid Data

Published 1996

Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

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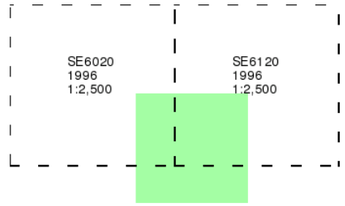

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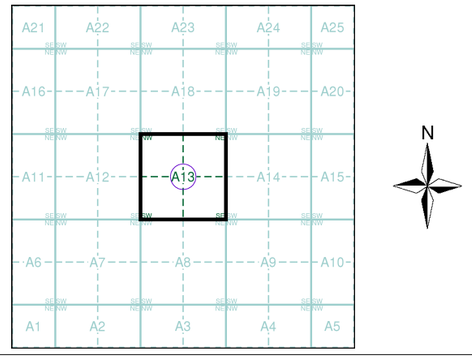

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Site Details

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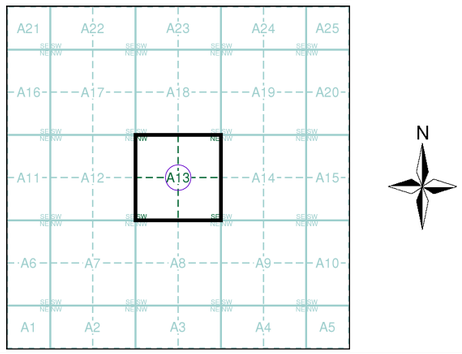
Historical Aerial Photography

Published 1999

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A13



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):	100

Site Details

Site at 461110, 420110

Landmark® INFORMATION GROUP

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

APPENDIX D
Site Investigation Logs and Photo Plates

AA Environmental Limited
Units 4-8 Cholswell Court
Shippon, Abingdon
OX13 6HX

Trial Pit Log

Trialpit No
TP101
Sheet 1 of 1

Project Name:	Pollington Lane Quarry	Project No. 163407	Co-ords: 461360.00 - 420112.00 Level: 12.88	Date 13/03/2017
Location:	Heck and Pollington Lane, Goole DN14	Dimensions (m): Depth 3.50	3 / 0.5	Scale 1:25
Client:	Matrix Aggregates Limited			Logged EB

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.00 - 3.50	ES					Dark brown gravelly SAND matrix with oversize fragments of with brick, rubble and a hessian sack. Small lens of black decaying trommel fines approximately 0.3m thick. (MADE GROUND)
				3.50	9.38		End of pit at 3.50 m

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Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: No visual or olfactory evidence of contamination; GROUNDWATER: Water seepage at 3.0 m.

Stability: Stable

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Trial Pit Log

Trialpit No
TP102
Sheet 1 of 1

Project Name:	Pollington Lane Quarry	Project No. 163407	Co-ords: 461341.00 - 420117.00 Level: 13.23	Date 13/03/2017
Location:	Heck and Pollington Lane, Goole DN14	Dimensions (m): Depth 3.00	3 / 0.5	Scale 1:25
Client:	Matrix Aggregates Limited			Logged EB

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.00 - 3.00	ES					Slightly clayey, silty SAND matrix with plastic polypipe, large concrete boulder fragments and brick present. Metal rebar embedded in trial pit. (MADE GROUND)
				2.70	10.53		Reddish dark brown gravelly SAND.
				3.00	10.23		End of pit at 3.00 m

Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: No visual or olfactory evidence of contamination.

Stability: Stable

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Trial Pit Log

Trialpit No
TP103
Sheet 1 of 1

Project Name:	Pollington Lane Quarry	Project No. 163407	Co-ords: 461325.00 - 420135.00 Level: 13.70	Date 13/03/2017
Location:	Heck and Pollington Lane, Goole DN14	Dimensions (m): Depth 3.00	3 × 0.5	Scale 1:25
Client:	Matrix Aggregates Limited			Logged EB

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.00 - 3.00	ES					Oversize quartz fragments and concrete cobbles / rubble within a dark brown fine to coarse sand matrix. (MADE GROUND)
				2.75	10.95		Oversize quartz and GRAVEL within a yellowish light brown silty clay matrix. (MADE GROUND)
				3.00	10.70		End of pit at 3.00 m

Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: No visual or olfactory evidence of contamination; GROUNDWATER: No groundwater encountered.

Stability: Stable

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Trial Pit Log

Trialpit No
TP104
Sheet 1 of 1

Project Name:	Pollington Lane Quarry	Project No. 163407	Co-ords: 461318.00 - 420112.00 Level: 13.19
Location:	Heck and Pollington Lane, Goole DN14	Dimensions (m): Depth 3.20	3 × 0.5
Client:	Matrix Aggregates Limited		Scale 1:25 Logged EB

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.00 - 3.20	ES					Loose yellow/brown gravelly SAND with concrete fragments. (MADE GROUND)
				2.40	10.79		Dark brown/ black decaying trommel fines and occasional pebbles. (MADE GROUND)
				3.20	9.99		End of pit at 3.20 m

Remarks: METHOD: Machine excavated the trial pit; CONTAMINATION: Soil is black and a mild odour is present between 2.4-2.9m; GROUNDWATER: No groundwater encountered.

Stability: Stable

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Trial Pit Log

Trialpit No
TP105
Sheet 1 of 1

Project Name:	Pollington Lane Quarry	Project No. 163407	Co-ords: 461294.00 - 420141.00 Level: 13.52	Date 13/03/2017
Location:	Heck and Pollington Lane, Goole DN14	Dimensions (m): Depth 1.60	3 / 0.5	Scale 1:25
Client:	Matrix Aggregates Limited			Logged EB

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	13.32		TOPSOIL
	0.40 - 1.60	ES					Oversize quartz fragments/ plastic/ brick within a dark brown sand matrix. Small lenses of approximately 0.1m thick black decaying trommel fines. (MADE GROUND)
				1.60	11.92		End of pit at 1.60 m

Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: No visual or olfactory evidence of contamination; GROUNDWATER: No groundwater encountered.

Stability: Stable

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Trial Pit Log

Trialpit No
TP106
Sheet 1 of 1

Project Name:	Pollington Lane Quarry	Project No. 163407	Co-ords: 461281.00 - 420128.00 Level: 13.13	Date 13/03/2017
Location:	Heck and Pollington Lane, Goole DN14	Dimensions (m): Depth 3.00	3 / 0.5	Scale 1:25
Client:	Matrix Aggregates Limited			Logged EB

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.25 - 1.60	ES		0.25	12.88		TOPSOIL
							Dark brown/black fine to medium cemented gravelly SAND with clay matrix in places. Oversize brick fragments present. (MADE GROUND)
	1.60 - 3.00	ES		1.60	11.53		Dark brown slightly clayey, silty SAND matrix with brick and large concrete boulder fragments present. (MADE GROUND)
				3.00	10.13		End of pit at 3.00 m

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Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: Made Ground is black, slight odour present between 0.7-1.6 m; GROUNDWATER: No groundwater encountered.

Stability: Stable

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Trial Pit Log

Trialpit No
TP107
Sheet 1 of 1

Project Name:	Pollington Lane Quarry	Project No. 163407	Co-ords: 461260.00 - 420145.00 Level: 12.63	Date 13/03/2017
Location:	Heck and Pollington Lane, Goole DN14	Dimensions (m): Depth 1.20	3 / 0.5	Scale 1:25
Client:	Matrix Aggregates Limited			Logged EB

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.00 - 1.20	ES					Oversize sandstone and quartz fragments within gravely sand. (MADE GROUND)
				1.10	11.53		
				1.20	11.43		Fine to medium grained red SAND with occasional pebbles.
							End of pit at 1.20 m

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Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: No visual or olfactory evidence or contamination; GROUNDWATER: No groundwater encountered.

Stability: Stable

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Trial Pit Log

Trialpit No
TP108
Sheet 1 of 1

Project Name:	Pollington Lane Quarry	Project No. 163407	Co-ords: 461144.00 - 419990.00 Level: -5.75
Location:	Heck and Pollington Lane, Goole DN14	Dimensions (m): Depth 1.00	3 × 0.5
Client:	Matrix Aggregates Limited		

Date: 13/03/2017
Scale: 1:25
Logged: EB

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.05 - 1.00	ES		0.05	-5.80		TOPSOIL Uncemented, dark orange to red medium grained SANDSTONE.
				1.00	-6.75		End of pit at 1.00 m

Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: No visual or olfactory evidence or contamination; GROUNDWATER: No groundwater encountered.

Stability: Stable

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Trial Pit Log

Trialpit No
TP109
Sheet 1 of 1

Project Name: Pollington Lane Quarry	Project No. 163407	Co-ords: 461174.00 - 420095.00 Level: -2.30	Date 13/03/2017
Location: Heck and Pollington Lane, Goole DN14		Dimensions (m): Depth 1.00, 3, 0.5	Scale 1:25
Client: Matrix Aggregates Limited			Logged EB

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.05 - 1.00	ES		0.05	-2.35		TOPSOIL Fine to medium grained red SAND with occasional pebbles.
				0.70	-3.00		Uncemented, dark orange to red medium grained SANDSTONE.
				1.00	-3.30		End of pit at 1.00 m

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Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: No visual or olfactory evidence or contamination; GROUNDWATER: No groundwater encountered.

Stability: Stable

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Trial Pit Log

Trialpit No
TP201
Sheet 1 of 1

Project Name: Pollington Lane Quarry	Project No. 163407	Co-ords: 461049.00 - 420138.00 Level: 0.80	Date 13/03/2017
Location: Heck and Pollington Lane, Goole DN14		Dimensions (m): Depth 1.50, 3, 0.5	Scale 1:25
Client: Matrix Aggregates Limited			Logged EB

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10 - 1.50	ES		0.10	0.70		TOPSOIL
							Fine to medium grained red SAND with occasional pebbles.
				1.20	-0.40		Slightly cemented red SANDSTONE becoming increasingly cemented at 1.5m
				1.50	-0.70		End of pit at 1.50 m

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Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: No visual or olfactory evidence or contamination; GROUNDWATER: No groundwater encountered.

Stability: Stable

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Trial Pit Log

Trialpit No
TP202
Sheet 1 of 1

Project Name: Pollington Lane Quarry	Project No. 163407	Co-ords: 461021.00 - 420184.00 Level: 1.05	Date 13/03/2017
Location: Heck and Pollington Lane, Goole DN14		Dimensions (m): Depth 1.50, 3, 0.5	Scale 1:25
Client: Matrix Aggregates Limited			Logged EB

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10	0.95		TOPSOIL
							Fine to medium grained red SAND with occasional pebbles.
				1.20	-0.15		Slightly cemented red SANDSTONE becoming increasingly cemented at 1.5m.
				1.50	-0.45		End of pit at 1.50 m

Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: No visual or olfactory evidence or contamination; GROUNDWATER: No groundwater encountered.

Stability: Stable

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Trial Pit Log

Trialpit No
TP203
Sheet 1 of 1

Project Name: Pollington Lane Quarry	Project No. 163407	Co-ords: 460916.00 - 420236.00 Level: 3.85	Date 13/03/2017
Location: Heck and Pollington Lane, Goole DN14		Dimensions (m): Depth 1.50, 3, 0.5	Scale 1:25
Client: Matrix Aggregates Limited			Logged EB

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10	3.75		TOPSOIL
							Uncemented dark orange to red medium grained SANDSTONE.
				1.50	2.35		End of pit at 1.50 m

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Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: No visual or olfactory evidence or contamination; GROUNDWATER: No groundwater encountered.

Stability: Stable

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Trial Pit Log

Trialpit No
TP204
Sheet 1 of 1

Project Name:	Pollington Lane Quarry	Project No. 163407	Co-ords: 460906.00 - 420266.00 Level: 4.41	Date 13/03/2017
Location:	Heck and Pollington Lane, Goole DN14	Dimensions (m): Depth 1.50	3 / 0.5	Scale 1:25
Client:	Matrix Aggregates Limited			Logged EB

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10	4.31		TOPSOIL
							Fine to medium grained red SAND with occasional pebbles.
				0.70	3.71		Weathered and uncemented red SANDSTONE becoming slightly cemented at 1.5 m.
				1.50	2.91		End of pit at 1.50 m

Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: No visual or olfactory evidence or contamination; GROUNDWATER: No groundwater encountered.

Stability: Stable

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Trial Pit Log

Trialpit No
TP205
Sheet 1 of 1

Project Name:	Pollington Lane Quarry	Project No. 163407	Co-ords: 460837.00 - 420207.00 Level: 2.90
Location:	Heck and Pollington Lane, Goole DN14	Dimensions (m): Depth 0.80	3 × 0.5
Client:	Matrix Aggregates Limited		

Date: 13/03/2017
Scale: 1:25
Logged: EB

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.15	2.75		TOPSOIL
							Fine to medium grained red SAND with occasional pebbles.
				0.80	2.10		End of pit at 0.80 m

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Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: No visual or olfactory evidence or contamination; GROUNDWATER: No groundwater encountered.

Stability: Stable

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Borehole Log

Borehole No.
BH201 (2020)
Sheet 1 of 1

Project Name:	Pollington Lane Quarry	Project No. 163407	Co-ords:	461122.58 - 419992.66	Hole Type BH
Location:	Heck and Pollington Lane, Goole DN14		Level:	-4.98	Scale 1:100
Client:	Matrix Aggregates Limited		Dates:	07/12/2020 - 07/12/2020	Logged By RD

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Dark orange to red medium grained sandstone (SANDSTONE) - OPEN HOLE - DRILLERS DESCRIPTION
					10.00	-14.98		End of borehole at 10.00 m

Remarks
METHOD: Rotary open hole; CONTAMINATION: No visual or olfactory evidence of contamination; GROUNDWATER: Standing 2.0 m BGL after 20 mins.

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Borehole Log

Borehole No.
BH202 (2020)
Sheet 1 of 2

Project Name:	Pollington Lane Quarry	Project No. 163407	Co-ords: 461293.37 - 420093.11
Location:	Heck and Pollington Lane, Goole DN14		Level: 8.51
Client:	Matrix Aggregates Limited		Dates: 08/12/2020 - 08/12/2020

Hole Type: BH
Scale: 1:100
Logged By: RD

Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					3.00	5.51		Dark orange to red medium grained sandstone with gravels (SANDSTONE) - OPEN HOLE - DRILLERS DESCRIPTION
								Dark orange to red medium grained sandstone (SANDSTONE) - OPEN HOLE - DRILLERS DESCRIPTION

Continued on next sheet

Remarks
METHOD: Rotary open hole; CONTAMINATION: No visual or olfactory evidence of contamination; GROUNDWATER: Strike 23.0 m BGL.

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Borehole Log

Borehole No.
BH202 (2020)
Sheet 2 of 2

Project Name:	Pollington Lane Quarry	Project No. 163407	Co-ords:	461293.37 - 420093.11	Hole Type BH
Location:	Heck and Pollington Lane, Goole DN14		Level:	8.51	Scale 1:100
Client:	Matrix Aggregates Limited		Dates:	08/12/2020 - 08/12/2020	Logged By RD

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					26.30	-17.79		End of borehole at 26.30 m

Remarks
METHOD: Rotary open hole; CONTAMINATION: No visual or olfactory evidence of contamination; GROUNDWATER: Strike 23.0 m BGL.

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Borehole Log

Borehole No.
BH203 (2020)
Sheet 1 of 1

Project Name: Pollington Lane Quarry	Project No. 163407	Co-ords: 461137.85 - 420166.52	Hole Type BH
Location: Heck and Pollington Lane, Goole DN14		Level: -1.22	Scale 1:100
Client: Matrix Aggregates Limited		Dates: 07/12/2020 - 07/12/2020	Logged By RD

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	-1.52		Topsoil - OPEN HOLE - DRILLERS DESCRIPTION
								Dark orange to red medium grained sandstone (SANDSTONE) - OPEN HOLE - DRILLERS DESCRIPTION
					14.00	-15.22		End of borehole at 14.00 m

Remarks
METHOD: Rotary open hole; CONTAMINATION: No visual or olfactory evidence of contamination; GROUNDWATER: Damp below 8.0 m BGL.

AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX	Borehole Log	Borehole No. **BH204 (2020)** Sheet 1 of 2

Project Name:	Pollington Lane Quarry	Project No. 163407	Co-ords: 461342.56 - 420136.96	Hole Type BH
Location:	Heck and Pollington Lane, Goole DN14		Level: 13.87	Scale 1:100
Client:	Matrix Aggregates Limited		Dates: 08/12/2020 - 09/12/2020	Logged By RD

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 1.00	ES					Mixed made ground / waste deposit composed of brick, concrete, soils with occasional tile, macadam, plastic, timber and fabric (MADE GROUND)
		1.00 - 2.00	ES					
		2.00 - 3.00	ES					
		3.00 - 4.00	ES					
					4.00	9.87		Dark orange to red medium grained sandstone (SANDSTONE) - OPEN HOLE - DRILLERS DESCRIPTION
								Continued on next sheet

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Remarks

METHOD: Dynamic sample to 4.0 m BGL, rotary open hole thereafter; CONTAMINATION: No visual or olfactory evidence of contamination; GROUNDWATER: Standing 28.6 m BGL after 20 mins.

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Borehole Log

Borehole No.
BH204 (2020)
Sheet 2 of 2

Project Name: Pollington Lane Quarry	Project No. 163407	Co-ords: 461342.56 - 420136.96	Hole Type BH
Location: Heck and Pollington Lane, Goole DN14		Level: 13.87	Scale 1:100
Client: Matrix Aggregates Limited		Dates: 08/12/2020 - 09/12/2020	Logged By RD

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					35.50	-21.63		End of borehole at 35.50 m

Remarks
METHOD: Dynamic sample to 4.0 m BGL, rotary open hole thereafter; CONTAMINATION: No visual or olfactory evidence of contamination; GROUNDWATER: Standing 28.6 m BGL after 20 mins.

AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX	**Trial Pit Log**		TrialPit No SA201 Sheet 1 of 1
Project Name: Pollington Lane Quarry	Project No. 163407	Co-ords: 461107.76 - 420081.15 Level: 1.50	Date 08/12/2020
Location: Heck and Pollington Lane, Goole DN14		Dimensions (m): Depth 2.43	Scale 1:50
Client: Matrix Aggregates Limited			Logged RD

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
							Dark orange to red medium grained sandstone (SANDSTONE)
				2.43	-0.93		End of Pit at 2.43m

Remarks: METHOD: Machine excavated trial pit for soakaway testing; CONTAMINATION: No visual or olfactory evidence of contamination; GROUNDWATER: Dry.

Stability:

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AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX	Trial Pit Log	TrialPit No TP201 (2020) Sheet 1 of 1

Project Name: Pollington Lane Quarry	Project No. 163407	Co-ords: 461356.38 - 420129.08 Level: 13.00	Date 07/12/2020
Location: Heck and Pollington Lane, Goole DN14		Dimensions (m): Depth 5.20	Scale 1:50
Client: Matrix Aggregates Limited			Logged RD

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	1.00 - 2.00	ES					Mixed made ground / waste deposit composed of brick, concrete, soils with occasional tile, macadam, plastic, timber and fabric (MADE GROUND)
	2.00 - 3.00	ES		2.00	11.00		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 (MADE GROUND)
	3.00 - 4.00	ES		3.00	10.00		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. Suspected ACM fragment at 3.00 m BGL (MADE GROUND)
				5.00	8.00		Dark orange to red medium grained sandstone (SANDSTONE)
				5.20	7.80		End of Pit at 5.20m

Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: Suspected asbestos fragment 3.0 m BGL; GROUNDWATER: Dry.

Stability:

AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX	Trial Pit Log	TrialPit No TP202 (2020) Sheet 1 of 1

Project Name: Pollington Lane Quarry	Project No. 163407	Co-ords: 461349.84 - 420096.74 Level: 12.25	Date 07/12/2020
Location: Heck and Pollington Lane, Goole DN14		Dimensions (m): Depth 4.60	Scale 1:50
Client: Matrix Aggregates Limited			Logged RD

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.00 - 1.00	ES					Mixed made ground / waste deposit composed of brick, concrete, soils with occasional tile, macadam, plastic, timber and fabric (MADE GROUND)
				1.00	11.25		
							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 (MADE GROUND)
	2.00	ES					
	3.00 - 4.00	ES					
				4.50	7.75		Dark orange to red medium grained sandstone (SANDSTONE)
				4.60	7.65		End of Pit at 4.60m

Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: No visual or olfactory evidence of contamination; GROUNDWATER: Dry.

Stability:

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AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX	**Trial Pit Log**		TrialPit No TP203 (2020) Sheet 1 of 1
Project Name: Pollington Lane Quarry	Project No. 163407	Co-ords: 461330.38 - 420121.77 Level: 13.50	Date 08/12/2020
Location: Heck and Pollington Lane, Goole DN14		Dimensions (m): Depth 3.70	Scale 1:50
Client: Matrix Aggregates Limited			Logged RD

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.00 - 1.00	ES					Mixed made ground / waste deposit composed of brick, concrete, soils with occasional tile, macadam, plastic, timber and fabric. Suspected ACM fragment 1.00 m BGL (MADE GROUND)
				1.00	12.50		
	1.50 - 2.00	ES					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 (MADE GROUND)
	3.00 - 3.50	ES					
				3.50	10.00		Dark orange to red medium grained sandstone (SANDSTONE)
				3.70	9.80		End of Pit at 3.70m

Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: Suspected asbestos fragment 1.0 m BGL; GROUNDWATER: Dry.

Stability:

AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX	Trial Pit Log	TrialPit No TP204 (2020) Sheet 1 of 1

Project Name: Pollington Lane Quarry	Project No. 163407	Co-ords: 461309.00 - 420121.58 Level: 13.50	Date 08/12/2020
Location: Heck and Pollington Lane, Goole DN14		Dimensions (m): Depth 4.50	Scale 1:50
Client: Matrix Aggregates Limited			Logged RD

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.00 - 1.00	ES					Mixed made ground / waste deposit composed of brick, concrete, soils with occasional tile, macadam, plastic, timber and fabric (MADE GROUND)
	1.00 - 1.50	ES		1.00	12.50		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 (MADE GROUND)
	2.80 - 4.00	ES		2.80	10.70		Mixed made ground / waste deposit composed of brick, concrete, soils with occasional tile, macadam, plastic, timber and fabric. Occasional black staining and weathered hydrocarbon and ammonia odour (MADE GROUND)
				4.30	9.20		Dark orange to red medium grained sandstone (SANDSTONE)
				4.50	9.00		End of Pit at 4.50m

Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: No visual or olfactory evidence of contamination; GROUNDWATER: Dry.

Stability:

AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX	**Trial Pit Log**		TrialPit No TP205 (2020) Sheet 1 of 1
Project Name: Pollington Lane Quarry	Project No. 163407	Co-ords: 461309.09 - 420141.66 Level: 13.75	Date 08/12/2020
Location: Heck and Pollington Lane, Goole DN14		Dimensions (m): Depth 3.60	Scale 1:50
Client: Matrix Aggregates Limited			Logged RD

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.00 - 1.00	ES					Mixed made ground / waste deposit composed of brick, concrete, soils with occasional tile, macadam, plastic, timber and fabric (MADE GROUND)
				1.00	12.75		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 (MADE GROUND)
	2.50 - 3.00	ES					
	3.00 - 3.50	ES					
				3.50	10.25		Dark orange to red medium grained sandstone (SANDSTONE)
				3.60	10.15		End of Pit at 3.60m

Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: No visual or olfactory evidence of contamination; GROUNDWATER: Dry.

Stability:

AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX	**Trial Pit Log**		TrialPit No TP206 (2020) Sheet 1 of 1
Project Name: Pollington Lane Quarry	Project No. 163407	Co-ords: 461293.20 - 420127.59 Level: 13.50	Date 08/12/2020
Location: Heck and Pollington Lane, Goole DN14		Dimensions (m): Depth 4.50	Scale 1:50
Client: Matrix Aggregates Limited			Logged RD

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.00 - 1.00	ES					Mixed made ground / waste deposit composed of brick, concrete, soils with occasional tile, macadam, plastic, timber and fabric (MADE GROUND)
				1.00	12.50		
	2.00 - 2.50	ES					Mixed made ground / waste deposit composed of brick, concrete, soils with occasional tile, macadam, plastic, timber and fabric. Occasional black staining and weathered hydrocarbon. Some ash and burnt wood MADE GROUND)
	3.50 - 4.00	ES		3.50	10.00		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 (MADE GROUND)
				4.30	9.20		Dark orange to red medium grained sandstone (SANDSTONE)
				4.50	9.00		End of Pit at 4.50m

Remarks: METHOD: Machine excavated trial pit; CONTAMINATION: No visual or olfactory evidence of contamination; GROUNDWATER: Dry.

Stability:

Comment TP201 – Pit advanced to 5.2m. Increasing instability at depth. Red sandstone visible at base.	**Project** Pollington Lane Quarry
	Reference TP201
	Date 7/12/2020
	Originator RD
	AAe Environmental Consultants **AA Environmental Limited** Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment TP201 – Pit advanced to 5.2m. Increasing instability at depth. Red sandstone visible at base.	**Project** Pollington Lane Quarry
	Reference TP201
	Date 7/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 1.0 – 2.0m arisings	**Project** Pollington Lane Quarry
	Reference TP201
	Date 7/12/2020
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 1.0 – 2.0 m arisings	**Project** Pollington Lane Quarry
	Reference TP201
	Date 7/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment	**Project** Pollington Lane Quarry
2.0-3.0m arisings	**Reference** TP201
	Date 7/12/2020
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 3.0 – 5.0m arisings	**Project** Pollington Lane Quarry
	Reference TP201
	Date 7/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment TP202 – Pit advanced to 4.6m. Increasing instability at depth. Red sandstone visible at base.	**Project** Pollington Lane Quarry
	Reference TP202
	Date 7/12/2020
	Originator RD
	Environmental Consultants **AA Environmental Limited** Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment TP202 lies at the outer edge of the waste deposit. Embankment drops into wooded depression and natural sandstone deposits	**Project** Pollington Lane Quarry
	Reference TP202
	Date 7/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 1.0 – 2.0m arisings	**Project** Pollington Lane Quarry
	Reference TP202
	Date 7/12/2020
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 3.0 – 4.0m arisings	**Project** Pollington Lane Quarry
	Reference TP202
	Date 7/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 4.5m base deposits. Dark potentially organic rick material. No hydrocarbon odour. Natural sandstone from 4.5m.	**Project** Pollington Lane Quarry
	Reference TP202
	Date 7/12/2020
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment TP203 – Pit advanced to 3.7m. Increasing instability at depth. Red sandstone visible from 3.5m.	**Project** Pollington Lane Quarry
	Reference TP203
	Date 8/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 1.0 – 2.0m arisings	**Project** Pollington Lane Quarry
	Reference TP203
	Date 8/12/2020
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 2.0 - 3.5m arisings	**Project** Pollington Lane Quarry
	Reference TP203
	Date 8/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 2.0 – 3.5m arisings	**Project** Pollington Lane Quarry
	Reference TP203
	Date 8/12/2020
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment TP204 – Pit advanced to 4.5 m. Increasing instability at depth. Red sandstone visible from 4.3m.	**Project** Pollington Lane Quarry
	Reference TP204
	Date 8/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment	**Project** Pollington Lane Quarry
	Reference TP204
	Date 8/12/2020
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 0.0 – 1.0m arisings	**Project** Pollington Lane Quarry
	Reference TP204
	Date 8/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 1.0 – 2.0m arisings	**Project** Pollington Lane Quarry
	Reference TP204
	Date 8/12/2020
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 2.0 – 3.0m arisings	**Project** Pollington Lane Quarry
	Reference TP204
	Date 8/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 3.9m arisings	**Project** Pollington Lane Quarry
	Reference TP204
	Date 8/12/2020
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment	**Project** Pollington Lane Quarry
TP205 – Pit advanced to 3.6 m. Increasing instability at depth. Red sandstone visible from 3.5m.	**Reference** TP205
	Date 8/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment TP205 pit, side wall showing heterogeneous fill	**Project** Pollington Lane Quarry
	Reference TP205
	Date 8/12/2020
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 0.0 – 1.0m arisings	**Project** Pollington Lane Quarry
	Reference TP205
	Date 8/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 1.5 – 2.0m arisings	**Project** Pollington Lane Quarry
	Reference TP205
	Date 8/12/2020
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 2.5 – 3.0m arisings	**Project** Pollington Lane Quarry
	Reference TP205
	Date 8/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 2.5 – 3.0m arisings Macadam	**Project** Pollington Lane Quarry
	Reference TP205
	Date 8/12/2020
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment TP206 – Pit advanced to 4.5 m. Increasing instability at depth. Red sandstone visible from 4.3m.	**Project** Pollington Lane Quarry
	Reference TP206
	Date 8/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment TP206 pit sidewall. Surface to 2.5m	**Project** Pollington Lane Quarry
	Reference TP206
	Date 8/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 0.0 – 1.2m arisings	**Project** Pollington Lane Quarry
	Reference TP206
	Date 8/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment	**Project** Pollington Lane Quarry
	Reference TP206
	Date 8/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 2.0 - 3.0m arisings	**Project** Pollington Lane Quarry
	Reference TP206
	Date 8/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

Comment 3.0 – 4.3m arisings	**Project** Pollington Lane Quarry
	Reference TP206
	Date 8/12/20
	Originator RD
	AA Environmental Limited Units 4-8 Cholswell Court Shippon, Abingdon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-ltd.co.uk www.aae-ltd.co.uk

APPENDIX E
Certificates of Analysis (Soils and Groundwater)

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-34071-1
Initial Date of Issue:	17-Dec-2020
Client	AA Environmental Ltd
Client Address:	Units 4 to 8 Cholswell Court Shippon Abingdon Oxfordshire OX136HX
Contact(s):	Reporting
Project	163407 Pollington Quarry

Quotation No.:		**Date Received:**	11-Dec-2020
Order No.:		**Date Instructed:**	14-Dec-2020
No. of Samples:	6		
Turnaround (Wkdays):	4	**Results Due:**	17-Dec-2020
Date Approved:	17-Dec-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Bulk Identification Certificate

Client: AA Environmental Ltd
Site Address:
Date Sampled: 09-Dec-2020
Date Received: 11-Dec-2020

Your Ref.:
Project: 163407 Pollington Quarry
Job Number: 20-34071
No Samples:
Date Reported: 17-Dec-2020

Sample No.	Sample ID	Sample Ref.	Description	Top (m)	Bottom (m)	SOP	Accred.	Laboratory	Material	Result
1112052			TP203	1.0	2.0	2185	U	COVENTRY	Cement	Chrysotile
1112053			TP201	3.0	3.0	2185	U	COVENTRY	Cement	Chrysotile

The in-house procedure SOP2185 is in accordance with the requirements of Appendix 2 of the Analyst Guide (HSG 248).
The results relate only to items tested as supplied by the client.
Comments and interpretations are beyond the scope of UKAS accreditation.
Samples associated with asbestos in building surveys are retained for six months (HSG 264 refers)

Results - Leachate

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd				**Chemtest Job No.:**		20-34071	20-34071	20-34071	20-34071
Quotation No.:				**Chemtest Sample ID.:**		1112054	1112055	1112056	1112057
				Sample Location:		BH204	BH204	BH204	BH204
				Sample Type:		SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.0	1.0	2.0	3.0
				Bottom Depth (m):		1.0	2.0	3.0	4.0
				Date Sampled:		09-Dec-2020	09-Dec-2020	09-Dec-2020	09-Dec-2020
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**				
pH	U	1010	10:1		N/A	7.9	7.5	6.8	7.1
Chloride	U	1220	10:1	mg/l	1.0	< 1.0	< 1.0	18	5.8
Ammoniacal Nitrogen	U	1220	10:1	mg/l	0.050	0.054	0.062	0.063	< 0.050
Sulphate	U	1220	10:1	mg/l	1.0	< 1.0	1.0	18	5.0
Cyanide (Total)	U	1300	10:1	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Magnesium	U	1415	10:1	mg/l	0.50	0.62	< 0.50	0.84	0.55
Arsenic (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Boron (Dissolved)	U	1450	10:1	µg/l	20	28	29	27	30
Cadmium (Dissolved)	U	1450	10:1	µg/l	0.080	< 0.080	< 0.080	0.082	< 0.080
Chromium (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper (Dissolved)	U	1450	10:1	µg/l	1.0	1.9	2.4	2.1	1.2
Mercury (Dissolved)	U	1450	10:1	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	1.5	< 1.0
Lead (Dissolved)	U	1450	10:1	µg/l	1.0	1.3	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	13	< 1.0
Chromium (Hexavalent)	U	1490	10:1	µg/l	20	< 20	< 20	< 20	< 20
Aliphatic TPH >C5-C6	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	10:1	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1680	10:1	µg/l	50.00	< 50	< 50	< 50	< 50
Total Aromatic Hydrocarbons	N	1675	10:1	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	10:1	µg/l	10	< 10	< 10	< 10	< 10
Naphthalene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Leachate

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd				**Chemtest Job No.:**		20-34071	20-34071	20-34071	20-34071
Quotation No.:				**Chemtest Sample ID.:**		1112054	1112055	1112056	1112057
				Sample Location:		BH204	BH204	BH204	BH204
				Sample Type:		SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.0	1.0	2.0	3.0
				Bottom Depth (m):		1.0	2.0	3.0	4.0
				Date Sampled:		09-Dec-2020	09-Dec-2020	09-Dec-2020	09-Dec-2020
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**				
Acenaphthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	N	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	1700	10:1	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	U	1760	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	1760	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	1760	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	1760	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	1760	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd			**Chemtest Job No.:**		20-34071	20-34071	20-34071	20-34071
Quotation No.:			**Chemtest Sample ID.:**		1112054	1112055	1112056	1112057
			Sample Location:		BH204	BH204	BH204	BH204
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.0	1.0	2.0	3.0
			Bottom Depth (m):		1.0	2.0	3.0	4.0
			Date Sampled:		09-Dec-2020	09-Dec-2020	09-Dec-2020	09-Dec-2020
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
ACM Type	U	2192		N/A	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-
Moisture	N	2030	%	0.020	5.0	3.7	4.5	7.6
pH	U	2010		4.0	7.6	6.7	4.8	6.9
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40	< 0.40	0.58	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	< 0.010	0.053	< 0.010
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	1.5	1.6	1.4	0.96
Arsenic	U	2450	mg/kg	1.0	5.9	4.9	4.9	2.1
Cadmium	U	2450	mg/kg	0.10	0.14	< 0.10	< 0.10	< 0.10
Chromium	U	2450	mg/kg	1.0	9.4	9.8	7.3	5.1
Copper	U	2450	mg/kg	0.50	13	12	13	9.0
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	12	9.8	6.8	7.2
Lead	U	2450	mg/kg	0.50	31	25	40	5.1
Selenium	U	2450	mg/kg	0.20	0.28	0.23	0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	15	15	13	9.3
Zinc	U	2450	mg/kg	0.50	39	29	27	17
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	U	2625	%	0.20	0.57	0.64	0.88	< 0.20
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd			**Chemtest Job No.:**		20-34071	20-34071	20-34071	20-34071
Quotation No.:			**Chemtest Sample ID.:**		1112054	1112055	1112056	1112057
			Sample Location:		BH204	BH204	BH204	BH204
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.0	1.0	2.0	3.0
			Bottom Depth (m):		1.0	2.0	3.0	4.0
			Date Sampled:		09-Dec-2020	09-Dec-2020	09-Dec-2020	09-Dec-2020
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	0.37	< 0.30

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1680	Extractable Petroleum Hydrocarbons	Aliphatics: >C5–C6, >C6–C8, >C8– C10*, >C10–C12*, >C12–C16*, >C16–C21*, >C21–C35*, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10*, >C10–C12*, >C12–C16*, >C16–C21*, >C21– C35*, >C35– C44	Dichloromethane extraction / GCxGC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2185	Asbestos	Asbestos	Polarised light microscopy
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.

Test Methods

SOP	Title	Parameters included	Method summary
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-34085-1
Initial Date of Issue:	17-Dec-2020
Client	AA Environmental Ltd
Client Address:	Units 4 to 8 Cholswell Court Shippon Abingdon Oxfordshire OX136HX
Contact(s):	Reporting
Project	163407 Pollington Quarry

Quotation No.:		**Date Received:**	11-Dec-2020
Order No.:		**Date Instructed:**	14-Dec-2020
No. of Samples:	6		
Turnaround (Wkdays):	4	**Results Due:**	17-Dec-2020
Date Approved:	17-Dec-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Leachate

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd					**Chemtest Job No.:**	20-34085	20-34085	20-34085	20-34085	20-34085	20-34085
Quotation No.:					**Chemtest Sample ID.:**	1112125	1112126	1112127	1112128	1112129	1112130
					Sample Location:	TP201	TP201	TP201	TP202	TP202	TP202
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	1.0	2.0	3.0	0.0	1.0	3.0
					Bottom Depth (m):	2.0	3.0	4.0	1.0	2.0	4.0
					Date Sampled:	07-Dec-2020	07-Dec-2020	07-Dec-2020	07-Dec-2020	07-Dec-2020	07-Dec-2020
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**						
pH	U	1010	10:1		N/A	7.8	7.9	8.0	8.0	7.7	7.7
Chloride	U	1220	10:1	mg/l	1.0	1.1	1.3	2.0	< 1.0	< 1.0	3.0
Ammoniacal Nitrogen	U	1220	10:1	mg/l	0.050	1.0	1.4	1.0	0.30	0.75	1.4
Sulphate	U	1220	10:1	mg/l	1.0	300	300	150	69	1500	1600
Cyanide (Total)	U	1300	10:1	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Magnesium	U	1415	10:1	mg/l	0.50	8.0	8.6	4.6	13	21	25
Arsenic (Dissolved)	U	1450	10:1	µg/l	1.0	2.9	1.6	1.6	4.5	1.8	1.3
Boron (Dissolved)	U	1450	10:1	µg/l	20	110	140	85	170	110	98
Cadmium (Dissolved)	U	1450	10:1	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper (Dissolved)	U	1450	10:1	µg/l	1.0	2.2	1.3	< 1.0	< 1.0	< 1.0	< 1.0
Mercury (Dissolved)	U	1450	10:1	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.80
Nickel (Dissolved)	U	1450	10:1	µg/l	1.0	1.7	1.7	1.4	2.3	5.2	5.9
Lead (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	10:1	µg/l	1.0	3.1	< 1.0	1.5	2.1	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	10:1	µg/l	1.0	3.2	5.3	< 1.0	< 1.0	30	26
Chromium (Hexavalent)	U	1490	10:1	µg/l	20	< 20	< 20	< 20	< 20	< 20	< 20
Aliphatic TPH >C5-C6	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	10:1	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1680	10:1	µg/l	50.00	< 50	< 50	< 50	< 50	< 50	< 50
Total Aromatic Hydrocarbons	N	1675	10:1	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	10:1	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Leachate

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd						**Chemtest Job No.:**	20-34085	20-34085	20-34085	20-34085	20-34085
Quotation No.:						**Chemtest Sample ID.:**	1112125	1112126	1112127	1112128	1112129	1112130
						Sample Location:	TP201	TP201	TP201	TP202	TP202	TP202
						Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
						Top Depth (m):	1.0	2.0	3.0	0.0	1.0	3.0
						Bottom Depth (m):	2.0	3.0	4.0	1.0	2.0	4.0
						Date Sampled:	07-Dec-2020	07-Dec-2020	07-Dec-2020	07-Dec-2020	07-Dec-2020	07-Dec-2020
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**							
Acenaphthene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	N	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	1700	10:1	µg/l	2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	U	1760	10:1	µg/l	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	1760	10:1	µg/l	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	1760	10:1	µg/l	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	1760	10:1	µg/l	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	1760	10:1	µg/l	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd			**Chemtest Job No.:**		20-34085	20-34085	20-34085	20-34085	20-34085	20-34085
Quotation No.:			**Chemtest Sample ID.:**		1112125	1112126	1112127	1112128	1112129	1112130
			Sample Location:		TP201	TP201	TP201	TP202	TP202	TP202
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.0	2.0	3.0	0.0	1.0	3.0
			Bottom Depth (m):		2.0	3.0	4.0	1.0	2.0	4.0
			Date Sampled:		07-Dec-2020	07-Dec-2020	07-Dec-2020	07-Dec-2020	07-Dec-2020	07-Dec-2020
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
ACM Type	U	2192		N/A	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-
Moisture	N	2030	%	0.020	9.1	8.9	12	15	14	16
pH	U	2010		4.0	8.8	9.0	8.8	8.6	8.4	8.6
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	1.6	1.4	1.0	2.1	2.2	2.6
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	1.4	1.4	0.59	0.51	1.6	1.8
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	15	11	84	33	16	46
Arsenic	U	2450	mg/kg	1.0	12	15	14	18	19	24
Cadmium	U	2450	mg/kg	0.10	0.25	0.28	0.23	1.2	0.50	0.37
Chromium	U	2450	mg/kg	1.0	22	21	26	22	43	31
Copper	U	2450	mg/kg	0.50	350	790	80	55	46	140
Mercury	U	2450	mg/kg	0.10	0.14	0.16	0.14	0.19	0.21	0.25
Nickel	U	2450	mg/kg	0.50	22	26	44	28	28	95
Lead	U	2450	mg/kg	0.50	51	100	71	83	150	110
Selenium	U	2450	mg/kg	0.20	< 0.20	0.23	0.34	< 0.20	0.26	0.30
Vanadium	U	2450	mg/kg	5.0	35	25	30	28	27	27
Zinc	U	2450	mg/kg	0.50	230	470	94	160	120	150
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	U	2625	%	0.20	1.1	1.9	1.6	1.9	2.7	2.9
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	21	< 1.0	7.5	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	200	< 1.0	30	< 1.0	< 1.0	14
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	220	< 5.0	37	< 5.0	< 5.0	14
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	58	2.6	22	1.5	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	790	35	170	17	< 1.0	84

Results - Soil

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd			**Chemtest Job No.:**		20-34085	20-34085	20-34085	20-34085	20-34085	20-34085
Quotation No.:			**Chemtest Sample ID.:**		1112125	1112126	1112127	1112128	1112129	1112130
			Sample Location:		TP201	TP201	TP201	TP202	TP202	TP202
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.0	2.0	3.0	0.0	1.0	3.0
			Bottom Depth (m):		2.0	3.0	4.0	1.0	2.0	4.0
			Date Sampled:		07-Dec-2020	07-Dec-2020	07-Dec-2020	07-Dec-2020	07-Dec-2020	07-Dec-2020
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	850	37	190	18	< 5.0	84
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	1100	37	220	18	< 10	99
Naphthalene	U	2700	mg/kg	0.10	0.35	0.21	0.52	0.20	0.21	0.38
Acenaphthylene	U	2700	mg/kg	0.10	0.28	0.22	3.7	0.24	0.26	0.61
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	0.23	1.3	0.67	1.1	0.56
Fluorene	U	2700	mg/kg	0.10	0.33	0.24	5.2	0.57	1.3	0.71
Phenanthrene	U	2700	mg/kg	0.10	2.6	2.1	25	3.9	10	5.9
Anthracene	U	2700	mg/kg	0.10	0.80	0.63	11	1.1	2.6	1.3
Fluoranthene	U	2700	mg/kg	0.10	5.6	5.2	31	8.1	13	7.7
Pyrene	U	2700	mg/kg	0.10	5.9	5.6	28	8.5	13	8.0
Benzo[a]anthracene	U	2700	mg/kg	0.10	2.9	2.8	16	3.8	3.0	3.7
Chrysene	U	2700	mg/kg	0.10	3.0	2.7	15	4.2	6.4	4.1
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	1.4	1.1	14	4.9	6.9	4.7
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	1.7	1.7	5.9	2.3	3.1	2.2
Benzo[a]pyrene	U	2700	mg/kg	0.10	2.9	2.9	12	3.5	5.2	3.4
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	2.0	2.0	6.0	2.2	3.1	2.1
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	0.77	0.64	2.3	1.2	1.3	0.97
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	1.9	1.9	5.6	1.9	2.9	2.2
Total Of 16 PAH's	U	2700	mg/kg	2.0	32	30	180	47	74	48
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1680	Extractable Petroleum Hydrocarbons	Aliphatics: >C5–C6, >C6–C8, >C8– C10*, >C10–C12*, >C12–C16*, >C16–C21*, >C21–C35*, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10*, >C10–C12*, >C12–C16*, >C16–C21*, >C21– C35*, >C35– C44	Dichloromethane extraction / GCxGC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.

Test Methods

SOP	Title	Parameters included	Method summary
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-34111-1
Initial Date of Issue:	17-Dec-2020
Client	AA Environmental Ltd
Client Address:	Units 4 to 8 Cholswell Court Shippon Abingdon Oxfordshire OX136HX
Contact(s):	Reporting
Project	163407 Pollington Quarry

Quotation No.:		**Date Received:**	11-Dec-2020
Order No.:		**Date Instructed:**	14-Dec-2020
No. of Samples:	6		
Turnaround (Wkdays):	4	**Results Due:**	17-Dec-2020
Date Approved:	17-Dec-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Leachate

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd				**Chemtest Job No.:**		20-34111	20-34111	20-34111	20-34111	20-34111	20-34111
Quotation No.:				**Chemtest Sample ID.:**		1112252	1112253	1112254	1112255	1112256	1112257
				Sample Location:		TP203	TP203	TP203	TP204	TP204	TP204
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.0	1.5	3.0	0.0	1.0	2.8
				Bottom Depth (m):		1.0	2.0	3.5	1.0	1.5	4.0
				Date Sampled:		08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**						
pH	U	1010	10:1		N/A	8.2	8.2	8.0	8.0	8.6	9.2
Chloride	U	1220	10:1	mg/l	1.0	1.4	< 1.0	< 1.0	< 1.0	22	19
Ammoniacal Nitrogen	U	1220	10:1	mg/l	0.050	0.053	0.054	< 0.050	0.42	4.7	1.3
Sulphate	U	1220	10:1	mg/l	1.0	80	48	190	480	10	33
Cyanide (Total)	U	1300	10:1	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Magnesium	U	1415	10:1	mg/l	0.50	5.3	4.3	13	17	1.1	1.1
Arsenic (Dissolved)	U	1450	10:1	µg/l	1.0	3.6	2.9	< 1.0	2.1	14	29
Boron (Dissolved)	U	1450	10:1	µg/l	20	75	40	56	47	100	49
Cadmium (Dissolved)	U	1450	10:1	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080	0.088	< 0.080
Chromium (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	1.0	< 1.0	< 1.0	2.0	2.2
Copper (Dissolved)	U	1450	10:1	µg/l	1.0	1.9	2.9	< 1.0	1.9	8.7	25
Mercury (Dissolved)	U	1450	10:1	µg/l	0.50	< 0.50	0.58	0.74	0.54	5.8	1.4
Nickel (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	1.1	1.9	5.0
Lead (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	3.6	3.2
Selenium (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.5	2.5
Vanadium (Dissolved)	U	1450	10:1	µg/l	1.0	1.2	1.3	< 1.0	1.1	9.2	94
Zinc (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0	< 1.0	2.7	7.9	1.4	3.4
Chromium (Hexavalent)	U	1490	10:1	µg/l	20	< 20	< 20	< 20	< 20	< 20	< 20
Aliphatic TPH >C5-C6	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	10:1	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	14	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1680	10:1	µg/l	50.00	< 50	< 50	< 50	< 50	< 50	< 50
Total Aromatic Hydrocarbons	N	1675	10:1	µg/l	5.0	< 5.0	< 5.0	< 5.0	14	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	10:1	µg/l	10	< 10	< 10	< 10	14	< 10	< 10
Naphthalene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Leachate

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd						**Chemtest Job No.:**	20-34111	20-34111	20-34111	20-34111	20-34111
Quotation No.:						**Chemtest Sample ID.:**	1112252	1112253	1112254	1112255	1112256	1112257
						Sample Location:	TP203	TP203	TP203	TP204	TP204	TP204
						Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
						Top Depth (m):	0.0	1.5	3.0	0.0	1.0	2.8
						Bottom Depth (m):	1.0	2.0	3.5	1.0	1.5	4.0
						Date Sampled:	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**							
Acenaphthene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	N	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	1700	10:1	µg/l	2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	U	1760	10:1	µg/l	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	1760	10:1	µg/l	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	1760	10:1	µg/l	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	1760	10:1	µg/l	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	1760	10:1	µg/l	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd			**Chemtest Job No.:**		20-34111	20-34111	20-34111	20-34111	20-34111	20-34111
Quotation No.:			**Chemtest Sample ID.:**		1112252	1112253	1112254	1112255	1112256	1112257
			Sample Location:		TP203	TP203	TP203	TP204	TP204	TP204
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.0	1.5	3.0	0.0	1.0	2.8
			Bottom Depth (m):		1.0	2.0	3.5	1.0	1.5	4.0
			Date Sampled:		08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
ACM Type	U	2192		N/A	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-
Moisture	N	2030	%	0.020	12	13	13	8.4	11	10
pH	U	2010		4.0	8.2	8.1	9.4	8.6	9.1	9.3
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	1.3	0.98	0.76	1.0	1.7	1.1
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.39	0.47	0.33	0.36	0.30	0.50
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	4.1	5.0	5.6	10	7.8	29
Arsenic	U	2450	mg/kg	1.0	17	21	12	14	8.9	16
Cadmium	U	2450	mg/kg	0.10	0.38	0.30	0.18	0.20	0.16	0.28
Chromium	U	2450	mg/kg	1.0	30	45	37	20	9.8	14
Copper	U	2450	mg/kg	0.50	22	34	37	30	17	27
Mercury	U	2450	mg/kg	0.10	0.22	0.26	0.11	0.17	0.37	0.17
Nickel	U	2450	mg/kg	0.50	64	100	29	19	8.9	11
Lead	U	2450	mg/kg	0.50	45	100	46	260	49	83
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	0.20	0.29
Vanadium	U	2450	mg/kg	5.0	22	27	28	27	17	20
Zinc	U	2450	mg/kg	0.50	65	96	70	78	46	490
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	U	2625	%	0.20	2.3	2.0	0.95	1.5	1.4	1.5
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	9.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	8.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	69	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	7.0	55	30	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	87	< 5.0	7.0	55	30	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	33	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	73	< 1.0	< 1.0	15	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	160	3.2	3.1	65	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	540	8.4	59	360	27	< 1.0

Results - Soil

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd			**Chemtest Job No.:**		20-34111	20-34111	20-34111	20-34111	20-34111	20-34111
Quotation No.:			**Chemtest Sample ID.:**		1112252	1112253	1112254	1112255	1112256	1112257
			Sample Location:		TP203	TP203	TP203	TP204	TP204	TP204
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.0	1.5	3.0	0.0	1.0	2.8
			Bottom Depth (m):		1.0	2.0	3.5	1.0	1.5	4.0
			Date Sampled:		08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	800	12	62	440	27	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	890	12	69	500	56	< 10
Naphthalene	U	2700	mg/kg	0.10	3.2	4.7	0.22	0.28	< 0.10	0.13
Acenaphthylene	U	2700	mg/kg	0.10	4.2	0.42	0.18	0.66	0.15	0.16
Acenaphthene	U	2700	mg/kg	0.10	1.7	3.4	0.59	6.8	0.95	0.11
Fluorene	U	2700	mg/kg	0.10	7.1	2.7	0.54	8.9	1.2	0.16
Phenanthrene	U	2700	mg/kg	0.10	22	15	4.4	61	7.8	0.72
Anthracene	U	2700	mg/kg	0.10	8.5	3.3	1.2	21	2.4	0.29
Fluoranthene	U	2700	mg/kg	0.10	22	15	6.3	54	7.1	1.0
Pyrene	U	2700	mg/kg	0.10	21	15	6.4	50	6.4	0.99
Benzo[a]anthracene	U	2700	mg/kg	0.10	11	6.5	2.9	19	2.5	0.51
Chrysene	U	2700	mg/kg	0.10	11	7.2	2.7	17	2.4	0.73
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	11	7.9	2.6	15	1.9	0.48
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	2.0	3.3	1.5	8.5	1.4	0.24
Benzo[a]pyrene	U	2700	mg/kg	0.10	8.8	6.4	2.9	15	2.0	0.42
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	4.6	3.8	1.8	9.8	1.2	0.24
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	1.9	1.1	0.70	2.9	0.47	0.29
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	5.0	3.9	1.7	8.3	1.1	0.35
Total Of 16 PAH's	U	2700	mg/kg	2.0	150	100	37	300	39	6.8
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	0.61	0.74

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1680	Extractable Petroleum Hydrocarbons	Aliphatics: >C5–C6, >C6–C8, >C8– C10*, >C10–C12*, >C12–C16*, >C16–C21*, >C21–C35*, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10*, >C10–C12*, >C12–C16*, >C16–C21*, >C21– C35*, >C35– C44	Dichloromethane extraction / GCxGC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.

Test Methods

SOP	Title	Parameters included	Method summary
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-34116-1
Initial Date of Issue:	17-Dec-2020
Client	AA Environmental Ltd
Client Address:	Units 4 to 8 Cholswell Court Shippon Abingdon Oxfordshire OX136HX
Contact(s):	Reporting
Project	163407 Pollington Quarry

Quotation No.:		**Date Received:**	11-Dec-2020
Order No.:		**Date Instructed:**	14-Dec-2020
No. of Samples:	6		
Turnaround (Wkdays):	4	**Results Due:**	17-Dec-2020
Date Approved:	17-Dec-2020		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Leachate

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd						**Chemtest Job No.:**	20-34116	20-34116	20-34116	20-34116	20-34116	20-34116
Quotation No.:						**Chemtest Sample ID.:**	1112275	1112276	1112277	1112278	1112279	1112280
						Client Sample ID.:	1A+1B	2A+2B	3A+2B	1A+1B	2A+2B	3A+3B
						Sample Location:	TP205	TP205	TP205	TP206	TP206	TP206
						Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
						Top Depth (m):	0.0	2.5	3.0	0.0	2.0	3.5
						Bottom Depth (m):	1.0	3.0	3.5	1.0	2.5	4.0
						Date Sampled:	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**							
pH	U	1010	10:1		N/A		8.4	8.6	8.2	7.9	8.1	8.2
Chloride	U	1220	10:1	mg/l	1.0		< 1.0	< 1.0	< 1.0	1.1	1.9	< 1.0
Ammoniacal Nitrogen	U	1220	10:1	mg/l	0.050		0.086	< 0.050	0.051	0.10	0.10	0.086
Sulphate	U	1220	10:1	mg/l	1.0		84	13	420	1400	160	130
Cyanide (Total)	U	1300	10:1	mg/l	0.050		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Magnesium	U	1415	10:1	mg/l	0.50		7.7	6.5	36	13	16	12
Arsenic (Dissolved)	U	1450	10:1	µg/l	1.0		1.3	1.6	2.5	1.3	1.3	1.3
Boron (Dissolved)	U	1450	10:1	µg/l	20		55	40	95	47	200	180
Cadmium (Dissolved)	U	1450	10:1	µg/l	0.080		< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	10:1	µg/l	1.0		1.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper (Dissolved)	U	1450	10:1	µg/l	1.0		2.1	1.4	5.7	3.2	< 1.0	< 1.0
Mercury (Dissolved)	U	1450	10:1	µg/l	0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	10:1	µg/l	1.0		< 1.0	< 1.0	1.2	1.7	1.4	1.5
Lead (Dissolved)	U	1450	10:1	µg/l	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	10:1	µg/l	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	10:1	µg/l	1.0		1.6	1.6	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	10:1	µg/l	1.0		< 1.0	< 1.0	25	30	2.0	1.3
Chromium (Hexavalent)	U	1490	10:1	µg/l	20		< 20	< 20	< 20	< 20	< 20	< 20
Aliphatic TPH >C5-C6	N	1675	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	10:1	µg/l	5.0		< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1680	10:1	µg/l	50.00		< 50	< 50	< 50	< 50	< 50	< 50
Total Aromatic Hydrocarbons	N	1675	10:1	µg/l	5.0		< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	10:1	µg/l	10		< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	U	1700	10:1	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Leachate

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd				**Chemtest Job No.:**		20-34116	20-34116	20-34116	20-34116	20-34116	20-34116
Quotation No.:				**Chemtest Sample ID.:**		1112275	1112276	1112277	1112278	1112279	1112280
				Client Sample ID.:		1A+1B	2A+2B	3A+2B	1A+1B	2A+2B	3A+3B
				Sample Location:		TP205	TP205	TP205	TP206	TP206	TP206
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.0	2.5	3.0	0.0	2.0	3.5
				Bottom Depth (m):		1.0	3.0	3.5	1.0	2.5	4.0
				Date Sampled:		08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**						
Acenaphthylene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	N	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	1700	10:1	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	U	1760	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	1760	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	1760	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	1760	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	1760	10:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd				**Chemtest Job No.:**	20-34116	20-34116	20-34116	20-34116	20-34116	20-34116
Quotation No.:				**Chemtest Sample ID.:**	1112275	1112276	1112277	1112278	1112279	1112280
				Client Sample ID.:	1A+1B	2A+2B	3A+2B	1A+1B	2A+2B	3A+3B
				Sample Location:	TP205	TP205	TP205	TP206	TP206	TP206
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.0	2.5	3.0	0.0	2.0	3.5
				Bottom Depth (m):	1.0	3.0	3.5	1.0	2.5	4.0
				Date Sampled:	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020
				Asbestos Lab:	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
ACM Type	U	2192		N/A	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-
Moisture	N	2030	%	0.020	9.8	8.5	5.9	8.7	10	11
pH	U	2010		4.0	8.7	8.8	8.4	8.9	10.1	9.8
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	0.91	0.90	1.0	1.7	1.6	1.4
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.12	0.17	0.28	0.98	0.65	0.79
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	10	9.6	4.2	15	41	30
Arsenic	U	2450	mg/kg	1.0	15	20	15	18	23	25
Cadmium	U	2450	mg/kg	0.10	0.36	0.48	0.35	0.42	0.68	0.64
Chromium	U	2450	mg/kg	1.0	22	31	20	41	92	370
Copper	U	2450	mg/kg	0.50	33	27	31	43	190	120
Mercury	U	2450	mg/kg	0.10	0.13	0.10	< 0.10	0.23	0.15	0.52
Nickel	U	2450	mg/kg	0.50	26	30	23	29	47	240
Lead	U	2450	mg/kg	0.50	49	47	32	80	81	120
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	0.25	< 0.20	0.22
Vanadium	U	2450	mg/kg	5.0	27	26	21	27	32	44
Zinc	U	2450	mg/kg	0.50	80	73	60	120	280	350
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	U	2625	%	0.20	1.9	2.7	1.5	2.3	1.8	2.3
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	24	78	24	28	31	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	38	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	24	120	24	28	31	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	16	2.7	9.9	< 1.0

Results - Soil

Project: 163407 Pollington Quarry

Client: AA Environmental Ltd			**Chemtest Job No.:**		20-34116	20-34116	20-34116	20-34116	20-34116	20-34116
Quotation No.:			**Chemtest Sample ID.:**		1112275	1112276	1112277	1112278	1112279	1112280
			Client Sample ID.:		1A+1B	2A+2B	3A+2B	1A+1B	2A+2B	3A+3B
			Sample Location:		TP205	TP205	TP205	TP206	TP206	TP206
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.0	2.5	3.0	0.0	2.0	3.5
			Bottom Depth (m):		1.0	3.0	3.5	1.0	2.5	4.0
			Date Sampled:		08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020	08-Dec-2020
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	34	460	140	32	120	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	34	460	150	35	120	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	57	570	180	63	160	< 10
Naphthalene	U	2700	mg/kg	0.10	0.15	0.34	< 0.10	0.18	0.24	0.44
Acenaphthylene	U	2700	mg/kg	0.10	0.17	0.18	< 0.10	0.10	1.1	0.26
Acenaphthene	U	2700	mg/kg	0.10	0.21	1.3	< 0.10	0.15	0.41	0.84
Fluorene	U	2700	mg/kg	0.10	0.20	1.3	< 0.10	0.17	1.4	0.90
Phenanthrene	U	2700	mg/kg	0.10	1.2	10	0.61	0.80	7.7	7.0
Anthracene	U	2700	mg/kg	0.10	0.36	2.6	0.14	0.21	2.2	3.0
Fluoranthene	U	2700	mg/kg	0.10	2.3	10	1.2	1.7	7.8	9.5
Pyrene	U	2700	mg/kg	0.10	2.5	9.3	1.2	1.8	7.5	9.4
Benzo[a]anthracene	U	2700	mg/kg	0.10	1.5	3.9	0.64	< 0.10	3.7	3.7
Chrysene	U	2700	mg/kg	0.10	1.3	3.5	0.58	0.88	3.6	3.5
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	1.3	3.1	0.61	0.84	4.3	3.4
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	0.86	1.8	0.41	0.67	1.8	2.3
Benzo[a]pyrene	U	2700	mg/kg	0.10	1.4	3.1	0.61	0.95	2.7	3.3
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	0.94	1.9	< 0.10	0.71	1.9	2.0
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	0.52	0.92	< 0.10	0.15	0.82	0.70
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	0.86	1.9	< 0.10	0.66	1.9	2.3
Total Of 16 PAH's	U	2700	mg/kg	2.0	16	55	6.0	10	49	53
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1680	Extractable Petroleum Hydrocarbons	Aliphatics: >C5–C6, >C6–C8, >C8– C10*, >C10–C12*, >C12–C16*, >C16–C21*, >C21–C35*, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10*, >C10–C12*, >C12–C16*, >C16–C21*, >C21– C35*, >C35– C44	Dichloromethane extraction / GCxGC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.

Test Methods

SOP	Title	Parameters included	Method summary
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

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Tel: 01638 606070
Email: info@chemtest.co.uk

UKAS TESTING
2183

Final Report

Report No.:	17-06365-1
Initial Date of Issue:	17-Mar-2017
Client	AA Environmental Ltd
Client Address:	Units 4 to 8 Cholswell Court Shippon Abingdon Oxfordshire OX136HX
Contact(s):	Carrie Lorton Ed Brown Jack Taylor John McCusker John McCusker Mark Anderson Matthew Lawman Richard Heath Sam Muir Sam Muir
Project	163407 POLLINGTON QUARRY

Quotation No.:		**Date Received:**	15-Mar-2017
Order No.:		**Date Instructed:**	15-Mar-2017
No. of Samples:	10		
Turnaround (Wkdays):	3	**Results Due:**	17-Mar-2017
Date Approved:	17-Mar-2017		

Approved By:

Details: Martin Dyer, Laboratory Manager

Chemtest
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Results - Soil

Project: 163407 POLLINGTON QUARRY

Client: AA Environmental Ltd				**Chemtest Job No.:**	17-06365	17-06365	17-06365	17-06365	17-06365	17-06365	17-06365	17-06365	17-06365
Quotation No.:				**Chemtest Sample ID.:**	425360	425361	425362	425363	425364	425365	425366	425367	425368
				Client Sample ID.:	TP1	TP2	TP3	TP4	TP5	TP6	TP6	TP7	TP9
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.0	0.0	0.0	0.0	0.0	0.7	1.6	0.0	0.0
				Bottom Depth (m):	3.0	3.0	2.7	3.0	1.6	1.6	3.0	1.5	1.5
				Date Sampled:	13-Mar-2017	13-Mar-2017	13-Mar-2017	13-Mar-2017	13-Mar-2017	13-Mar-2017	13-Mar-2017	13-Mar-2017	13-Mar-2017
				Asbestos Lab:	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	19	15	13	14	12	14	14	12	6.0
pH	U	2010		N/A	7.9	8.5	8.7	8.5	8.2	8.3	7.9	8.0	8.5
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	3.8	1.7	0.76	0.59	0.61	1.8	1.2	0.57	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	2.0	2.1	0.27	0.58	0.064	0.80	0.59	0.18	< 0.010
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	U	2325	mg/kg	0.50	9.7	15	8.8	8.5	10	42	9.3	8.2	4.0
Arsenic	U	2450	mg/kg	1.0	17	15	11	8.0	14	15	13	7.5	3.9
Cadmium	U	2450	mg/kg	0.10	0.90	0.64	0.20	0.19	0.32	0.53	0.34	0.22	< 0.10
Chromium	U	2450	mg/kg	1.0	35	23	22	19	24	61	23	17	5.2
Copper	U	2450	mg/kg	0.50	190	48	22	20	18	23	23	17	14
Mercury	U	2450	mg/kg	0.10	0.22	0.16	0.13	0.10	0.10	0.19	0.13	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	35	24	27	29	31	29	31	22	5.8
Lead	U	2450	mg/kg	0.50	160	80	45	41	49	69	49	32	2.7
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	35	24	20	19	18	26	22	18	6.3
Zinc	U	2450	mg/kg	0.50	180	120	68	72	65	70	67	63	12
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	U	2625	%	0.20	8.1	2.8	1.9	0.77	1.9	1.7	5.0	1.0	< 0.20
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	22	28	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	22	31	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.7	1.5	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	19	52	7.8	5.5	12	18	24	10	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	130	170	12	14	26	25	40	22	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Chemtest
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Results - Soil

Project: 163407 POLLINGTON QUARRY

Client: AA Environmental Ltd					**Chemtest Job No.:**	17-06365	17-06365	17-06365	17-06365	17-06365	17-06365	17-06365	17-06365
Quotation No.:					**Chemtest Sample ID.:**	425360	425361	425362	425363	425364	425365	425366	425367	425368
					Client Sample ID.:	TP1	TP2	TP3	TP4	TP5	TP6	TP6	TP7	TP9
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.0	0.0	0.0	0.0	0.0	0.7	1.6	0.0	0.0
					Bottom Depth (m):	3.0	3.0	2.7	3.0	1.6	1.6	3.0	1.5	1.5
					Date Sampled:	13-Mar-2017	13-Mar-2017	13-Mar-2017	13-Mar-2017	13-Mar-2017	13-Mar-2017	13-Mar-2017	13-Mar-2017	13-Mar-2017
					Asbestos Lab:	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		150	220	20	20	37	43	66	34	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		170	250	20	20	37	43	66	34	< 10
Naphthalene	U	2700	mg/kg	0.10		2.3	1.8	1.8	1.4	< 0.10	2.2	0.17	3.0	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10		0.97	0.63	0.56	1.2	0.35	0.59	1.2	0.44	< 0.10
Acenaphthene	U	2700	mg/kg	0.10		0.84	0.40	0.55	0.47	0.35	0.83	1.8	0.91	< 0.10
Fluorene	U	2700	mg/kg	0.10		0.92	0.47	0.60	0.90	0.39	0.91	2.2	0.56	< 0.10
Phenanthrene	U	2700	mg/kg	0.10		4.8	3.3	3.0	8.0	2.7	5.4	12	4.6	< 0.10
Anthracene	U	2700	mg/kg	0.10		1.1	0.81	0.73	1.8	0.69	1.2	2.1	1.4	< 0.10
Fluoranthene	U	2700	mg/kg	0.10		6.0	5.5	4.2	11	4.0	7.1	11	18	< 0.10
Pyrene	U	2700	mg/kg	0.10		5.6	5.8	4.5	9.9	3.8	7.0	11	17	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10		2.8	3.0	2.3	4.8	1.9	3.1	5.3	6.3	< 0.10
Chrysene	U	2700	mg/kg	0.10		3.3	3.0	2.4	5.2	2.1	3.4	7.2	7.2	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10		3.3	3.7	2.8	5.0	2.4	3.6	6.0	7.2	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10		1.6	1.7	1.2	2.2	1.0	2.0	2.6	2.9	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10		2.5	2.9	2.2	4.3	1.7	2.9	4.9	5.4	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10		2.1	2.2	1.7	2.7	1.1	2.4	2.9	3.8	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10		0.39	0.47	0.35	0.64	< 0.10	0.39	0.72	1.0	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10		1.4	1.7	1.6	2.4	1.2	1.9	2.9	3.0	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0		40	37	31	62	24	45	74	83	< 2.0
Total Phenols	U	2920	mg/kg	0.30		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Chemtest
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Results - Soil

Project: 163407 POLLINGTON QUARRY

Client: AA Environmental Ltd			**Chemtest Job No.:**		17-06365
Quotation No.:			**Chemtest Sample ID.:**		425369
			Client Sample ID.:		TP10
			Sample Type:		SOIL
			Top Depth (m):		0.0
			Bottom Depth (m):		2.5
			Date Sampled:		13-Mar-2017
			Asbestos Lab:		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
ACM Type	U	2192		N/A	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected
Moisture	N	2030	%	0.020	7.7
pH	U	2010		N/A	8.2
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50
Sulphide (Easily Liberatable)	U	2325	mg/kg	0.50	4.2
Arsenic	U	2450	mg/kg	1.0	3.9
Cadmium	U	2450	mg/kg	0.10	< 0.10
Chromium	U	2450	mg/kg	1.0	4.6
Copper	U	2450	mg/kg	0.50	19
Mercury	U	2450	mg/kg	0.10	0.15
Nickel	U	2450	mg/kg	0.50	6.6
Lead	U	2450	mg/kg	0.50	4.6
Selenium	U	2450	mg/kg	0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	6.8
Zinc	U	2450	mg/kg	0.50	9.0
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50
Total Organic Carbon	U	2625	%	0.20	< 0.20
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 163407 POLLINGTON QUARRY

Client: AA Environmental Ltd			**Chemtest Job No.:**		17-06365
Quotation No.:			**Chemtest Sample ID.:**		425369
			Client Sample ID.:		TP10
			Sample Type:		SOIL
			Top Depth (m):		0.0
			Bottom Depth (m):		2.5
			Date Sampled:		13-Mar-2017
			Asbestos Lab:		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	0.30
Anthracene	U	2700	mg/kg	0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	0.61
Pyrene	U	2700	mg/kg	0.10	0.63
Benzo[a]anthracene	U	2700	mg/kg	0.10	0.19
Chrysene	U	2700	mg/kg	0.10	0.21
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0
Total Phenols	U	2920	mg/kg	0.30	< 0.30

Results - Single Stage WAC

Project: 163407 POLLINGTON QUARRY

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	17-06365						
Chemtest Sample ID:	425360						
Sample Ref:							
Sample ID:	TP1						
Top Depth(m):	0.0						
Bottom Depth(m):	3.0						
Sampling Date:	13-Mar-2017						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon					3	5	6
Loss on Ignition					--	--	10
Total BTEX					6	--	--
Total PCBs (7 congeners)					1	--	--
TPH Total WAC (Mineral Oil)					500	--	--
Total (of 17) PAHs					100	--	--
pH					--	>6	--
Acid Neutralisation Capacity					--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
Arsenic	1450	U	0.0024	< 0.050	0.5	2	25
Barium	1450	U	0.068	0.68	20	100	300
Cadmium	1450	U	0.00018	< 0.010	0.04	1	5
Chromium	1450	U	0.0018	< 0.050	0.5	10	70
Copper	1450	U	0.0077	0.077	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.036	0.36	0.5	10	30
Nickel	1450	U	0.0020	< 0.050	0.4	10	40
Lead	1450	U	0.0014	0.014	0.5	10	50
Antimony	1450	U	0.0013	0.013	0.06	0.7	5
Selenium	1450	U	0.0020	0.020	0.1	0.5	7
Zinc	1450	U	0.11	1.1	4	50	200
Chloride	1220	U	2.5	25	800	15000	25000
Fluoride	1220	U	0.60	6.0	10	150	500
Sulphate	1220	U	1600	16000	1000	20000	50000
Total Dissolved Solids	1020	N	1600	16000	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	9.6	96	500	800	1000

Soild Information	
Dry mass of test portion/kg	0.090
Moisture (%)	19

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 163407 POLLINGTON QUARRY

Chemtest Job No:	17-06365				**Landfill Waste Acceptance Criteria Limits**		
Chemtest Sample ID:	425361						
Sample Ref:							
Sample ID:	TP2				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Top Depth(m):	0.0						
Bottom Depth(m):	3.0						
Sampling Date:	13-Mar-2017						
Determinand	**SOP**	**Accred.**	**Units**				
Total Organic Carbon					3	5	6
Loss on Ignition					--	--	10
Total BTEX					6	--	--
Total PCBs (7 congeners)					1	--	--
TPH Total WAC (Mineral Oil)					500	--	--
Total (of 17) PAHs					100	--	--
pH					--	>6	--
Acid Neutralisation Capacity					--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
Arsenic	1450	U	0.0013	< 0.050	0.5	2	25
Barium	1450	U	0.030	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0016	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.011	0.11	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.022	< 0.50	4	50	200
Chloride	1220	U	3.1	31	800	15000	25000
Fluoride	1220	U	0.50	5.0	10	150	500
Sulphate	1220	U	1400	14000	1000	20000	50000
Total Dissolved Solids	1020	N	1400	14000	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	6.5	65	500	800	1000

Soild Information	
Dry mass of test portion/kg	0.090
Moisture (%)	15

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 163407 POLLINGTON QUARRY

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	17-06365						
Chemtest Sample ID:	425362						
Sample Ref:							
Sample ID:	TP3						
Top Depth(m):	0.0						
Bottom Depth(m):	2.7						
Sampling Date:	13-Mar-2017						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon					3	5	6
Loss on Ignition					--	--	10
Total BTEX					6	--	--
Total PCBs (7 congeners)					1	--	--
TPH Total WAC (Mineral Oil)					500	--	--
Total (of 17) PAHs					100	--	--
pH					--	>6	--
Acid Neutralisation Capacity					--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
Arsenic	1450	U	0.0038	< 0.050	0.5	2	25
Barium	1450	U	0.011	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0015	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.010	0.10	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	0.0012	0.012	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0052	< 0.50	4	50	200
Chloride	1220	U	2.1	21	800	15000	25000
Fluoride	1220	U	0.36	3.6	10	150	500
Sulphate	1220	U	59	590	1000	20000	50000
Total Dissolved Solids	1020	N	120	1200	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	150	1500	500	800	1000

Soild Information	
Dry mass of test portion/kg	0.090
Moisture (%)	13

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 163407 POLLINGTON QUARRY

Chemtest Job No:	17-06365				**Landfill Waste Acceptance Criteria Limits**		
Chemtest Sample ID:	425363						
Sample Ref:							
Sample ID:	TP4				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Top Depth(m):	0.0						
Bottom Depth(m):	3.0						
Sampling Date:	13-Mar-2017						
Determinand	**SOP**	**Accred.**	**Units**				
Total Organic Carbon					3	5	6
Loss on Ignition					--	--	10
Total BTEX					6	--	--
Total PCBs (7 congeners)					1	--	--
TPH Total WAC (Mineral Oil)					500	--	--
Total (of 17) PAHs					100	--	--
pH					--	>6	--
Acid Neutralisation Capacity					--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
Arsenic	1450	U	0.0014	< 0.050	0.5	2	25
Barium	1450	U	0.033	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.031	0.31	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.014	< 0.50	4	50	200
Chloride	1220	U	1.3	13	800	15000	25000
Fluoride	1220	U	0.35	3.5	10	150	500
Sulphate	1220	U	780	7800	1000	20000	50000
Total Dissolved Solids	1020	N	840	8400	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	24	240	500	800	1000

Soild Information	
Dry mass of test portion/kg	0.090
Moisture (%)	14

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 163407 POLLINGTON QUARRY

Chemtest Job No:	17-06365				**Landfill Waste Acceptance Criteria Limits**		
Chemtest Sample ID:	425364						
Sample Ref:							
Sample ID:	TP5				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Top Depth(m):	0.0						
Bottom Depth(m):	1.6						
Sampling Date:	13-Mar-2017						
Determinand	**SOP**	**Accred.**	**Units**				
Total Organic Carbon					3	5	6
Loss on Ignition					--	--	10
Total BTEX					6	--	--
Total PCBs (7 congeners)					1	--	--
TPH Total WAC (Mineral Oil)					500	--	--
Total (of 17) PAHs					100	--	--
pH					--	>6	--
Acid Neutralisation Capacity					--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.032	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0086	0.086	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0016	< 0.50	4	50	200
Chloride	1220	U	1.5	15	800	15000	25000
Fluoride	1220	U	0.58	5.8	10	150	500
Sulphate	1220	U	51	510	1000	20000	50000
Total Dissolved Solids	1020	N	120	1200	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	42	420	500	800	1000

Soild Information	
Dry mass of test portion/kg	0.090
Moisture (%)	12

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 163407 POLLINGTON QUARRY

Chemtest Job No:	17-06365				**Landfill Waste Acceptance Criteria Limits**		
Chemtest Sample ID:	425365						
Sample Ref:							
Sample ID:	TP6				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Top Depth(m):	0.7						
Bottom Depth(m):	1.6						
Sampling Date:	13-Mar-2017						
Determinand	**SOP**	**Accred.**	**Units**				
Total Organic Carbon					3	5	6
Loss on Ignition					--	--	10
Total BTEX					6	--	--
Total PCBs (7 congeners)					1	--	--
TPH Total WAC (Mineral Oil)					500	--	--
Total (of 17) PAHs					100	--	--
pH					--	>6	--
Acid Neutralisation Capacity					--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
Arsenic	1450	U	0.0045	< 0.050	0.5	2	25
Barium	1450	U	0.036	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0061	0.061	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.026	0.26	0.5	10	30
Nickel	1450	U	0.0013	< 0.050	0.4	10	40
Lead	1450	U	0.0054	0.054	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0057	< 0.50	4	50	200
Chloride	1220	U	16	160	800	15000	25000
Fluoride	1220	U	0.60	6.0	10	150	500
Sulphate	1220	U	44	440	1000	20000	50000
Total Dissolved Solids	1020	N	140	1400	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	440	4400	500	800	1000

Soild Information	
Dry mass of test portion/kg	0.090
Moisture (%)	14

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 163407 POLLINGTON QUARRY

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	17-06365						
Chemtest Sample ID:	425366						
Sample Ref:							
Sample ID:	TP6						
Top Depth(m):	1.6						
Bottom Depth(m):	3.0						
Sampling Date:	13-Mar-2017						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon					3	5	6
Loss on Ignition					--	--	10
Total BTEX					6	--	--
Total PCBs (7 congeners)					1	--	--
TPH Total WAC (Mineral Oil)					500	--	--
Total (of 17) PAHs					100	--	--
pH					--	>6	--
Acid Neutralisation Capacity					--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
Arsenic	1450	U	0.0020	< 0.050	0.5	2	25
Barium	1450	U	0.031	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0019	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0086	0.086	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	0.0012	0.012	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0093	< 0.50	4	50	200
Chloride	1220	U	1.9	19	800	15000	25000
Fluoride	1220	U	0.32	3.2	10	150	500
Sulphate	1220	U	560	5600	1000	20000	50000
Total Dissolved Solids	1020	N	600	6000	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	62	620	500	800	1000

Soild Information	
Dry mass of test portion/kg	0.090
Moisture (%)	14

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 163407 POLLINGTON QUARRY

Chemtest Job No:	17-06365				**Landfill Waste Acceptance Criteria Limits**		
Chemtest Sample ID:	425367						
Sample Ref:							
Sample ID:	TP7				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Top Depth(m):	0.0						
Bottom Depth(m):	1.5						
Sampling Date:	13-Mar-2017						
Determinand	**SOP**	**Accred.**	**Units**				
Total Organic Carbon					3	5	6
Loss on Ignition					--	--	10
Total BTEX					6	--	--
Total PCBs (7 congeners)					1	--	--
TPH Total WAC (Mineral Oil)					500	--	--
Total (of 17) PAHs					100	--	--
pH					--	>6	--
Acid Neutralisation Capacity					--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
Arsenic	1450	U	0.0030	< 0.050	0.5	2	25
Barium	1450	U	0.018	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0046	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0037	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	0.0033	0.033	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0043	< 0.50	4	50	200
Chloride	1220	U	1.3	13	800	15000	25000
Fluoride	1220	U	0.50	5.0	10	150	500
Sulphate	1220	U	33	330	1000	20000	50000
Total Dissolved Solids	1020	N	160	1600	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	150	1500	500	800	1000

Soild Information	
Dry mass of test portion/kg	0.090
Moisture (%)	12

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 163407 POLLINGTON QUARRY

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	17-06365						
Chemtest Sample ID:	425368						
Sample Ref:							
Sample ID:	TP9						
Top Depth(m):	0.0						
Bottom Depth(m):	1.5						
Sampling Date:	13-Mar-2017						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon					3	5	6
Loss on Ignition					--	--	10
Total BTEX					6	--	--
Total PCBs (7 congeners)					1	--	--
TPH Total WAC (Mineral Oil)					500	--	--
Total (of 17) PAHs					100	--	--
pH					--	>6	--
Acid Neutralisation Capacity					--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0038	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0010	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.11	1.1	10	150	500
Sulphate	1220	U	3.1	31	1000	20000	50000
Total Dissolved Solids	1020	N	43	430	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	24	240	500	800	1000

Soild Information	
Dry mass of test portion/kg	0.090
Moisture (%)	6.0

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 163407 POLLINGTON QUARRY

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	17-06365						
Chemtest Sample ID:	425369						
Sample Ref:							
Sample ID:	TP10						
Top Depth(m):	0.0						
Bottom Depth(m):	2.5						
Sampling Date:	13-Mar-2017						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon					3	5	6
Loss on Ignition					--	--	10
Total BTEX					6	--	--
Total PCBs (7 congeners)					1	--	--
TPH Total WAC (Mineral Oil)					500	--	--
Total (of 17) PAHs					100	--	--
pH					--	>6	--
Acid Neutralisation Capacity					--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0064	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0011	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	1.2	12	800	15000	25000
Fluoride	1220	U	0.12	1.2	10	150	500
Sulphate	1220	U	1.6	16	1000	20000	50000
Total Dissolved Solids	1020	N	45	450	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	7.4	74	500	800	1000

Soild Information	
Dry mass of test portion/kg	0.090
Moisture (%)	7.7

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

APPENDIX F
Consolidated Results and Statistical Analysis

Consolidated Soil Results - Commercial Industrial Scenario

Site: Pollington Lane Landfill
Project Reference: 163407
Client: Mr Robert Lunn
Strata: ALL Strata
Notes:

KEY
Exceedance of SGV
Below Limit of Detection

Determinant	Units	LOD	SGV	Max	Number	No. Exceedances	Sample Location	TP205	TP205	TP205	TP206	TP206	TP206	TP203	TP203	TP203	TP204	TP204	TP204
							Sample Ref	1112275	1112276	1112277	1112278	1112279	1112280	1112252	1112253	1112254	1112255	1112256	1112257
							Depth (top)	0.0	2.5	3.0	0.0	2.0	3.5	0.0	1.5	3.0	0.0	1.0	2.8
							Depth (bottom)	1.0	3.0	3.5	1.0	2.5	4.0	1.0	2.0	3.5	1.0	1.5	4.0
							Lab Report	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham
							Sample Date	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20
							Originator	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE
							Strata												
pH	pH unit	0.1	6 to 9	10.1	32			8.7	8.8	8.4	8.9	10.1	9.8	8.2	8.1	9.4	8.6	9.1	9.3
Boron (Hot Water Soluble)	mg/kg	0.4	240000	3.8	32			0.91	0.9	1	1.7	1.6	1.4	1.3	0.98	0.76	1	1.7	1.1
Cyanide (Total)	mg/kg	0.5	34	0.5	32			*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	0.5	*0.5*	*0.5*	*0.5*	*0.5*
Sulphide (Easily Liberatable)	mg/kg	0.5		84	32			10	9.6	4.2	15	41	30	4.1	5	5.6	10	7.8	29
Arsenic	mg/kg	1	640	25	32			15	20	15	18	23	25	17	21	12	14	8.9	16
Cadmium	mg/kg	0.1	190	1.2	32			0.36	0.48	0.35	0.42	0.68	0.64	0.38	0.3	0.18	0.2	0.16	0.28
Chromium	mg/kg	1	8600	370	32			22	31	20	41	92	370	30	45	37	20	9.8	14
Copper	mg/kg	0.5	68000	790	32			33	27	31	43	190	120	22	34	37	30	17	27
Mercury	mg/kg	0.1	58	0.52	32			0.13	*0.1*	*0.1*	0.23	0.15	0.52	0.22	0.26	0.11	0.17	0.37	0.17
Nickel	mg/kg	0.5	980	240	32			26	30	23	29	47	240	64	100	29	19	8.9	11
Lead	mg/kg	0.5	2330	260	32			49	47	32	80	81	120	45	100	46	260	49	83
Selenium	mg/kg	0.2	12000	0.34	32			*0.2*	*0.2*	*0.2*	0.25	*0.2*	0.22	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	0.29
Vanadium	mg/kg	5	9000	44	32			27	26	21	27	32	44	22	27	28	27	17	20
Zinc	mg/kg	0.5	730000	490	32			80	73	60	120	280	350	65	96	70	78	46	490
Chromium (Hexavalent)	mg/kg	0.5	33	0.5	32			*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	0.5	*0.5*	*0.5*	*0.5*	*0.5*
Total Organic Carbon	%	0.2	3	8.1	32			1.9	2.7	1.5	2.3	1.8	2.3	2.3	2	0.95	1.5	1.4	1.5
Aliphatic TPH >C5-C6	mg/kg	0.1	3200	1	32			1	1	1	1	1	1	1	1	1	1	1	1
Aliphatic TPH >C6-C8	mg/kg	0.1	7800	1	32			1	1	1	1	1	1	1	1	1	1	1	1
Aliphatic TPH >C8-C10	mg/kg	0.1	2000	9.6	32			1	1	1	1	1	1	9.6	1	1	1	1	1
Aliphatic TPH >C10-C12	mg/kg	1	9700	8.1	32			*1*	*1*	*1*	*1*	*1*	*1*	8.1	1	*1*	*1*	*1*	*1*
Aliphatic TPH >C12-C16	mg/kg	1	59000	1	32			*1*	*1*	*1*	*1*	*1*	*1*	*1*	1	*1*	*1*	*1*	*1*
Aliphatic TPH >C16-C21	mg/kg	1	1600000	69	32			*1*	*1*	*1*	*1*	*1*	*1*	69	1	*1*	*1*	*1*	*1*
Aliphatic TPH >C21-C35	mg/kg	1	1600000	200	32			24	78	24	28	31	*1*	*1*	1	7	55	30	*1*
Aliphatic TPH >C35-C44	mg/kg	1	1600000	38	32			*1*	38	*1*	*1*	*1*	*1*	*1*	1	*1*	*1*	*1*	*1*
Total Aliphatic Hydrocarbons	mg/kg	5		220	32			24	120	24	28	31	*5*	87	*5*	7	55	30	*5*
Aromatic TPH >C5-C7	mg/kg	0.1	27	1	32			1	1	1	1	1	1	1	1	1	1	1	1
Aromatic TPH >C7-C8	mg/kg	0.1	56000	1	32			1	1	1	1	1	1	1	1	1	1	1	1
Aromatic TPH >C8-C10	mg/kg	0.1	3500	1	32			1	1	1	1	1	1	1	1	1	1	1	1
Aromatic TPH >C10-C12	mg/kg	1	16000	33	32			*1*	*1*	*1*	*1*	*1*	*1*	33	1	*1*	*1*	*1*	*1*
Aromatic TPH >C12-C16	mg/kg	1	36000	73	32			*1*	*1*	*1*	*1*	*1*	*1*	73	1	*1*	15	*1*	*1*
Aromatic TPH >C16-C21	mg/kg	1	28000	160	32			*1*	*1*	16	2.7	9.9	*1*	160	3.2	3.1	65	*1*	*1*
Aromatic TPH >C21-C35	mg/kg	1	28000	790	32			34	460	140	32	120	*1*	540	8.4	59	360	27	*1*
Aromatic TPH >C35-C44	mg/kg	1	28000	1	32			*1*	*1*	*1*	*1*	*1*	*1*	*1*	1	*1*	*1*	*1*	*1*
Total Aromatic Hydrocarbons	mg/kg	5		850	32			34	460	150	35	120	*5*	800	12	62	440	27	*5*
TPH C6-C10	mg/kg	1																	
TPH C10-C21	mg/kg	1																	
TPH C21-C40	mg/kg	1																	

Consolidated Soil Results - Commercial Industrial Scenario

Site: Pollington Lane Landfill
Project Reference: 163407
Client: Mr Robert Lunn
Strata: ALL Strata
Notes:

KEY
Exceedance of SGV
Below Limit of Detection

Determinant	Units	LOD	SGV	Max	Number	No. Exceedances	Sample Location	TP205	TP205	TP205	TP206	TP206	TP206	TP203	TP203	TP203	TP204	TP204	TP204
							Sample Ref	1112275	1112276	1112277	1112278	1112279	1112280	1112252	1112253	1112254	1112255	1112256	1112257
							Depth (top)	0.0	2.5	3.0	0.0	2.0	3.5	0.0	1.5	3.0	0.0	1.0	2.8
							Depth (bottom)	1.0	3.0	3.5	1.0	2.5	4.0	1.0	2.0	3.5	1.0	1.5	4.0
							Lab Report	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham
							Sample Date	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20
							Originator	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE
							Strata												
Total Petroleum Hydrocarbons	mg/kg	10		1100	32			57	570	180	63	160	*10*	890	12	69	500	56	*10*
Naphthalene	mg/kg	0.1	190	4.7	32			0.15	0.34	*0.1*	0.18	0.24	0.44	**3.2**	**4.7**	0.22	0.28	*0.1*	0.13
Acenaphthylene	mg/kg	0.1	83000	4.2	32			0.17	0.18	*0.1*	*0.1*	1.1	0.26	4.2	0.42	0.18	0.66	0.15	0.16
Acenaphthene	mg/kg	0.1	84000	6.8	32			0.21	1.3	*0.1*	0.15	0.41	0.84	1.7	3.4	0.59	6.8	0.95	0.11
Fluorene	mg/kg	0.1	63000	8.9	32			0.2	1.3	*0.1*	0.17	1.4	0.9	7.1	2.7	0.54	8.9	1.2	0.16
Phenanthrene	mg/kg	0.1	22000	61	32			1.2	10	0.61	0.8	7.7	7	22	15	4.4	61	7.8	0.72
Anthracene	mg/kg	0.1	520000	21	32			0.36	2.6	0.14	0.21	2.2	3	8.5	3.3	1.2	21	2.4	0.29
Fluoranthene	mg/kg	0.1	23000	54	32			2.3	10	1.2	1.7	7.8	9.5	22	15	6.3	54	7.1	1
Pyrene	mg/kg	0.1	54000	50	32			2.5	9.3	1.2	1.8	7.5	9.4	21	15	6.4	50	6.4	0.99
Benzo[a]anthracene	mg/kg	0.1	170	19	32			1.5	3.9	0.64	*0.1*	3.7	3.7	**11**	6.5	2.9	**19**	2.5	0.51
Chrysene	mg/kg	0.1	350	17	32			1.3	3.5	0.58	0.88	3.6	3.5	11	7.2	2.7	**17**	2.4	0.73
Benzo[b]fluoranthene	mg/kg	0.1	44	15	32			1.3	**3.1**	0.61	0.84	**4.3**	**3.4**	**11**	**7.9**	**2.6**	**15**	1.9	0.48
Benzo[k]fluoranthene	mg/kg	0.1	1200	8.5	32			0.86	1.8	0.41	0.67	1.8	2.3	2	3.3	1.5	8.5	1.4	0.24
Benzo[a]pyrene	mg/kg	0.1	35	15	32			1.4	**3.1**	0.61	0.95	**2.7**	**3.3**	**8.8**	**6.4**	**2.9**	**15**	2	0.42
Indeno(1,2,3-c,d)Pyrene	mg/kg	0.1	500	9.8	32			0.94	1.9	*0.1*	0.71	1.9	2	4.6	3.8	1.8	9.8	1.2	0.24
Dibenz(a,h)Anthracene	mg/kg	0.1	3.5	2.9	32			**0.52**	**0.92**	*0.1*	0.15	**0.82**	**0.7**	**1.9**	**1.1**	**0.7**	**2.9**	**0.47**	**0.29**
Benzo[g,h,i]perylene	mg/kg	0.1	3900	8.3	32			0.86	1.9	*0.1*	0.66	1.9	2.3	5	3.9	1.7	8.3	1.1	0.35
Total Of 16 PAH's	mg/kg	2		300	32			16	55	6	10	49	53	150	100	37	300	39	6.8
Total Phenols	mg/kg	0.3	760	0.74	32			*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	0.61	0.74
Asbestos	Type	If present	Detected					NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos % (if present)	%	0.001																	
Benzene	mg/kg	0.1	27																
Toluene	mg/kg	0.1	56000																
Ethylbenzene	mg/kg	0.1	5700																
M-Xylene	mg/kg	0.1	6200																
P-Xylene	mg/kg	0.1	5900																
O-Xylene	mg/kg	0.1	6600																

Consolidated Soil Results - Commercial Industrial Scenario

Site: Pollington Lane Landfill
Project Reference: 163407
Client: Mr Robert Lunn
Strata: ALL Strata
Notes:

KEY
Exceedance of SGV
Below Limit of Detection

Determinant	Units	LOD	SGV	Max	Number	No. Exceedances	TP201	TP201	TP201	TP202	TP202	TP202	BH204	BH204	BH204	BH204	TP1	TP2
Sample Location							TP201	TP201	TP201	TP202	TP202	TP202	BH204	BH204	BH204	BH204	TP1	TP2
Sample Ref							1112125	1112126	1112127	1112128	1112129	1112130	1112054	1112055	1112056	1112057	425360	425361
Depth (top)							1.0	2.0	3.0	0.0	1.0	3.0	0.0	1.0	2.0	3.0	0.0	0.0
Depth (bottom)							2.0	3.0	4.0	1.0	2.0	4.0	1.0	2.0	3.0	4.0	3.0	3.0
Lab Report							Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	COVENTRY	COVENTRY
Sample Date							7/12/20	7/12/20	7/12/20	7/12/20	7/12/20	7/12/20	9/12/20	9/12/20	9/12/20	9/12/20	13/3/17	13/3/17
Originator							AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE
Strata																		
pH	pH unit	0.1	6 to 9	10.1	32		8.8	9	8.8	8.6	8.4	8.6	7.6	6.7	4.8	6.9	7.9	8.5
Boron (Hot Water Soluble)	mg/kg	0.4	240000	3.8	32		1.6	1.4	1	2.1	2.2	2.6	*0.4*	*0.4*	0.58	*0.4*	3.8	1.7
Cyanide (Total)	mg/kg	0.5	34	0.5	32		*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	0.5	*0.5*	*0.5*	0.5	*0.5*	*0.5*
Sulphide (Easily Liberatable)	mg/kg	0.5		84	32		15	11	84	33	16	46	1.5	1.6	1.4	0.96	9.7	15
Arsenic	mg/kg	1	640	25	32		12	15	14	18	19	24	5.9	4.9	4.9	2.1	17	15
Cadmium	mg/kg	0.1	190	1.2	32		0.25	0.28	0.23	1.2	0.5	0.37	0.14	*0.1*	*0.1*	*0.1*	0.9	0.64
Chromium	mg/kg	1	8600	370	32		22	21	26	22	43	31	9.4	9.8	7.3	5.1	35	23
Copper	mg/kg	0.5	68000	790	32		350	790	80	55	46	140	13	12	13	9	190	48
Mercury	mg/kg	0.1	58	0.52	32		0.14	0.16	0.14	0.19	0.21	0.25	*0.1*	*0.1*	*0.1*	*0.1*	0.22	0.16
Nickel	mg/kg	0.5	980	240	32		22	26	44	28	28	95	12	9.8	6.8	7.2	35	24
Lead	mg/kg	0.5	2330	260	32		51	100	71	83	150	110	31	25	40	5.1	160	80
Selenium	mg/kg	0.2	12000	0.34	32		*0.2*	0.23	0.34	*0.2*	0.26	0.3	0.28	0.23	*0.2*	*0.2*	*0.2*	*0.2*
Vanadium	mg/kg	5	9000	44	32		35	25	30	28	27	27	15	15	13	9.3	35	24
Zinc	mg/kg	0.5	730000	490	32		230	470	94	160	120	150	39	29	27	17	180	120
Chromium (Hexavalent)	mg/kg	0.5	33	0.5	32		*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	0.5	*0.5*	*0.5*	0.5	*0.5*	*0.5*
Total Organic Carbon	%	0.2	3	8.1	32		1.1	1.9	1.6	1.9	2.7	2.9	0.57	0.64	0.88	0.2	**8.1**	2.8
Aliphatic TPH >C5-C6	mg/kg	0.1	3200	1	32		1	1	1	1	1	1	1	1	1	1	1	1
Aliphatic TPH >C6-C8	mg/kg	0.1	7800	1	32		1	1	1	1	1	1	1	1	1	1	1	1
Aliphatic TPH >C8-C10	mg/kg	0.1	2000	9.6	32		1	1	1	1	1	1	1	1	1	1	1	1
Aliphatic TPH >C10-C12	mg/kg	1	9700	8.1	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Aliphatic TPH >C12-C16	mg/kg	1	59000	1	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Aliphatic TPH >C16-C21	mg/kg	1	1600000	69	32		21	*1*	7.5	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	2.5
Aliphatic TPH >C21-C35	mg/kg	1	1600000	200	32		200	*1*	30	*1*	*1*	14	*1*	*1*	*1*	*1*	22	28
Aliphatic TPH >C35-C44	mg/kg	1	1600000	38	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Total Aliphatic Hydrocarbons	mg/kg	5		220	32		220	*5*	37	*5*	*5*	14	*5*	*5*	*5*	*5*	22	31
Aromatic TPH >C5-C7	mg/kg	0.1	27	1	32		1	1	1	1	1	1	1	1	1	1	1	1
Aromatic TPH >C7-C8	mg/kg	0.1	56000	1	32		1	1	1	1	1	1	1	1	1	1	1	1
Aromatic TPH >C8-C10	mg/kg	0.1	3500	1	32		1	1	1	1	1	1	1	1	1	1	1	1
Aromatic TPH >C10-C12	mg/kg	1	16000	33	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Aromatic TPH >C12-C16	mg/kg	1	36000	73	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Aromatic TPH >C16-C21	mg/kg	1	28000	160	32		58	2.6	22	1.5	*1*	*1*	*1*	*1*	*1*	*1*	19	52
Aromatic TPH >C21-C35	mg/kg	1	28000	790	32		790	35	170	17	*1*	84	*1*	*1*	*1*	*1*	130	170
Aromatic TPH >C35-C44	mg/kg	1	28000	1	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Total Aromatic Hydrocarbons	mg/kg	5		850	32		850	37	190	18	*5*	84	*5*	*5*	*5*	*5*	150	220
TPH C6-C10	mg/kg	1																
TPH C10-C21	mg/kg	1																
TPH C21-C40	mg/kg	1																

Consolidated Soil Results - Commercial Industrial Scenario

Site: Pollington Lane Landfill
Project Reference: 163407
Client: Mr Robert Lunn
Strata: ALL Strata
Notes:

KEY
Exceedance of SGV
Below Limit of Detection

Determinant	Units	LOD	SGV	Max	Number	No. Exceedances	Sample Location	TP201	TP201	TP201	TP202	TP202	TP202	BH204	BH204	BH204	BH204	TP1	TP2
							Sample Ref	1112125	1112126	1112127	1112128	1112129	1112130	1112054	1112055	1112056	1112057	425360	425361
							Depth (top)	1.0	2.0	3.0	0.0	1.0	3.0	0.0	1.0	2.0	3.0	0.0	0.0
							Depth (bottom)	2.0	3.0	4.0	1.0	2.0	4.0	1.0	2.0	3.0	4.0	3.0	3.0
							Lab Report	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	COVENTRY	COVENTRY
							Sample Date	7/12/20	7/12/20	7/12/20	7/12/20	7/12/20	7/12/20	9/12/20	9/12/20	9/12/20	9/12/20	13/3/17	13/3/17
							Originator	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE
							Strata												
Total Petroleum Hydrocarbons	mg/kg	10		1100	32			1100	37	220	18	*10*	99	*10*	*10*	*10*	*10*	170	250
Naphthalene	mg/kg	0.1	190	4.7	32			0.35	0.21	0.52	0.2	0.21	0.38	*0.1*	*0.1*	*0.1*	*0.1*	**2.3**	1.8
Acenaphthylene	mg/kg	0.1	83000	4.2	32			0.28	0.22	3.7	0.24	0.26	0.61	*0.1*	*0.1*	*0.1*	*0.1*	0.97	0.63
Acenaphthene	mg/kg	0.1	84000	6.8	32			*0.1*	0.23	1.3	0.67	1.1	0.56	*0.1*	*0.1*	*0.1*	*0.1*	0.84	0.4
Fluorene	mg/kg	0.1	63000	8.9	32			0.33	0.24	5.2	0.57	1.3	0.71	*0.1*	*0.1*	*0.1*	*0.1*	0.92	0.47
Phenanthrene	mg/kg	0.1	22000	61	32			2.6	2.1	25	3.9	10	5.9	*0.1*	*0.1*	*0.1*	*0.1*	4.8	3.3
Anthracene	mg/kg	0.1	520000	21	32			0.8	0.63	11	1.1	2.6	1.3	*0.1*	*0.1*	*0.1*	*0.1*	1.1	0.81
Fluoranthene	mg/kg	0.1	23000	54	32			5.6	5.2	31	8.1	13	7.7	*0.1*	*0.1*	*0.1*	*0.1*	6	5.5
Pyrene	mg/kg	0.1	54000	50	32			5.9	5.6	28	8.5	13	8	*0.1*	*0.1*	*0.1*	*0.1*	5.6	5.8
Benzo[a]anthracene	mg/kg	0.1	170	19	32			2.9	2.8	**16**	3.8	3	3.7	*0.1*	*0.1*	*0.1*	*0.1*	2.8	3
Chrysene	mg/kg	0.1	350	17	32			3	2.7	**15**	4.2	6.4	4.1	*0.1*	*0.1*	*0.1*	*0.1*	3.3	3
Benzo[b]fluoranthene	mg/kg	0.1	44	15	32			1.4	1.1	**14**	**4.9**	**6.9**	**4.7**	*0.1*	*0.1*	*0.1*	*0.1*	**3.3**	**3.7**
Benzo[k]fluoranthene	mg/kg	0.1	1200	8.5	32			1.7	1.7	5.9	2.3	3.1	2.2	*0.1*	*0.1*	*0.1*	*0.1*	1.6	1.7
Benzo[a]pyrene	mg/kg	0.1	35	15	32			**2.9**	**2.9**	**12**	**3.5**	**5.2**	**3.4**	*0.1*	*0.1*	*0.1*	*0.1*	**2.5**	**2.9**
Indeno(1,2,3-c,d)Pyrene	mg/kg	0.1	500	9.8	32			2	2	6	2.2	3.1	2.1	*0.1*	*0.1*	*0.1*	*0.1*	2.1	2.2
Dibenz(a,h)Anthracene	mg/kg	0.1	3.5	2.9	32			**0.77**	**0.64**	**2.3**	**1.2**	**1.3**	**0.97**	*0.1*	*0.1*	*0.1*	*0.1*	**0.39**	**0.47**
Benzo[g,h,i]perylene	mg/kg	0.1	3900	8.3	32			1.9	1.9	5.6	1.9	2.9	2.2	*0.1*	*0.1*	*0.1*	*0.1*	1.4	1.7
Total Of 16 PAH's	mg/kg	2		300	32			32	30	180	47	74	48	*2*	*2*	*2*	*2*	40	37
Total Phenols	mg/kg	0.3	760	0.74	32			*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	0.37	*0.3*	*0.3*	*0.3*
Asbestos	Type	If present	Detected					NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos % (if present)	%	0.001																	
Benzene	mg/kg	0.1	27																
Toluene	mg/kg	0.1	56000																
Ethylbenzene	mg/kg	0.1	5700																
M-Xylene	mg/kg	0.1	6200																
P-Xylene	mg/kg	0.1	5900																
O-Xylene	mg/kg	0.1	6600																

Consolidated Soil Results - Commercial Industrial Scenario

Site: Pollington Lane Landfill
Project Reference: 163407
Client: Mr Robert Lunn
Strata: ALL Strata
Notes:

KEY
Exceedance of SGV
Below Limit of Detection

Determinant	Units	LOD	SGV	Max	Number	No. Exceedances	TP3	TP4	TP5	TP6	TP6	TP7	TP9	TP10				
Sample Location							**TP3**	**TP4**	**TP5**	**TP6**	**TP6**	**TP7**	**TP9**	**TP10**				
Sample Ref							425362	425363	425364	425365	425366	425367	425368	425369				
Depth (top)							0.0	0.0	0.0	0.7	1.6	0.0	0.0	0.0				
Depth (bottom)							2.7	3.0	1.6	1.6	3.0	1.5	1.5	2.5				
Lab Report							COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY				
Sample Date							13/3/17	13/3/17	13/3/17	13/3/17	13/3/17	13/3/17	13/3/17	13/3/17				
Originator							AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE				
Strata																		
pH	pH unit	0.1	6 to 9	10.1	32		8.7	8.5	8.2	8.3	7.9	8	8.5	8.2				
Boron (Hot Water Soluble)	mg/kg	0.4	240000	3.8	32		0.76	0.59	0.61	1.8	1.2	0.57	*0.4*	*0.4*				
Cyanide (Total)	mg/kg	0.5	34	0.5	32		*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*				
Sulphide (Easily Liberatable)	mg/kg	0.5		84	32		8.8	8.5	10	42	9.3	8.2	4	4.2				
Arsenic	mg/kg	1	640	25	32		11	8	14	15	13	7.5	3.9	3.9				
Cadmium	mg/kg	0.1	190	1.2	32		0.2	0.19	0.32	0.53	0.34	0.22	*0.1*	*0.1*				
Chromium	mg/kg	1	8600	370	32		22	19	24	61	23	17	5.2	4.6				
Copper	mg/kg	0.5	68000	790	32		22	20	18	23	23	17	14	19				
Mercury	mg/kg	0.1	58	0.52	32		0.13	*0.1*	*0.1*	0.19	0.13	*0.1*	*0.1*	0.15				
Nickel	mg/kg	0.5	980	240	32		27	29	31	29	31	22	5.8	6.6				
Lead	mg/kg	0.5	2330	260	32		45	41	49	69	49	32	2.7	4.6				
Selenium	mg/kg	0.2	12000	0.34	32		*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*				
Vanadium	mg/kg	5	9000	44	32		20	19	18	26	22	18	6.3	6.8				
Zinc	mg/kg	0.5	730000	490	32		68	72	65	70	67	63	12	9				
Chromium (Hexavalent)	mg/kg	0.5	33	0.5	32		*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*				
Total Organic Carbon	%	0.2	3	8.1	32		1.9	0.77	1.9	1.7	5	1	*0.2*	*0.2*				
Aliphatic TPH >C5-C6	mg/kg	0.1	3200	1	32		1	1	1	1	1	1	1	1				
Aliphatic TPH >C6-C8	mg/kg	0.1	7800	1	32		1	1	1	1	1	1	1	1				
Aliphatic TPH >C8-C10	mg/kg	0.1	2000	9.6	32		1	1	1	1	1	1	1	1				
Aliphatic TPH >C10-C12	mg/kg	1	9700	8.1	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*				
Aliphatic TPH >C12-C16	mg/kg	1	59000	1	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*				
Aliphatic TPH >C16-C21	mg/kg	1	1600000	69	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*				
Aliphatic TPH >C21-C35	mg/kg	1	1600000	200	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*				
Aliphatic TPH >C35-C44	mg/kg	1	1600000	38	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*				
Total Aliphatic Hydrocarbons	mg/kg	5		220	32		*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*				
Aromatic TPH >C5-C7	mg/kg	0.1	27	1	32		1	1	1	1	1	1	1	1				
Aromatic TPH >C7-C8	mg/kg	0.1	56000	1	32		1	1	1	1	1	1	1	1				
Aromatic TPH >C8-C10	mg/kg	0.1	3500	1	32		1	1	1	1	1	1	1	1				
Aromatic TPH >C10-C12	mg/kg	1	16000	33	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*				
Aromatic TPH >C12-C16	mg/kg	1	36000	73	32		*1*	*1*	*1*	*1*	2.7	1.5	*1*	*1*				
Aromatic TPH >C16-C21	mg/kg	1	28000	160	32		7.8	5.5	12	18	24	10	*1*	*1*				
Aromatic TPH >C21-C35	mg/kg	1	28000	790	32		12	14	26	25	40	22	*1*	*1*				
Aromatic TPH >C35-C44	mg/kg	1	28000	1	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*				
Total Aromatic Hydrocarbons	mg/kg	5		850	32		20	20	37	43	66	34	*5*	*5*				
TPH C6-C10	mg/kg	1																
TPH C10-C21	mg/kg	1																
TPH C21-C40	mg/kg	1																

Consolidated Soil Results - Commercial Industrial Scenario

Site: Pollington Lane Landfill
Project Reference: 163407
Client: Mr Robert Lunn
Strata: ALL Strata
Notes:

KEY
Exceedance of SGV
Below Limit of Detection

Determinant	Units	LOD	SGV	Max	Number	No. Exceedances	TP3	TP4	TP5	TP6	TP6	TP7	TP9	TP10				
Sample Location							**TP3**	**TP4**	**TP5**	**TP6**	**TP6**	**TP7**	**TP9**	**TP10**				
Sample Ref							425362	425363	425364	425365	425366	425367	425368	425369				
Depth (top)							0.0	0.0	0.0	0.7	1.6	0.0	0.0	0.0				
Depth (bottom)							2.7	3.0	1.6	1.6	3.0	1.5	1.5	2.5				
Lab Report							COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY				
Sample Date							13/3/17	13/3/17	13/3/17	13/3/17	13/3/17	13/3/17	13/3/17	13/3/17				
Originator							AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE				
Strata																		
Total Petroleum Hydrocarbons	mg/kg	10		1100	32		20	20	37	43	66	34	*10*	*10*				
Naphthalene	mg/kg	0.1	190	4.7	32		1.8	1.4	*0.1*	**2.2**	0.17	**3**	*0.1*	*0.1*				
Acenaphthylene	mg/kg	0.1	83000	4.2	32		0.56	1.2	0.35	0.59	1.2	0.44	*0.1*	*0.1*				
Acenaphthene	mg/kg	0.1	84000	6.8	32		0.55	0.47	0.35	0.83	1.8	0.91	*0.1*	*0.1*				
Fluorene	mg/kg	0.1	63000	8.9	32		0.6	0.9	0.39	0.91	2.2	0.56	*0.1*	*0.1*				
Phenanthrene	mg/kg	0.1	22000	61	32		3	8	2.7	5.4	12	4.6	*0.1*	0.3				
Anthracene	mg/kg	0.1	520000	21	32		0.73	1.8	0.69	1.2	2.1	1.4	*0.1*	*0.1*				
Fluoranthene	mg/kg	0.1	23000	54	32		4.2	11	4	7.1	11	18	*0.1*	0.61				
Pyrene	mg/kg	0.1	54000	50	32		4.5	9.9	3.8	7	11	17	*0.1*	0.63				
Benzo[a]anthracene	mg/kg	0.1	170	19	32		2.3	4.8	**1.9**	**3.1**	**5.3**	6.3	*0.1*	**0.19**				
Chrysene	mg/kg	0.1	350	17	32		2.4	5.2	2.1	**3.4**	7.2	7.2	*0.1*	**0.21**				
Benzo[b]fluoranthene	mg/kg	0.1	44	15	32		**2.8**	5	**2.4**	**3.6**	**6**	**7.2**	*0.1*	*0.1*				
Benzo[k]fluoranthene	mg/kg	0.1	1200	8.5	32		1.2	2.2	1	2	2.6	2.9	*0.1*	*0.1*				
Benzo[a]pyrene	mg/kg	0.1	35	15	32		**2.2**	4.3	**1.7**	**2.9**	**4.9**	**5.4**	*0.1*	*0.1*				
Indeno(1,2,3-c,d)Pyrene	mg/kg	0.1	500	9.8	32		1.7	2.7	1.1	2.4	2.9	3.8	*0.1*	*0.1*				
Dibenz(a,h)Anthracene	mg/kg	0.1	3.5	2.9	32		**0.35**	0.64	*0.1*	**0.39**	**0.72**	**1**	*0.1*	*0.1*				
Benzo[g,h,i]perylene	mg/kg	0.1	3900	8.3	32		1.6	2.4	1.2	1.9	2.9	3	*0.1*	*0.1*				
Total Of 16 PAH's	mg/kg	2		300	32		31	62	24	45	74	83	*2*	*2*				
Total Phenols	mg/kg	0.3	760	0.74	32		*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*				
Asbestos	Type	If present	Detected				NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD				
Asbestos % (if present)	%	0.001																
Benzene	mg/kg	0.1	27															
Toluene	mg/kg	0.1	56000															
Ethylbenzene	mg/kg	0.1	5700															
M-Xylene	mg/kg	0.1	6200															
P-Xylene	mg/kg	0.1	5900															
O-Xylene	mg/kg	0.1	6600															

Consolidated Soil Results - Public Open Space (Residential)

Site: Pollington Lane Landfill
Project Reference: 163407
Client: Mr Robert Lunn
Strata: ALL Strata
Notes:

KEY
Exceedance of SGV
Below Limit of Detection

Determinant	Units	LOD	SGV	Max	Number	No. Exceedances	TP205	TP205	TP205	TP206	TP206	TP206	TP203	TP203	TP203	TP204	TP204	TP204
Sample Location							TP205	TP205	TP205	TP206	TP206	TP206	TP203	TP203	TP203	TP204	TP204	TP204
Sample Ref							1112275	1112276	1112277	1112278	1112279	1112280	1112252	1112253	1112254	1112255	1112256	1112257
Depth (top)							0.0	2.5	3.0	0.0	2.0	3.5	0.0	1.5	3.0	0.0	1.0	2.8
Depth (bottom)							1.0	3.0	3.5	1.0	2.5	4.0	1.0	2.0	3.5	1.0	1.5	4.0
Lab Report							Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham
Sample Date							8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20
Originator							AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE
Strata																		
pH	pH unit	0.1	6 to 9	10.1	32		8.7	8.8	8.4	8.9	10.1	9.8	8.2	8.1	9.4	8.6	9.1	9.3
Boron (Hot Water Soluble)	mg/kg	0.4	21000	3.8	32		0.91	0.9	1	1.7	1.6	1.4	1.3	0.98	0.76	1	1.7	1.1
Cyanide (Total)	mg/kg	0.5	34	0.5	32		*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	0.5	*0.5*	*0.5*	*0.5*	*0.5*
Sulphide (Easily Liberatable)	mg/kg	0.5		84	32		10	9.6	4.2	15	41	30	4.1	5	5.6	10	7.8	29
Arsenic	mg/kg	1	79	25	32		15	20	15	18	23	25	17	21	12	14	8.9	16
Cadmium	mg/kg	0.1	120	1.2	32		0.36	0.48	0.35	0.42	0.68	0.64	0.38	0.3	0.18	0.2	0.16	0.28
Chromium	mg/kg	1	1500	370	32		22	31	20	41	92	370	30	45	37	20	9.8	14
Copper	mg/kg	0.5	12000	790	32		33	27	31	43	190	120	22	34	37	30	17	27
Mercury	mg/kg	0.1	16	0.52	32		0.13	*0.1*	*0.1*	0.23	0.15	0.52	0.22	0.26	0.11	0.17	0.37	0.17
Nickel	mg/kg	0.5	230	240	32	1	26	30	23	29	47	**240**	64	100	29	19	8.9	11
Lead	mg/kg	0.5	630	260	32		49	47	32	80	81	120	45	100	46	260	49	83
Selenium	mg/kg	0.2	1100	0.34	32		*0.2*	*0.2*	*0.2*	0.25	*0.2*	0.22	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	0.29
Vanadium	mg/kg	5	2000	44	32		27	26	21	27	32	44	22	27	28	27	17	20
Zinc	mg/kg	0.5	81000	490	32		80	73	60	120	280	350	65	96	70	78	46	490
Chromium (Hexavalent)	mg/kg	0.5	7.7	0.5	32		*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	0.5	*0.5*	*0.5*	*0.5*	*0.5*
Total Organic Carbon	%	0.2	3	8.1	32		1.9	2.7	1.5	2.3	1.8	2.3	2.3	2	0.95	1.5	1.4	1.5
Aliphatic TPH >C5-C6	mg/kg	0.1	570000	1	32		1	1	1	1	1	1	1	1	1	1	1	1
Aliphatic TPH >C6-C8	mg/kg	0.1	600000	1	32		1	1	1	1	1	1	1	1	1	1	1	1
Aliphatic TPH >C8-C10	mg/kg	0.1	13000	9.6	32		1	1	1	1	1	1	9.6	1	1	1	1	1
Aliphatic TPH >C10-C12	mg/kg	1	13000	8.1	32		*1*	*1*	*1*	*1*	*1*	*1*	8.1	1	*1*	*1*	*1*	*1*
Aliphatic TPH >C12-C16	mg/kg	1	13000	1	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	1	*1*	*1*	*1*	*1*
Aliphatic TPH >C16-C21	mg/kg	1	250000	69	32		*1*	*1*	*1*	*1*	*1*	*1*	69	1	*1*	*1*	*1*	*1*
Aliphatic TPH >C21-C35	mg/kg	1	250000	200	32		24	78	24	28	31	*1*	*1*	1	7	55	30	*1*
Aliphatic TPH >C35-C44	mg/kg	1	250000	38	32		*1*	38	*1*	*1*	*1*	*1*	*1*	1	*1*	*1*	*1*	*1*
Total Aliphatic Hydrocarbons	mg/kg	5		220	32		24	120	24	28	31	*5*	87	*5*	7	55	30	*5*
Aromatic TPH >C5-C7	mg/kg	0.1	72	1	32		1	1	1	1	1	1	1	1	1	1	1	1
Aromatic TPH >C7-C8	mg/kg	0.1	56000	1	32		1	1	1	1	1	1	1	1	1	1	1	1
Aromatic TPH >C8-C10	mg/kg	0.1	5000	1	32		1	1	1	1	1	1	1	1	1	1	1	1
Aromatic TPH >C10-C12	mg/kg	1	5000	33	32		*1*	*1*	*1*	*1*	*1*	*1*	33	1	*1*	*1*	*1*	*1*
Aromatic TPH >C12-C16	mg/kg	1	5100	73	32		*1*	*1*	*1*	*1*	*1*	*1*	73	1	*1*	15	*1*	*1*
Aromatic TPH >C16-C21	mg/kg	1	3800	160	32		*1*	*1*	16	2.7	9.9	*1*	160	3.2	3.1	65	*1*	*1*
Aromatic TPH >C21-C35	mg/kg	1	3800	790	32		34	460	140	32	120	*1*	540	8.4	59	360	27	*1*
Aromatic TPH >C35-C44	mg/kg	1	3800	1	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	1	*1*	*1*	*1*	*1*
Total Aromatic Hydrocarbons	mg/kg	5		850	32		34	460	150	35	120	*5*	800	12	62	440	27	*5*
TPH C6-C10	mg/kg	1																
TPH C10-C21	mg/kg	1																
TPH C21-C40	mg/kg	1																

Consolidated Soil Results - Public Open Space (Residential)

Site: Pollington Lane Landfill
Project Reference: 163407
Client: Mr Robert Lunn
Strata: ALL Strata
Notes:

KEY
Exceedance of SGV
Below Limit of Detection

Determinant	Units	LOD	SGV	Max	Number	No. Exceedances	TP205	TP205	TP205	TP206	TP206	TP206	TP203	TP203	TP203	TP204	TP204	TP204
Sample Location																		
Sample Ref							1112275	1112276	1112277	1112278	1112279	1112280	1112252	1112253	1112254	1112255	1112256	1112257
Depth (top)							0.0	2.5	3.0	0.0	2.0	3.5	0.0	1.5	3.0	0.0	1.0	2.8
Depth (bottom)							1.0	3.0	3.5	1.0	2.5	4.0	1.0	2.0	3.5	1.0	1.5	4.0
Lab Report							Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham
Sample Date							8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20
Originator							AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE
Strata																		
Total Petroleum Hydrocarbons	mg/kg	10		1100	32		57	570	180	63	160	*10*	890	12	69	500	56	*10*
Naphthalene	mg/kg	0.1	4900	4.7	32		0.15	0.34	*0.1*	0.18	0.24	0.44	**3.2**	**4.7**	0.22	0.28	*0.1*	0.13
Acenaphthylene	mg/kg	0.1	15000	4.2	32		0.17	0.18	*0.1*	*0.1*	1.1	0.26	4.2	0.42	0.18	0.66	0.15	0.16
Acenaphthene	mg/kg	0.1	15000	6.8	32		0.21	1.3	*0.1*	0.15	0.41	0.84	1.7	3.4	0.59	6.8	0.95	0.11
Fluorene	mg/kg	0.1	9900	8.9	32		0.2	1.3	*0.1*	0.17	1.4	0.9	7.1	2.7	0.54	8.9	1.2	0.16
Phenanthrene	mg/kg	0.1	3100	61	32		1.2	10	0.61	0.8	7.7	7	22	15	4.4	61	7.8	0.72
Anthracene	mg/kg	0.1	74000	21	32		0.36	2.6	0.14	0.21	2.2	3	8.5	3.3	1.2	21	2.4	0.29
Fluoranthene	mg/kg	0.1	3100	54	32		2.3	10	1.2	1.7	7.8	9.5	22	15	6.3	54	7.1	1
Pyrene	mg/kg	0.1	7400	50	32		2.5	9.3	1.2	1.8	7.5	9.4	21	15	6.4	50	6.4	0.99
Benzo[a]anthracene	mg/kg	0.1	29	19	32		1.5	3.9	0.64	*0.1*	3.7	3.7	11	6.5	2.9	**19**	2.5	0.51
Chrysene	mg/kg	0.1	57	17	32		1.3	3.5	0.58	0.88	3.6	3.5	11	7.2	2.7	**17**	2.4	0.73
Benzo[b]fluoranthene	mg/kg	0.1	7.1	15	32	5	1.3	3.1	0.61	0.84	4.3	3.4	**11**	**7.9**	2.6	**15**	1.9	0.48
Benzo[k]fluoranthene	mg/kg	0.1	190	8.5	32		0.86	1.8	0.41	0.67	1.8	2.3	2	3.3	1.5	8.5	1.4	0.24
Benzo[a]pyrene	mg/kg	0.1	5.7	15	32	4	1.4	3.1	0.61	0.95	2.7	3.3	**8.8**	**6.4**	2.9	**15**	2	0.42
Indeno(1,2,3-c,d)Pyrene	mg/kg	0.1	82	9.8	32		0.94	1.9	*0.1*	0.71	1.9	2	4.6	3.8	1.8	9.8	1.2	0.24
Dibenz(a,h)Anthracene	mg/kg	0.1	0.57	2.9	32	16	0.52	**0.92**	*0.1*	0.15	**0.82**	**0.7**	**1.9**	1.1	**0.7**	**2.9**	0.47	0.29
Benzo[g,h,i]perylene	mg/kg	0.1	640	8.3	32		0.86	1.9	*0.1*	0.66	1.9	2.3	5	3.9	1.7	8.3	1.1	0.35
Total Of 16 PAH's	mg/kg	2		300	32		16	55	6	10	49	53	150	100	37	300	39	6.8
Total Phenols	mg/kg	0.3	760	0.74	32		*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	0.61	0.74
Asbestos	Type	If present	Detected				NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos % (if present)	%	0.001																
Benzene	mg/kg	0.1	72															
Toluene	mg/kg	0.1	56000															
Ethylbenzene	mg/kg	0.1	24000															
M-Xylene	mg/kg	0.1	41000															
P-Xylene	mg/kg	0.1	41000															
O-Xylene	mg/kg	0.1	41000															

Consolidated Soil Results - Public Open Space (Residential)

Site: Pollington Lane Landfill
Project Reference: 163407
Client: Mr Robert Lunn
Strata: ALL Strata
Notes:

KEY
Exceedance of SGV
Below Limit of Detection

Determinant	Units	LOD	SGV	Max	Number	No. Exceedances	TP201	TP201	TP201	TP202	TP202	TP202	BH204	BH204	BH204	BH204	TP1	TP2
Sample Location							TP201	TP201	TP201	TP202	TP202	TP202	BH204	BH204	BH204	BH204	TP1	TP2
Sample Ref							1112125	1112126	1112127	1112128	1112129	1112130	1112054	1112055	1112056	1112057	425360	425361
Depth (top)							1.0	2.0	3.0	0.0	1.0	3.0	0.0	1.0	2.0	3.0	0.0	0.0
Depth (bottom)							2.0	3.0	4.0	1.0	2.0	4.0	1.0	2.0	3.0	4.0	3.0	3.0
Lab Report							Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	COVENTRY	COVENTRY
Sample Date							7/12/20	7/12/20	7/12/20	7/12/20	7/12/20	7/12/20	9/12/20	9/12/20	9/12/20	9/12/20	13/3/17	13/3/17
Originator							AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE
Strata																		
pH	pH unit	0.1	6 to 9	10.1	32		8.8	9	8.8	8.6	8.4	8.6	7.6	6.7	4.8	6.9	7.9	8.5
Boron (Hot Water Soluble)	mg/kg	0.4	21000	3.8	32		1.6	1.4	1	2.1	2.2	2.6	*0.4*	*0.4*	0.58	*0.4*	3.8	1.7
Cyanide (Total)	mg/kg	0.5	34	0.5	32		*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	0.5	*0.5*	*0.5*	0.5	*0.5*	*0.5*
Sulphide (Easily Liberatable)	mg/kg	0.5		84	32		15	11	84	33	16	46	1.5	1.6	1.4	0.96	9.7	15
Arsenic	mg/kg	1	79	25	32		12	15	14	18	19	24	5.9	4.9	4.9	2.1	17	15
Cadmium	mg/kg	0.1	120	1.2	32		0.25	0.28	0.23	1.2	0.5	0.37	0.14	*0.1*	*0.1*	*0.1*	0.9	0.64
Chromium	mg/kg	1	1500	370	32		22	21	26	22	43	31	9.4	9.8	7.3	5.1	35	23
Copper	mg/kg	0.5	12000	790	32		350	790	80	55	46	140	13	12	13	9	190	48
Mercury	mg/kg	0.1	16	0.52	32		0.14	0.16	0.14	0.19	0.21	0.25	*0.1*	*0.1*	*0.1*	*0.1*	0.22	0.16
Nickel	mg/kg	0.5	230	240	32	1	22	26	44	28	28	95	12	9.8	6.8	7.2	35	24
Lead	mg/kg	0.5	630	260	32		51	100	71	83	150	110	31	25	40	5.1	160	80
Selenium	mg/kg	0.2	1100	0.34	32		*0.2*	0.23	0.34	*0.2*	0.26	0.3	0.28	0.23	*0.2*	*0.2*	*0.2*	*0.2*
Vanadium	mg/kg	5	2000	44	32		35	25	30	28	27	27	15	15	13	9.3	35	24
Zinc	mg/kg	0.5	81000	490	32		230	470	94	160	120	150	39	29	27	17	180	120
Chromium (Hexavalent)	mg/kg	0.5	7.7	0.5	32		*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	0.5	*0.5*	*0.5*	0.5	*0.5*	*0.5*
Total Organic Carbon	%	0.2	3	8.1	32		1.1	1.9	1.6	1.9	2.7	2.9	0.57	0.64	0.88	0.2	**8.1**	2.8
Aliphatic TPH >C5-C6	mg/kg	0.1	570000	1	32		1	1	1	1	1	1	1	1	1	1	1	1
Aliphatic TPH >C6-C8	mg/kg	0.1	600000	1	32		1	1	1	1	1	1	1	1	1	1	1	1
Aliphatic TPH >C8-C10	mg/kg	0.1	13000	9.6	32		1	1	1	1	1	1	1	1	1	1	1	1
Aliphatic TPH >C10-C12	mg/kg	1	13000	8.1	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Aliphatic TPH >C12-C16	mg/kg	1	13000	1	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Aliphatic TPH >C16-C21	mg/kg	1	250000	69	32		21	*1*	7.5	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	2.5
Aliphatic TPH >C21-C35	mg/kg	1	250000	200	32		200	*1*	30	*1*	*1*	14	*1*	*1*	*1*	*1*	22	28
Aliphatic TPH >C35-C44	mg/kg	1	250000	38	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Total Aliphatic Hydrocarbons	mg/kg	5		220	32		220	*5*	37	*5*	*5*	14	*5*	*5*	*5*	*5*	22	31
Aromatic TPH >C5-C7	mg/kg	0.1	72	1	32		1	1	1	1	1	1	1	1	1	1	1	1
Aromatic TPH >C7-C8	mg/kg	0.1	56000	1	32		1	1	1	1	1	1	1	1	1	1	1	1
Aromatic TPH >C8-C10	mg/kg	0.1	5000	1	32		1	1	1	1	1	1	1	1	1	1	1	1
Aromatic TPH >C10-C12	mg/kg	1	5000	33	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Aromatic TPH >C12-C16	mg/kg	1	5100	73	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Aromatic TPH >C16-C21	mg/kg	1	3800	160	32		58	2.6	22	1.5	*1*	*1*	*1*	*1*	*1*	*1*	19	52
Aromatic TPH >C21-C35	mg/kg	1	3800	790	32		790	35	170	17	*1*	84	*1*	*1*	*1*	*1*	130	170
Aromatic TPH >C35-C44	mg/kg	1	3800	1	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Total Aromatic Hydrocarbons	mg/kg	5		850	32		850	37	190	18	*5*	84	*5*	*5*	*5*	*5*	150	220
TPH C6-C10	mg/kg	1																
TPH C10-C21	mg/kg	1																
TPH C21-C40	mg/kg	1																

Consolidated Soil Results - Public Open Space (Residential)

Site: Pollington Lane Landfill
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Client: Mr Robert Lunn
Strata: ALL Strata
Notes:

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Determinant	Units	LOD	SGV	Max	Number	No. Exceedances	TP201	TP201	TP201	TP202	TP202	TP202	BH204	BH204	BH204	BH204	TP1	TP2
Sample Location							TP201	TP201	TP201	TP202	TP202	TP202	BH204	BH204	BH204	BH204	TP1	TP2
Sample Ref							1112125	1112126	1112127	1112128	1112129	1112130	1112054	1112055	1112056	1112057	425360	425361
Depth (top)							1.0	2.0	3.0	0.0	1.0	3.0	0.0	1.0	2.0	3.0	0.0	0.0
Depth (bottom)							2.0	3.0	4.0	1.0	2.0	4.0	1.0	2.0	3.0	4.0	3.0	3.0
Lab Report							Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	COVENTRY	COVENTRY
Sample Date							7/12/20	7/12/20	7/12/20	7/12/20	7/12/20	7/12/20	9/12/20	9/12/20	9/12/20	9/12/20	13/3/17	13/3/17
Originator							AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE
Strata																		
Total Petroleum Hydrocarbons	mg/kg	10		1100	32		1100	37	220	18	*10*	99	*10*	*10*	*10*	*10*	170	250
Naphthalene	mg/kg	0.1	4900	4.7	32		0.35	0.21	0.52	0.2	0.21	0.38	*0.1*	*0.1*	*0.1*	*0.1*	**2.3**	1.8
Acenaphthylene	mg/kg	0.1	15000	4.2	32		0.28	0.22	3.7	0.24	0.26	0.61	*0.1*	*0.1*	*0.1*	*0.1*	0.97	0.63
Acenaphthene	mg/kg	0.1	15000	6.8	32		*0.1*	0.23	1.3	0.67	1.1	0.56	*0.1*	*0.1*	*0.1*	*0.1*	0.84	0.4
Fluorene	mg/kg	0.1	9900	8.9	32		0.33	0.24	5.2	0.57	1.3	0.71	*0.1*	*0.1*	*0.1*	*0.1*	0.92	0.47
Phenanthrene	mg/kg	0.1	3100	61	32		2.6	2.1	25	3.9	10	5.9	*0.1*	*0.1*	*0.1*	*0.1*	4.8	3.3
Anthracene	mg/kg	0.1	74000	21	32		0.8	0.63	11	1.1	2.6	1.3	*0.1*	*0.1*	*0.1*	*0.1*	1.1	0.81
Fluoranthene	mg/kg	0.1	3100	54	32		5.6	5.2	31	8.1	13	7.7	*0.1*	*0.1*	*0.1*	*0.1*	6	5.5
Pyrene	mg/kg	0.1	7400	50	32		5.9	5.6	28	8.5	13	8	*0.1*	*0.1*	*0.1*	*0.1*	5.6	5.8
Benzo[a]anthracene	mg/kg	0.1	29	19	32		2.9	2.8	16	3.8	3	3.7	*0.1*	*0.1*	*0.1*	*0.1*	2.8	3
Chrysene	mg/kg	0.1	57	17	32		3	2.7	15	4.2	6.4	4.1	*0.1*	*0.1*	*0.1*	*0.1*	3.3	3
Benzo[b]fluoranthene	mg/kg	0.1	7.1	15	32	5	1.4	1.1	**14**	4.9	6.9	4.7	*0.1*	*0.1*	*0.1*	*0.1*	3.3	3.7
Benzo[k]fluoranthene	mg/kg	0.1	190	8.5	32		1.7	1.7	5.9	2.3	3.1	2.2	*0.1*	*0.1*	*0.1*	*0.1*	1.6	1.7
Benzo[a]pyrene	mg/kg	0.1	5.7	15	32	4	2.9	2.9	**12**	3.5	5.2	3.4	*0.1*	*0.1*	*0.1*	*0.1*	2.5	2.9
Indeno(1,2,3-c,d)Pyrene	mg/kg	0.1	82	9.8	32		2	2	6	2.2	3.1	2.1	*0.1*	*0.1*	*0.1*	*0.1*	2.1	2.2
Dibenz(a,h)Anthracene	mg/kg	0.1	0.57	2.9	32	16	**0.77**	**0.64**	**2.3**	**1.2**	**1.3**	**0.97**	*0.1*	*0.1*	*0.1*	*0.1*	0.39	0.47
Benzo[g,h,i]perylene	mg/kg	0.1	640	8.3	32		1.9	1.9	5.6	1.9	2.9	2.2	*0.1*	*0.1*	*0.1*	*0.1*	1.4	1.7
Total Of 16 PAH's	mg/kg	2		300	32		32	30	180	47	74	48	*2*	*2*	*2*	*2*	40	37
Total Phenols	mg/kg	0.3	760	0.74	32		*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	0.37	*0.3*	*0.3*	*0.3*
Asbestos	Type	If present	Detected				NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos % (if present)	%	0.001																
Benzene	mg/kg	0.1	72															
Toluene	mg/kg	0.1	56000															
Ethylbenzene	mg/kg	0.1	24000															
M-Xylene	mg/kg	0.1	41000															
P-Xylene	mg/kg	0.1	41000															
O-Xylene	mg/kg	0.1	41000															

Consolidated Soil Results - Public Open Space (Residential)

Site: Pollington Lane Landfill
Project Reference: 163407
Client: Mr Robert Lunn
Strata: ALL Strata
Notes:

KEY
Exceedance of SGV
Below Limit of Detection

Sample Location	TP3	TP4	TP5	TP6	TP6	TP7	TP9	TP10
Sample Ref	425362	425363	425364	425365	425366	425367	425368	425369
Depth (top)	0.0	0.0	0.0	0.7	1.6	0.0	0.0	0.0
Depth (bottom)	2.7	3.0	1.6	1.6	3.0	1.5	1.5	2.5
Lab Report	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Sample Date	13/3/17	13/3/17	13/3/17	13/3/17	13/3/17	13/3/17	13/3/17	13/3/17
Originator	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE
Strata								

Determinant	Units	LOD	SGV	Max	Number	No. Exceedances							
pH	pH unit	0.1	6 to 9	10.1	32		8.7	8.5	8.2	8.3	7.9	8	8.5	8.2
Boron (Hot Water Soluble)	mg/kg	0.4	21000	3.8	32		0.76	0.59	0.61	1.8	1.2	0.57	*0.4*	*0.4*
Cyanide (Total)	mg/kg	0.5	34	0.5	32		*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
Sulphide (Easily Liberatable)	mg/kg	0.5		84	32		8.8	8.5	10	42	9.3	8.2	4	4.2
Arsenic	mg/kg	1	79	25	32		11	8	14	15	13	7.5	3.9	3.9
Cadmium	mg/kg	0.1	120	1.2	32		0.2	0.19	0.32	0.53	0.34	0.22	*0.1*	*0.1*
Chromium	mg/kg	1	1500	370	32		22	19	24	61	23	17	5.2	4.6
Copper	mg/kg	0.5	12000	790	32		22	20	18	23	23	17	14	19
Mercury	mg/kg	0.1	16	0.52	32		0.13	*0.1*	*0.1*	0.19	0.13	*0.1*	*0.1*	0.15
Nickel	mg/kg	0.5	230	240	32	1	27	29	31	29	31	22	5.8	6.6
Lead	mg/kg	0.5	630	260	32		45	41	49	69	49	32	2.7	4.6
Selenium	mg/kg	0.2	1100	0.34	32		*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*
Vanadium	mg/kg	5	2000	44	32		20	19	18	26	22	18	6.3	6.8
Zinc	mg/kg	0.5	81000	490	32		68	72	65	70	67	63	12	9
Chromium (Hexavalent)	mg/kg	0.5	7.7	0.5	32		*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
Total Organic Carbon	%	0.2	3	8.1	32		1.9	0.77	1.9	1.7	5	1	*0.2*	*0.2*
Aliphatic TPH >C5-C6	mg/kg	0.1	570000	1	32		1	1	1	1	1	1	1	1
Aliphatic TPH >C6-C8	mg/kg	0.1	600000	1	32		1	1	1	1	1	1	1	1
Aliphatic TPH >C8-C10	mg/kg	0.1	13000	9.6	32		1	1	1	1	1	1	1	1
Aliphatic TPH >C10-C12	mg/kg	1	13000	8.1	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Aliphatic TPH >C12-C16	mg/kg	1	13000	1	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Aliphatic TPH >C16-C21	mg/kg	1	250000	69	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Aliphatic TPH >C21-C35	mg/kg	1	250000	200	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Aliphatic TPH >C35-C44	mg/kg	1	250000	38	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Total Aliphatic Hydrocarbons	mg/kg	5		220	32		*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
Aromatic TPH >C5-C7	mg/kg	0.1	72	1	32		1	1	1	1	1	1	1	1
Aromatic TPH >C7-C8	mg/kg	0.1	56000	1	32		1	1	1	1	1	1	1	1
Aromatic TPH >C8-C10	mg/kg	0.1	5000	1	32		1	1	1	1	1	1	1	1
Aromatic TPH >C10-C12	mg/kg	1	5000	33	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Aromatic TPH >C12-C16	mg/kg	1	5100	73	32		*1*	*1*	*1*	*1*	2.7	1.5	*1*	*1*
Aromatic TPH >C16-C21	mg/kg	1	3800	160	32		7.8	5.5	12	18	24	10	*1*	*1*
Aromatic TPH >C21-C35	mg/kg	1	3800	790	32		12	14	26	25	40	22	*1*	*1*
Aromatic TPH >C35-C44	mg/kg	1	3800	1	32		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Total Aromatic Hydrocarbons	mg/kg	5		850	32		20	20	37	43	66	34	*5*	*5*
TPH C6-C10	mg/kg	1												
TPH C10-C21	mg/kg	1												
TPH C21-C40	mg/kg	1												

Consolidated Soil Results - Public Open Space (Residential)

Site: Pollington Lane Landfill
Project Reference: 163407
Client: Mr Robert Lunn
Strata: ALL Strata
Notes:

KEY
Exceedance of SGV
Below Limit of Detection

Determinant	Units	LOD	SGV	Max	Number	No. Exceedances	TP3	TP4	TP5	TP6	TP6	TP7	TP9	TP10
Sample Location							TP3	TP4	TP5	TP6	TP6	TP7	TP9	TP10
Sample Ref							425362	425363	425364	425365	425366	425367	425368	425369
Depth (top)							0.0	0.0	0.0	0.7	1.6	0.0	0.0	0.0
Depth (bottom)							2.7	3.0	1.6	1.6	3.0	1.5	1.5	2.5
Lab Report							COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Sample Date							13/3/17	13/3/17	13/3/17	13/3/17	13/3/17	13/3/17	13/3/17	13/3/17
Originator							AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE
Strata														
Total Petroleum Hydrocarbons	mg/kg	10		1100	32		20	20	37	43	66	34	*10*	*10*
Naphthalene	mg/kg	0.1	4900	4.7	32		1.8	1.4	*0.1*	**2.2**	0.17	**3**	*0.1*	*0.1*
Acenaphthylene	mg/kg	0.1	15000	4.2	32		0.56	1.2	0.35	0.59	1.2	0.44	*0.1*	*0.1*
Acenaphthene	mg/kg	0.1	15000	6.8	32		0.55	0.47	0.35	0.83	1.8	0.91	*0.1*	*0.1*
Fluorene	mg/kg	0.1	9900	8.9	32		0.6	0.9	0.39	0.91	2.2	0.56	*0.1*	*0.1*
Phenanthrene	mg/kg	0.1	3100	61	32		3	8	2.7	5.4	12	4.6	*0.1*	0.3
Anthracene	mg/kg	0.1	74000	21	32		0.73	1.8	0.69	1.2	2.1	1.4	*0.1*	*0.1*
Fluoranthene	mg/kg	0.1	3100	54	32		4.2	11	4	7.1	11	18	*0.1*	0.61
Pyrene	mg/kg	0.1	7400	50	32		4.5	9.9	3.8	7	11	17	*0.1*	0.63
Benzo[a]anthracene	mg/kg	0.1	29	19	32		2.3	4.8	1.9	3.1	5.3	6.3	*0.1*	0.19
Chrysene	mg/kg	0.1	57	17	32		2.4	5.2	2.1	3.4	7.2	7.2	*0.1*	0.21
Benzo[b]fluoranthene	mg/kg	0.1	7.1	15	32	5	2.8	5	2.4	3.6	6	**7.2**	*0.1*	*0.1*
Benzo[k]fluoranthene	mg/kg	0.1	190	8.5	32		1.2	2.2	1	2	2.6	2.9	*0.1*	*0.1*
Benzo[a]pyrene	mg/kg	0.1	5.7	15	32	4	2.2	4.3	1.7	2.9	4.9	5.4	*0.1*	*0.1*
Indeno(1,2,3-c,d)Pyrene	mg/kg	0.1	82	9.8	32		1.7	2.7	1.1	2.4	2.9	3.8	*0.1*	*0.1*
Dibenz(a,h)Anthracene	mg/kg	0.1	0.57	2.9	32	16	0.35	**0.64**	*0.1*	0.39	**0.72**	**1**	*0.1*	*0.1*
Benzo[g,h,i]perylene	mg/kg	0.1	640	8.3	32		1.6	2.4	1.2	1.9	2.9	3	*0.1*	*0.1*
Total Of 16 PAH's	mg/kg	2		300	32		31	62	24	45	74	83	*2*	*2*
Total Phenols	mg/kg	0.3	760	0.74	32		*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*
Asbestos	Type	If present	Detected				NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos % (if present)	%	0.001												
Benzene	mg/kg	0.1	72											
Toluene	mg/kg	0.1	56000											
Ethylbenzene	mg/kg	0.1	24000											
M-Xylene	mg/kg	0.1	41000											
P-Xylene	mg/kg	0.1	41000											
O-Xylene	mg/kg	0.1	41000											

Consolidated Soil Results - Residential with Homegrown Produce

Site: Pollington Lane Landfill
Project Reference: 163407
Client: Mr Robert Lunn
Strata: ALL Strata
Notes:

KEY
Exceedance of SGV
Below Limit of Detection

Determinant	Units	LOD	SGV	Max	Number	No. Exceedances	Sample Location	TP205	TP205	TP205	TP206	TP206	TP206	TP203	TP203	TP203	TP204	TP204	TP204	TP201	TP201	TP201	TP202	TP202	TP202	BH204	BH204	BH204	BH204	TP1	TP2	TP3	TP4	TP5	TP6	TP6
							Sample Ref	1112275	1112276	1112277	1112278	1112279	1112280	1112252	1112253	1112254	1112255	1112256	1112257	1112125	1112126	1112127	1112128	1112129	1112130	1112054	1112055	1112056	1112057	425360	425361	425362	425363	425364	425365	425366
							Depth (top)	0.0	2.5	3.0	0.0	2.0	3.5	0.0	1.5	3.0	0.0	1.0	2.8	1.0	2.0	3.0	0.0	1.0	3.0	0.0	1.0	2.0	3.0	0.0	0.0	0.0	0.0	0.0	0.7	1.6
							Depth (bottom)	1.0	3.0	3.5	1.0	2.5	4.0	1.0	2.0	3.5	1.0	1.5	4.0	2.0	3.0	4.0	1.0	2.0	4.0	1.0	2.0	3.0	4.0	3.0	3.0	2.7	3.0	1.6	1.6	3.0
							Lab Report	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	Durham	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
							Sample Date	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	8/12/20	7/12/20	7/12/20	7/12/20	7/12/20	7/12/20	7/12/20	9/12/20	9/12/20	9/12/20	9/12/20	13/3/17	13/3/17	13/3/17	13/3/17	13/3/17	13/3/17	13/3/17
							Originator	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE	AAE
							Strata	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
pH	pH unit	0.1	6 to 9	10.1	32			8.7	8.8	8.4	8.9	10.1	9.8	8.2	8.1	9.4	8.6	9.1	9.3	8.8	9	8.8	8.6	8.4	8.6	7.6	6.7	4.8	6.9	7.9	8.5	8.7	8.5	8.2	8.3	7.9
Boron (Hot Water Soluble)	mg/kg	0.4	290	3.8	32			0.91	0.9	1	1.7	1.6	1.4	1.3	0.98	0.76	1	1.7	1.1	1.6	1.4	1	2.1	2.2	2.6	*0.4*	*0.4*	0.58	*0.4*	3.8	1.7	0.76	0.59	0.61	1.8	1.2
Cyanide (Total)	mg/kg	0.5	34	0.5	32			*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	0.5	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	0.5	*0.5*	0.5	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
Sulphide (Easily Liberatable)	mg/kg	0.5		84	32			10	9.6	4.2	15	41	30	4.1	5	5.6	10	7.8	29	15	11	84	33	16	46	1.5	1.6	1.4	0.96	9.7	15	8.8	8.5	10	42	9.3
Arsenic	mg/kg	1	37	25	32			15	20	15	18	23	25	17	21	12	14	8.9	16	12	15	14	18	19	24	5.9	4.9	4.9	2.1	17	15	11	8	14	15	13
Cadmium	mg/kg	0.1	11	1.2	32			0.36	0.48	0.35	0.42	0.68	0.64	0.38	0.3	0.18	0.2	0.16	0.28	0.25	0.28	0.23	1.2	0.5	0.37	0.14	*0.1*	*0.1*	*0.1*	0.9	0.64	0.2	0.19	0.32	0.53	0.34
Chromium	mg/kg	1	910	370	32			22	31	20	41	92	370	30	45	37	20	9.8	14	22	21	26	22	43	31	9.4	9.8	7.3	5.1	35	23	22	19	24	61	23
Copper	mg/kg	0.5	2400	790	32			33	27	31	43	190	120	22	34	37	30	17	27	350	790	80	55	46	140	13	12	13	9	190	48	22	20	18	23	23
Mercury	mg/kg	0.1	1.2	0.52	32			0.13	*0.1*	*0.1*	0.23	0.15	0.52	0.22	0.26	0.11	0.17	0.37	0.17	0.14	0.16	0.14	0.19	0.21	0.25	*0.1*	*0.1*	*0.1*	*0.1*	0.22	0.16	0.13	*0.1*	*0.1*	0.19	0.13
Nickel	mg/kg	0.5	180	240	32	1		26	30	23	29	47	**240**	64	100	29	19	8.9	11	22	26	44	28	28	95	12	9.8	6.8	7.2	35	24	27	29	31	29	31
Lead	mg/kg	0.5	200	260	32	1		49	47	32	80	81	120	45	100	46	**260**	49	83	51	100	71	83	150	110	31	25	40	5.1	160	80	45	41	49	69	49
Selenium	mg/kg	0.2	250	0.34	32			*0.2*	*0.2*	*0.2*	0.25	*0.2*	0.22	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	0.29	*0.2*	0.23	0.34	*0.2*	0.26	0.3	0.28	0.23	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*
Vanadium	mg/kg	5	410	44	32			27	26	21	27	32	44	22	27	28	27	17	20	35	25	30	28	27	27	15	15	13	9.3	35	24	20	19	18	26	22
Zinc	mg/kg	0.5	3700	490	32			80	73	60	120	280	350	65	96	70	78	46	490	230	470	94	160	120	150	39	29	27	17	180	120	68	72	65	70	67
Chromium (Hexavalent)	mg/kg	0.5	6	0.5	32			*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	0.5	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	0.5	*0.5*	*0.5*	0.5	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
Total Organic Carbon	%	0.2	3	8.1	32			1.9	2.7	1.5	2.3	1.8	2.3	2.3	2	0.95	1.5	1.4	1.5	1.1	1.9	1.6	1.9	2.7	2.9	0.57	0.64	0.88	0.2	**8.1**	2.8	1.9	0.77	1.9	1.7	5
Aliphatic TPH >C5-C6	mg/kg	0.1	42	1	32			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aliphatic TPH >C6-C8	mg/kg	0.1	100	1	32			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aliphatic TPH >C8-C10	mg/kg	0.1	27	9.6	32			1	1	1	1	1	1	9.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aliphatic TPH >C10-C12	mg/kg	1	130	8.1	32			*1*	*1*	*1*	*1*	*1*	*1*	8.1	1	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Aliphatic TPH >C12-C16	mg/kg	1	1100	1	32			*1*	*1*	*1*	*1*	*1*	*1*	*1*	1	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Aliphatic TPH >C16-C21	mg/kg	1	65000	69	32			*1*	*1*	*1*	*1*	*1*	*1*	69	1	*1*	*1*	*1*	*1*	21	*1*	7.5	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	2.5	*1*	*1*	*1*	*1*	*1*
Aliphatic TPH >C21-C35	mg/kg	1	65000	200	32			24	78	24	28	31	*1*	*1*	1	7	55	30	*1*	200	*1*	30	*1*	*1*	14	*1*	*1*	*1*	*1*	22	28	*1*	*1*	*1*	*1*	*1*
Aliphatic TPH >C35-C44	mg/kg	1	65000	38	32			*1*	38	*1*	*1*	*1*	*1*	*1*	1	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Total Aliphatic Hydrocarbons	mg/kg	5		220	32			24	120	24	28	31	*5*	87	*5*	7	55	30	*5*	220	*5*	37	*5*	*5*	14	*5*	*5*	*5*	*5*	22	31	*5*	*5*	*5*	*5*	*5*
Aromatic TPH >C5-C7	mg/kg	0.1	0.087	1	32	32		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aromatic TPH >C7-C8	mg/kg	0.1	130	1	32			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aromatic TPH >C8-C10	mg/kg	0.1	34	1	32			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aromatic TPH >C10-C12	mg/kg	1	74	33	32			*1*	*1*	*1*	*1*	*1*	*1*	33	1	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Aromatic TPH >C12-C16	mg/kg	1	140	73	32			*1*	*1*	*1*	*1*	*1*	*1*	73	1	*1*	15	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	2.7
Aromatic TPH >C16-C21	mg/kg	1	260	160	32			*1*	*1*	16	2.7	9.9	*1*	160	3.2	3.1	65	*1*	*1*	58	2.6	22	1.5	*1*	*1*	*1*	*1*	*1*	*1*	19	52	7.8	5.5	12	18	24
Aromatic TPH >C21-C35	mg/kg	1	1100	790	32			34	460	140	32	120	*1*	540	8.4	59	360	27	*1*	790	35	170	17	*1*	84	*1*	*1*	*1*	*1*	130	170	12	14	26	25	40
Aromatic TPH >C35-C44	mg/kg	1	1100	1	32			*1*	*1*	*1*	*1*	*1*	*1*	*1*	1	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Total Aromatic Hydrocarbons	mg/kg	5		850	32			34	460	150	35	120	*5*	800	12	62	440	27	*5*	850	37	190	18	*5*	84	*5*	*5*	*5*	*5*	150	220	20	20	37	43	66
TPH C6-C10	mg/kg	1																																		
TPH C10-C21	mg/kg	1																																		
TPH C21-C40	mg/kg	1																																		
Total Petroleum Hydrocarbons	mg/kg	10		1100	32			57	570	180	63	160	*10*	890	12	69	500	56	*10*	1100	37	220	18	*10*	99	*10*	*10*	*10*	*10*	170	250	20	20	37	43	66
Naphthalene	mg/kg	0.1	2.3	4.7	32	3		0.15	0.34	*0.1*	0.18	0.24	0.44	**3.2**	**4.7**	0.22	0.28	*0.1*	0.13	0.35	0.21	0.52	0.2	0.21	0.38	*0.1*	*0.1*	*0.1*	*0.1*	**2.3**	1.8	1.8	1.4	*0.1*	**2.2**	0.17
Acenaphthylene	mg/kg	0.1	170	4.2	32			0.17	0.18	*0.1*	*0.1*	1.1	0.26	4.2	0.42	0.18	0.66	0.15	0.16	0.28	0.22	3.7	0.24	0.26	0.61	*0.1*	*0.1*	*0.1*	*0.1*	0.97	0.63	0.56	1.2	0.35	0.59	1.2
Acenaphthene	mg/kg	0.1	210	6.8	32			0.21	1.3	*0.1*	0.15	0.41	0.84	1.7	3.4	0.59	6.8	0.95	0.11	*0.1*	0.23	1.3	0.67	1.1	0.56	*0.1*	*0.1*	*0.1*	*0.1*	0.84	0.4	0.55	0.47	0.35	0.83	1.8
Fluorene	mg/kg	0.1	170	8.9	32			0.2	1.3	*0.1*	0.17	1.4	0.9	7.1	2.7	0.54	8.9	1.2	0.16	0.33	0.24	5.2	0.57	1.3	0.71	*0.1*	*0.1*	*0.1*	*0.1*	0.92	0.47	0.6	0.9	0.39	0.91	2.2
Phenanthrene	mg/kg	0.1	95	61	32			1.2	10	0.61	0.8	7.7	7	22	15	4.4	61	7.8	0.72	2.6	2.1	25	3.9	10	5.9	*0.1*	*0.1*	*0.1*	*0.1*	4.8	3.3	3	8	2.7	5.4	12
Anthracene	mg/kg	0.1	2400	21	32			0.36	2.6	0.14	0.21	2.2	3	8.5	3.3	1.2	21	2.4	0.29	0.8	0.63	11	1.1	2.6	1.3	*0.1*	*0.1*	*0.1*	*0.1*	1.1	0.81	0.73	1.8	0.69	1.2	2.1
Fluoranthene	mg/kg	0.1	280	54	32			2.3	10	1.2	1.7	7.8	9.5	22	15	6.3	54	7.1	1	5.6	5.2	31	8.1	13	7.7	*0.1*	*0.1*	*0.1*	*0.1*	6	5.5	4.2	11	4	7.1	11
Pyrene	mg/kg	0.1	620	50	32			2.5	9.3	1.2	1.8	7.5	9.4	21	15	6.4	50	6.4	0.99	5.9	5.6	28	8.5	13	8	*0.1*	*0.1*	*0.1*	*0.1*	5.6	5.8	4.5	9.9	3.8	7	11
Benzo[a]anthracene	mg/kg	0.1	7.2	19	32	3		1.5	3.9	0.64	*0.1*	3.7	3.7	**11**	6.5	2.9	**19**	2.5	0.51	2.9	2.8	**16**	3.8	3	3.7	*0.1*	*0.1*	*0.1*	*0.1*	2.8	3	2.3	4.8	**1.9**	**3.1**	**5.3**
Chrysene	mg/kg	0.1	15	17	32	1		1.3	3.5	0.58	0.88	3.6	3.5	11	7.2	2.7	**17**	2.4	0.73	3	2.7	**15**	4.2	6.4	4.1	*0.1*	*0.1*	*0.1*	*0.1*	3.3	3	2.4	5.2	2.1	**3.4**	7.2
Benzo[b]fluoranthene	mg/kg	0.1	2.6	15	32	17		1.3	**3.1**	0.61	0.84	**4.3**	**3.4**	**11**	**7.9**	**2.6**	**15**	1.9	0.48	1.4	1.1	**14**	**4.9**	**6.9**	**4.7**	*0.1*	*0.1*	*0.1*	*0.1*	**3.3**	**3.7**	**2.8**	5	**2.4**	**3.6**	**6**
Benzo[k]fluoranthene	mg/kg	0.1	77	8.5	32			0.86	1.8	0.41	0.67	1.8	2.3	2	3.3	1.5	8.5	1.4	0.24	1.7	1.7	5.9	2.3	3.1	2.2	*0.1*	*0.1*	*0.1*	*0.1*	1.6	1.7	1.2	2.2	1	2	2.6
Benzo[a]pyrene	mg/kg	0.1	2.2	15	32	19		1.4	**3.1**	0.61	0.95	**2.7**	**3.3**	**8.8**	**6.4**	**2.9**	**15**	2	0.42	**2.9**	**2.9**	**12**	**3.5**	**5.2**	**3.4**	*0.1*	*0.1*	*0.1*	*0.1*	**2.5**	**2.9**	**2.2**	4.3	**1.7**	**2.9**	**4.9**
Indeno(1,2,3-c,d)Pyrene	mg/kg	0.1	27	9.8	32			0.94	1.9	*0.1*	0.71	1.9	2	4.6	3.8	1.8	9.8	1.2	0.24	2	2	6	2.2	3.1	2.1	*0.1*	*0.1*	*0.1*	*0.1*	2.1	2.2	1.7	2.7	1.1	2.4	2.9
Dibenz(a,h)Anthracene	mg/kg	0.1	0.24	2.9	32	23		**0.52**	**0.92**	*0.1*	0.15	**0.82**	**0.7**	**1.9**	**1.1**	**0.7**	**2.9**	**0.47**	**0.29**	**0.77**	**0.64**	**2.3**	**1.2**	**1.3**	**0.97**	*0.1*	*0.1*	*0.1*	*0.1*	**0.39**	**0.47**	**0.35**	0.64	*0.1*	**0.39**	**0.72**
Benzo[g,h,i]perylene	mg/kg	0.1	320	8.3	32			0.86	1.9	*0.1*	0.66	1.9	2.3	5	3.9	1.7	8.3	1.1	0.35	1.9	1.9	5.6	1.9	2.9	2.2	*0.1*	*0.1*	*0.1*	*0.1*	1.4	1.7	1.6	2.4	1.2	1.9	2.9
Total Of 16 PAH's	mg/kg	2		300	32			16	55	6	10	49	53	150	100	37	300	39	6.8	32	30	180	47	74	48	*2*	*2*	*2*	*2*	40	37	31	62	24	45	74
Total Phenols	mg/kg	0.3	280	0.74	32			*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	0.61	0.74	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	0.37	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*
Asbestos	Type	If present	Detected					NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos % (if present)	%	0.001																																		
Benzene	mg/kg	0.1	0.087																																	
Toluene	mg/kg	0.1	130																																	
Ethylbenzene	mg/kg	0.1	47																																	
M-Xylene	mg/kg	0.1	59																																	
P-Xylene	mg/kg	0.1	56																																	
O-Xylene	mg/kg	0.1	60																																	

Consolidated Soil Results - Residential with Homegrown Produce

Site: Pollington Lane Landfill
Project Reference: 163407
Client: Mr Robert Lunn
Strata: ALL Strata
Notes:

KEY
Exceedance of SGV
Below Limit of Detection

Determinant	Units	LOD	SGV	Max	Number	No. Exceedances	Sample Location: TP7	TP9	TP10
							Sample Ref: 425367	425368	425369
							Depth (top): 0.0	0.0	0.0
							Depth (bottom): 1.5	1.5	2.5
							Lab Report: COVENTRY	COVENTRY	COVENTRY
							Sample Date: 13/3/17	13/3/17	13/3/17
							Originator: AAE	AAE	AAE
							Strata: NAT-GR	NAT-SA	NAT-SA
pH	pH unit	0.1	6 to 9	10.1	32		8	8.5	8.2
Boron (Hot Water Soluble)	mg/kg	0.4	290	3.8	32		0.57	*0.4*	*0.4*
Cyanide (Total)	mg/kg	0.5	34	0.5	32		*0.5*	*0.5*	*0.5*
Sulphide (Easily Liberatable)	mg/kg	0.5		84	32		8.2	4	4.2
Arsenic	mg/kg	1	37	25	32		7.5	3.9	3.9
Cadmium	mg/kg	0.1	11	1.2	32		0.22	*0.1*	*0.1*
Chromium	mg/kg	1	910	370	32		17	5.2	4.6
Copper	mg/kg	0.5	2400	790	32		17	14	19
Mercury	mg/kg	0.1	1.2	0.52	32		*0.1*	*0.1*	0.15
Nickel	mg/kg	0.5	180	240	32	1	22	5.8	6.6
Lead	mg/kg	0.5	200	260	32	1	32	2.7	4.6
Selenium	mg/kg	0.2	250	0.34	32		*0.2*	*0.2*	*0.2*
Vanadium	mg/kg	5	410	44	32		18	6.3	6.8
Zinc	mg/kg	0.5	3700	490	32		63	12	9
Chromium (Hexavalent)	mg/kg	0.5	6	0.5	32		*0.5*	*0.5*	*0.5*
Total Organic Carbon	%	0.2	3	8.1	32		1	*0.2*	*0.2*
Aliphatic TPH >C5-C6	mg/kg	0.1	42	1	32		1	1	1
Aliphatic TPH >C6-C8	mg/kg	0.1	100	1	32		1	1	1
Aliphatic TPH >C8-C10	mg/kg	0.1	27	9.6	32		1	1	1
Aliphatic TPH >C10-C12	mg/kg	1	130	8.1	32		*1*	*1*	*1*
Aliphatic TPH >C12-C16	mg/kg	1	1100	1	32		*1*	*1*	*1*
Aliphatic TPH >C16-C21	mg/kg	1	65000	69	32		*1*	*1*	*1*
Aliphatic TPH >C21-C35	mg/kg	1	65000	200	32		*1*	*1*	*1*
Aliphatic TPH >C35-C44	mg/kg	1	65000	38	32		*1*	*1*	*1*
Total Aliphatic Hydrocarbons	mg/kg	5		220	32		*5*	*5*	*5*
Aromatic TPH >C5-C7	mg/kg	0.1	0.087	1	32	32	1	1	1
Aromatic TPH >C7-C8	mg/kg	0.1	130	1	32		1	1	1
Aromatic TPH >C8-C10	mg/kg	0.1	34	1	32		1	1	1
Aromatic TPH >C10-C12	mg/kg	1	74	33	32		*1*	*1*	*1*
Aromatic TPH >C12-C16	mg/kg	1	140	73	32		1.5	*1*	*1*
Aromatic TPH >C16-C21	mg/kg	1	260	160	32		10	*1*	*1*
Aromatic TPH >C21-C35	mg/kg	1	1100	790	32		22	*1*	*1*
Aromatic TPH >C35-C44	mg/kg	1	1100	1	32		*1*	*1*	*1*
Total Aromatic Hydrocarbons	mg/kg	5		850	32		34	*5*	*5*
TPH C6-C10	mg/kg	1							
TPH C10-C21	mg/kg	1							
TPH C21-C40	mg/kg	1							
Total Petroleum Hydrocarbons	mg/kg	10		1100	32		34	*10*	*10*
Naphthalene	mg/kg	0.1	2.3	4.7	32	3	**3**	*0.1*	*0.1*
Acenaphthylene	mg/kg	0.1	170	4.2	32		0.44	*0.1*	*0.1*
Acenaphthene	mg/kg	0.1	210	6.8	32		0.91	*0.1*	*0.1*
Fluorene	mg/kg	0.1	170	8.9	32		0.56	*0.1*	*0.1*
Phenanthrene	mg/kg	0.1	95	61	32		4.6	*0.1*	0.3
Anthracene	mg/kg	0.1	2400	21	32		1.4	*0.1*	*0.1*
Fluoranthene	mg/kg	0.1	280	54	32		18	*0.1*	0.61
Pyrene	mg/kg	0.1	620	50	32		17	*0.1*	0.63
Benzo[a]anthracene	mg/kg	0.1	7.2	19	32	3	6.3	*0.1*	**0.19**
Chrysene	mg/kg	0.1	15	17	32	1	7.2	*0.1*	**0.21**
Benzo[b]fluoranthene	mg/kg	0.1	2.6	15	32	17	**7.2**	*0.1*	*0.1*
Benzo[k]fluoranthene	mg/kg	0.1	77	8.5	32		2.9	*0.1*	*0.1*
Benzo[a]pyrene	mg/kg	0.1	2.2	15	32	19	**5.4**	*0.1*	*0.1*
Indeno(1,2,3-c,d)Pyrene	mg/kg	0.1	27	9.8	32		3.8	*0.1*	*0.1*
Dibenz(a,h)Anthracene	mg/kg	0.1	0.24	2.9	32	23	**1**	*0.1*	*0.1*
Benzo[g,h,i]perylene	mg/kg	0.1	320	8.3	32		3	*0.1*	*0.1*
Total Of 16 PAH's	mg/kg	2		300	32		83	*2*	*2*
Total Phenols	mg/kg	0.3	280	0.74	32		*0.3*	*0.3*	*0.3*
Asbestos	Type	If present	Detected				NAD	NAD	NAD
Asbestos % (if present)	%	0.001							
Benzene	mg/kg	0.1	0.087						
Toluene	mg/kg	0.1	130						
Ethylbenzene	mg/kg	0.1	47						
M-Xylene	mg/kg	0.1	59						
P-Xylene	mg/kg	0.1	56						
O-Xylene	mg/kg	0.1	60						

Client/client ref: Matrix
Project ref: 163407
Site ref: Pollington Lane Landfill
Data description: Made Ground
Contaminant(s):
Test scenario: Planning
Date: 16 April 2021
User details: TE

	Nickel	Benzo(b)fluoranthene	Benzo(a)pyrene	Dibenz(a,h)anthracene										
Critical concentration, C_c	**230**	**7.1**	**5.7**	**0.57**										
Notes														
Full dataset size	29	29	29	29	0	0	0	0	0	0	0	0	0	0
Outliers present?	Yes	Yes	Yes	Yes										
Number of outliers temporarily excluded				0										
Number removed by filter	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sample size, n	**29**	**29**	**29**	**29**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Sample mean, $\bar{X}$	38.3344828	3.8837931	3.42344828	0.73137931	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
Standard deviation, s	44.6405827	3.91456293	3.44415164	0.67647048										
Number of non-detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Set non-detect values to:	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit
Distribution	Non-normal	Non-normal	Non-normal	Non-normal										
Statistical approach	Auto: Chebychev	Auto: Chebychev	Auto: Chebychev	Auto: Chebychev	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto

Test scenario:	Planning: is true mean lower than critical concentration (μ < Cc)?				**Evidence level required:**		95%	Use Normal distribution to test for outliers						
t statistic, t_0 (or k_0)	-23.12134688	-4.424454144	-3.559543103	1.28468899										
Upper confidence limit (on true mean concentration, μ)	74.4677852	7.05234687	6.21123834	1.27893293										
Evidence level	**100%**	**95%**	**93%**	**0%**										
Base decision on:	evidence level	evidence level	evidence level	evidence level										
Result	**μ < Cc**	**μ < Cc**	**μ ≈≥ Cc**	**μ ≥ Cc**										
Select dataset	○ Y	○ Y	○ Y	◉ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y

Back to data | **Go to outlier test** | **Go to normality test** | **Show individual summary**

Client/client ref: Matrix
Project ref: 163407
Site ref: Pollington Lane Landfill
Data description: Made Ground
Contaminant(s):
Test scenario: Planning
Date: 16 April 2021
User details: TE

Critical concentration, C_c						
Notes						
Full dataset size	0	0	0	0	0	0
Outliers present?						
Number of outliers temporarily excluded						
Number removed by filter	0	0	0	0	0	0
Sample size, n	**0**	**0**	**0**	**0**	**0**	**0**
Sample mean, $\bar{X}$	No Data	No Data	No Data	No Data	No Data	No Data
Standard deviation, s						
Number of non-detects	0	0	0	0	0	0
Set non-detect values to:	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit
Distribution						
Statistical approach	Auto	Auto	Auto	Auto	Auto	Auto

Test scenario:						
t statistic, t_0 (or k_0)						
Upper confidence limit (on true mean concentration, μ)						
Evidence level						
Base decision on:						
Result						
Select dataset	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y

Back to data

Client/client ref: Matrix
Project ref: 163407
Site ref: Pollington Lane Landfill
Data description: Made Ground
Contaminant(s):
Test scenario: Planning
Date: 16 April 2021
User details: TE

	Nickel	Lead	Naphthalene	Benzo(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(a)pyrene	Dibenz(a,h)anthracene						
Critical concentration, C_c	**180**	**200**	**2.3**	**7.2**	**15**	**2.6**	**2.2**	**0.24**						
Notes														
Full dataset size	29	29	29	29	29	29	29	29	0	0	0	0	0	0
Outliers present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes						
Number of outliers temporarily excluded				0										
Number removed by filter	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sample size, n	**29**	**29**	**29**	**29**	**29**	**29**	**29**	**29**	**0**	**0**	**0**	**0**	**0**	**0**
Sample mean, $\bar{X}$	38.3344828	74.1758621	0.76275862	3.85344828	4.02724138	3.8837931	3.42344828	0.73137931	No Data	No Data	No Data	No Data	No Data	No Data
Standard deviation, s	44.6405827	50.7368256	1.1237307	4.43084503	4.15151512	3.91456293	3.44415164	0.67647048						
Number of non-detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Set non-detect values to:	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit
Distribution	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal						
Statistical approach	Auto: Chebychev	Auto: Chebychev	Auto: Chebychev	Auto: Chebychev	Auto: Chebychev	Auto: Chebychev	Auto: Chebychev	Auto: Chebychev	Auto	Auto	Auto	Auto	Auto	Auto

Test scenario:	Planning: is true mean lower than critical concentration (μ < Cc)?				**Evidence level required:**		95%	Use Normal distribution to test for outliers						
t statistic, t_0 (or k_0)	-17.089655	-13.3548702	-7.366798971	-4.067335338	-14.23338511	1.766081567	1.9129444	3.911713272						
Upper confidence limit (on true mean concentration, μ)	74.4677852	115.243629	1.67233683	7.43989482	7.3875907	7.05234687	6.21123834	1.27893293						
Evidence level	**100%**	**99%**	**98%**	**94%**	**100%**	**0%**	**0%**	**0%**						
Base decision on:	evidence level	evidence level	evidence level	evidence level	evidence level	evidence level	evidence level	evidence level						
Result	**μ < Cc**	**μ < Cc**	**μ < Cc**	**μ ≈≥ Cc**	**μ < Cc**	**μ ≥ Cc**	**μ ≥ Cc**	**μ ≥ Cc**						
Select dataset	○ Y	○ Y	○ Y	◉ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y

Back to data | **Go to outlier test** | **Go to normality test** | **Show individual summary**

Client/client ref: Matrix
Project ref: 163407
Site ref: Pollington Lane Landfill
Data description: Made Ground
Contaminant(s):
Test scenario: Planning
Date: 16 April 2021
User details: TE

Critical concentration, C_c						
Notes						
Full dataset size	0	0	0	0	0	0
Outliers present?						
Number of outliers temporarily excluded						
Number removed by filter	0	0	0	0	0	0
Sample size, n	**0**	**0**	**0**	**0**	**0**	**0**
Sample mean, $\bar{X}$	No Data	No Data	No Data	No Data	No Data	No Data
Standard deviation, s						
Number of non-detects	0	0	0	0	0	0
Set non-detect values to:	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit
Distribution						
Statistical approach	Auto	Auto	Auto	Auto	Auto	Auto

Test scenario:						
t statistic, t_0 (or k_0)						
Upper confidence limit (on true mean concentration, μ)						
Evidence level						
Base decision on:						
Result						
Select dataset	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y

Back to data

Client/client ref: Matrix
Project ref: 163407
Site ref: Pollington Lane Landfill
Data description: Natural
Contaminant(s):
Test scenario: Planning
Date: 16 April 2021
User details: TE

	Benzo(b)fluoranthene	Dibenz(a,h)anthracene												
Critical concentration, C_c	**7.1**	**0.57**												
Notes														
Full dataset size	3	3	0	0	0	0	0	0	0	0	0	0	0	0
Outliers present?	Yes	Yes												
Number of outliers temporarily excluded	0													
Number removed by filter	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sample size, n	**3**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Sample mean, $\bar{X}$	2.46666667	0.4	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
Standard deviation, s	4.09918691	0.51961524												
Number of non-detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Set non-detect values to:	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit
Distribution	Non-normal	Non-normal												
Statistical approach	Auto: Chebychev	Auto: Chebychev	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto

Test scenario:	Planning: is true mean lower than critical concentration (μ < Cc)?		**Evidence level required:**	**95%**	Use Normal distribution to test for outliers									
t statistic, t_0 (or k_0)	-1.957746479	-0.566666667												
Upper confidence limit (on true mean concentration, μ)	12.7827275	1.70766968												
Evidence level	**79%**	**24%**												
Base decision on:	evidence level	evidence level												
Result	**μ ≈≥ Cc**	**μ ≥ Cc**												
Select dataset	◉ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y

Back to data | **Go to outlier test** | **Go to normality test** | **Show individual summary**

Client/client ref: Matrix
Project ref: 163407
Site ref: Pollington Lane Landfill
Data description: Natural
Contaminant(s):
Test scenario: Planning
Date: 16 April 2021
User details: TE

Critical concentration, C_c						
Notes						
Full dataset size	0	0	0	0	0	0
Outliers present?						
Number of outliers temporarily excluded						
Number removed by filter	0	0	0	0	0	0
Sample size, n	**0**	**0**	**0**	**0**	**0**	**0**
Sample mean, $\bar{X}$	No Data	No Data	No Data	No Data	No Data	No Data
Standard deviation, s						
Number of non-detects	0	0	0	0	0	0
Set non-detect values to:	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit
Distribution						
Statistical approach	Auto	Auto	Auto	Auto	Auto	Auto

Test scenario:						
t statistic, t_0 (or k_0)						
Upper confidence limit (on true mean concentration, μ)						
Evidence level						
Base decision on:						
Result						
Select dataset	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y

Back to data

Client/client ref: Matrix
Project ref: 163407
Site ref: Pollington Lane Landfill
Data description: Natural
Contaminant(s):
Test scenario: Planning
Date: 16 April 2021
User details: TE

	Naphthalene	Benzo(b)fluoranthene	Benzo(a)pyrene	Dibenz(a,h)anthracene										
Critical concentration, C_c	**2.3**	**2.6**	**2.2**	**0.24**										
Notes														
Full dataset size	3	3	3	3	0	0	0	0	0	0	0	0	0	0
Outliers present?	Yes	Yes	Yes	Yes										
Number of outliers temporarily excluded	0													
Number removed by filter	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sample size, n	**3**	**3**	**3**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Sample mean, $\bar{X}$	1.06666667	2.46666667	1.86666667	0.4	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
Standard deviation, s	1.67431578	4.09918691	3.05995643	0.51961524										
Number of non-detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Set non-detect values to:	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit
Distribution	Non-normal	Non-normal	Non-normal	Non-normal										
Statistical approach	Auto: Chebychev	Auto: Chebychev	Auto: Chebychev	Auto: Chebychev	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto

Test scenario:	Planning: is true mean lower than critical concentration (μ < Cc)?				**Evidence level required:**		95%	Use Normal distribution to test for outliers						
t statistic, t_0 (or k_0)	-1.275862069	-0.056338028	-0.188679245	0.533333333										
Upper confidence limit (on true mean concentration, μ)	5.28026898	12.7827275	9.56738813	1.70766968										
Evidence level	**62%**	**0%**	**3%**	**0%**										
Base decision on:	evidence level	evidence level	evidence level	evidence level										
Result	**μ ≈≥ Cc**	**μ ≥ Cc**	**μ ≥ Cc**	**μ ≥ Cc**										
Select dataset	◉ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y

Back to data | **Go to outlier test** | **Go to normality test** | **Show individual summary**

Client/client ref: Matrix
Project ref: 163407
Site ref: Pollington Lane Landfill
Data description: Natural
Contaminant(s):
Test scenario: Planning
Date: 16 April 2021
User details: TE

Critical concentration, C_c						
Notes						
Full dataset size	0	0	0	0	0	0
Outliers present?						
Number of outliers temporarily excluded						
Number removed by filter	0	0	0	0	0	0
Sample size, n	**0**	**0**	**0**	**0**	**0**	**0**
Sample mean, $\bar{X}$	No Data	No Data	No Data	No Data	No Data	No Data
Standard deviation, s						
Number of non-detects	0	0	0	0	0	0
Set non-detect values to:	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit
Distribution						
Statistical approach	Auto	Auto	Auto	Auto	Auto	Auto

Test scenario:						
t statistic, t_0 (or k_0)						
Upper confidence limit (on true mean concentration, μ)						
Evidence level						
Base decision on:						
Result						
Select dataset	○ Y	○ Y	○ Y	○ Y	○ Y	○ Y

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APPENDIX G
Tier 1 Soil Guidance Values

AA Environmental Limited – Tier 1 Soil Guidance Values

The following table presents the AA Environmental Tier 1 Soil Guidance Values (SGVs) Revision 003 based on LQM/CIEH Suitable 2 Use Levels (S4UL) for Human Health Assessment (unless stated otherwise).

	Land-Use Scenario					
Determinant	**Residential with Homegrown Produce**	**Residential without Homegrown Produce**	**Public Open Space (POS) Residential**	**Public Open Space (POS) Park**	**Allotment**	**Commercial and Industrial**
Metals and Metalloids						
Arsenic	37	40	79	170	43	640
Boron	290	11000	21000	46000	45	240000
Cadmium	11	85	120	532	1.9	190
Chromium (Hexavalent)	6	6	7.7	220	1.8	33
Chromium	910	910	1500	33000	18000	8600
Copper	2400	7100	12000	44000	520	68000
Lead (C4SL Criteria)	200	310	630	1300	80	2330
Elemental Mercury	1.2	1.2	16	30	21	58
Inorganic Mercury	40	56	120	240	19	1100
Nickel	180	180	230	3400	230	980
Selenium	250	430	1100	1800	88	12000
Vanadium	410	1200	2000	5000	91	9000
Zinc	3700	40000	81000	170000	620	730000
Other Inorganics						
pH	6-9 Units					
Asbestos	If Detected					
Cyanide (AtRisk)	34	34	34	34	34	34
Phenol (based on 1% SOM)						
Phenol (Total)	280	750	760	760	66	760
Total Petroleum Hydrocarbons (TPH) (based on 1% SOM)						
Aliphatic (5-6)	42	42	570000	95000	730	3200
Aliphatic (6-8)	100	100	600000	150000	2300	7800
Aliphatic (8-10)	27	27	13000	14000	320	2000
Aliphatic (10-12)	130	130	13000	21000	2200	9700
Aliphatic (12-16)	1100	1100	13000	25000	11000	59000
Aliphatic (16-35)	65000	65000	250000	450000	260000	1600000
Aliphatic (35-44)	65000	65000	250000	450000	260000	1600000
Aromatic (5-7 benzene)*	0.087(70)	0.38(370)	72(56000)	90(76000)	0.017(13)	27(26000)
Aromatic (7-8 toluene)	130	860	56000	87000	22	56000
Aromatic (8-10)	34	47	5000	7200	8.6	3500
Aromatic (10-12)	74	250	5000	9200	13	16000
Aromatic (12-16)	140	1800	5100	10000	23	36000
Aromatic (16-21)	260	1900	3800	7600	46	28000
Aromatic (21-35)	1100	1900	3800	7800	370	28000
Aromatic (35-44)	1100	1900	3800	7800	370	28000
BTEX (based on 1% SOM)						
Benzene	0.087	0.38	72	90	0.017	27
Toluene	130	880	56000	87000	22	56000
Ethylbenzene	47	83	24000	17000	16	5700
m-Xylene	59	82	41000	17000	31	6200
p-Xylene	56	79	41000	17000	29	5900
o-Xylene	60	88	41000	17000	28	6600

All values in mg/kg unless stated otherwise
* Benzene values to be used as a conservative screen for TPH Aromatic C5-C7 range hydrocarbons if Speciated BTEX results are not available. If Speciated BTEX are available then TPH Aromatic C5-C7 screening value in () can be adopted.

AA Environmental Limited – Tier 1 Soil Guidance Values (Cont.)

Determinant	Land-Use Scenario: Residential with Homegrown Produce	Residential without Homegrown Produce	Public Open Space (POS) Residential	Public Open Space (POS) Park	Allotment	Commercial and Industrial
Polycyclic Aromatic Hydrocarbons (PAH) (based on 1% SOM)						
Naphthalene	2.3	2.3	4900	1200	4.1	190
Acenaphthene	210	3000	15000	29000	34	84000
Acenapthylene	170	2900	15000	29000	28	83000
Fluorene	170	2800	9900	20000	27	63000
Anthracene	2400	31000	74000	150000	380	520000
Fluoranthene	280	1500	3100	6300	52	23000
Phenanthrene	95	1300	3100	6200	15	22000
Pyrene	620	3700	7400	15000	110	54000
Benzo(a)anthracene	7.2	11	29	49	2.9	170
Chrysene	15	30	57	93	4.1	350
Benzo(b)fluoranthene	2.6	3.9	7.1	13	0.99	44
Benzo(k)fluoranthene	77	110	190	370	37	1200
Benzo(ghi)perylene	320	360	640	1400	290	3900
Benzo(a)pyrene	2.2	3.2	5.7	11	0.97	35
Dibenzo(ah)anthracene	0.24	0.31	0.57	1.1	0.14	3.5
Indeno(123-cd)pyrene	27	45	82	150	9.5	500

All values in mg/kg unless stated otherwise

References

LQM/CIEH Suitable 2 Use Levels (S4UL) for Human Health Assessment – Land Quality Management Limited (LQM) and Chartered Institute of Environmental Health (CIEH) Land Quality Press (2015)

SP1010: Development of Category 4 Screening Levels (C4SL) for Assessment of Land Affected by Contamination - Department for Environment, Food and Rural Affairs (2014)

Descriptions of Public Open Space (POS): Section 1.4.2 of The LQM S4UL for Human Health Assessment

POS Residential: Includes the predominantly grassed areas adjacent to high density housing, the central green area on many 1930s-1970s housing estates, and smaller areas commonly incorporated in newer developments as informal grassed areas or more formal landscaped areas with a mixture of open space and covered soil with planting. It is assumed that the close proximity to the place of residence will allow tracking back of soil to occur.

POS Park: An area of open space, usually owned and maintained by the Local Authority, provided for recreational uses including family visits and picnics, children's play area, informal sporting activities such as football (but not a dedicated sports pitch), and dog walking. It is assumed that tracking back of soils into the place of residence will be negligible.

SOM – Soil Organic Matter

Soil Guidance Values for Organics are presented as the most-conservative values based on 1.0% SOM. In the event of exceedance, the actual SOM content of the sample(s) should be reviewed to determine if a higher value based on 2.5% or 6.0% can be adopted.

APPENDIX H
Consolidated Gas/Groundwater Monitoring Results

163407 - Pollington Lane Landfill

Borehole ID	DATE	CH4 (%)	CO2 (%)	O2 (%)	PEAKCH4 (%)	PEAKCO2 (%)	CO (ppm)	H2S (ppm)	BARO (mb)	REL.PRESSURE (mb)	INTERNAL FLOW (l/h)	Notes
BH201	06/01/21	0.044444	0	20.93333	0.2	0	0	0	1026.889	-0.108889	0	GA5000 CH4 faulty channel detected - error message
BH202	06/01/21	0	4.711111	15.86667	0	7.6	0	0	1023.444	0.775556	0.4	GA5000 CH4 faulty channel detected - error message
BH203	06/01/21	0.144444	0.5	20.24444	0.3	0.5	0.444444	0	1026	-0.152222	0	GA5000 CH4 faulty channel detected - error message
BH204	06/01/21	0.011111	2.388889	17.35556	0.1	2.4	0	0	1023.333	-0.106667	0.1	GA5000 CH4 faulty channel detected - error message
BH201												Bung missing - no gas monitoring undertaken
BH202	21/01/21	0	0	20.77778	0	0	0	0	977.8889	-0.063333	0	
BH203	21/01/21	0	0.4	20.11111	0	0.4	0	0	979.7778	-0.262222	0	
BH204	21/01/21	0	3.166667	14.8	0	3.2	0	0	975.8889	-0.162222	0.1	
POLBH201	02/02/21	0	0	21.01111	0	0	0.666667	0	994	-7.201111	0	Borehole Flooded
POLBH202	02/02/21	0	3.8	15.26667	0	3.8	0	0	992.8889	1.042222	0.7	
POLBH203	02/02/21	0	0.4	19.83333	0	0.4	0	0	993.8889	0.403333	0.2	
POLBH204	02/02/21	0	3.377778	15.73333	0	3.377778	0	0	994	0.241111	0.1	

163407- Pollington Lane Quarry Groundwater Level Data

BH	Date	SP/C	Z (m)	Water Level (m)	Water Level (m AOD)	Base of BH (m)	Base of BH (m AOD)	Notes
BH201	15/12/2020	SP	-4.58	2.37	-6.95	10.35	-14.93	
		C	-4.726	2.51	-7.236	10.49	-15.216	
BH202	15/12/2020	SP	8.715	19.25	-10.535	25.91	-17.195	
		C	8.83	19.37	-10.54	26.02	-17.19	
BH203	15/12/2020	SP	-0.871	7.485	-8.356	14.56	-15.431	
		C	-0.706	7.565	-8.271	14.82	-15.526	
BH204	15/12/2020	SP	13.681	28.5	-14.819	35.63	-21.949	
		C	13.876	28.695	-14.819	35.83	-21.954	
BH201	06/01/2021	SP	-4.58	2.44	-7.02	10.37	-14.95	
		C	-4.726	2.6	-7.326	10.51	-15.236	
BH202	06/01/2021	SP	8.715	19.405	-10.69	25.82	-17.105	
		C	8.83	19.515	-10.685	25.93	-17.1	
BH203	06/01/2021	SP	-0.871	7.51	-8.381	14.65	-15.521	
		C	-0.706	7.68	-8.386	14.82	-15.526	
BH204	06/01/2021	SP	13.681	29.04	-15.359	35.62	-21.939	
		C	13.876	29.23	-15.354	35.81	-21.934	
BH201	21/01/2021	SP	-4.58	1.52	-6.1	10.35	-14.93	
		C	-4.726	1.65	-6.376	10.48	-15.206	
BH202	21/01/2021	SP	8.715	18.01	-9.295	25.85	-17.135	
		C	8.83	18.12	-9.29	25.96	-17.13	
BH203	21/01/2021	SP	-0.871	6.15	-7.021	14.66	-15.531	
		C	-0.706	6.32	-7.026	14.83	-15.536	
BH204	21/01/2021	SP	13.681	23.67	-9.989	35.58	-21.899	
		C	13.876	23.86	-9.984	35.77	-21.894	
BH201	02/02/2021	SP	-3.78	1.13	-4.91	10.34	-14.12	Borehole flooded
		C	-3.926	1.27	-5.196	10.48	-14.406	
BH202	02/02/2021	SP	9.515	17.01	-7.495	25.84	-16.325	
		C	9.63	17.12	-7.49	25.95	-16.32	
BH203	02/02/2021	SP	-0.071	5.62	-5.691	14.65	-14.721	
		C	0.094	5.78	-5.686	14.81	-14.716	
BH204	02/02/2021	SP	14.481	22.11	-7.629	35.57	-21.089	
		C	14.676	22.3	-7.624	35.78	-21.104	

ATTACHMENT 1
Hydrogeological Risk Assessment