

A46 Newark Bypass

TR010065/APP/6.3

6.3 Environmental Statement

Appendix 9.2 Contaminated Land Risk Assessment

Part 1

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and
Procedure) Regulations 2009

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**The Infrastructure Planning
(Applications: Prescribed Forms
and Procedure) Regulations 2009**

A46 Newark Bypass

Development Consent Order 202[x]

ENVIRONMENTAL STATEMENT

APPENDIX 9.2 CONTAMINATED LAND RISK ASSESSMENT

PART 1

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1 Introduction

1.1 Background

- 1.1.1 A Phase 2 Contaminated Land Generic Quantitative Risk Assessment (GQRA) has been produced to support the proposed development of the Scheme. This report presents a summary of ground conditions and pertinent geo-environmental issues that needs to be addressed as part of the design and construction of the Scheme.

Existing corridor

- 1.1.2 The A46 forms part of the strategic Trans-Midlands Trade Corridor between the M5 in the southwest and the Humber Ports in the northeast. The improvements to the A46 corridor are detailed within the RIS2¹ as a mechanism for underpinning the wider economic transformation of the country. RIS2 makes a commitment to create a continuous dual carriageway from Lincoln to Warwick.
- 1.1.3 The stretch of A46 between the Farndon Junction, to the west of Newark-on-Trent and the A1 to the east of Newark-on-Trent, is the last remaining stretch of single carriageway between the M1 and A1 and consequently queuing traffic is a regular occurrence, often impacting journey time reliability.

Scheme proposal

- 1.1.4 The Scheme comprises on-line widening for the majority of its length between Farndon roundabout and the A1. A new section of offline dual carriageway is proposed between the western and eastern sides of the A1 before the new dual carriageway ties into the existing A46 to the west of Winthorpe roundabout. The widening works include earthwork widening along the existing embankments, and new structures where the route crosses two sections of railway lines, River Trent and the A1.
- 1.1.5 A new grade separated junction will be constructed at Cattle Market roundabout with improvements proposed at both the Farndon and Winthorpe roundabouts.

¹ Department for Transport (2020) Road Investment Strategy 2: for the 2020 to 2025 Road Period [online] available at: [Road Investment Strategy 2: 2020-2025 \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/868417/ris2-2020-2025.pdf) (last accessed December 2023).

- 1.1.6 Three areas have been identified for floodplain compensation which are being referred to as the Kelham and Averham Floodplain Compensation Area (FCA), Farndon West Borrow Pit FCA and Farndon East Borrow Pit FCA.
- 1.1.7 A detailed Scheme description is contained within Chapter 2 (The Scheme) **(TR010065/APP/6.1)**.
- 1.1.8 As part of the Scheme, the types of construction elements that are likely to form part of the Scheme include the following:
- Pre-construction and mobilisation activities, for example establishing site compounds, borrow pits and haul roads, topsoil and sub-soil storage.
 - Excavation of soil to form flood compensation areas, including habitat creation.
 - Earthworks to include noise attenuation and landscape bunds.
 - Diversion of Statutory Undertaker's (SU) equipment and other apparatus.
 - Installation of attenuation features.
 - Groundwater management.
 - Site clearance.
 - General excavation including borrow pit sites.
 - Haulage, including the removal of waste soil from site and the import of clean suitable materials.
 - Earthworks, including the construction of embankments and the relocation of excavated spoil.
 - Placing concrete foundations, including piling works.
 - Laying of asphalt.
 - Installation of drainage, which will include excavation and placement of pipes and chambers.
 - Installation of a concrete central reservation along the A46.
 - Installation of new street lighting and traffic signals at junctions.
 - Landscaping and planting.
 - Construction of new bridge structures including the lifting of beams into place.
 - Construction of retaining wall solutions for the retention of new embankments.

Objectives

- 1.1.9 The overall objectives of this GQRA report are to:
- Examine and evaluate available desk study information and historical ground investigation (GI) data for the Scheme.
 - Summarise and interpret the geo-environmental information gathered from the site-specific ground investigation undertaken between 6 April 2021 and 15 July 2021.

- Summarise and interpret the geo-environmental information gathered from the supplementary site-specific ground investigation undertaken between October 2022 and May 2023.
- Support the development consent process by identifying potential constraints to the Scheme associated with contaminated land and to inform Chapter 9 (Geology and Soils) of the Environmental Statement (ES) **(TR010065/APP/6.1)**.

Scope of works

- 1.1.10 The following elements have been undertaken to achieve the objectives of the report:
- Examination and evaluation of available desk study information and historical ground investigation data.
 - Evaluation of Scheme specific ground investigations.
 - Geo-environmental interpretive reporting, including the revision of a conceptual site model (CSM) and contaminated land GQRA using current and historical data for the site.
 - Provide recommendations for mitigation of any identified risks.
 - Identify the need for any remedial measures or further assessment (if required).

Limitations

- 1.1.11 This report is subject to the following limitations:
- While every effort has been made to obtain contamination and ground investigation data to refine and update understanding of the contamination conceptual site, the data obtained is principally intended to identify potential issues which could affect the feasibility or cost of the development, to inform its design and to inform Chapter 9 (Geology and Soils) of the ES **(TR010065/APP/6.1)**.
 - The ground investigations upon which this report is based were designed to provide general coverage of the Scheme, in order to provide an assessment of the potential in-ground constraints with respect to contamination risks. Preliminary development plans were made available prior to the design and undertaking of the ground investigation.
 - To the extent that this document is based on information obtained in previous or recent ground investigations, persons using or relying on it should recognise that such investigation can examine only a fraction of the subsurface conditions. In any ground investigation there remains the risk that pockets or 'hotspots' of contamination or other ground hazards may not be identified, because investigations are necessarily based on sample at localised points. Certain indicators or evidence of hazardous substance or conditions may have been

- outside the portion of the subsurface investigated or monitored, and thus may not have been identified or their full significance appreciated.
- Should the presence of asbestos or toxic mould be suspected during the course of the study, it is recommended that a specialist contractor is appointed to address the issues and to provide advice on risk or remedial measures.

2 Site background

2.1 Introduction

- 2.1.1 The following section highlights the setting, history, and environmental background to the Scheme. The environmental setting of the Scheme is described within Chapter 9 (Geology and Soils) of the ES **(TR010065/APP/6.1)**. For full details, the original document should be referred to. However, for the purpose of this assessment a summary of the pertinent points is presented below.

2.2 Scheme location

- 2.2.1 The existing A46, currently single carriageway, is generally elevated on embankment due to the surrounding low-lying floodplain of the River Trent. Several roundabouts form key junctions along the route, linking with several local A roads. Road infrastructure is softened by roadside vegetation in places and the River Trent is a strong natural influence within an otherwise manmade landscape. To the north of the A46, farmland dominates, interspersed with small-scale settlements. To the south of the A46, the town of Newark-on-Trent forms a notable urban settlement. The Scheme location is shown in Figure 2.1 (Scheme Location Plan) of the ES Figures **(TR010065/APP/6.2)**.

2.3 Topography

- 2.3.1 The southern part of the Scheme runs through the River Trent alluvial flood plain where natural ground levels are typically 9 to 10 metres Above Ordnance Datum (AOD) and embankments of the existing A46 rise up to a maximum 13 metres in height with 1V:2.5H slopes. To the east of the Brownhills Junction the land rises out of the flood plain and reaches a maximum 18 metres (AOD) near the eastern end of the Scheme at Winthorpe Junction. The Kelham and Averham FCA is also relatively flat, with elevations ranging from 13 metre AOD to 17 metre AOD across the Scheme. The topography of the Scheme is shown in Figure 9.1 (Topography) of the ES Figures **(TR010065/APP/6.2)**.

2.4 Published geology

- 2.4.1 British Geological Survey (BGS) Sheet 113 Ollerton and 126 Nottingham², together with the associated memoirs (Edwards, W 1967³ and Howard, A 2010⁴) provide geological details of the Scheme and study area.

Artificial ground

- 2.4.2 Made Ground is a term used to describe any anthropogenic deposits or fill materials and can be a potential source of contamination. Made Ground is not mapped within the Order Limits. However, it is mapped within the study area by BGS², located approximately 310 metres to the south east of the Scheme at Newark Castle centred at 479656, 354305, as shown in Figure 9.2 (Potential Sources of Contamination) of the ES Figures **(TR010065/APP/6.2)**.
- 2.4.3 Infilled land has been mapped² 500 metres west of Farndon roundabout, centred at 477181, 352524 as shown in Figure 9.2 (Potential Sources of Contamination) of the ES Figures **(TR010065/APP/6.2)**. Recorded landfill data is detailed in Section 2.7.

Superficial deposits

- 2.4.4 The superficial deposits include Alluvium, the Holme Pierrepont Sand and Gravel Member (HPSG) and Balderton Sand and Gravel Member (BDTN) of the River Terrace Deposits² distributed across the study area as shown in Figure 9.3 Superficial Deposits **(TR010065/APP/6.2)**.
- 2.4.5 Alluvium is a general term for the unconsolidated detrital material deposited by a river or stream. Normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel. A stronger, desiccated surface zone may be present. According to the 1985 Geotechnical Report⁵, the Alluvium present on site is highly variable with the potential for deep alluvial channels running through the site.

² BGS (1966), Geological Survey of England and Wales, Ollerton Solid and Drift, Sheet 113, 1:63,360 scale.

³ Edwards W. N. (1967). Geology of the Country around Ollerton (Explanation of one-inch Geological Sheet 113, New Series). Geological Survey of Great Britain, Memoir. 2nd edition.

⁴ Howard A (2010). Geology of the Nottingham district, BGS Memoir for sheet E126.

⁵ Exploration Associates, "A46 Newark Relief Road Report on Supplementary Site Investigation," 1985.

- 2.4.6 HPSG often lies beneath the Alluvium, where present. The HPSG predominantly comprises sands and gravels, detrital in nature, ranging from coarse to fine grained and form beds and lenses of deposits reflecting the channels, floodplains and levees of a river or estuary. Generally pinkish, poorly sorted and compositionally rather immature matrix—supported, sandy, trough—cross bedded (braided river) gravels with syn-depositional ice-wedge casts.
- 2.4.7 BDTN like the HPSG, they are predominantly cold-phase sands and gravels. Orange-brown sandy gravel dominated by rounded pebbles of "Bunter" quartz/quartzite (0.75%) with subordinate subangular flint (c.15%), and rarer Triassic sandstone.

Bedrock geology

- 2.4.8 The bedrock geology within the study area includes the Mercia Mudstone Group (MMG), Gunthorpe Member Mudstone (GUN) and Edwalton Member Mudstone (EDW) 2 as shown in Figure 9.4 (Bedrock Geology) of the ES Figures (TR010065/APP/6.2).
- 2.4.9 MMG is described in the BGS Lexicon as “Dominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas. Thin beds of gypsum/anhydrite widespread; sandstones are also present”.
- 2.4.10 GUN is described in the BGS Lexicon as “Mudstone, red-brown, with subordinate dolomitic siltstone and fine-grained sandstone, greenish grey, common gypsum veins and nodule”
- 2.4.11 EDW is described in the BGS Lexicon as “Mudstone and siltstone, red-brown and greenish grey, with beds of indurated, variably dolomitic siltstone and very fine-grained sandstone common in the lower half; finely disseminated gypsum common in upper half”.

BGS archive borehole data

- 2.4.12 The BGS database² of historical borehole scans shows the location of numerous exploratory holes for the Ground Investigation Reports which have been retrieved from HAGDMS. There are no additional BGS borehole scans that provide information for the main line works, however there are 6 trial pits at Home Farm, Kelham near to the proposed flood compensation excavation, that indicate topsoil being underlain by sand and gravel. Two further historical

boreholes indicate the depth of sand and gravel to vary between 6.8 metres and 7.8 metres, with Mercia Mudstone present beneath.

2.4.13 Hydrogeology

2.4.14 The HAGDMS website⁶ indicates that the Superficial Deposits are designated as Secondary A Aquifers, as indicated in Figure 9.5 (Superficial Deposits Aquifer Designation) of the ES Figures **(TR010065/APP/6.2)**. Magic Maps⁷ provides designation for Secondary A Aquifer: 'Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers'.

2.4.15 Bedrock formations are designated as Secondary B Aquifers, as indicated in Figure 9.6 (Bedrock Geology Aquifer Designation) of the ES Figures **(TR010065/APP/6.2)**. Magic Maps⁷ provides designation for Secondary B Aquifer: 'Predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers'.

2.4.16 The Environment Agency has provided information on groundwater sources⁸ within the study area. There are three recorded groundwater abstractions for spray irrigation within the study area. These are associated within a single farm and are located approximately 120 metres to 220 metres outside the Order Limits, to the extreme north of the Scheme. There are a further ten groundwater abstractions located within a 500 metres search area of the Scheme predominantly operated for general farming and domestic, process water (public administration, chemical, industrial/commercial/public services) and spray irrigation purposes.

2.4.17 The Scheme is not located within a designated groundwater source protection zone (SPZ), or Drinking Water Safeguard Zone for groundwater (or surface water). The Scheme is located within a WFD drinking water protected area which is designated as "probably not at risk".

⁶ National Highways "Highways England Geotechnical Data Management System v.5.12.0". [Online]. Available: [National](#) (Last accessed December 2023).

⁷ Defra, Magic (2021). Interactive Map [online] Available: [MAGIC \(defra.gov.uk\)](#) (Last accessed December 2023).

⁸ In response to Request for information EMD-294943 submitted November 2023.

2.5 Hydrology

- 2.5.1 The surface water baseline is described in detail in Chapter 13 (Road Drainage and the Water Environment) of the ES **(TR010065/APP/6.1)** and the surface water receptors are shown on Figure 13.1 (Surface Water Constraints) of the ES Figures **(TR010065/APP/6.2)**.
- 2.5.2 To summarise, the River Trent flows through the centre of the study area flowing in a northerly direction. The A46 crosses the River Trent near Crankley Point and Farndon Junction. The A46 also crosses the Old Trent Dyke twice, near Newark Cricket Ground and west of Hiram's Paddocks and the Slough Dyke (the Fleet) once west of Brownhills roundabout.
- 2.5.3 There are several lakes/ponds identified within the study area which are associated with various land use. Including: the British Sugar Factory, Staythorpe Power Station, Smeatons Lake Camping Site, Nottingham Piscatorial Society, Farndon Local Nature Reserve and assumed attenuation ponds based on historical aerial imagery.
- 2.5.4 There are also three marinas, field drains, and smaller unnamed watercourses within the study area.

2.6 Landfill records

- 2.6.1 There are two recorded⁹ active landfills within 500 metres of the Scheme. They are dedicated for factory curtilage waste and are operated by British Sugar Plc, located to the northwest of the Scheme beyond the Nottingham to Lincoln railway line at approximately 100m at its closest point. Impacts on groundwater quality from authorised landfills are considered to be managed by the Environmental Permit in force for the landfill site.
- 2.6.2 There is a small area (approximately 0.15 hectares (ha)) noted as a historical landfill, located approximately 215 metres east of the Great North Road. At its closest point, the landfill, named as Muskham Road, is located 400m and is recorded as having accepted inert and industrial waste and was operated by the British Sugar Corporation, with waste first input recorded from 1947. Given the small scale of this historical landfill and that it is greater than 400 metres from the proposed Scheme and when taking into consideration

⁹ Landmark Information Group, Envirocheck Report (order no:172582399_1_1 dated 9/07/2018, Atkins received June 2018).

potential contaminant dilution, dispersion, retardation, degradation and other processes, it is considered to be beyond the likely extent of impact pathways (including from major accidents and disasters), and is not considered further.

- 2.6.3 The Environment Agency records a historical landfill to the north of the Kelham FCA. Namely the Newark Quarry Historical landfill (licence holder Hoveringham Gravels Midlands Limited), which is reported to have received inert, industrial, special waste and liquid sludge between 1976 and 1989. It is located approximately 1.3 kilometres from the main Scheme alignment. An area of land adjacent to this historical landfill was previously assessed for flood compensation suitability. This area has since been discounted as it is not within the Order Limits.
- 2.6.4 The locations of the landfills are shown on the Figure 2.2 (Environmental Constraints Plan) of the ES Figures **(TR010065/APP/6.2)**.

2.7 Unexploded ordnance

- 2.7.1 Zetica has produced freely available risk maps¹⁰ indicating the potential risk of air dropped World War Two unexploded ordnance (UXO) to be present on the Scheme. The mapping classifies the ground directly underlying the Scheme and the wider surrounding area as 'Low Risk' with less than 15 surveyed bomb strikes per 1000 acres. Therefore, no further assessment was deemed necessary at this stage. It should be noted that the risk map is not a risk assessment and does not consider other sources of UXO such as enemy or allied ground ordnance.

2.8 Radon

- 2.8.1 The majority of Scheme is situated in an area of low radon potential. However, the northern extent of the Scheme in the Winthorpe area is situated in an area of high radon, the maximum radon potential recorded is between 5 – 10 %¹¹.

¹⁰ Zetica, "UXO risk maps". [Online]. Available at: [REDACTED] (last accessed December 2023).

¹¹ UK Radon, Available at: [REDACTED] (Last Accessed December 2023).

2.9 Contaminated sources from historical mining

- 2.9.1 Old mines have the potential to be a source of ground gas.
- 2.9.2 The Coal Authority Interactive Map¹² indicates that the study area is not located within a Coal Mining Reporting Area. No coal mining features, or license areas are recorded in the vicinity of the site.
- 2.9.3 It must be noted, however, that non-coal mining activity was present located on the north western side of the Nottingham-Lincoln railway line, and therefore not directly adjacent to the Scheme.
- 2.9.4 The 1985 Geotechnical Report¹³ states that the A46 route crosses borrow pits used for construction of the nearby Great North Road. There are also borrow pits associated with construction of the existing A46, which have potentially been backfilled with locally sourced Alluvium.

2.10 Pollution incidents

- 2.10.1 The Envirocheck Report⁹¹⁴ indicated there are four substantiated pollution incidents recorded within 500 metres of the Scheme, outlined as follows:
- 117 metres north of A46 near Robert Dukeson Avenue – September 2009 Category 2 - 'Significant incident' land pollution from soot.
 - 165 metres southwest of A46 near Fleming Play Area – October 2012 –Category 2 'Significant incident' land pollution from tyres.
 - 249 metres east of A1/A46 Junction – August 2005 – Category 2 'Significant incident' for water pollution and Category 3 'Minor incident' for land pollution from suspended solids.
 - 290 metres west of the A46 near Old Trent Dyke – October 2014 Category 2 'Significant incident' for land pollution caused from smoke and commercial waste.
- 2.10.2 There are a further 28 recorded pollution incidents to controlled waters recorded within 500 metres of the southern and central areas of the Scheme, all of which were designated Category 3 – Minor Incidents caused by pollutants including oils, organic wastes, sewage, and

¹² Coal Authority Interactive Map available at: [REDACTED] (last accessed December 2023).

¹³ Geotechnical Report on A46 Newark Relief Road, Department of Transport East Midland Regional Office, 1985.

¹⁴

chemicals to surface watercourses within the Trent catchment area.

2.11 Land use and historical development

2.11.1 Using historical Ordnance Survey plans provided in the Envirocheck Report⁹ and available online sources, a summary of the historical development of the Order Limits and surrounding study area is provided in Table 2-1.

Table 2-1: Summary of historical developments and potential sources of contamination

Map dates	Within Order Limits	Within 500m study area
1884 (1:10,560)	The River Trent is shown crossing the alignment in southern extent and central sections flowing west to east.	Flour mill is marked approximately 50 metres south-east.
1886 (1:2,500)	Malthouse is mapped within the south west section of the alignment. Old Trent Dyke (spring) is shown crossing the western extent of the alignment flowing away from river east to west. The Midland Railway: Nottingham to Lincoln line is shown crossing the western extent of the alignment. Great North Road is shown crossing the alignment in central section. Great Northern Railway (currently known as East Coast Mainline) is shown crossing the alignment in the central section. Chemical Manure Works mapped within the central section of the Scheme at Castle Gate in 1884 (1:10,560). Chemical Manure Works expansion, a new factory is labelled off the Winthorpe Road in 1886 (1:2500), understood to be operated by Quibell Brothers Ltd and known locally as 'Quibell's factory' (British Glues & Chemicals ²⁷).	Windmill (Flour) is mapped approximately 50 metres southwest. Unnamed Road is mapped approximately 100 metres south. Railway crossing mapped 10 metres west. Brewery is mapped 250 metres southwest. Wellington foundry is mapped 250 metres southwest. Malthouses is mapped 200 metre southwest. Windmill (flour) is mapped 100 metres north. Old bleaching house is mapped approximately 100 metres south. Windmill (corn) is mapped approximately 350 metres southwest. Flour mill is marked approximately 300 metres southeast.

Map dates	Within Order Limits	Within 500m study area
1900 (1:2,500) 1900-1901 (1:10,560)	A football ground has been constructed in the central section of the Scheme.	Flour mill is no longer labelled. Windmill (Flour) is now labelled as Windmill (Disused). Two Nurseries are shown present at 200 metres & 250 metres southwest. Goods shed is shown present 250 metres southwest. Tow Path for the River Trent is shown present running from south to north crossing the central section of the alignment. Brewery is no longer named. Windmill (Flour) is now named as Mill Cottage. Kings Sconce is now shown present 200 metres south of the central section of the alignment. Windmill (corn) is now labelled as Windmill (Disused). Flour mill is now labelled as corn mill.
1919 - 1920 (1:2,500) 1921 (1:10,560)	No substantial changes.	Wicker Works is now shown present 180 metres southeast. Four earthworks are now shown present 250 metres east, 200 metres west, 200 metres west & 200 metres northwest. Boiler works is shown present 200 metres southwest. Nursery is shown present 50 metres south.
1938 (1:10,560)	No substantial changes.	Way (Roman Road) located approximately 50 metres east.
1948 (1:10,560) Aerial Photograph	No substantial changes.	RAF Winthorpe operational adjacent to A17. No significant changes
1956 (1:10,000) 1955-1956 (1:10,560)	Midland Railways is no longer labelled.	Residential houses are now shown present 200 metres south. Sewage works is mapped present 80 metres north west.

Map dates	Within Order Limits	Within 500m study area
		Unnamed buildings are shown present 80 metres south.
1965 (1:1,250) 1966-1969 (1:10,000) 1969 – 1970 (1:1,250)	Chemical Manure Works mapped within the central section of the Scheme relabeled as 'Works'. The 'Works' is understood to be The British Glues and Chemicals Ltd Quibell Bros Glue Factory (Croid Glues) (British Glues & Chemicals ²⁷). Football ground is mapped towards central section of the alignment.	RAF Winthorpe closed adjacent to A17. Unnamed Road is now shown present. Roundabout 100 metres south Sugar works mapped approximately 250 metres west.
1969-1981 (1:2,500) 1972-1984 (1:10,000) 1973-1984 (1:1,250) 1971-1973 (1:10,000)	Drains are now labelled, immediately east of the alignment and 50m southwest of Great Northern Road roundabout.	Newark Air Museum (Former RAF Winthorpe) opened to the public in 1973, adjacent to A17. Wicker Works is now labelled as Works. Nursery in southwest is no longer labelled. Earthwork is now labelled as Civil war earthworks. Sewage pumping station mapped approximately 450 metres south. Drains are mapped 50 metres southeast & 50 metres southwest. Football ground is mapped 50m northwest. Chemical manure works now named as Works. School is mapped 250 metres south. Filter bed tanks for sewage works are now present. Kings Sconce is now names as Works. Caravan site approximately 500 metres southeast. Sugar works renamed 'Sugar Beet Factory'
1985-1996 (1:2500) 1990-1996 (1:1250)	A46 Newark Relief Road is now shown present within the Scheme. Drain is no longer labelled. Bridge is built over River Trent.	Roundabout is mapped 10 metres south. Civil War earthwork is now labelled as Sandbills Sconce.

Map dates	Within Order Limits	Within 500m study area
1992 (1:10,000)	<p>Football ground no longer labelled. Overpass bridge mapped within Scheme.</p> <p>Track is crossing the alignment.</p> <p>Viaduct is now shown present.</p> <p>Chemical Manure Works (relabelled as Works) 'Quibells factory' closed and the factory buildings to the west of the current A46 alignment demolished in 1976.</p>	<p>Football ground to northwest no longer labelled.</p> <p>Cattle Market now, east of Great North road roundabout.</p> <p>Road construction within alignment up to existing roundabout 100 metres south.</p> <p>Newark curve now named as dismantled railway.</p> <p>A scrap yard is mapped 250 metres north.</p> <p>Earthworks adjacent to Newark crossing now labelled 'Civil War Earthwork Redoubt'.</p>
1999 (1:2,500) (Aerial photograph) 2000 (1:10,000)	<p>ADR Automotive labelled in previous location of Chemical Manure Works/Works, adjacent to the east alignment of the A46.</p> <p>DX Freight Newark shown in the central section.</p>	<p>Residential houses mapped 50 metres east.</p> <p>Lorry Park is mapped 10 metres east. Electric substations are mapped 50 metres south west & 50 metres northwest.</p> <p>Earthwork is shown present 200 metres west. Bus Depot is shown present 250 metres southwest.</p> <p>Sugar works now named 'British Sugar Mill' and is mapped approximately 250 metres west.</p>
2000 (1:10,000) 2006 (1:10,000) 2007 (Aerial photograph Google Earth)	<p>Rectory Farm Civil Airfield grassed airstrip showing in 2007 aerial imagery, located in the north of the Scheme.</p>	<p>Kings Marina is present 180 metres southwest.</p> <p>Residential area present 20 metres south.</p>
2018 (1:10,000)	No substantial changes.	No substantial changes

2.12 Contamination

- 2.12.1 Newark & Sherwood District Council¹⁵ has not designated any land as contaminated under the definition in Part 2A of the Environmental Protection Act 1990 and as such does not have any entries on the Contaminated Land Register.
- 2.12.2 Potential contamination sources from historic and current land use within 500 metres of the Scheme have been identified and are included in Table 2-1 above.

¹⁵ Newark & Sherwood District Council website available at: [Contaminated land | Newark & Sherwood District Council \(newark-sherwooddc.gov.uk\)](https://www.newark-sherwooddc.gov.uk) (last accessed December 2023).

3 Summary of Phase 1 Preliminary Risk Assessment

3.1 Preliminary Qualitative Risk Assessment

- 3.1.1 The primary regulatory regime, under which contaminated land in the UK is managed, is Part 2A of the Environmental Protection Act (EPA), 1990¹⁶, although numerous other subsidiary Regulations are also relevant. This report adopts a strategy for the assessment of potential land contamination based on current guidance documents related to Part 2A. Particular reference is made to CIRIA Report C552¹⁷ and the Environment Agency's Land Contamination: Risk Management (LCRM)¹⁸. The key regulatory legislation is included in Appendix A.
- 3.1.2 Following the procedures in LCRM, a key element of the Preliminary Risk Assessment is the development of a conceptual model which may be refined or revised as more information and understanding is obtained through the risk assessment process. The conceptual model is described in terms of the contaminant Sources, transport Pathways and possible Receptors that may be present, and the potential 'Pollutant Linkages' between them, as defined in the relevant legislation and guidance.
- 3.1.3 Following the development of the conceptual model and the identification and assessment of potential pollutant linkages, an assessment can be made of risk estimation and risk evaluation, as discussed in LCRM¹⁷ and CIRIA C552¹⁶, to determine whether an unacceptable contamination risk is likely to exist.
- 3.1.4 LCRM defines risk estimation as predicting the magnitude (or consequence) and probability of the risk occurring that may arise as a result of that hazard. This is also identified in CIRIA C552 in which the risk assessment methodology uses qualitative descriptors of consequence, probability and thus risk. These descriptors are adopted for the purposes of this risk assessment. The Contaminated Land Risk Assessment Methodology is included as Appendix B.

¹⁶ DEFRA (2012): Environmental Protection Act 1990: Part 2A, Contaminated Land Statutory Guidance.

¹⁷ CIRIA (2001): Contaminated Land Risk Assessment - A Guide to Good Practice, ref. C552

¹⁸ Environment Agency. (2021) Land contamination risk management (LCRM). Available at: [Land contamination risk management \(LCRM\) - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/land-contamination-risk-management-lcrm) (Last accessed December 2023).

3.1.5 A Preliminary Risk Assessment (PRA) has been included in the A46 Newark Northern Bypass PSSR (2021 Atkins) within Appendix 9.1 (A46 Newark Northern Bypass Preliminary Sources Study Report) of the ES Appendices **(TR010065/APP/6.3)**, based on the desk study information presented in the report. A summary of the pertinent points has been included below.

Sources of contamination

3.1.6 Potential sources of contamination have been identified in the PSSR which are outlined within Table 3-1. The report notes that the list of activities and contaminants of concern should not be considered exhaustive and provides a guide to the likely range of contaminants which may be present at or surrounding the Scheme.

Table 3-1: Potential sources of contamination identified in the PSSR

On-site or off-site	Potential sources of contamination	Contaminants of concern
On-Site	Made Ground associated with, previous road development, the railways and roads crossing the site.	A range of metals, inorganic and organic contaminants including: Arsenic, cadmium, chromium, copper, mercury, nickel, lead, selenium, zinc, vanadium, asbestos and asbestos containing materials (ACMs), Total Petroleum Hydrocarbons (TPHs), Polycyclic Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs), solvents, acids, Semi volatile Organic compounds (SVOCs), and Volatile Organic compounds (VOCs). Ground gas including carbon dioxide, methane, hydrogen sulphide and carbon monoxide, with the potential for low oxygen levels. Potential for hydrocarbon vapours.
	Contaminated soil associated with Chemical Manure manufacturing & Malthouse	Inorganic and organic contaminants such as metals, asbestos / ACMs, TPHs, PAHs, PCBs, solvents, acids, SVOCs, and VOCs. Organic matter likely to be present with the potential for biological contaminants. Ground gas including carbon dioxide, methane, hydrogen sulphide and carbon monoxide, with the potential for low oxygen levels.

On-site or off-site	Potential sources of contamination	Contaminants of concern
Off-site	Made Ground associated with development in the area	A range of metals, inorganic and organic contaminants including: Arsenic, cadmium, chromium, copper, mercury, nickel, lead, selenium, zinc, vanadium, asbestos / ACMs, TPHs, PAHs, PCBs, solvents, acids, SVOCs, VOCs. Biological contaminants, ammonia, PH. Ground gas including carbon dioxide, methane, hydrogen sulphide and carbon monoxide, with the potential for low oxygen levels.
	Sewage Works (inc. sludge beds, filter beds and tanks), and Landfill	
	Historic Pollution Incidents	TPHs, PAHs, SVOCs, and VOCs, metals.
	Electricity sub-station	Metals, TPHs, PAHs, PCBs.
	Mill (inc. infilled mill pond)	Metals, TPHs, PAHs, SVOCs, VOCs, and potential for asbestos / ACMs, and ground gas.
	Nursery, Farmland around the route options including the potential for unmapped farmers tips.	Herbicides, pesticides.
	Brewery	Metals, TPHs, PAHs, SVOCs, VOCs, and potential for asbestos / ACMs, and ground gas.
	Foundry	Metals, TPHs, PAHs, SVOCs, VOCs, and potential for asbestos / ACMs, and ground gas.
	Malthouse	Inorganic and organic contaminants such as metals, asbestos / ACMs, TPHs, PAHs, PCBs, solvents, acids, SVOCs, and VOCs. Organic matter likely to be present with the potential for biological contaminants. Ground gas including carbon dioxide, methane, hydrogen sulphide and carbon monoxide, with the potential for low oxygen levels.
Bleaching house	A range of metals, inorganic and organic contaminants including: Arsenic, cadmium, chromium, copper, mercury, nickel, lead, selenium, zinc, vanadium, asbestos / ACMs, TPHs, PAHs, PCBs, solvents, acids, SVOCs, VOCs. Biological contaminants, ammonia, pH	

On-site or off-site	Potential sources of contamination	Contaminants of concern
	Wicker Works	Metals, TPHs, PAHs, SVOCs, VOCs, and potential for asbestos / ACMs, and ground gas.
	Boiler works	A range of metals, inorganic and organic contaminants including: Arsenic, cadmium, chromium, copper, mercury, nickel, lead, selenium, zinc, vanadium, asbestos / ACMs, TPHs, PAHs, PCBs, solvents, acids, SVOCs, VOCs. Biological contaminants, ammonia, pH
	Scrap Yard	A range of metals, inorganic and organic contaminants including: Arsenic, cadmium, chromium, copper, mercury, nickel, lead, selenium, zinc, vanadium, asbestos / ACMs, TPHs, PAHs, PCBs, solvents, acids, SVOCs, VOCs. Biological contaminants, ammonia, pH
	Lorry Park	Inorganic and organic contaminants such as metals, TPHs, PAHs, PCBs, solvents, acids, SVOCs, and VOCs.
	Bus depot	Inorganic and organic contaminants such as metals, TPHs, PAHs, PCBs, solvents, acids, SVOCs, and VOCs.
	British Sugar Mill	A range of metals, inorganic and organic contaminants including: Arsenic, cadmium, chromium, copper, mercury, nickel, lead, selenium, zinc, vanadium, asbestos / ACMs, TPHs, PAHs, PCBs, solvents, acids, SVOCs, VOCs. Biological contaminants, ammonia, pH
	Petrol filling stations	Inorganic and organic contaminants such as metals, TPHs, PAHs, PCBs, solvents, acids, SVOCs, and VOCs.

Potential receptors and pathways

3.1.7 Table 3-2 summarises the identified potential receptors and pathways within the Scheme potentially associated with the construction and operation of the Scheme.

Table 3-2: Potential receptors and pathways identified in the PSSR

Potential Receptors	Pathways
Human Receptors on site (current and future): Construction/ maintenance workers; Road Users.	Dermal contact with and/or ingestion of contaminants in soil, soil-derived dusts and water. Inhalation of contaminants in soils/dust including asbestos fibres. Inhalation of ground gases and/or vapours.
Human Receptors off-site (current and future): Member of the public accessing the surrounding area for work or recreation; Residents.	Dermal contact with and/or ingestion of contaminants in windblown soil-derived dusts and water which may have migrated off-site. Inhalation of contaminants in windblown dust including asbestos fibres. Inhalation of ground gases and/or vapours which may have migrated off-site.
Controlled Water Receptors (on and off-site): Secondary A Superficial Aquifer; Secondary B Bedrock Aquifer; River Trent, Old Trent Dyke (Spring) and drains. Kings Marina Smeatons Lakes	Discharge of contaminants entrained in surface water runoff followed by overland flow and discharge. Leaching and migration of contaminants (free and dissolved phase) from soils in the unsaturated zone into groundwater in underlying superficial aquifer. Migration from the superficial groundwater to deeper bedrock aquifer. Lateral migration of contaminants in groundwater with discharge to surface water as base flow. Migration of contaminants via preferential pathways such as service runs, existing and retained subsurface structures, existing and proposed foundations, proposed drainage.
Property Receptors on-site: Existing road network infrastructure; Proposed new infrastructure including services.	Direct contact of contaminants in soil and/or groundwater with buried services. Migration of groundwater, ground gases or vapours along preferential pathways including permeable ground, service trenches and service entry points and accumulation in enclosed spaces such as service ducts or access points.
Property Receptors/ scheduled monuments / listed buildings off-site: Existing structures and services (including housing); Pets; Crops and livestock.	Migration of groundwater, ground gases or vapours along preferential pathways including permeable ground, service trenches and service entry points and accumulation in enclosed spaces such as buildings, service ducts or access points. Ingestion / inhalation of contaminants in waters / dust / vapours by pets and livestock.
Scheduled monuments / Listed buildings	Uptake through groundwater or air / dust for crops.

- 3.1.8 The PRA highlighted pollutant linkages associated with the proposed Scheme. The preliminary conceptual site model (PCSM) from Atkins PSSR is included in Table 3-3.

Table 3-3: Preliminary conceptual site model

Source	Pathway	Receptor	Consequence	Probability	Risk	Comment
<p>On-site: Made Ground associated with previous road development, the railways and roads crossing the site.</p> <p>Contaminated soil associated with Chemical Manure manufacturing & Malthouse.</p>	Dermal contact with and ingestion of contaminants in soil, soil-derived dust and water. Inhalation of contaminants in soil, soil-derived dust, fibres and vapours.	Human Health: On-site users of the road / pedestrians	Medium	Unlikely	Low	Post works, the site will comprise hardstanding road surfaces and pavement minimising potential for end users to come into direct contact with soils or for dust to be generated. Ground gases are unlikely to be a significant concern as no enclosed structures are proposed as part of the Scheme.
		Human Health: Construction / maintenance workers	Medium	Unlikely	Low	Future maintenance on the site may require localised excavation with potential for workers to come into direct contact with soils or inhale soil derived dusts. This work is likely to be short term and infrequent. Works will be risk assessed and best practice controls are likely to be used (e.g. gloves, and protective clothing) minimising potential for exposure.
	Off-site migration of contaminants in soil derived dust and run-off followed by dermal contact / inhalation / ingestion	Human Health: Off-site users of residential properties, farms and roads	Medium	Unlikely	Low	The future site will comprise hardstanding and consequently soils will be encapsulated beneath these impermeable surfaces thus removing the potential for generation of soil derived dusts
	Lateral migration of dissolved phase contaminants in	Controlled Waters: On-site surface water features (River Trent,	Mild	Likely	Moderate/ Low	The majority of the site is not located in close proximity to surface water courses however sections of the proposed route cross the River

Source	Pathway	Receptor	Consequence	Probability	Risk	Comment
	groundwater to surface water; Lateral migration of dissolved phase contaminants via preferential pathways such as drains; Migration of contaminants in surface water runoff.	Old Trent Dyke, drains)				Trent, Old Trent Dyke and drainage channels. The construction works are likely to result in disturbance of shallow unsaturated soils which may result in the release of contaminants in unsaturated Made Ground soils with potential migration to surface water. Where working in close proximity to watercourses, site best practice procedures require implementation of mitigation to prevent silt entering the watercourse.
		Controlled Waters: Off-site surface water features (River Trent, Old Trent Dyke, drains)	Mild	Likely	Moderate/ Low	The construction works are likely to result in disturbance of shallow unsaturated soils which may result in the release of contaminants in unsaturated Made Ground soils with potential migration to surface water. Best practice procedures require implementation to minimise leaching of unsaturated soils in excavations and stockpiles.
	Leaching or dissolution of contaminants in soils and subsequent migration of contaminants in groundwater; Vertical migration of dissolved phase	Controlled Waters: Groundwater in underlying Secondary A Superficial aquifer and Secondary B Bedrock aquifer	Mild	Likely	Moderate/ Low	The works are likely to result in disturbance of soils during excavation and construction which may result in the release of contaminants in unsaturated Made Ground soils with potential vertical migration to groundwater.

Source	Pathway	Receptor	Consequence	Probability	Risk	Comment
	contaminants to the underlying groundwater.					
	Direct contact of contaminated soils/water with infrastructure, services and structures and subsequent chemical attack.	Property Receptors: Existing and future below ground infrastructure	Mild	Unlikely	Very Low	Current and future below ground infrastructure is assumed to have been / will be constructed to appropriate standards for the site to withstand attack from soil chemistry.
	Leaching or dissolution of contaminants in soils and subsequent migration of contaminants in groundwater; Direct contact of contaminated soils/water with monuments / buildings,	Scheduled Monuments / Listed buildings	Mild	Low-Likelihood	Low	The construction works are likely to result in disturbance of shallow unsaturated soils which may result in the release of contaminants in unsaturated Made Ground soils with potential lateral migration. However, it is anticipated that the impact to the identified receptors shall be mild at worst and the implementation of best practice procedures should minimise leaching of unsaturated soils in excavations and stockpiles and subsequently reduce the likelihood of impact on identified receptors.
Off-site: Made Ground associated with previous development.	Dermal contact / ingestion of contaminants in groundwater within excavations	Human Health: On-site users of the road / pedestrians	Medium	Unlikely	Low	Post works, the site will comprise hardstanding road surfaces and pavement minimising potential for end users to come into direct contact with contaminated groundwater.
Historical and present day		Human Health:	Medium	Unlikely	Low	Potentially contaminated groundwater may migrate to the site

Source	Pathway	Receptor	Consequence	Probability	Risk	Comment
contaminative land uses including sewage works, historical pollution incidents, electricity sub-station, mills, brewery, foundries, malthouse, bleaching house, boiler works, depots, sugar mill, etc.		On-site users of the road / pedestrians				from off-site sources with the potential for direct contact in excavations. This work is likely to be short term and infrequent. Works will be risk assessed and best practice controls are likely to be used (e.g. gloves, and protective clothing) minimising potential for exposure.
	Lateral migration of dissolved phase contaminants in groundwater to surface water;	Controlled Waters: On-site surface water features (River Trent, Old Trent Dyke, drains)	Medium	Low Likelihood	Moderate/Low	Potentially contaminated groundwater may migrate to the site from off-site sources, potentially affecting surface water features on site
	Lateral migration of dissolved phase contaminants in groundwater to surface water; Migration of contaminants in surface water runoff.	Controlled Waters: Groundwater in underlying Secondary A Superficial aquifer and Secondary B Bedrock aquifer	Medium	Low Likelihood	Moderate/Low	Potentially contaminated groundwater may migrate to the site from off-site sources
	Direct contact of migration contaminated groundwater within infrastructure, services and structures;	Property Receptors: Existing and future below ground infrastructure	Mild	Unlikely	Very Low	Current and future below ground infrastructure is assumed to have been / will be constructed to appropriate standards for the site to withstand attack from soil chemistry. Ground gases may be generated from areas of infilled ground. Ground gas has the potential to migrate to site in permeable strata.

Source	Pathway	Receptor	Consequence	Probability	Risk	Comment
	Migration of ground gas / vapour.					Considering the distance of the nearest historical landfill is over 500 m from the site, it is unlikely significant landfill ground gas would reach the site. There are understood to not be any enclosed structures proposed as part of the Scheme and infrastructure would likely be vented and not routinely accessed.

- 3.1.9 Based on the completed PCSM and review of historical information, a number of potential pollutant linkages have been identified, predominantly relating to controlled waters risk.
- 3.1.10 Further to the PRA, it was recommended that a Scheme-specific ground investigation be undertaken to delineate point sources of contamination, produce an updated assessment of risk to identified receptors and to determine potential geo-environmental constraints with respect to the Scheme and to inform the need for any remediation.

4 Ground investigation

4.1 Introduction

4.1.1 Prior to this report a series of ground investigations have been undertaken within the Order Limits. The ground investigations were limited to within the Order Limits as this area is considered appropriate for the consideration of historical and current potentially contaminative land uses and it aligns with established industry practice for defining land contamination study areas for EIA. A summary of the pertinent points of these investigations has been included in the following Sections.

4.2 A46 Newark Relief Road 1978 - 1985

- 4.2.1 As part of the construction of the existing A46 two ground investigations were undertaken by Exploration Associates (Warwick) Limited. Including:
- A46 Newark Relief Road, Report on Site Investigation 1978, Report No. S1876, 5 Volumes.
 - A46 Newark Relief Road, Factual Report on Supplementary Site Investigation 1985, Report No. S4604, 4 Volumes.
- 4.2.2 It should be noted that no geo-chemical laboratory testing of soil samples (e.g. organic or inorganic determinants) was undertaken across the Scheme during these investigations. The laboratory testing program was designed to provide geotechnical information with particular reference to shear strength, consolidation, index properties, natural water content, particle size distribution, chemical analyses, and compaction.

4.3 A46 Cattle Market Roundabout Improvements 2018

4.3.1 A ground investigation was designed by Kier Highways in 2018¹⁹ with regards to widening and realigning of the B6326 Great North Road Arm at Cattle Market roundabout to accommodate for the increasing demand of traffic on the network.

¹⁹ Kier, A46 Newark Bypass – Cattle Market Roundabout Improvements, Preliminary Sources Study, Ground Investigation Report & Geotechnical Design Report, 2018,

- 4.3.2 The Cattle Market roundabout is located in the center of the Scheme.
- 4.3.3 ESG was commissioned by Highways England to carry out the ground investigation. The works were undertaken on 27 June 2017 which included the following:
- Three dynamic windowless sampler holes with Standard Penetration Testing (SPT) around the A46 west bound arm to the Great North Road, namely as WSC01 – C03.
 - Two in situ dynamic cone penetration (DCP) tests were carried out adjacent to WS-C01 and WS-C02.
- 4.3.4 It should be noted that no geo-chemical laboratory testing of soil samples (e.g. organic or inorganic determinants) was undertaken across the Scheme during the investigations. The laboratory testing programmed was designed to provide geotechnical information. However, no visual or olfactory evidence of contamination was noted during the GI.
- 4.3.5 Table 4-1 and Table 4-2 summarises the ground conditions encountered.

Table 4-1: Summary of encountered ground conditions

Stratum	Typical strata description	Depth range of stratum base (mbgl)	Maximum proven thickness (m)
Topsoil	Firm brown slightly sandy clay with frequent rootlets	0.15 - 0.30	0.30
Made Ground	Brown slightly sandy slightly gravelly silt becoming firm brown slightly sandy slightly gravelly clay with depth. The gravel was angular to rounded, fine to coarse quartzite, sandstone, concrete and brick	0.95 – 1.20	1.00
Cohesive Alluvium	Soft to firm orange brown clay	3.30	2.10
Granular Alluvium	Orange brown silty sand with occasional gravels	5.45	2.15

Table 4-2: Groundwater monitoring results

Exploratory hole ref.	Response stratum	Date	Groundwater depth (mbgl)
WS-C02	Granular Alluvium	7/08/2017	3.60
		22/08/2017	3.57
		12/09/2017	3.69
		04/10/2017	3.67

4.4 A46/A1 Eastern Friendly Farmer Roundabout Improvements 2018

- 4.4.1 A ground investigation was designed by Kier Highways in 2018 with regards to changes to the Friendly Farmer Roundabout located in the north of the Scheme.
- 4.4.2 At the time of writing this report only AGS data has been made available for interpretation. It should be noted that no geo-environmental testing was undertaken across the Scheme during the investigations.

4.5 A46 Western Junction Brownhills Roundabout 2018

- 4.5.1 A ground investigation was designed by Kier Highways in 2018 with regards to changes to Brownhills roundabout located in the north of the Scheme.
- 4.5.2 At the time of writing this report only AGS data has been made available for interpretation. Geo-environmental testing was undertaken on three soil samples from four exploratory holes ranging from 0.2 m bgl – 1.2 m bgl. The chemical test results in this area were screened against thresholds for 'Commercial' and 'Public Open Space', taking into consideration the commercial land use that allows for public access in this area. The results have not identified any of the determinands to be above their respective guideline values. Full results of the soils analysis can be found in Appendix C.

4.6 A46 Newark Bypass, Tetra Tech (2021 – 2022)

- 4.6.1 A Scheme specific GI (Main Alignment GI) was completed between April 2021 and July 2021 (with subsequent monitoring of groundwater and ground gas between November 2021 and February 2022), along the main Scheme alignment by TetraTech on behalf of The Applicant, under the instruction of Atkins. To confirm the materials

present, including their thickness and properties, specifically with regards to geo-environmental aspects of the study, with the following objectives:

- To obtain information on the presence, thickness and composition of the superficial deposits, and the underlying bedrock and the presence of any potential contamination within the materials.
- To obtain information on the presence and contamination status of groundwater at the site.
- To obtain information on the presence and contamination status of surface water at the site.
- To undertake groundwater and gas monitoring programme and to obtain information on groundwater levels at the site.

4.6.2 The GI Factual Report and Exploratory Hole Location Plan is included in Appendix D of this CLRA.

Fieldwork

4.6.3 The ground investigation was undertaken in accordance with the following British Standards:

- BS 10175:2011+A2:2017 “Investigation of potentially contaminated sites”: Code of practice (BSI, 2017)²⁰.
- BS 5930:2015 + A1:2020 “Code of practice for site investigations”: (BSI, 2020)²¹.
- The ground investigation comprised the following:
 - Sixteen dynamic sampling with rotary follow-on boreholes to a maximum depth of 29.50m bgl.
 - Eight cable percussive with rotary follow-on boreholes to a maximum depth of 25.0m bgl.
 - Twenty-four sonic cored boreholes to a maximum depth of 35.0m bgl.
 - Sixteen cable percussive boreholes to a maximum depth of 10.0m bgl.
 - Fifteen machine excavated trial pits to a maximum depth of 3.0m bgl.
 - Twenty-three hand excavated inspection pits to a maximum depth of 1.20m bgl.
 - One rotary cored borehole to a maximum depth of 7.50m bgl.
 - Thirty dynamic sample boreholes to a maximum depth of 6.0m bgl.
 - Forty-five pavement cores in the existing highways.
 - Groundwater and gas monitoring installations in selected exploratory holes with post fieldwork monitoring visits of all installations.
 - Geotechnical in-situ, small and bulk disturbed sampling and laboratory testing.
 - Six post fieldwork surface water samples.

²⁰ BSI (2017). 10175:2011+A2:2017: Investigation of potentially contaminated sites.

²¹ BSI. (2020). BS 5930:2015+A1:2020: Code of practice for site investigations.

- Geo-environmental soils, groundwater and surface water laboratory testing.

Installations

- 4.6.4 Thirty-four ground gas and groundwater monitoring standpipes were installed as part of the ground investigation. The locations are included in Table E.1 in Appendix E.
- 4.6.5 The locations were monitored for gas and groundwater levels on six occasions between 11 August 2021 and 15 February 2022.
- 4.6.6 Ground gas monitoring included measurements of the wellhead gas concentrations (methane, carbon dioxide, oxygen, hydrogen sulphide, and carbon monoxide), gas flow rate, barometric pressure. Photoionisation detector (PID) readings were also collected.

Environmental Sampling and Analysis

Soil and Soil Leachate

- 4.6.7 Potential contamination sources were identified within the Scheme detailed in the PSSR which included Made Ground, the railway lines, the active British sugar factory, active sewage works, former chemical works and former petrol stations. These sources were targeted as part of the ground investigation. A total of 155 environmental soil samples were obtained from the exploratory hole locations. Samples undertaken close to the active sewage works were also tested for a bacteriological suite. Table E.2 contained in Appendix E summarises the environmental soil testing undertaken as part of the ground investigation.

Groundwater

- 4.6.8 Groundwater samples were obtained on three occasions from 32 locations during groundwater and ground gas monitoring visits from August 2021, November 2021 and February 2022. The groundwater sample locations are included in Table E.1 within Appendix E and the locations are shown in the Factual Report in Appendix D.

Surface Water

- 4.6.9 Three rounds of surface water sampling were undertaken from six sampling locations. Samples were obtained on the 26 August 2021, 29 November 2021 and 7 March 2022. The sampling program was developed to provide information on the water quality across the Scheme and to determine the

existence of any water pollution originating from the sources identified in the PRA.

4.6.10 The samples were collected from the River Trent and Old Trent Dyke at locations where the water receptors intersected the main alignment. Four sampling locations were assigned to the River Trent, two in the south of the Scheme at Farndon Junction and one in the center of the Scheme at Nether Lock near Crankley Point. Two sampling locations were also assigned to the Old Trent Dyke in the south of the Scheme.

4.6.11 The surface water sampling locations are shown within the Surface Water Sampling Plan contained in Appendix F of this document.

Testing

4.6.12 The chemical testing which was undertaken on selected samples as part of the ground investigation is presented in Table 4-3.

Sample Type	Test Suite	Total
Soil	Atkins Suite E1: pH, asbestos screening, asbestos identification and quantification, arsenic, cadmium, chromium (total), chromium (hexavalent), copper, lead, mercury, nickel, selenium, zinc, vanadium, iron, ammoniacal nitrogen as N, ammonium as NH ₄ , cyanide (total), cyanide (free), 16 EPA speciated polycyclic aromatic hydrocarbons, phenols, TPH CWG and BTEX.	105
	Atkins E1 Suite (extra items): VOC speciated, SVOC speciated (excluding PAHs)	49
	Atkins E1 Suite (extra items): PCBs	16
	Atkins Bacteriological Suite: coliforms (total), coliforms (faecal), streptococci (total), streptococci (faecal), clostridia	4
	Atkins Suite H: WAC full suite	20
Soil extract from leachate	Atkins Suite K: pH, ammonium as NH ₄ , arsenic, boron, cadmium, chromium, hexavalent chromium, copper, lead, mercury, nickel, zinc, selenium, vanadium, cyanide (free), cyanide (total), sulphide, iron, ammoniacal nitrogen.	64
Groundwater	Atkins Suite F1: pH, ammonium as NH ₄ , arsenic, boron, cadmium, chromium, chromium (total), hexavalent chromium, copper, lead, mercury, nickel, zinc, selenium, vanadium, cyanide (total), sulphate (total), sulphide, vanadium, iron, nitrate, ammoniacal nitrogen, phenol, 16 EPA speciated PAHs, TPH CWG, water hardness, calcium, manganese, dissolved organic carbon and chlorinated solvents.	95
	Atkins Suite F2: VOC speciated, SVOC speciated	17

Sample Type	Test Suite	Total
	Atkins Pesticide and Herbicide Suite	24
	Atkins Bacteriological Suite: coliforms (total), coliforms (faecal), streptococci (total), streptococci (faecal), clostridia	9
Surface Water	Atkins Suite F1: pH, ammonium as NH ₄ , arsenic, boron, cadmium, chromium, chromium (total), hexavalent chromium, copper, lead, mercury, nickel, zinc, selenium, vanadium, cyanide (total), sulphate (total), sulphide, vanadium, iron, nitrate, ammoniacal nitrogen, phenol, 16 EPA speciated PAHs, TPH CWG, water hardness, calcium, manganese, dissolved organic carbon and chlorinated solvents.	16

Groundwater monitoring

4.6.13 The installations were monitored on six occasions. Table E.3 contained in Appendix E summarises the groundwater monitoring that was undertaken.

4.7 A46 Newark Bypass Supplementary GI, Strata Geotechnics Ltd (SGL) (2022 – 2023)

- 4.7.1 A supplementary ground investigation was completed between October 2022 and May 2023 within the Order Limits by Strata Geotechnics Ltd (SGL) on behalf of The Applicant. Procurement of the ground investigation contractor was undertaken by Skanska as part of their early works contract. SGL were appointed by Skanska to carry out the ground investigation, with Mott MacDonald undertaking a technical supervisory role. The GI was divided into three phases and had the following objectives:
- To provide geotechnical and geo-environmental data in order to address the gaps identified through the examination of historical GIs.
 - To obtain information on the underlying ground conditions at the additional areas included in the final Order Limits specifically, Kelham and Averham FCA, Farndon West Borrow Pits FCA and Farndon East Borrow Pits FCA.
 - To delineate contamination identified at exploratory hole WS46 at Nether Lock. The location of the supplementary exploratory holes are shown within the Contamination Hotspot Exploratory Holes drawing contained in Appendix F.
 - To obtain information on the presence and contamination status of groundwater at the hotspot.
 - To undertake a groundwater monitoring programme and to obtain information on groundwater levels at the additional flood

compensation and borrow pit areas (Kelham and Averham FCA, Farndon West Borrow Pits FCA and Farndon East Borrow Pits FCA).

Fieldwork

- 4.7.2 The ground investigation was undertaken in accordance with the following British Standards:
- BS 10175:2011+A2:2017 “Investigation of potentially contaminated sites”: Code of practice (BSI, 2017)²².
 - BS 5930:2015 + A1:2020 “Code of practice for site investigations”: (BSI, 2020)²³.
 - The ground investigation comprised the following:
 - Eight cable percussive boreholes to a maximum depth ranging from 5.05m to 15.60m.
 - Four sonic boreholes to a maximum depth ranging from 7.00m to 21.00m bgl
 - Rotary follow on was undertaken on nine of these locations with depth ranging from 20.50m bgl to a maximum 33.00m bgl.
 - Nine windowless sampled boreholes to a maximum depth of 5.00m bgl
 - Twenty-nine machine excavated trial pits to a target depth of 3.00m bgl.
 - Nine soak away tests were undertaken within the machine excavated pits.
 - Thirty-eight Cone Penetration Tests (CPT) to a maximum depth ranging from 1.50m to 13.00m bgl.
- 4.7.3 The Factual Report²⁴ for phase 1 and 2 of the GI is presented in Appendix D.

Installations

- 4.7.4 Ten groundwater monitoring standpipes were installed as part of the ground investigation at the following locations outlined in Table 4-4.

²² BSI (2017). 10175:2011+A2:2017: Investigation of potentially contaminated sites.

²³ BSI. (2020). BS 5930:2015+A1:2020: Code of practice for site investigations.

²⁴ Strata Geotechnics Limited (2023), Factual Ground Investigation Report, A46 Newark Bypass, Project Number: G221209.

Table 4-4: Summary of Installations

Location ID	Maximum depth borehole (mbgl)	Response zone (mbgl)	Response zone strata
S3BH05	5.00	1.00 – 2.80	Made Ground
S3BH06	5.00	0.50 – 2.50	
S3BH07	5.00	1.00 – 3.00	Made Ground / Granular Alluvium
S3WS01	4.00	1.00 – 3.00	Cohesive/ Granular Alluvium
S3WS01R	5.45	1.00 – 5.00	Granular Alluvium
S3WS04	5.00	1.50 – 3.50	
S3WS05	5.00	1.00 – 3.00	
S3WS06	5.00	1.00 – 3.00	
S3WS07	4.00	1.00 – 3.00	Granular Alluvium
S3CPWS07	5.05	1.00 – 3.50	Granular Alluvium

4.7.5 Seven of the nine pre-existing monitoring wells from the Tetra Tech GI were also monitored. The locations are summarised below.

Table 4-5: Pre-existing Monitoring Installations

Location ID	Maximum depth borehole (mbgl)	Response zone (mbgl)	Response zone strata
BH07	5.00	1.00 – 5.00	Granular Alluvium
BH15	3.52	1.00 – 4.00	
BH17	16.95	2.00 – 18.70	Granular Alluvium/ Mercia Mudstone Group
BH09	4.17	1.00 – 5.00	Granular Alluvium
WS31	3.90	1.00 – 4.00	
BH03A	4.18	1.00 – 5.00	
WS08	3.96	1.00 – 5.00	
BH16	Not monitored – could not be located		
BH56	Not monitored – land access not agreed		

4.7.6 The installations are scheduled to be monitored on six occasions over the course of one year, to date, three water monitoring visits have been undertaken.

Environmental sampling and analysis

Soil and leachate extract from soil

- 4.7.7 A total of 57 environmental soil samples were obtained from the exploratory hole locations and subject to laboratory chemical testing. Soil samples were collected in appropriate containers and sent under chain of custody to a UKAS accredited laboratory for testing. Table E.4 contained within Appendix E summarises the environmental soil testing and leachate extract from soil testing undertaken as part of the ground investigation.
- 4.7.8 It should be noted that six locations were resampled due to faults at the laboratory and subsequent deviated results. The resampled locations are labelled as 'R'.

Groundwater

- 4.7.9 Groundwater samples were obtained on two occasions during groundwater monitoring visits from January 2023 and February 2023 from S3WS01, S3WS05, S3WS06 and S3WS07. To provide additional information on the groundwater conditions at Kelham and Averham FCA, Brownhills Borrow Pit / Floodplain Compensation Area, and the Farndon East and Farndon West Borrow Pits FCAs.
- 4.7.10 Groundwater sampling was scheduled from Nether Lock at S3BH05, S3BH06 and S3BH07, but insufficient ground water levels resulted in only one grab sample being obtained from S3BH07 in February 2023.

Testing

- 4.7.11 The chemical testing which was undertaken as part of the ground investigation is presented in Table 4 6.
- 4.7.12 Based on the review of historical maps and current land use the Kelham and Averham FCA, Farndon West Borrow Pits FCA and Farndon East Borrow Pits FCA were considered to present a low risk of contamination. Consequently, these areas were subjected to a greenfield testing suite. However, in the case of samples taken from Nether lock, located near the contamination area identified at WS46, and in areas where Made Ground was identified along the main alignment and north of Farndon West Borrow Pits FCA on a farm track a comprehensive soil testing suite was chosen.

Table 4-6: Summary of chemical laboratory testing

Sample type	Test suite	Total
Mott MacDonald (MM) Comprehensive Soil Suite	Antimony, arsenic, asbestos screen, barium, beryllium, boron, BTEX (speciated), cadmium, chromium (III) chromium (VI), copper, cyanide (free), fraction of organic carbon, iron, lead, manganese, inorganic mercury, molybdenum, nickel, pH, phenols, polyaromatic hydrocarbons, selenium, sulphate, sulphur, total petroleum hydrocarbons, vanadium, volatile organic compounds and zinc.	45
MM Greenfield Soil Suite	Antimony, arsenic, asbestos screen, barium, beryllium, boron, cadmium, chromium (III) chromium (VI), copper, cyanide (free), fraction of organic carbon, iron, lead, manganese, inorganic mercury, molybdenum, nickel, pH, #polyaromatic hydrocarbons, selenium, sulphate, sulphur, #total petroleum hydrocarbons, vanadium, and zinc. # Dependent option undertake PAH and TPH screen and if results come back above detection limit undertake Speciated PAH and TPH suites respectively.	20
MM Comprehensive Leachate Suite	Arsenic, ammoniacal nitrogen, antimony, barium, beryllium, boron, cadmium, calcium, chloride, chromium (III) chromium (VI), copper, cyanide (free), cyanide (complex), fluoride, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, pH, polyaromatic hydrocarbons, phenols (speciated), selenium, sulphate, sulphur, total petroleum hydrocarbons, vanadium, zinc and florasil clean up.	31
MM Greenfield Leachate Suite	Arsenic, ammoniacal nitrogen, antimony, barium, beryllium, boron, cadmium, calcium, chloride, chromium (III) chromium (VI), copper, cyanide (free), cyanide (complex), fluoride, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, pH, #total polyaromatic hydrocarbons, selenium, sulphate, sulphur, #total petroleum hydrocarbons, vanadium, zinc and florasil clean up. # Dependent option undertake PAH and TPH screen and if results come back above detection limit undertake Speciated PAH and TPH suites respectively.	10
MM Comprehensive Water Suite	Ammoniacal nitrogen, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chloride, chromium (III), chromium (VI), copper, cyanide (free), cyanide (total), fluoride, hardness (CaCO ₃), iron, lead, magnesium, manganese, mercury, molybdenum, nickel, nitrate as NO ₃ , pH, phenols, polyaromatic hydrocarbons, selenium, sodium, sulphate, sulphur, total petroleum hydrocarbons, vanadium, volatile organic compounds, zinc, total dissolved solids, alkalinity, and dissolved organic carbon.	9
Waste Acceptance Suite	Total organic carbon, loss on ignition, BTEX, PCBs, mineral oil (C10 – C40), polyaromatic hydrocarbons, pH, arsenic, barium, cadmium, chromium, copper, mercury, molybdenum, nickel, lead, antimony, selenium, zinc, chloride, fluoride, sulphate, total dissolved solids, phenol index, and dissolved organic carbon.	2

Groundwater

- 4.7.13 Groundwater was encountered within several exploratory hole locations between depths of 0.90 m bgl and 4.30 m bgl. Table E.5 contained in Appendix E summarises the groundwater observations during the ground investigation.

Groundwater Monitoring

- 4.7.14 To date, three groundwater monitoring visits have been undertaken, during January 2023, February 2023 and between March 2023 and April 2023. Table E.6 contained in Appendix E summarises the groundwater monitoring undertaken.
- 4.7.15 The groundwater hydraulic gradient appears to be largely topographically controlled. Groundwater levels within alluvium follow the topographic gradient of the river valley of the River Trent and its tributaries, towards the north/north-east. In the topographically elevated area at the north of the Scheme, groundwater levels again follow the topographic gradient west/south-west, likely discharging locally to a tributary of the Fleet watercourse.

4.8 Encountered geology

- 4.8.1 4.8.1Based on the information presented in previous factual reports and published geological mapping, a series of geotechnical plans and long-section drawings are included in Appendix A of the Mott MacDonald Ground Investigation Report (GIR)²⁵ contained in Appendix G. Furthermore, individual ground models have been derived for 10 structures and are described in Section 5 of the GIR (Appendix G).
- 4.8.2 An overview of the ground conditions observed throughout the Order Limits is detailed in Table 4-7 overleaf.

²⁵ Mott MacDonald, "A46 Ground Investigation Report" 2023.

Table 4-7: Encountered geology

Stratum	Description	Depth to top (mbgl)	Typical thickness (m)
Topsoil	Present on the surface of the existing A46 embankment slopes and across the natural landscape at the toe of embankments and present within the proposed flood compensation areas, consisting of brown to dark brown gravelly clayey sand. Exploratory holes through natural ground.	0.00	0.10 – 0.50
Made Ground / Fill	Mostly consisting of existing A46 embankment make up including granular starter layers, Class 6B fill for scour resistance, Class 1A embankment fill, Class 2B seepage cut off and Class 2E PFA fill. Concrete / Asphalt was encountered from ground level to depths between 0.10m to 0.60m bgl on all locations on the A46 carriageway.	0.00 – 15.40	4.00 – 6.00
Cohesive Alluvium	Encountered throughout the River Trent Flood Plain Ch.0000-4500 and generally has a firm crust where desiccation has caused consolidation for up to 1m depth with very soft and soft clay and silt below.	0.10 – 6.00	2.00 – 2.20
Granular Alluvium (and Terrace Gravels)	Encountered throughout the Order Limits consisting of sand and gravel with gravel being generally sub angular to sub rounded.	0.20 – 6.20	3.30 – 8.50
Mercia Mudstone	Underlying the superficial deposits recorded as stiff clay weathered mudstone overlying very weak to moderately strong mudstone.	1.10 – 17.00	Base not proven

4.9 Summary of visual and olfactory evidence of contamination

4.9.1 During the GI visual and olfactory evidence of contamination was recorded within site soils at exploratory hole location WS46. The contamination was identified at the base of the Made Ground layer in the Alluvium between 2.5 and 3.65 metres below ground level, where the ground was described as cream slightly sandy clayey sand, where a ‘chemical odour’ was observed. The 2022/23 supplementary ground investigation identified further visual and olfactory contamination at an exploratory hole (S3BH05) located adjacent to the north of WS46.

- 4.9.2 The presence of a soft white paste/chalky textured material similar to that noted at WS46 was present, with a strong chemical odour, between 1.20 – 2.80 metres below ground level. Observations from the GI do not suggest that contamination is widespread across this area, with exploratory holes S3BH06/S3BH07 adjacent to the south of WS46, recording low photoionization detector (PID) readings, no chemical odour, and an absence of the soft white pastey/chalky substance.
- 4.9.3 The likely sources of the identified visual and olfactory contamination are discussed in the GQRA in Section 5.

5 Generic Quantitative Risk Assessment

5.1 Background

- 5.1.1 Geo-environmental testing has been undertaken as part of the ground investigation works to assess the contamination status of the Scheme and to determine the potential risk to human health and controlled waters. This section comprises a Generic Quantitative Risk Assessment (GQRA), utilising recent Scheme-specific ground investigation data for the Scheme. This informs the revised conceptual site model (CSM), that is presented in Section 6.3.
- 5.1.2 The strategy for this section is based on the principles set out in Land Contamination: Risk Management (LCRM) (Environment Agency, 2020), British Standard 10175 (BSI, 2011 (as amended)), and National House Building Council, Environment Agency, and Chartered Institute of Environmental Health report (NHBC, EA, CIEH, 2008). Further information relating to regulatory legislation, drivers, and contamination assessment criteria are provided in Appendix A. Background to the contaminated land risk methodology is presented in Appendix B.

5.2 Contaminant concentration guideline values

Human health criteria

- 5.2.1 The proposed works at the Scheme comprise the construction of 6.5km of dual carriageway on the A46 between Farndon and Winthorpe.
- 5.2.2 Risks to human health from contaminated soils have been assessed using Land Quality Management (LQM) / Chartered Institute for Environmental Health (CIEH) Suitable for Use Levels (S4ULs) (publication number S4UL 3420) for Human Health Risk Assessment²⁶. Where S4ULs were not available, DEFRA Category 4 Screening Levels (C4SLs) or CL:AIRE guidance values have been used²⁷.
- 5.2.3 As the proposed development will be the construction of new highway infrastructure with limited public access, the generic

²⁶ The LQM/CIEH S4ULs for Human Health Risk Assessment, Nathanail, C.P.; McCaffrey, C.; Gillett, A.G.; Ogden, R.C. & Nathanail, J.F, Land Quality Press, Nottingham, 2015.

²⁷ CL:AIRE, 2014. Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination, Final Project Report SP1010. Available at: [Science Search \(defra.gov.uk\)](https://www.defra.gov.uk/science/search) (Last accessed December 2023).

land use considered to be most appropriate for screening is 'Commercial'. Human receptors are expected to be limited to National Highways staff and/or maintenance workers within the Scheme. Access to the construction works will be controlled and will be inaccessible to members of the public.

- 5.2.4 5.2.4 For the investigations, Generic Assessment Criteria (GACs) have been selected for a conservative soil organic matter (SOM) content of 1%.

Controlled waters criteria

- 5.2.5 Laboratory data for both leachate extract from soil, groundwater and surface water samples have been compared with Environmental Quality Standards (EQS) for annual average surface freshwater due to the presence of surface water receptors (River Trent, Old Trent Dyke, Broadgate Lane Feeder Slough Dyke (the fleet), Kings Waterside and Marina, Newark on Trent Marina, Farndon Marina, Farndon Ponds, Nottingham Piscatorial society waterbodies, Smeaton lakes camping site, ponds north of British Sugar Factory, Ponds at Staythorpe power station field drains, unnamed ponds and smaller unnamed watercourses and underlying (Secondary B and Secondary A aquifers).
- 5.2.6 It should be noted that the Scheme is not located within an EA designated groundwater source protection zone (SPZ), and is located outside all WFD designated groundwater nitrate vulnerable zones (NVZ) and drinking water safeguard zone. Subsequent review of the Envirocheck report⁹ indicated that ground water abstraction in the Scheme was for non-potable water usage.

5.3 Laboratory analysis of soils – risks to human health

Tetra Tech GI

- 5.3.1 The results have been compared directly to the GAC values. A total of five determinants were recorded in excess of the selected screening criteria, in two exploratory hole locations located at Nether Lock in the center of the Scheme. The determinants comprise polycyclic aromatic hydrocarbons (PAHs). The exceedances are summarised below in Table 5-1.
- 5.3.2 The pH of the natural soil samples ranged between pH 3.1 at WS46 at 3m bgl and pH 12.5 at 2.3m bgl with an average of

pH 8.1 across the Scheme. The low pH was isolated to one sample and was not representative of the conditions across the Scheme. However other high pH readings of up to 11.4 were noted in other samples. It is understood that the high pH readings are due to previous ground improvement works resulting from the presence of pulverised fuel ash (PFA).

5.3.3 Full results of the soils analysis can be found in Appendix C.

Table 5-1: Summary of soil exceedances Tetra Tech

Location ID	Determinant Name	Sample Depth (mbgl)	Stratum	Commercial 1% SOM mg/kg	Result mg/kg
BH11	Dibenz-a-h-anthracene	0.1	Made Ground	3.5	4.02
	Benzo(b) fluoranthene			44	47.1
	Benzo (a) pyrene			35	62.7
WS46	Naphthalene			190	19000
	Aromatics >C10 - 12			16000	46900

Asbestos

5.3.4 No visual observations were made with regards to asbestos during the ground investigation and no asbestos was detected during the laboratory screening of the selected soil samples.

Strata Geotechnics GI

5.3.5 The chemical test results of soils have not identified any of the determinands to be above their respective GACs across the wider Scheme for both 'Commercial' and 'Public Open Space' land use scenarios. However, the supplementary testing adjacent to the location of WS46, identified a total of four exceedances recorded against the 'Commercial' screening criteria from one exploratory hole location (S3BH05). The exceedances comprise polycyclic aromatic hydrocarbons (PAHs) and a metalloid and are therefore similar with the determinands encountered at WS46. The exceedances are summarised in Table 5-2.

Table 5-2: Summary of soil exceedances SGL

Location ID	Determinant name	Sample depth (mbgl)	Stratum	Commercial 1% SOM mg/kg	Result mg/kg
S3BH05	Arsenic	2.9	Made Ground	640	840
	Dibenz-a-h-anthracene	1.65		3.5	14
	Benzo(b)fluorant hene			44	94
	Benzo(a)pyrene			35	78

5.3.6 The identified exceedances are located on an area of land which is considered to be used for commercial land purposes. For instances the only premises accessed along Quibell’s Lane are industrial/commercial properties and therefore the most likely end users would be highways staff/contractors doing landscape or maintenance work on the road/embankment. On this basis the risks to human health from contaminated soils have been assessed using ‘Commercial’ GAC thresholds in this area.

5.3.7 The pH of the natural soil samples ranged between pH 6.0 and pH 8.9 with an average of pH 7.5. Full results of the soils analysis can be found in Appendix C.

Asbestos

5.3.8 No visual observations were made with regards to asbestos during the ground investigation and no asbestos was detected during the laboratory screening of the soil samples.

5.4 Laboratory analysis of leachate – risks to controlled waters

5.4.1 Results from leachate extract from soil laboratory analysis were screened against Environmental Quality Standards (EQS) for Surface Freshwaters, due to the proximity of surface water receptors. Note that a direct comparison of leachate testing results with the selected assessment criteria is a conservative method, as it overestimates the availability of determinants to dissolve.

Tetra Tech GI

5.4.2 A total of 127 exceedances of the screening criteria were recorded, comprising heavy metals. A summary of the exceedances is presented in Table E.7 contained within

Appendix E. The full soil leachate results can be found in Appendix C.

- 5.4.3 Recorded soil leachate exceedances of the EQS thresholds are considered to be generally low-level and relate to eleven metals (arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel, vanadium, zinc, chromium hexavalent) and sulphate. The recorded exceedances are slightly above (within an order of magnitude and up to one order of magnitude higher) of their respective threshold.
- 5.4.4 Exceedances of cadmium, copper, iron, lead, nickel, zinc were generally more pervasive, whilst mercury, chromium, chromium hexavalent, sulphate, arsenic and vanadium were more isolated and from exploratory hole locations (BH11, BH13, WS46, BH33, BH43, BH45A) at Nether Lock in close proximity to the former glue factory. Furthermore, exceedances for mercury, chromium hexavalent and sulphate were limited to one location (WS46) at Nether Lock within the Made Ground.

Strata Geotechnics GI

- 5.4.5 A total of 99 exceedances were recorded against the EQS screening criteria comprising metals, ammoniacal nitrogen as N and sulphate as SO₄. A summary of the exceedances is presented in Table E.8 contained in Appendix E. The full soil leachate results can be found in Appendix C.
- 5.4.6 Recorded leachate exceedances are considered to be generally low-level and relate to ten metals (arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel, vanadium, zinc,) ammoniacal nitrogen and sulphate. The recorded exceedances are slightly above (within an order of magnitude and up to one order of magnitude higher) their respective threshold.
- 5.4.7 Exceedances of cadmium, chromium, copper, iron, lead, nickel and zinc were generally more pervasive, whilst arsenic, mercury, vanadium, sulphate and ammoniacal nitrogen were more localised and from exploratory hole locations (S3BH05, S3BH05R, S3BH15) at Nether Lock in close proximity to the former glue factory.

5.5 Laboratory analysis of groundwater – risks to controlled waters

Tetra Tech GI

- 5.5.1 Groundwater samples were obtained on three occasions during the monitoring period. There have been 167 exceedances of the relevant screening criteria for metals, inorganics, pesticides, cyanide and polycyclic aromatic hydrocarbons (PAHs) within multiple groundwater samples. Table E.9 contained in Appendix E summarises the locations and elevated contaminants. For full details, the results should be referred to in Appendix C.
- 5.5.2 The groundwater exceedances identified relate to six metals (cadmium, copper, iron, lead, nickel and zinc), three polycyclic aromatic hydrocarbons (anthracene, fluoranthene and benzo(a)pyrene), one pesticide (chlorpyrifos), sulphate and ammoniacal nitrogen. Asides from fluoranthene and benzo(a)pyrene these are mostly considered to be low level (within the same order of magnitude or one higher than the respective threshold). Conversely exceedances of fluoranthene and benzo(a)pyrene were typically two orders of magnitude higher than the respective threshold.
- 5.5.3 Generally, exceedances were pervasive across the Scheme and were considered to represent background concentrations, except for the following determinants: phenol which was isolated to BH12 during one round of monitoring, cyanide which was isolated to BH11 during one round of monitoring, anthracene which was identified in BH12 and WS48 and chlorpyrifos which was identified in WS15 and BH61.
- 5.5.4 Overall, the observed groundwater exceedances do now show significant variation between the three sampling visits.

Strata Geotechnics GI

- 5.5.5 During the supplementary GI groundwater samples were obtained on two occasions during the monitoring period. There have been exceedances of the relevant screening criteria for heavy metals, inorganics, cyanide and polycyclic aromatic hydrocarbons (PAHs) within multiple groundwater samples. Table E.10 contained in Appendix E summarises the locations and elevated contaminants. For full details, the results should be referred to in Appendix C.

- 5.5.6 The groundwater exceedances identified relate to four metals (cadmium, copper, nickel and manganese), ammoniacal nitrogen, sulphate and trichloroethene. Asides from cadmium these are mostly considered to be low level (within the same order of magnitude or one higher than the respective threshold). Whilst cadmium exceedances ranged from one to two orders of magnitude higher than the respective threshold.
- 5.5.7 Generally, exceedances were pervasive across the Scheme, except for chloride and ammoniacal nitrogen which was isolated to S3BH07 located at Nether Lock.
- 5.5.8 Overall, there are more observed groundwater exceedances in February compared to January. This is likely because lower groundwater levels were recorded throughout the Scheme in February 2023, resulting in less dilution of contaminants and therefore more exceedances being observed.

5.6 Laboratory analysis of surface water – risks to controlled waters

Tetra Tech GI

- 5.6.1 Surface water samples were obtained on three occasions from six sampling locations, namely the River Trent and Old Trent Dyke as contained within Appendix F. There have been exceedances of the relevant screening criteria for heavy metals, inorganics and polycyclic aromatic hydrocarbons (PAHs) within multiple surface water samples. A summary of the exceedances is presented in Table E.11 contained in Appendix E. The full surface water results can be found in Appendix C.
- 5.6.2 The surface water exceedances relate to six metals (cadmium, copper, iron, lead, nickel and zinc), two polycyclic aromatic hydrocarbons (fluoranthene and benzo(a)pyrene) and ammoniacal nitrogen. Asides from benzo(a)pyrene these are mostly considered to be low level (within the same order of magnitude or one higher than the respective threshold). Whilst benzo(a)pyrene exceedances ranged from one to two orders of magnitude higher than the respective threshold. Exceedances two orders of magnitude higher were also identified in SW2 and SW6 for fluoranthene and SW5 for cadmium.
- 5.6.3 Generally, exceedances were pervasive across the Scheme.

5.6.4 Overall, the observed groundwater exceedances do now show significant variation between the three sampling visits.

5.7 Ground gas

5.7.1 The purpose of ground gas monitoring was as a preliminary assessment to consider the risks to construction and maintenance workers.

5.7.2 The installs from the Tetra Tech GI were monitored for ground gas on the following six occasions:

- Round 1 (11 – 13 August 2021)
- Round 2 (2 – 4 September 2021)
- Round 3 (28 – 29 September 2021)
- Round 4 (18 – 19 November 2021)
- Round 5 (29 – 30 November 2021)
- Round 6 (14 – 15 December 2021)

5.7.3 The results of the ground gas monitoring are presented in the factual report²⁸ included in Appendix D and are summarised in E.12 contained in Appendix E. The data presented shows the recorded steady state concentrations of methane, carbon dioxide, oxygen, hydrogen sulphide and flow rates. Elevated carbon dioxide concentrations (over 0.5%vol for the long-term WEL) were encountered at every location during the monitoring programme. In addition, there were also exceedances of the short term WEL (5%vol) at BH19, WS50, BH12, WS12 and BH03A.

²⁸ Tetra Tech, "A46 Newark Northern Bypass Factual GI Report," 2022.

6 Discussion

6.1 Scheme area

Human health

6.1.1 Investigations completed to date have recorded limited visual or olfactory evidence of contamination across the majority of the Scheme area, which testing has also confirmed.

Controlled waters

6.1.2 Exceeded determinands have been compared from the three sample types including: leachate extract from soil, groundwater, and surface water samples. Exceedances can be compared to determine the background conditions of the Scheme. This information is summarised in Table 6-1 below. Notably six metals (cadmium, copper, iron, lead, nickel, zinc), two PAHs (fluoranthene, benzo(a)pyrene), ammoniacal nitrogen and sulphate have exceeded the EQS threshold values in all three types of samples and therefore are considered to represent background conditions.

Table 6-1: Comparison of determinands in samples

Determinand	Soil leachate	Groundwater	Surface water
Cadmium	✓	✓	✓
Copper	✓	✓	✓
Iron	✓	✓	✓
Lead	✓	✓	✓
Nickel	✓	✓	✓
Zinc	✓	✓	✓
Ammoniacal Nitrogen	✓	✓	✓
Fluoranthene	✓	✓	✓
Benzo (a) pyrene	✓	✓	✓
Arsenic	✓	x	x
Chromium Hexavalent	✓	x	x
Chromium	✓	x	x
Mercury	✓	x	x
Vanadium	✓	x	x
Sulphate	✓	✓	✓
Phenol	x	✓	x
Cyanide	x	✓	x
Chlorpyriphos	x	✓	x
Anthracene	x	✓	x
Chloride	x	✓	x
Manganese	x	✓	x
Trichloroethene	x	✓	x

- 6.1.3 Additionally, several determinants exceeded the EQS values in groundwater samples only including phenol, cyanide, chlorpyriphos, anthracene, chloride, manganese, and trichloroethene. These exceedances are isolated to one or two exploratory hole locations across the Scheme and are not considered to be widespread.

Ground gas

- 6.1.4 The purpose of ground gas monitoring was as a preliminary assessment to consider the risks to construction and maintenance workers.
- 6.1.5 The Scheme does not include for above ground structures with person entry. Therefore, based on the site-specific ground investigation and following the guidance in CIRIA C665²⁹ and BS8485:2015+A1:2019³⁰, the ground gas generation potential at the Scheme and the impact on the proposed works is not considered significant and the Scheme has been classified as Characteristic Situation CS1 (very low risk). There is therefore no requirement to carry out further investigation of derived hazardous ground gases for the purpose of designing mitigative measures. Ground gas protection measures are not required.
- 6.1.6 Acute risk to construction and maintenance workers from hazardous ground gases is assessed by comparison of gas concentrations with the Health and Safety Executive 'Workplace Exposure Limits' (WELs) EH40/2005 document³¹. WELs represent concentrations of hazardous substances in air, averaged over a specified time period, referred to as a 'time-weighted average' (TW). Two time periods are used; Long-term (8 hours); and Short-term (15 minutes). Of the monitored hazardous gases on-site, WELs are available for CO₂, H₂S and CO. WELs are not available for CH₄.
- 6.1.7 Elevated carbon dioxide concentrations (over 0.5%vol for the long term WEL) were encountered at all locations during the monitoring programme. Given the elevated recordings are consistent across the Scheme the source of the ground gas is considered to be natural from the underlying Alluvium and Mercia Mudstone.

²⁹ Construction Industry Research and Information Association. (2007) Assessing risks posed by hazardous ground gases to buildings. London: CIRIA.

³⁰ British Standards Institution, (2019). BS 8485:2015+A1:2019 – Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings. British Standards Institution: London.

³¹ Health and Safety Executive, (2011). EH40/2005 Workplace Exposure Limits. Health and Safety Executive: London.

- 6.1.8 Potential risk from ground gases to construction workers working in excavations and other confined spaces will be dealt with by the Contractor, in-accordance with current Confined Spaces Regulations 1997³².

6.2 Hotspot

- 6.2.1 A generalised diagrammatic conceptual ground model for the contamination hotspot is presented in Figure 6.1 and Figure 6.2. This is to aid the discussion and visualisation of the revised CSM presented in this report.

Figure 6.1: Generalised diagrammatic Scheme Conceptual Ground Model of contamination hotspot, northeast to southwest cross section

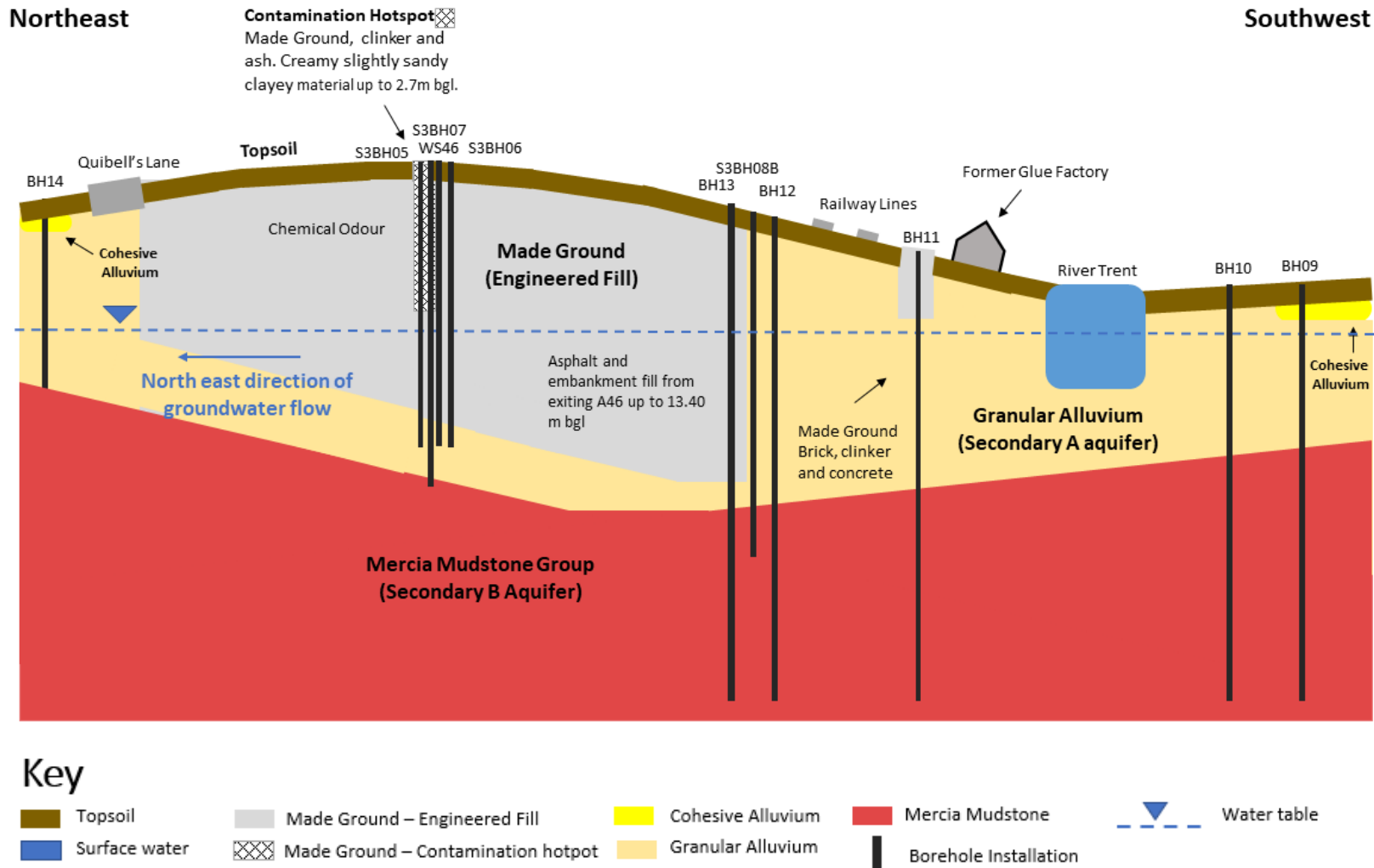
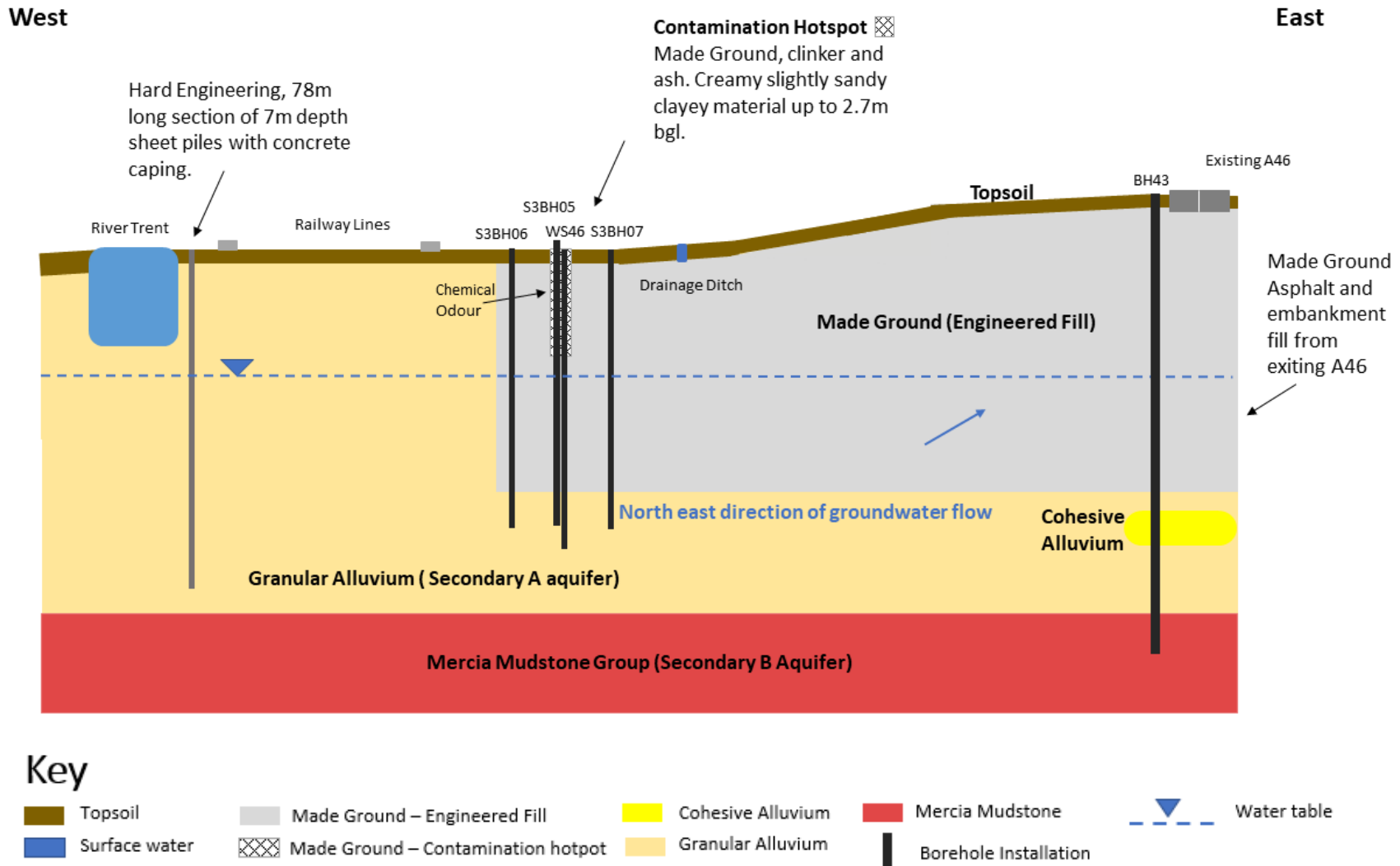


Figure 6.2: Generalised diagrammatic Scheme conceptual ground model of hotspot, west to east cross section



Human health

- 6.2.2 A localised area of soil contamination was identified in the centre of the Scheme near Nether Lock during the Tetra Tech Scheme specific GI as contained in Appendix F. Visual and olfactory evidence of contamination was recorded at exploratory hole location of WS46. The contamination was identified at the base of the Made Ground layer in the Alluvium between 2.5 and 3.65 metres below ground level. The ground was described as cream slightly sandy clayey sand, where a 'chemical odour' was observed. Subsequent laboratory soil testing data from the location of WS46 at 2.3 metres below ground level identified contaminant levels above soil generic screening criteria (GSC) guideline levels, including elevated concentrations of arsenic, aromatic hydrocarbons and naphthalene.
- 6.2.3 Approximately 240 metres south of WS46, at the location of the former Quibell Brothers chemical manure factory, soil GSC values were exceeded at exploratory hole location of BH11. Laboratory soil test results identified GSC exceedances of concentrations of PAHs (dibenz-a-h-anthracene, benzo(b)fluoranthene and benzo(a)pyrene) at 0.1 metres below ground level in the Made Ground. No visual or olfactory evidence of contamination was recorded in the borehole log. PAHs are formed during the incomplete combustion of organic materials. The sample which recorded the minor exceedances is from shallow Made Ground. The location of BH11 is within an existing small compound area, currently occupied by vehicles and caravans. A review of BGS historical logs² has revealed that two exploratory holes (BH234 and BH233) adjacent to BH11 encountered a concrete slab at a depth of up to 0.2 m bgl from ground level. Whilst, historical mapping indicates that the BH11 area was once occupied by Quibell Brothers chemical manure factory (previously demolished), the likely source of the PAHs is from recent land use.
- 6.2.4 Available historical mapping and aerial imagery for the Scheme do not identify any buildings/structures or sources of contamination directly at the location of WS46. The potential source of the contamination identified at the location of WS46 is likely the adjacent historical Quibell Brothers chemical manure factory. This factory is reported³³, to have produced a number of products from the late 1890s to early 1900s including; chemical manure (production process used

³³ Quibells Brothers Ltd, Available at: British Glues and Chemicals (themeister.co.uk), (last accessed November 2023)

hydrocarbons to extract grease from bones), sheep dip powder and liquid sheep dip (both made through arsenical preparation), a carbolic dip in the form of a solid paste containing carbolic acid, and also a disinfectant called 'kerol'. During the enabling and construction earthworks of the existing A46, it is possible that a small volume of site won material from the demolition location of the chemical manure factory was deposited at the location of WS46. On review there are no other likely credible sources in the area, a historical borehole on the BGS2 mapped in close proximity does not identify Made Ground.

- 6.2.5 The soft white pastey/chalky substance, chemical odour and laboratory test data recorded from WS46 appears to be consistent with the products described above. The location of the contamination hotspot and parts of the British Glues and Chemicals Ltd Quibell Bros Glue Factory (previously named "Chemical Manure Works" on other historical mapping) are shown to be demolished during construction of the existing A46 in Photograph 6-1 below.

Photograph 6-1: Contamination hot spot aerial photograph from construction of existing A46 road.



Source: National Highways (photograph ID 2164). Viewed southwest, date not provided, but is assumed to be 1988 - 1991, based on initial construction period of existing A46.

- 6.2.6 The 2022/2023 supplementary ground investigation, which included delineation of the contamination hotspot, identified further visual and olfactory contamination at an exploratory hole (S3BH05) located adjacent to the north of WS46 as contained in Appendix F. The presence of a soft white paste/chalky textured material similar to that noted at WS46 was present at the location of S3BH05, where a strong chemical odour was recorded between 1.20 – 2.80 metres below ground level. Furthermore, chemical testing identified a total of 4 exceedances against the commercial screening criteria at S3BH05 only within the Made Ground for dibenz-a-h-anthracene, benzo(b)fluoranthene and benzo(a)pyrene at 1.65m and arsenic at 2.9m. Consequently, the results of the supplementary GI indicated that the contamination is situated at a depth which presents a low risk to human health and not present in the shallow soils.
- 6.2.7 Based on the Works Plans (**TR010065/APP/2.3**) for the Scheme, earthworks are not proposed in the footprint of the contamination hotspot area (WS46 – S3BH05), with existing vegetation to be retained, and the contamination will therefore remain in situ at this location. Vegetation clearance will be required for the construction of the temporary haul road, adjacent to the contamination hotspot. At its closest point, excavation works are anticipated for the construction of the A46 embankment, located approximately 8m east of the contamination hotspot, between the existing ditch and toe of the embankment as shown in Figure 2.3 (Environmental Masterplan) of the ES Appendices (**TR010065/APP/6.2**).
- 6.2.8 With respect to construction workers, the location of the contamination hotspot (WS46 – S3BH05) will be recorded and documented by the detailed design consultant and shared to the Principal Contractor. Before construction commences, the Principal Contractor will install fencing and signage, clearly identifying and restricting access to the area.
- 6.2.9 Whilst BH11 identified human health exceedances and is in the Order Limits, it is within the likely extent of the temporary works. The existing vehicles and caravans at this location will be removed prior to construction to facilitate temporary works, including piling matt area and heavy lift crane pad area, which would provide a hard to dig layer, effectively providing sufficient permanent hardstanding to break the potential pollutant linkages to site end users. Furthermore, upon completion the Structures Options Report (Nether Lock

Viaduct)³⁴ advises that maintenance staff are anticipated to inspect Nether Lock Viaduct a minimum of once a year from the east, with maintenance access avoiding the location of BH11.

Controlled waters

- 6.2.10 Arsenic, chromium, chromium hexavalent, mercury, and vanadium exceeded the EQS values in leachate extract from soil samples. These exceedances are considered to be localised to the Nether Lock area in close proximity to the former glue factory. Given the elevated arsenic concentrations in the soil samples from this area, it is likely that the source of this contamination is also associated with the former glue factory. The results of the leachate extract from soil confirms that this material is leachable, however the contamination is isolated and is not present in the surrounding ground water or surface water samples. In addition, surface run-off from the new embankment will be intercepted by a new surface water drainage channel, before it reaches the hotspot area, thereby reducing the potential for leachate generation at the hotspot area.
- 6.2.11 Groundwater monitoring data at Nether Lock suggests that the groundwater fluctuates between 1.4m bgl and 3.5m bgl in the Made Ground and granular alluvium stratum. Across the majority of the Scheme groundwater has been observed as following the hydraulic gradient of the River Trent, flowing in a northeasterly direction from the southwest. Therefore, potential migration of contaminated groundwater or leachates at the hotspot area is away from the River Trent.
- 6.2.12 Given the Scheme design and isolated contamination, the exceedances recorded in leachate, surface water and groundwater are considered to largely be reflective of the wider ground condition. Therefore, it is considered that the Scheme will not pose a significant risk to controlled waters. Overall, leachate concentrations of elevated determinants are expected to largely reduce, from the addition of clean embankment fill material and impermeable road surface, with incorporated drainage. Consequently, there may be localised betterment along the new embankment arising from reduced leachate generation potential.

³⁴ Mott MacDonald Structures Options Report Nether Lock Viaduct, 23/05/23.

6.3 Revised Conceptual Model

- 6.3.1 A key element of the risk assessment is the development of a conceptual site model (CSM) which may be refined or revised as more information and understanding is obtained through the risk assessment process. A CSM has previously been developed for the Scheme, as detailed in the PSSR and summarised in Section 3.
- 6.3.2 Following a review of all the available ground investigation results, the CSM has been revisited and the potential pollutant linkages have been refined. A summary of the potential sources, pathways and receptors and the potential pollutant linkages based on the information obtained to date is presented in this section.
- 6.3.3 The following assumptions and exclusions apply to this revised conceptual model, and are also captured within the First Iteration Environmental Management Plan (EMP **(TR010065/APP/6.5)**):
- It is assumed that standard mitigation strategies will be adopted as part of construction works, these include use of appropriate personal protective equipment (PPE) and respiratory protective equipment (RPE) to be assessed by the Principal Contractor based on this assessment prior to works and during works if undiscovered contamination is encountered. The Principal Contractor will also use working method statements during construction, reflecting the guidance within the First Iteration Environmental Management Plan (EMP) and Second Iteration EMP and unexpected contamination protocol.
 - Based on the Works Plans **(TR010065/APP/2.3)** for the Scheme, it is assumed that earthworks and vegetation clearance are not proposed in the footprint of the contamination hotspot area (WS46 and S3BH05) at Nether Lock and the contamination will therefore remain in situ at this location.
 - It is understood that the land at BH11 will include a piling matt area and heavy lift crane pad area, which would provide a hard to dig layer, effectively providing sufficient permanent hardstanding to break the potential pollutant linkages to site end users.
 - It is assumed that all new below-ground infrastructure, will be designed to consider the prevailing ground conditions.
 - No visual observations were made with regards to asbestos during the ground investigations and no asbestos fibres were detected during the laboratory screening of the soil samples. Should asbestos or asbestos containing material be identified on site, it is recommended that a specialist Contractor is appointed to address the issue and to provide advice on risk or remedial measures.

- 6.3.4 Based on the results of the ground investigation, it should be noted that off-site sources of contamination have been discounted from the revised conceptual site model.

Table 6-2: Revised Conceptual Site Model

Source	Pathway	Receptor	Mitigation	Consequence	Probability	Risk	Comment
Scheme area (excluding hotspot) Made Ground and engineered fill associated with previous road development, the railways and roads crossing the site.	Dermal contact with and ingestion of contaminants in soil, soil-derived dust and water. Inhalation of contaminants in soil, soil-derived dust, fibres and vapours and ground gas.	Human health: On-site users of the road / pedestrians	N/A	Medium	Unlikely	Low	Investigations completed to date have recorded limited visual or olfactory evidence of contamination across the majority of the Scheme area which testing has also confirmed.
		Human health: Construction / maintenance workers	N/A	Medium	Unlikely	Low	Due to the nature of construction, workers are likely to come into close contact with soils. This may include potentially contaminated soils. However, no gross contamination has been observed or recorded across the majority of the Scheme.
	Off-site migration of contaminants in soil derived dust and run-off followed by dermal contact / inhalation / ingestion	Human health: Off-site users of residential properties, farms and roads	N/A	Medium	Unlikely	Low	Investigations completed to date have recorded limited visual or olfactory evidence of contamination across the majority of the Scheme area which testing has also confirmed.
	Lateral migration of dissolved phase contaminants in groundwater to surface water; Lateral migration of dissolved phase contaminants via	Controlled waters: On-site surface water features (River Trent, Old Trent Dyke, Broadgate Lane Feeder	Environmental protection measures	Mild	Low Likelihood	Low	Leachate extract from soil, groundwater and surface water testing recorded generally low-level exceedances of several determinants including metals, PAH compounds and inorganics. These exceedances were generally consistent and represent background conditions of the Scheme and do not pose an unacceptable risk to controlled waters.

Source	Pathway	Receptor	Mitigation	Consequence	Probability	Risk	Comment
	preferential pathways such as drains; Migration of contaminants in surface water runoff.	Slough Dyke (the fleet), Kings Waterside and Marina					Although there isn't a huge risk from onsite contamination, during the works there is a risk of sediment run off into the water courses which could deteriorate the water quality. Environmental protection measures detailed within the FEMP and SEMP should be adhered to, to mitigate risk to surrounding water courses.
		Controlled waters: Off-site surface water features (River Trent, Old Trent Dyke, Broadgate Lane Feeder Slough Dyke (the fleet), Newark on Trent Marina, Farndon Marina, Farndon Ponds, Nottingham Piscatorial society waterbodies, Smeaton lakes camping site, ponds north of British Sugar Factory, ponds at		Mild	Low Likelihood	Low	Surface water quality testing is recommended to be undertaken during and post works to compare against these baseline conditions to ensure no deterioration of surface water quality.

Source	Pathway	Receptor	Mitigation	Consequence	Probability	Risk	Comment
		Staythorpe Power Station field drains, unnamed ponds and smaller unnamed watercourses.					
	Leaching or dissolution of contaminants in soils and subsequent migration of contaminants in groundwater; Vertical migration of dissolved phase contaminants to the underlying groundwater.	Controlled waters: Groundwater in underlying Secondary A Superficial aquifer and Secondary B Bedrock aquifer	N/A	Mild	Low Likelihood	Low	Leachate extract from soil, groundwater and surface water testing recorded generally low-level exceedances of several determinants including metals, PAH compounds and inorganics. These exceedances were generally consistent and represent background conditions of the Scheme and do not pose unacceptable risk to controlled waters. It should be noted that direct comparison of leachate testing results with the selected assessment criteria is a conservative method, as it overestimates the availability of determinants to dissolve. Generally, in the context of the Scheme, the proposed road will be hardcover with incorporated drainage, therefore reducing potential for leachate generation in the sub surface. Areas of soft landscaping will be created from clean imported fill.
	Direct contact of contaminated soils/water with infrastructure,	Property receptors: Existing and future below	N/A	Mild	Unlikely	Very Low	Current below ground infrastructure is assumed to have been constructed to appropriate standards for the site to withstand attack from soil chemistry.

Source	Pathway	Receptor	Mitigation	Consequence	Probability	Risk	Comment
	services and structures and subsequent chemical attack.	ground infrastructure					The potential risk to proposed buried cementitious structures and piles in direct contact with underlying ground material will be mitigated by the selection of the appropriate concrete specification for the site. The indicative Design Sulphate and ACEC classes are presented in the GIRError! Bookmark not defined..
	Leaching or dissolution of contaminants in soils and subsequent migration of contaminants in groundwater; Direct contact of contaminated soils/water with monuments / buildings,	Scheduled monuments / listed buildings	N/A	Mild	Low Likelihood	Low	Leachate extract from soil, groundwater and surface water testing recorded generally low-level exceedances of several determinants including metals, PAH compounds and inorganics. These exceedances were generally consistent and represent background conditions of the Scheme and do not pose unacceptable risk to controlled waters. Proposed road will be hardcover with incorporated drainage, therefore reducing potential for leachate generation in the sub surface. Soft landscaping will be created from clean imported fill, providing greater potential for natural attenuation.
Hotspot (WS46, S3BH05 and BH11) identified contamination during GI	Dermal contact with and ingestion of contaminants in soil, soil-derived dust and water. Inhalation of contaminants in soil, soil-derived dust, fibres and	Human health: On-site users of the road / pedestrians	N/A	Medium	Unlikely	Low	A localised area of the Scheme identified soil hydrocarbon and PAH concentration exceedances of GAC (one soil sample from WS46 and one from S3BH05, of PAHs). Further delineation during the supplementary GI suggested that this contamination is not widespread. A second area of localised PAH contamination was identified

Source	Pathway	Receptor	Mitigation	Consequence	Probability	Risk	Comment
at Nether Lock. Chemical Manure Works	vapours and ground gas						<p>approximately 250m southwest in one soil sample at BH11.</p> <p>Site users will not be in contact with identified exceedances at the hotspot as these were encountered below the ground surface on commercial land. Upon completion the Scheme is predominately hardcover. The land at BH11 is likely to be permanent hardstanding which would break the potential pollutant linkages to site end users. Therefore, it is unlikely that a pathway to on-site users will form.</p>
		<p>Human health: Construction / maintenance workers</p>	N/A	Medium	Low Likelihood	Moderate/Low	<p>The GSCs cannot be used to assess short term (acute) risk to human health to construction workers and maintenance workers. However no earthworks are proposed in the contamination hotspot area at Nether Lock.</p> <p>Although there is potential for enabling works in the vicinity of BH11 involving clearance, however the exploratory hole is outside the 'footprint' of the new bridge deck and piers and therefore construction workers are unlikely to be working directly at this location. This location will form the piling matt and heavy crane lift pad.</p> <p>Likely maintenance in this area includes the inspection of the Nether Lock Viaduct structure, it is anticipated that yearly visits will be scheduled. Access to the</p>

Source	Pathway	Receptor	Mitigation	Consequence	Probability	Risk	Comment
							structures is from the east avoiding the land at BH11. No other specific mitigation measures are required apart from the Contractor should ensure standard health and safety procedures are in place and best practices are followed during construction and maintenance works. Therefore, the risk to construction workers is low.
	Off-site migration of contaminants in soil derived dust and run-off followed by dermal contact / inhalation / ingestion	Human health: Off-site users of residential properties, farms and roads	N/A	Medium	Unlikely	Low	No earthworks are proposed at (WS46 and S3BH05) and the location at BH11 is likely to be covered by hardcover upon completion therefore it is unlikely that a pathway to off-site users will form.
	Lateral migration of dissolved phase contaminants in groundwater to surface water; Lateral migration of dissolved phase contaminants via preferential pathways such as drains; Migration of contaminants in	Controlled Waters: On-site surface water features (River Trent, Old Trent Dyke, Broadgate Lane Feeder Slough Dyke (the fleet), Kings Waterside and Marina)	Environmental protection measures	Mild	Low Likelihood	Low	One area of the Scheme (Nether Lock) identified isolated exceedances of EQS values for the following determinants: arsenic, chromium, chromium hexavalent, mercury and vanadium in leachate extract from soil samples. However, the exceedances of the EQS were not noted in nearby groundwater and surface water samples. It should be noted that direct comparison of leachate testing results with the selected assessment criteria is a conservative method, as it overestimates the availability of determinants to dissolve.

Source	Pathway	Receptor	Mitigation	Consequence	Probability	Risk	Comment
	surface water runoff.	Controlled Waters: Off-site surface water features (River Trent, Old Trent Dyke, Broadgate Lane Feeder Slough Dyke (the fleet), Newark on Trent Marina, Farndon Marina, Farndon Ponds, Nottingham Piscatorial society waterbodies, Smeaton lakes camping site, ponds north of British Sugar Factory, ponds at Staythorpe Power Station field drains, unnamed ponds and		Mild	Low Likelihood	Low	<p>At the hotspot location groundwater flow direction is noted as away from the River Trent and a drainage ditch will intercept run-off from the proposed embankment. There is also hard engineering between the contamination hotspot and the River Trent comprising 7m depth sheet piles at 78m in length, forming an impermeable barrier. Therefore, a significant risk to water quality from Site soils is considered unlikely.</p> <p>As with Scheme area works there is also a risk of sediment run off into the water courses which could deteriorate the water quality. Environmental protection measures detailed within the FEMP and SEMP should be adhered to, to prevent risk to surrounding water courses.</p>

Source	Pathway	Receptor	Mitigation	Consequence	Probability	Risk	Comment
		smaller unnamed watercourses)					
	<p>Leaching or dissolution of contaminants in soils and subsequent migration of contaminants in groundwater;</p> <p>Vertical migration of dissolved phase contaminants to the underlying groundwater.</p>	<p>Controlled waters: Groundwater in underlying Secondary A Superficial aquifer and Secondary B Bedrock aquifer</p>	<p>Piling Risk Assessment (included in this CSM).</p>	Mild	Low Likelihood	Low	<p>One area of the Scheme (Nether Lock) identified isolated exceedances for the following determinants: arsenic, chromium, chromium hexavalent, mercury and vanadium in leachate extract from soil samples. However, the exceedances were not noted in nearby groundwater and surface water samples. It should be noted that direct comparison of leachate testing results with the selected assessment criteria is a conservative method, as it overestimates the availability of determinants to dissolve.</p> <p>No excavation works are anticipated at this location; therefore the adjacent proposed works are unlikely to create new or worsen existing potential contaminant pathways into the superficial deposits.</p> <p>Piling is required at Nether Lock Viaduct adjacent to an area where soil contamination has been identified at BH11 at 0.1m bgl. During Stage 5, it is recommended that a Piling Works Risk Assessment is undertaken, if deemed necessary, after the detailed design has been finalised.</p>

7 Waste soil categorisation

- 7.1.1 The proposed works comprise the construction of 6.5km of dual carriageway on the A46 between Farndon and Winthorpe. It should be noted that there is the potential for the Scheme layout to alter during detailed design. It is anticipated that Made Ground/ Fill and natural material is likely to be excavated as part of the works, with a volume of excavated soil unsuitable for re-use, likely required to be permanently removed from the site. Indicative earthworks cut and fill volumes are contained within Chapter 10 (Materials Assets and Waste) **(TR010065/APP/6.1)** of this ES. Detailed cut and fill volumes will be confirmed at detailed design stage.
- 7.1.2 A material classification assessment has been undertaken on the soil samples collected from the ground investigation, to provide an indication of the likely waste classification of the excavated soils on-site (in-accordance with guidance given in WM3³⁵). It is the responsibility of the waste producer to ensure that all waste created on-site undergoes basic characterisation prior to disposal to an appropriate permitted landfill.

European Waste Catalogue Codes

- 7.1.3 The European Waste Catalogue (EWC) classifies waste in accordance with the Hazardous Waste Regulations 2005. Waste is classified as hazardous or non-hazardous waste. The EWC classifies waste as either an absolute or mirror entry. An absolute entry represents a material that is either hazardous or non-hazardous based on its description, regardless of its chemical composition. A mirror entry may be hazardous only if hazardous substances are present above certain thresholds, otherwise the material is non-hazardous. The Landfill (England and Wales) Regulations 2002 define inert wastes such as excavated rock.
- 7.1.4 The excavated soil wastes anticipated to be generated during the construction works at the site together with their respective EWC code are included in Table 7-1. This is a non-exhaustive list for guidance only, and the waste producer should record EWC codes for different waste types

³⁵ Technical Guidance WM3: Waste Classification - Guidance on the classification and assessment of waste (October 2021).

as they are generated on site in the Site Waste Management Plan, and on waste transfer or consignment notes.

Table 7-1: EWC codes anticipated for waste

Site materials	EWC code	EWC materials description	Waste disposal classification
Natural Material	20 02 02	Soil and stones	Absolute Non-Hazardous
Made Ground	17 05 04	Soil and stones other than those mentioned in 17 05 03	Mirror Non-Hazardous
Soil and Stone	17 05 03*	Soils and stones containing hazardous substance	Mirror Hazardous

Source:WM3 v1.2

7.1.5 An assessment of the soil analysis results from samples within the Topsoil, Made Ground, Granular Alluvium, Cohesand Lias Group has been undertaken using the HazWasteOnline™ software tool (Waste Classification Report No. BRTJ7-RXPQM-YU97G).³⁶

7.2 HazWasteOnline™ Assessment

7.2.1 The full output of the HazWasteOnline™ output has been provided within Appendix H.

7.2.2 Four of the soil samples were classified as hazardous, the hazardous results of the assessment are summarised below in Table 7-2. It should be noted that hexavalent chromium (chromium VI) concentrations were found below laboratory detection limits within all soil samples, therefore for the purposes of this assessment it has been assumed that no chromic compounds are present.

Table 7-2 Summary of hazardous waste results

No.	Location ID	Depth (m bgl)	Hazard Properties
13	BH11	0.1	Flammable (HP3 (i)), carcinogenic (HP7) and mutagenic (HP11)
129	WS46	2.3	Flammable (HP 3(i)), carcinogenic (HP 7), corrosive (HP 8), mutagenic (HP 11), ecotoxic (HP 14)
158	S3BH05	2.9	Flammable (HP3 (i)), carcinogenic (HP7) and mutagenic (HP11)

³⁶ One Touch Data Limited. (2023). HazWasteOnline™ Engine: WM3 Technical Guidance 1st Edition v1.2 (Oct 2021).

No.	Location ID	Depth (m bgl)	Hazard Properties
159	S3BH05	3.2	Flammable (HP3 (i)), carcinogenic (HP7) and mutagenic (HP11)

7.2.3 It is recommended that the soil laboratory test certificates be discussed with a waste operator, to confirm potential disposal options, should excavation and off-site disposal of soils be required.

7.3 Waste Acceptance Criteria

7.3.1 Waste Acceptance Criteria (WAC) testing was undertaken on nineteen soil samples from material anticipated to be disposed of off-site. WAC testing undertaken on in-situ material can provide an indication of the which landfill could accept each waste type. However, until the material is excavated and stockpiled these results can only provide an approximation of the waste type. The majority of the samples collected from the Scheme were classified as inert waste, with the exception of three samples from the hotspot location, which are summarised below in Table 7-3.

Table 7-3: Summary of WAC test results

Location ID	Strata	Depth (m bgl)	Inert waste WAC exceeded	Stable non reactive hazardous waste exceeded	Hazard waste WAC exceeded
WS46	Made Ground	2.30	Yes	Yes	Yes
S3BH07	Made Ground	1.20	Yes	No	No
S3BH05	Made Ground	1.50	Yes	Yes	No

7.3.2 Three samples (WS46, S3BH07, S3BH05) exceeded some of the landfill waste acceptance criteria. These samples are from the contamination hotspot noted at Nether Lock. Since scheduling of samples, the design has developed, and earthworks are no longer required in this area and therefore waste disposal is unlikely.

7.3.3 It is recommended that the soil laboratory test certificates should be discussed with a waste operator, to confirm the suitable disposal options for off-site disposal of soils.

8 Remediation

8.1 Remediation

Scheme area

- 8.1.1 Investigations completed to date have recorded limited visual or olfactory evidence of contamination across the majority of the Scheme area which testing has also confirmed. Based on the proposed works and the findings of the GI, the risk assessment concludes that the risks to identified receptors from non-asbestos contamination are not significant and therefore no specific remediation measures are proposed.

Hotspot

- 8.1.2 The only location where contamination was encountered was the hotspot location (WS46 and S3BH05) and BH11 at Nether Lock in the centre of the Scheme. These observations and the descriptions of encountered Made Ground and natural ground material do not suggest a significant source of contamination is present on the Scheme.
- 8.1.3 The GI identified exceedances of the 'Commercial' GSC for PAHs and arsenic in a localised area at Nether Lock (WS46 and S3BH05). Approximately 250m southwest the 'Commercial' GSC was exceeded in one other soil sample at BH11 of PAHs.
- 8.1.4 Leachate extract from soil, groundwater and surface water testing recorded generally low-level exceedances of several determinants including metals, PAH compounds and inorganics. These exceedances were generally consistent and represent background conditions of the Scheme and do not pose unacceptable risk to controlled waters.
- 8.1.5 As detailed within the First Iteration EMP **(TR010065/APP/6.5)**, in the event of a positive identification of asbestos on site, the advice of an asbestos specialist should be sought to advise on potential asbestos risk and remediation requirements.
- 8.1.6 With respect to construction workers, the location of the contamination hotspot (WS46 and S3BH05) will be recorded and documented by the detailed design consultant and shared to the Principal Contractor. Before construction commences, the Principal Contractor will install fencing and

signage, clearly identifying and restricting access to the area. Toolbox talks are to be provided for site staff prior to working at Nether Lock. These commitments are captured within the First Iteration EMP **(TR010065/APP/6.5)**.

- 8.1.7 Whilst BH11 identified human health exceedances and is in the Order Limits, it is within the likely extent of the temporary works. The existing vehicles and caravans at this location will be removed prior to construction to facilitate temporary works, including piling matt area and heavy lift crane pad area, which would provide a hard to dig layer, effectively providing sufficient permanent hardstanding to break the potential pollutant linkages to site end users. This assumption is detailed within the First Iteration EMP **(TR010065/APP/6.5)**.

8.2 Unexpected contamination

- 8.2.1 The procedures for dealing with unexpected contamination identified during construction works are set out below:
- 8.2.2 In the event that contaminated land, including groundwater, is found at any time when carrying out the authorised development, which was not previously identified in the environmental statement, it must be reported as soon as reasonably practicable to the Secretary of State, the Environment Agency and relevant planning authority, and the Applicant must complete a risk assessment of the contamination in consultation with the Environment Agency and the relevant planning authority.
- 8.2.3 Where the Applicant determines that remediation of the contaminated land is necessary, a written scheme and programme for the remedial measures to be taken to render the land fit for its intended purpose must be submitted to and approved in writing by the Secretary of State following consultation with the Environment Agency and the relevant planning authority.
- 8.2.4 Remediation must be carried out in accordance with the approved scheme.

8.3 Verification Strategy

- 8.3.1 A verification strategy is currently not required, as the Contaminated Land Risk Assessment concludes that the risks to identified receptors are not significant and therefore no specific remediation measures are proposed at this stage.

As noted in Section 8.2, if contaminated land is found during construction and the Applicant determines that remediation of the contaminated land is necessary, a written scheme and programme for the remedial measures to be taken to render the land fit for its intended purpose must be submitted to and approved in writing by the Secretary of State following consultation with the Environment Agency and the relevant planning authority.

9 Conclusions and Recommendations

- 9.1.1 A Phase 2 Contaminated Land Generic Quantitative Risk Assessment (GQRA) has been produced to support the Scheme.
- 9.1.2 The proposed works at the Scheme comprises on-line widening for the majority of its length (6.5 km) between Farndon roundabout and the A1. A new section of offline dual carriageway is proposed between the western and eastern sides of the A1 before the new dual carriageway ties into the existing A46 to the west of Winthorpe roundabout. The widening works include earthwork widening along the existing embankments, new structures where the route crosses the railway lines, River Trent and the A1 and the creation of three flood compensation areas.

9.1 Geo-environmental Risks

- 9.1.1 A generic quantitative risk assessment has been undertaken for the Scheme, which has indicated the following potential contamination risks:

Scheme area

- The risk to on-site and off-site users has been determined as **Low Risk**.
- The risk to construction and maintenance workers has been determined as **Low Risk**. As part of the construction and operation of the site it is assumed that workers will adhere to a Scheme specific risk assessment and method statement. With appropriate measures in place (in accordance with CDM Regulations).
- The risk to controlled waters from contamination has been determined to be **Low Risk**.
- The risk to property receptors from contamination has been determined to be **Very Low Risk**.
- The risk to scheduled monuments from contamination has been determined to be **Low Risk**.

Hotspot

- 9.1.2 The risk to on-site and off-site users has been determined as **Low Risk**.
- 9.1.3 The risk to construction and maintenance workers has been determined as **Moderate/Low Risk**.

- 9.1.4 The risk to controlled waters from contamination has been determined to be **Low Risk**.

9.2 Material Classification

- 9.2.1 A material classification assessment identified that the majority of samples obtained from the ground investigation are classified as inert if treated as waste. Except for three samples from the hotspot location at Nether Lock, which are classified as stable non-reactive hazardous waste and or hazardous waste.

9.3 Recommendations

- 9.3.1 Based on the Scheme end use (commercial), the risks to the receptors at the Scheme are considered to be moderate/low to very low and remediation at the site is not considered necessary. It is recommended that the following is established prior to commencing the development, which are detailed within the First Iteration EMP (**TR010065/APP/6.5**):
- Unexpected contamination protocol should be adhered to as part of the construction works. If any asbestos is identified as part of the works, a specialised contractor should be contacted.
 - Contractors should ensure standard health and safety procedures are in place to ensure best practices are followed during construction and maintenance.
 - A Second Iteration Environmental Management Plan (SIEMP) must be developed and implemented. For instance, environmental protection measures such as netting should be put in place during construction works to prevent sediment run off.
 - Excavations may require dewatering of runoff waters, perched waters, or groundwater. In particular, dewatering is likely in the identified flood compensation areas.
 - Necessary consents and permits for activities such as discharging into surface water will be sought and details regarding these consents are detailed in the Scheme Consents and Agreements Position Statement (**TR010065/APP/3.3**).
 - Surface water quality testing is recommended to be undertaken during and post works to compare against these baseline conditions to ensure no deterioration of surface water quality.
 - If Made Ground (soil and stones (from construction and demolition sites) not containing hazardous substances) is proposed to be reused on-site, then up to 1000t may be placed under a U1 Exemption. If the amount of Made Ground proposed for reuse exceeds the exemption limit, a materials management plan (MMP) or re-use of waste

environmental permit must be used, and the material would need to fulfil the requirements of a non-waste and be subject to the necessary planning approval.

- For re-use of excavated material under an MMP, a CL:AIRE Qualified Person (QP) declaration must be in place prior to the commencement of excavated material movement.
- Excavated Made Ground material to be re-used on site (if required) under a Materials Management Plan (or relevant exemption), may involve further sampling and validation testing to ensure suitability for use.
- The location of the contamination hotspot at Nether Lock will be recorded and documented by the detailed design consultant and shared to the Principal Contractor. Before construction commences, the Principal Contractor will install fencing and signage, clearly identifying and restricting access to the area.
- It is understood that the area at BH11 will be hardstanding upon completion, should this change the CSM should be updated accordingly.
- It is recommended that a Piling Works Risk Assessment is undertaken, if deemed necessary, after the Stage 5 detailed design has been finalised.
- It is recommended that the determined Design Sulphate and Aggressive Chemical Environment for Concrete classes for each stratum are used to inform the design of appropriate concrete foundations.
- It is recommended that a waste contractor is contacted to discuss options for disposal if construction works require removal of soils from the Scheme.

9.3.2 If any significant changes to the current design are proposed, the risk assessment in Section 5 should be kept under review to ensure there are no additional risks to sensitive receptors. This may require additional ground investigation and monitoring to fully characterize the ground conditions across the Scheme.

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Appendix A: Key Regulatory Legislation, Drivers, and Contamination Assessment Criteria

A.1 Environmental Protection Act, Part IIA

- 10.1.1 The primary legislative regime under which historic contaminated land is managed in the UK is Part IIA of the Environmental Protection Act, 1990 (termed “Part IIA”). The framework for the assessment of potential land contamination adopted in this report is based on current guidance documents regarding the implementation of Part IIA of the EPA and the assessment of potentially contaminated land, with particular reference to:
- DEFRA (2012): “Environmental Protection Act 1990: Part 2A, Contaminated Land Statutory Guidance;
 - Land Contamination Risk Management (LCRM) (2021): How to assess and manage the risk from land contamination
 - Contaminated Land Research Report SC050021/SR2 and SR3 describing the UK Contaminated Land Exposure Assessment Framework for assessing human health risks;
 - British Standard (BS) 10175:2011+A1:2013 “Investigation of potentially contaminated sites: Code of practice”.
 - British Standard (BS) 8485:2015 “Code of Practice for the Characterisation and remediation from ground gas in affected developments”.
 - CIRIA C665 “Assessing Risks posed by hazardous ground gases to buildings”
 - Environment Agency (2012) “Groundwater Protection Policy and Practice”, GP3.
- 10.1.2 Part IIA principally deals with sites where individual historic contamination linkages present a “Significant Possibility of Significant Harm” (SPOSH) or a Significant Possibility of Significant Pollution to Controlled Waters (SPOSPCOW) representing an unacceptable level of contamination risk for each linkage. The Part IIA clean-up is the minimum which can be done on a cost basis to make and keep the site in a “just safe” condition for an existing use. In determining SPOSPCOW, the requirements of the Groundwater Daughter Directive are taken into account under the Part IIA framework.
- 10.1.3 Elimination of liability under Part IIA is not always achievable largely because of the inherent risk basis of the statutory regime, changes in statutory guidance, the technical difficulty in establishing levels of contamination that are likely to

represent SPOSH, and the variable distribution of contamination at many sites. Statutory guidance on Part IIA, recognises that sites require prioritisation by Local Authorities under the statutory Part IIA site inspection programme to ensure that only those sites likely to present the greatest risks are identified.

- 10.1.4 It should be recognised that considerable investigation and complex assessment is often required to establish whether sites are likely to meet the definition of contaminated land under Part IIA. As a result, it is advised that consensus is sought on any recommendations regarding the significance of contaminated land risks and remedial measures through consultation with the Regulator(s).

A.1.1 Water Resources Act 1991

- 10.1.5 In addition to liabilities under Part IIA of the Environmental Protection Act 1990, liabilities may also result from historic groundwater pollution under section 161 of the Water Resources Act. Section 161 allows the Environment Agency to recover the costs of cleaning up any poisonous, noxious, or polluting matter or any solid waste matter that persons have caused or knowingly permitted to be present in controlled waters.

A.1.2 Environmental Damage (Prevention and Remediation) Regulations 2009

- 10.1.6 The Environmental Damage (Prevention and Remediation) Regulations 2009 came into force on 1st March 2009 to implement EC Directive 2004/35 on environmental liability with regard to the prevention and remedying of environmental damage.
- 10.1.7 These Regulations do not apply retrospectively; environmental damage that took place before the Regulations came into force (1st March 2009), or damage that takes place (or is likely to take place) after that date but is caused by an incident, event or emission that occurred before that date are exempt from the requirements of the Regulations.
- 10.1.8 The Regulation is concerned with preventing environmental damage. It requires that all operators of activities that cause an imminent threat of environmental damage to take all reasonably practical steps to prevent the damage. Where damage has already been caused, the operator must take all

reasonably practical steps to prevent further damage from occurring.

A.1.3 Contaminated Land Risk Methodology

A.1.3.1 Legislative Background

10.1.9 Contaminated land is defined in UK Legislation (Environmental Protection Act 1990, Part II, and Contaminated Land Regulations 2000) as:

‘any land which appears to the Local Authority in whose area is situated to be in such a condition, by reasons of substances in, on or under the land, that:

- *Significant harm is being caused or there is significant possibility of significant harm being caused, or*
- *Pollution of controlled waters is being caused or is likely to be caused’.*

Harm is defined such that it should meet the following criteria:

- *‘Be harmful to a receptor listed in Table A of the statutory guidance (including human beings, certain ecological systems or living organisms, crops, livestock, and certain buildings);*
- *Be within the description of harm specified for each receptor in the same table’.*

10.1.10 In order to determine whether there is a possibility for significant harm, the following should be taken into account:

- The nature and degree of harm;
- The susceptibility of the receptors;
- The time scale within which the harm may occur.

10.1.11 Current regulatory guidance requires that the findings from a site investigation are evaluated for contamination on a site-specific basis using a risk-based approach. Risk assessment involves identification and evaluation of the hazards presented by the concentrations of contaminants measured, followed by an estimation of the risks that are associated with these hazards. Such estimation can be qualitative or quantitative depending on the extent and nature of the investigation data available. Quantitative risk assessment requires detailed toxicological, chemical, geological, hydrological, and geotechnical data, and is not required unless the qualitative risk assessment demonstrates that a significant risk may exist but that there is enough uncertainty to make further detailed investigation and assessment desirable in order to reduce potential remediation costs. For

the purposes of the investigations detailed herein, qualitative risk assessments have been undertaken.

- 10.1.12 The first step in assessing any risks, therefore, is to determine what hazards exist from the contaminants identified during the investigation. Hazard identification is widely undertaken by reference to published generic and site-specific guidelines. The following sections describe the available guidelines against which the chemical analytical data has been interpreted.

A.1.3.2 Risks to Human Health

- 10.1.13 This part of the risk assessment process uses a comparison of measured concentrations of contaminants in soil samples against conservative generic screening criteria. The generic screening criteria are selected based upon the industry-accepted hierarchy, as follows: Land Quality Management (LQM) Suitable for Use Values (S4UL's) 2014, Defra Category 4 Screening Levels (C4SL's) 2014 then other UK standards, followed by European standards, then US standards and then standards from the rest of the world. The most relevant of these criteria are now discussed.

A.1.3.3 Suitable for Use Levels (S4UIs)

- 10.1.14 In the UK, the most authoritative standards are those which were published by Land Quality Management Ltd (LQM) in 2014. LQM has revised their guidance values for soils to produce 'Suitable for Use' levels (S4UIs) for the additional land uses and exposure assumptions presented in Defra's recent C4SL guidance (Nathanail, McCaffrey, Gillett, Ogden, & Nathanail, 2015) – Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3420. All rights reserved. The S4UIs however, are all based on Health Criteria that represent minimal or tolerable levels of risks to health as described in the Environment Agency's SR2 guidance, ensuring that the resulting assessment criteria are 'suitable for use' under planning. Whilst representing a tolerable risk level they are generally less conservative than the previous Soil Guidance Values (SGVs) produced by CLEA. These revised values were released for use in 2014.

- 10.1.15 The S4ULs replace the previous LQM 'Generic Assessment' Criteria which were published in 2009. S4ULs are available for residential, allotments. Commercial and public open space land uses and for a variety of soil organic contents.

A.1.3.4 Category 4 Screening Levels (C4SLs)

- 10.1.16 To support Defra's revised Statutory Guidance (SG) for Part 2A of the Environmental Protection Act 1990 (Part 2A)

(Defra, 2012a) a methodology for deriving Category 4 Screening Levels (C4SLs) was presented by CL:AIRE in 2014. C4SLs have been derived using this methodology for six contaminants (arsenic, benzene, benzo(a)pyrene, cadmium, chromium VI, and lead) to date and act as guidance values to determine if sites fall into Category 4 of Part 2A. These were produced to support the planning process in determining which sites fall into 'Category 4' of Part IIA of the Environmental Protection Act. Category 4 refers to sites where there is no risk that land poses a significant possibility of significant harm (SPOSH), or the level of risk is low. Sites with contaminant concentrations below these levels would therefore be classified as low level of toxicological concern.

A.1.3.5 Other Criteria

10.1.17 In the absence of S4UIs and C4SLs, results have been assessed using:

- Contaminated Land Applications in Real Environments (CL:AIRE) Soil Generic Assessment Criteria (CL:AIRE, 2009).

A.1.3.6 CL:AIRE GAC

10.1.18 A range of GACs for 35 contaminants have been derived by a collection of scientific professionals under the oversight of Contaminated Land Applications in Real Environments (CL:AIRE, 2009). The methodology adopted in deriving the GACs was consistent with that used for producing the revised SGVs and used the CLEA model (v 1.06). These screening criteria will be used for any contaminants not covered by the current SGVs or LQM GACs.

10.1.19 The GAC have been derived for four generic land-uses; residential with consumption of homegrown produce, residential without consumption of homegrown produce, allotments, and commercial land-use. Each land-use scenario has had GAC produced for three SOM contents; 1%, 2.5% and 6%.

A.1.3.7 Risks to Controlled Waters

10.1.20 Risks to the aqueous environment (groundwater and surface water) are generally assessed in the UK by reference to the Environment Agency's Remedial Targets Methodology Hydrogeological Risk Assessment for Land Contamination (EA, 2006). This allows remedial target concentrations for leachate extracts and groundwater to be derived for selected contaminants. The methodology is a tiered approach, with a remedial target being derived at the end of each tier, which

would provide sufficient protection to controlled water resources.

- 10.1.21 There are four tiers of assessment, with each subsequent tier deriving a less conservative remedial target, due to examining further ways in which the contaminant may be reduced e.g. Dilution, natural attenuation, and degradation. For this site, it is considered appropriate to conduct a 'Tier 1 Assessment', using this guidance. This involves firstly selection of appropriate Assessment Criteria. For this site, the most sensitive receptor is considered to be groundwater in the underlying Principal Aquifer. The Tier 1 assessment requires a comparison of soil 'pore water' quality with the selected Assessment Criteria. 'Pore water quality' may be obtained by one of three methods:
- Laboratory analysis of pore water quality (or perched water quality).
 - Laboratory analysis of soil leachate extracts (according to the Environment Agency R&D Note 301 – Leaching Tests for the Assessment of Contaminated Land).
 - Theoretical calculation of the 'pore-water' concentration based on total soil concentrations, using soil-water partition coefficients.
- 10.1.22 The Environment Agency recommends that at least one of the above methods is used for analysis of data to allow for discrepancies, variations, and errors in results. For reasons of accuracy and practicality, laboratory analysis of the leachate quality and groundwater has been used to provide an indication of the risk to the environment.

Appendix B: Contaminated Land Risk Methodology

- 10.1.23 The following Contaminated Land Risk Assessment methodology is based on the National House Building Council (NHBC), Environment Agency (EA) and Chartered Institute of Environmental Health (CIEH) document, Guidance for the safe development of housing on land affected by contamination (NHBC, 2008), in order to quantify potential risk via **risk estimation** and **risk evaluation**, which can be adopted at the Phase I stage. This will then determine an overall risk category which can be used to identify likely actions. This methodology uses qualitative descriptors and therefore is a qualitative approach.
- 10.1.24 The methodology requires the classification of:
- the magnitude of the **consequence** (severity) of a risk occurring, and
 - the magnitude of the **probability** (likelihood) of a risk occurring.
- 10.1.25 The potential consequences of contamination risks occurring at this site are classified in accordance with Table B-1: Classification of Consequence below, which is adapted from the CIRIA guidance.

Table B-1: Classification of Consequence

Classification	Definition of Consequence
Severe	<p>Highly elevated concentrations likely to result in “significant harm” to human health as defined by the EPA 1990, Part 2A, if exposure occurs.</p> <p>Equivalent to EA Category 1 pollution incident including persistent and/or extensive effects on water quality; leading to closure of a potable abstraction point; major impact on amenity value or major damage to agriculture or commerce.</p> <p>Major damage to aquatic or other ecosystems, which is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long-term maintenance of the population.</p> <p>Catastrophic damage to crops, buildings or property.</p>
Medium	<p>Elevated concentrations which could result in “significant harm” to human health as defined by the EPA 1990, Part 2A if exposure occurs.</p> <p>Equivalent to EA Category 2 pollution incident including significant effect on water quality; notification required to abstractors; reduction in amenity value or significant damage to agriculture or commerce.</p> <p>Significant damage to aquatic or other ecosystems, which may result in a substantial adverse change in its functioning or harm to a species of</p>

Classification	Definition of Consequence
	special interest that may endanger the long-term maintenance of the population. Significant damage to crops, buildings or property.
Mild	Exposure to human health unlikely to lead to “significant harm”. Equivalent to EA Category 3 pollution incident including minimal or short lived effect on water quality; marginal effect on amenity value, agriculture, or commerce. Minor or short lived damage to aquatic or other ecosystems, which is unlikely to result in a substantial adverse change in its functioning or harm to a species of special interest that would endanger the long-term maintenance of the population. Minor damage to crops, buildings or property
Minor	No measurable effect on humans. Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems. Repairable effects of damage to buildings, structures, and services

10.1.26 The probability of contamination risks occurring at this site will be classified in accordance with Table B-2: Classification of Probability below which is also adapted from the CIRIA guidance. Note that for each category, it is assumed that a pollution linkage exists. Where a pollution linkage does not exist, the likelihood is zero, as is the risk.

Table B-2: Classification of Probability

Classification	Definition of Probability
High Likelihood	There is pollutant linkage, and an event would appear very likely in the short-term and almost inevitable over the long-term, or there is evidence at the receptor of harm or pollution.
Likely	There is pollutant linkage, and all the elements are present and in the right place which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short-term and likely over the long-term.
Low Likelihood	There is pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a long period such an event would take place and is less likely in the shorter term.
Unlikely	There is pollutant linkage, but circumstances are such that it is improbable that an event would occur even in the very long-term.

10.1.27 For each possible pollution linkage (source-pathway-receptor) identified, the potential risk can be evaluated, based on the following principle:

Contamination risk = Probability of event occurring x Consequence of event occurring

10.1.28 This relationship can be represented graphically as a matrix Table B-3: Overall Contamination Risk Matrix which is adapted from the CIRIA guidance.

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very high risk	High risk	Moderate risk	Low risk
	Likely	High risk	Moderate risk	Moderate/ low risk	Low risk
	Low Likelihood	Moderate risk	Moderate/ low risk	Low risk	Very low risk
	Unlikely	Moderate/ Low risk	Low risk	Very low risk	Very low risk

10.1.29 The definitions of the risk categories identified in the above matrix are given Table B-4, together with the investigatory and remedial actions that are likely to be necessary in each case. The risk categories apply to each pollutant linkage, not just to each hazard or receptor.

Table B-4: Definition of Risk Categories and Likely Action Required

Risk Category	Definition and likely actions required
Very high	There is a high probability that severe harm could arise to a designated receptor from an identified hazard at the site without remediation action OR there is evidence that severe harm to a designated receptor is already occurring. Realisation of that risk is likely to present a substantial liability to be site owner/or occupier. Investigation is required as a matter of urgency and remediation works likely to follow in the short-term.
High	Harm is likely to arise to a designated receptor from an identified hazard at the site without remediation action. Realisation of the risk is likely to present a substantial liability to the site owner/or occupier. Investigation is required as a matter of urgency to clarify the risk. Remediation works may be necessary in the short-term and are likely over the longer term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely, that the harm would be relatively mild. Further investigative work is normally required to clarify the risk and to determine the potential liability to site owner/occupier. Some remediation works may be required in the longer term.

Risk Category	Definition and likely actions required
Low	It is possible that harm could arise to a designated receptor from identified hazard, but it is likely at worst, that this harm if realised would normally be mild. It is unlikely that the site owner/or occupier would face substantial liabilities from such a risk. Further investigative work (which is likely to be limited) to clarify the risk may be required. Any subsequent remediation works are likely to be relatively limited.
Very low	It is a low possibility that harm could arise to a designated receptor, but it is likely at worst, that this harm if realised would normally be mild or minor.

Appendix C: Geo-environmental results

Determinant Name	Units	Commercial 1% SOM	S3BH01	S3BH01	S3BH02	S3BH02R	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05R	S3BH05R	S3BH05R	S3BH05R	S3BH05R	S3BH05R	S3BH06	S3BH06	S3BH06R	S3BH06R	S3BH06R
			0.5	1.4	0.5	0.5	0.5	1	1.5	1.65	2.5	2.9	3.2	4.9	0.5	1	1.5	1.65	2.5	3.2	0.2	1.2	0.2	1.2	3
1,1,1,2-Tetrachloroethane	mg/kg	110	<0.0020	<0.0020	<0.0020	<0.005	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0020	<0.0020	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	mg/kg	660	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	mg/kg	270				<0.005								<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloro-1,2,2-Trifluoroethane	mg/kg	-				<0.005								<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	mg/kg	89	<0.01	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005
1,1-Dichloroethane	mg/kg	260	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.005	<0.005
1,1-Dichloroethene	mg/kg	24	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.005	<0.005
1,1-Dichloropropene	mg/kg	-	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.005	<0.005
1,2,3 Trichlorobenzene	mg/kg	102	<0.0020	<0.0020	<0.0020	<0.005	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0020	<0.0020	<0.005	<0.005	<0.005
1,2,3-Trichloropropane	mg/kg	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							<0.05	<0.05			
1,2,4-Trichlorobenzene	mg/kg	220	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.005	<0.005
1,2,4-Trimethylbenzene	mg/kg	39	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.005	<0.005
1,2-Dibromo-3-Chloropropane	mg/kg	-	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.05	<0.005	<0.005
1,2-Dibromoethane	mg/kg	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichlorobenzene	mg/kg	2000	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.005	<0.005
1,2-Dichloroethane	mg/kg	0.67	<0.0020	<0.0020	<0.0020	<0.005	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0020	<0.0020	<0.005	<0.005	<0.005
1,2-Dichloropropane	mg/kg	3.1	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.005	<0.005
1,3,5-Trimethylbenzene	mg/kg	-	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.005	<0.005
1,3-Dichlorobenzene	mg/kg	30	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.005	<0.005
1,3-Dichloropropane	mg/kg	-	<0.0020	<0.0020	<0.0020	<0.005	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0020	<0.0020	<0.005	<0.005	<0.005
1,4-Dichlorobenzene	mg/kg	4400	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.005	<0.005
1-naphthol	mg/kg	-	<0.02	<0.02	<0.02	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.02	<0.02	<0.2	<0.2	<0.2
2,2-Dichloropropane	mg/kg	-				<0.005									<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	<0.005	<0.005
2-Chlorotoluene	mg/kg	-	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.005	<0.005
2-isopropylphenol	mg/kg	-				<0.1								<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	<0.1	<0.1
4-Chlorotoluene	mg/kg	-	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.005	<0.005
4-Isopropyltoluene	mg/kg	-	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.005	<0.005	<0.005
Acenaphthene	mg/kg	84000	<0.1	<0.1	<0.1	<0.05	<0.1	0.18	0.14	1.3	0.48	<0.1	<0.1	<0.1	1.8	4.6	3.4	0.16	1	<0.05	<0.1	<0.1	<0.1	0.26	0.11
Acenaphthylene	mg/kg	83000	<0.1	<0.1	<0.1	<0.05	<0.1	0.24	0.27	10	0.36	57	<0.1	<0.1	0.38	0.88	0.96	0.27	3.2	<0.05	<0.1	<0.1	1.6	0.41	<0.05
Acid Neutralisation Capacity*	+/- mmol/kg																1								
Aliphatics	mg/kg	-	<5	<5	<5		7.1	8	11	6.4	8	420	76	14							<5	<5			
Aliphatics & Aromatics	mg/kg	-	<10	<10	<10		19	41	26	19	18	7400	1100	30							780	340			
Aliphatics >C10< 12	mg/kg	9700	<1	<1	<1	<1	<2	<2	<2	<2	<2	20	3.6	2.7	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aliphatics >C12< 16	mg/kg	59000	<1	<1	<1	<2	1.5	1.8	2.9	1.3	1.9	170	27	6.4	9	15	17	<2	2.5	<2	<1	<1	<2	<2	<2
Aliphatics >C16<21	mg/kg	-	<1	<1	<1	<8.0000	<2	2.3	3.4	<2	2.9	170	32	<2	39	62	59	<8.0000	9.2	<8.0000	<1	<1	<8.0000	<8.0000	<8.0000
Aliphatics >C21-35	mg/kg	-	<1	<1	<1	<8.0000	<3.0000	<3.0000	3.4	<3.0000	<3.0000	58	12	3.2	130	190	160	<8.0000	<8.0000	<8.0000	<1	<1	26	11	<8.0000
Aliphatics >C35-44	mg/kg	1600000	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.3	1.1	<1							<1	<1			
Aliphatics >C5-35	mg/kg	-				<10									170	270	240	<10	16	<10			35	18	<10
Aliphatics >C5-6	mg/kg	3200	<1	<1	<1	<0.001	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<1	<0.001	<0.001	<0.001
Aliphatics >C6-8	mg/kg	7800	<1	<1	<1	<0.001	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1				

Determinant Name	Units	Commercial 1% SOM	S3BH01	S3BH01	S3BH02	S3BH02R	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05R	S3BH05R	S3BH05R	S3BH05R	S3BH05R	S3BH05R	S3BH06	S3BH06	S3BH06R	S3BH06R	S3BH06R
		0.5	1.4	0.5	0.5	0.5	1	1.5	1.65	2.5	2.9	3.2	4.9	0.5	1	1.5	1.65	2.5	3.2	0.2	1.2	0.2	1.2	3	
Bromochloromethane	mg/kg	-	< 0.005	< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	
Bromodichloromethane	mg/kg	2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	
Bromomethane	mg/kg	-	< 0.02	< 0.02	< 0.02	< 0.005	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.02	< 0.02	< 0.005	< 0.005	< 0.005
Cadmium	mg/kg	190	0.28	0.27	0.14	< 0.2	0.5	0.65	0.34	0.61	0.3	0.98	1.7	0.18	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	1.6	0.44	0.23	< 0.2	< 0.2	1.5
Catechol	mg/kg	-				< 0.1								1.4	0.95	1	< 0.1	< 0.1	< 0.1				< 0.1	< 0.1	< 0.1
Chlorobenzene	mg/kg	56	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
Chloroethane	mg/kg	900	< 0.0020	< 0.0020	< 0.0020	< 0.005	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0020	< 0.0020	< 0.005	< 0.005	< 0.005
Chloroethene	mg/kg	0.059	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
Chloroform	mg/kg	99	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
Chloromethane	mg/kg	1	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
Chromium	mg/kg	-	16	11	6.7	8.6	29	43	20	9.4	26	27	22	7.9	26	29	27	5.4	21	19	18	8.4	31	25	18
Chromium - Hexavalent	mg/kg	33	< 0.5	< 0.5	< 0.5	< 1.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 0.5	< 0.5	< 1.2	< 1.2	< 1.2
Chrysene	mg/kg	350	< 0.1	< 0.1	< 0.1	< 0.05	1.3	1.2	1	11	3.5	17	0.76	< 0.1	4.3	8.5	9.4	2	14	< 0.05	4.1	11	9.7	3.3	< 0.05
cis-1,2-Dichloroethene	mg/kg	14	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
cis-1,3-Dichloropropene	mg/kg	-	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
Copper	mg/kg	68000	11	9.4	6.7	7.4	79	110	110	37	120	110	20	6.8	93	81	83	23	120	17	120	42	96	73	13
Coronene	mg/kg	-															< 0.05								
Cyanide Free	mg/kg	-	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	17	20	12	25	180	< 1	< 0.5	< 0.5	< 1	< 1	< 1
Dibenz-a-h-anthracene	mg/kg	3.5	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	0.4	0.35	14	2.1	2.1	< 0.1	< 0.1	0.35	0.61	0.74	0.29	2.8	< 0.05	0.94	2.5	1.2	0.27	< 0.05
Dibromochloromethane	mg/kg	-	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
Dibromomethane	mg/kg	-	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
Dichlorodifluoromethane	mg/kg	-	< 0.001	< 0.001	< 0.001		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.001	< 0.001			
Ethylbenzene	mg/kg	5700	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
F.O.C %	-	-	0.032	0.001	0.0032	0.0053	0.13	0.13	0.12	0.28	0.078	0.17	0.0054	< 0.001	0.062	0.07	0.057	0.006	0.024	0.0044	0.19	0.14	0.052	0.035	0.0057
Fluoranthene	mg/kg	23000	< 0.1	< 0.1	< 0.1	< 0.05	1.5	1.5	1	80	0.86	13	6.1	0.54	9.9	18	20	3.2	26	< 0.05	6.1	16	24	10	0.1
Fluorene	mg/kg	63000	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	0.2	0.33	2.3	0.51	< 0.1	< 0.1	< 0.1	3.8	10	7.5	0.24	1.8	< 0.05	< 0.1	< 0.1	0.93	0.33	0.05
Hexachlorobutadiene (HCBD)	mg/kg	31	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
Indeno(1,2,3-cd)pyrene	mg/kg	500	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	0.65	0.49	54	0.9	2.2	< 0.1	< 0.1	0.99	2.5	2.5	0.91	11	< 0.05	3.3	8.1	4.5	1	< 0.05
Iron	mg/kg	-	18000	16000	6900	13000	24000	30000	28000	9700	72000	25000	27000	20000	36000	41000	37000	19000	68000	23000	37000	16000	36000	27000	23000
Isopropylbenzene	mg/kg	1300	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
Lead	mg/kg	2300	23	12	13	17	98	130	220	430	41	160	28	6.4	140	100	130	52	250	24	140	70	140	77	22
Loss on ignition	%	-	2.4	1.1	1.6												13								
m,p xylenes	mg/kg	-	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
Manganese	mg/kg	-	490	220	150	530	1700	1600	1300	500	1600	210	130	130	1500	1600	1400	200	1700	110	2200	770	1500	1200	120
Mass of Sample	kg	-				1.1									1.1	1.1	1.1	1.1	1.1	1.1			1	1	1.1
Mercury	mg/kg	58	< 0.05	< 0.05	< 0.05	< 0.3000	0.16	0.21	0.23	9.2	0.38	0.75	< 0.05	< 0.05	0.8	0.4	0.8	0.4	3.7	< 0.3000	1.6	1.1	0.5	< 0.3000	< 0.3000
Methyl tert-butyl ether (MTBE)	mg/kg	7500	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
Methylphenols	mg/kg	-				< 0.3000									5.7	2.4	3.2	< 0.3000	< 0.3000	< 0.3000			< 0.3000	< 0.3000	< 0.3000
Mineral Oil (C10 - C40)*	mg/kg	-															260								
Moisture Content*	%	-				8.6									19	20	17	19	20	20			14	11	18
Molybdenum	mg/kg	18000	0.8	0.7	0.5	0.62	5.5	6.2	11	1.5	13	5.9	0.8	1.3	4.9	4.7	6.3	1.1	6.2	0.86	8.7				

			S3BH01	S3BH01	S3BH02	S3BH02R	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05R	S3BH05R	S3BH05R	S3BH05R	S3BH05R	S3BH05R	S3BH06	S3BH06	S3BH06R	S3BH06R	S3BH06R	
Determinant Name	Units	Commercial 1% SOM	0.5	1.4	0.5	0.5	0.5	1	1.5	1.65	2.5	2.9	3.2	4.9	0.5	1	1.5	1.65	2.5	3.2	0.2	1.2	0.2	1.2	3	
Selenium	mg/kg	12000	0.46	0.31	<0.25	< 1	1.9	2.1	1.8	1.5	2.4	3.7	2	0.79	< 1	< 1	< 1	< 1	< 1	< 1	2.7	1.1	< 1	< 1	< 1	
Stone Content*	%	-				< 0.1									< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1			< 0.1	46	< 0.1	
Styrene	mg/kg	3200	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
Sulphate as SO4	g/l	-	< 0.01	< 0.01	< 0.01	0.0072	0.36	0.093	0.064	0.13	1.1	0.5	0.7	0.2	1.5	1.5	1.6	1.3	1.5	0.32	0.018	0.029	0.048	0.077	0.45	
Sulphur	mg/kg	-																								
Sulphur	%	-	< 0.01	< 0.01	0.036	0.009	0.16	0.11	0.26	0.39	0.65	1.5	0.27	0.014	0.382	0.3	0.419	6.24	1.12	0.058	0.26	0.51	0.076	0.053	0.066	
Tert-Butylbenzene	mg/kg	-	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
Tetrachloroethene	mg/kg	19	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
Tetrachloromethane (Carbon Tetra Chloride)	mg/kg	2.9	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
Textural Classification*	Type	-																								
Toluene	mg/kg	56000	< 0.001	< 0.001	0.0011	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
Total BTEX*	mg/kg	-																								
Total Organic Carbon	%	-	3.2	<0.2	0.32												5.7									
Total Speciated Phenols	mg/kg	-				< 1.3									8.5	4	4.7	< 1.3	< 1.3	< 1.3				< 1.3	< 1.3	
trans 1,2-Dichloroethene	mg/kg	21	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
trans 1,3-Dichloropropene	mg/kg	-	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	< 0.005	< 0.005	< 0.005	
Tribromomethane	mg/kg	710	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	
Trichloroethene	mg/kg	1.2	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	
Trichlorofluoromethane	mg/kg	-	< 0.001	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	
Trimethylphenol	mg/kg	-				< 0.1									< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1			< 0.1	< 0.1	
Trivalent Chromium	mg/kg	8600	16	11	6.7	8.6	29	43	20	9.4	26	27	22	7.9	26	29	26	5.4	21	19	18	8.4	31	24	18	
Vanadium	mg/kg	9000	21	17	9.1	14	61	78	87	17	110	42	31	13	59	66	54	14	73	30	76	30	57	49	29	
Water Soluble Sulphate (2:1 Leachate Equivalent)	mg/l	-				7.2									1520	1510	1640	1350	1500	318			48.1	76.9	454	
Xylene	mg/kg	-				< 0.005									< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005			< 0.005	< 0.005	< 0.005	
Xylenols	mg/kg	-	< 0.02	< 0.02	< 0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.6	< 0.02						< 0.02	< 0.02				
Xylenols & Ethylphenols	mg/kg	-				<0.3000									<0.3000	<0.3000	<0.3000	<0.3000	<0.3000	<0.3000			<0.3000	<0.3000	<0.3000	
Zinc	mg/kg	730000	51	43	24	32	110	130	91	140	130	200	200	47	230	190	170	39	460	180	110	51	130	84	180	

Determinant Name	Units	Commercial 1% SOM	S3BH07R 0.8	S3BH07R 1.2	S3BH07R 2	S3BH07R 3.3	S3BH08B 0.2	S3BH08B 1.4	S3BH09R 1	S3BH11 0.5	S3BH11 2.5	S3BH14R 0.2	S3BH14R 0.5	S3BH14R 1	S3BH15 0.5	S3BH15 6.9	S3TP06 0.2	S3TP07 1	S3TP08 0.5	S3TP10 0.2	S3TP18 0.5	S3TP19 1	S3TP21 0.5	S3TP22 0.5	S3TP23 0.5	
Bromochloromethane	mg/kg	-								< 0.005	< 0.005					< 0.005										
Bromodichloromethane	mg/kg	2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005							< 0.005		< 0.005	
Bromomethane	mg/kg	-	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.02	< 0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.02							< 0.005		< 0.005	
Cadmium	mg/kg	190	1.3	1.5	1.3	0.4	1	1	1.7	< 0.1	0.11	0.5	0.5	0.3	0.4	0.37	1.6	1.4	1.1	2	< 0.2	< 0.2	< 0.2	0.3	0.3	
Catechol	mg/kg	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1								< 0.1		< 0.1	
Chlorobenzene	mg/kg	56	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005		< 0.005	
Chloroethane	mg/kg	900	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0020	< 0.0020	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005							< 0.005		< 0.005	
Chloroethene	mg/kg	0.059	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005		< 0.005	
Chloroform	mg/kg	99	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005		< 0.005	
Chloromethane	mg/kg	1	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005		< 0.005	
Chromium	mg/kg	-	17	18	14	7.6	130	25	26	19	4.5	20	12	9.1	8	71	35	34	26	32	9.4	6.5	33	21	11	
Chromium - Hexavalent	mg/kg	33	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 0.5	< 0.5	< 1.2	< 1.2	< 1.2	< 1.2	< 0.5	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.2	< 1.8	< 1.2	
Chrysene	mg/kg	350	< 0.05	< 0.05	< 0.05	< 0.05	0.22	< 0.05	< 0.05	< 0.1	< 0.1	0.09	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05	< 0.05	< 0.05	0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
cis-1,2-Dichloroethene	mg/kg	14	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005		< 0.005	
cis-1,3-Dichloropropene	mg/kg	-	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.01							< 0.005		< 0.005	
Copper	mg/kg	68000	12	12	8.6	5.7	42	16	20	20	3.8	21	10	7.1	11	98	37	24	19	35	8.9	11	12	10	15	
Coronene	mg/kg	-		< 0.05																						
Cyanide Free	mg/kg	-	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.5	< 0.5	< 1	< 1	< 1	< 1	< 0.5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Dibenz-a-h-anthracene	mg/kg	3.5	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Dibromochloromethane	mg/kg	-	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.01							< 0.005		< 0.005	
Dibromomethane	mg/kg	-	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005		< 0.005	
Dichlorodifluoromethane	mg/kg	-								< 0.001	< 0.001					< 0.001										
Ethylbenzene	mg/kg	5700	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	
F.O.C %	-	-	0.0042	0.0055	0.004	0.0031	0.029	0.0043	0.02	0.0086	0.0028	0.025	0.0084	0.0032	0.0039	0.033	0.023	0.0099	0.0093	0.024	0.0019	0.0027	0.0021	0.0033	0.0027	
Fluoranthene	mg/kg	23000	< 0.05	< 0.05	< 0.05	0.09	0.31	< 0.05	0.09	< 0.1	< 0.1	0.16	< 0.05	< 0.05	< 0.05	< 0.1	< 0.06	< 0.05	< 0.05	< 0.05	0.24	< 0.05	< 0.05	< 0.05	< 0.05	
Fluorene	mg/kg	63000	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Hexachlorobutadiene (HCBD)	mg/kg	31	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005		< 0.005	
Indeno(1,2,3-cd)pyrene	mg/kg	500	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Iron	mg/kg	-	24000	29000	24000	15000	38000	32000	33000	20000	4800	23000	24000	21000	24000	23000	42000	47000	38000	35000	13000	16000	37000	26000	22000	
Isopropylbenzene	mg/kg	1300	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005		< 0.005	
Lead	mg/kg	2300	22	23	16	16	96	64	150	22	3.4	40	47	23	16	59	170	120	58	140	8.2	11	9.1	11	15	
Loss on ignition	%	-		2.1						3	0.74															
m,p xylenes	mg/kg	-	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	
Manganese	mg/kg	-	160	190	190	220	820	1100	1300	400	57	920	860	410	900	340	1100	1400	830	1200	390	180	750	530	1300	
Mass of Sample	kg	-	1.1	1.1	1.1	1	0.9	0.9	1.1			1.1	1.1	1.3	0.9						1.2	1.2	1.2	1.3	1.2	
Mercury	mg/kg	58	< 0.3000	< 0.3000	< 0.3000	< 0.3000	< 0.3000	< 0.3000	< 0.3000	< 0.05	< 0.05	< 0.3000	< 0.3000	< 0.3000	< 0.3000	0.23	< 0.3000	< 0.3000	< 0.3000	< 0.3000	< 0.3000	< 0.3000	< 0.3000	< 0.3000	< 0.3000	
Methyl tert-butyl ether (MTBE)	mg/kg	7500	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	
Methylphenols	mg/kg	-	< 0.3000	< 0.3000	< 0.3000	< 0.3000	< 0.3000	< 0.3000	< 0.3000			< 0.3000	< 0.3000	< 0.3000	< 0.3000								< 0.3000		< 0.3000	
Mineral Oil (C10 - C40)*	mg/kg	-		< 10																						
Moisture Content*	%	-	22	19	19	6.3	21	13	16			16	8.2	5	3.2		21	13	17	14	4.9	4.4	14	11	6.2	
Molybdenum	mg/kg	18000	0.78	0.78	0.74	0.52	1.8	0.84	1.2	< 0.5	< 0.5	0.91	0.96	0.72	1	9.6	1.7	1.5	1.3	1.5	0.77	0.5	0.29	0.61	1.1	
Napthalene	mg/kg	190	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.06	< 0.0001	< 0.0001	< 0.1	< 0.1	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.0001	< 0.05	< 0.0001	
n-Butylbenzene	mg/kg	-	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005		< 0.005	
Nickel	mg/kg	980																								

			S3BH07R	S3BH07R	S3BH07R	S3BH07R	S3BH08B	S3BH08B	S3BH09R	S3BH11	S3BH11	S3BH14R	S3BH14R	S3BH14R	S3BH15	S3BH15	S3TP06	S3TP07	S3TP08	S3TP10	S3TP18	S3TP19	S3TP21	S3TP22	S3TP23
Determinant Name	Units	Commercial 1% SOM	0.8	1.2	2	3.3	0.2	1.4	1	0.5	2.5	0.2	0.5	1	0.5	6.9	0.2	1	0.5	0.2	0.5	1	0.5	0.5	0.5
Selenium	mg/kg	12000	< 1	< 1	< 1	< 1	< 1	< 1	< 1	0.46	<0.25	< 1	< 1	< 1	< 1	4.7	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Stone Content*	%	-	< 0.1	< 0.1	< 0.1	48	< 0.1	< 0.1	< 0.1			< 0.1	< 0.1	69	75		< 0.1	< 0.1	< 0.1	< 0.1	42	< 0.1	< 0.1	< 0.1	28
Styrene	mg/kg	3200	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005	< 0.005	
Sulphate as SO4	g/l	-	0.044	0.044	0.03	0.026	0.01	0.03	0.049	< 0.01	< 0.01	0.072	0.072	0.033	0.018	1.5	0.011	0.041	0.028	0.018	0.0072	0.0025	0.024	0.0055	0.0079
Sulphur	mg/kg	-															430	260	220	440	< 50	< 50		64	
Sulphur	%	-	0.013	0.016	0.012	0.008	0.048	0.014	0.034	0.023	0.04	0.034	0.018	0.01	0.008	0.25							0.009	0.009	
Tert-Butylbenzene	mg/kg	-	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005	< 0.005	
Tetrachloroethene	mg/kg	19	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005	< 0.005	
Tetrachloromethane (Carbon Tetra Chloride)	mg/kg	2.9	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005	< 0.005	
Textural Classification*	Type	-																							
Toluene	mg/kg	56000	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total BTEX*	mg/kg	-		< 0.005																					
Total Organic Carbon	%	-		0.5						0.86	0.28														
Total Speciated Phenols	mg/kg	-	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3			< 1.3	< 1.3	< 1.3	< 1.3								< 1.3	< 1.3	
trans-1,2-Dichloroethene	mg/kg	21	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005	< 0.005	
trans-1,3-Dichloropropene	mg/kg	-	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.01							< 0.005	< 0.005	
Tribromomethane	mg/kg	710	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005	< 0.005	
Trichloroethene	mg/kg	1.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005	< 0.005	
Trichlorofluoromethane	mg/kg	-	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001							< 0.005	< 0.005	
Trimethylphenol	mg/kg	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1								< 0.1	< 0.1	
Trivalent Chromium	mg/kg	8600	17	18	14	7.3	130	25	26	19	4.5	20	12	9.1	7.7	71	34	33	25	31	9.3	6.3	33	21	11
Vanadium	mg/kg	9000	25	28	22	11	35	70	35	15	5.9	24	19	16	15	140	47	49	38	42	12	12	130	22	18
Water Soluble Sulphate (2:1 Leachate Equivalent)	mg/l	-	44.1	43.7	30.4	25.8	10.4	30	48.9			71.6	72.1	33.4	17.5		11.3	40.7	28.1	17.5	7.2	2.5	23.5	5.5	7.9
Xylene	mg/kg	-	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005			< 0.005	< 0.005	< 0.005	< 0.005								< 0.005	< 0.005	
Xylenols	mg/kg	-								< 0.02	< 0.02					< 0.02									
Xylenols & Ethylphenols	mg/kg	-	< 0.3000	< 0.3000	< 0.3000	< 0.3000	< 0.3000	< 0.3000	< 0.3000			< 0.3000	< 0.3000	< 0.3000	< 0.3000								< 0.3000	< 0.3000	
Zinc	mg/kg	730000	150	160	120	100	140	110	170	57	15	87	62	39	35	69	200	220	180	220	20	28	62	42	60

Determinant Name	Units	Commercial 1% SOM	S3TP24	S3TP24	S3TP25	S3TP26	S3TP27	S3TP29	S3TP34	S3WS01	S3WS04	S3WS07	S3WS07R	S3BH16	S3BH17	S3TP36	S3TP38	S3TP41	S3TP42	S3TP43	S3TP39		
			0.2	2	1	0.2	1	0.5	0.2	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5	0.5	0.8	0.5		
1,1,1,2-Tetrachloroethane	mg/kg	110	< 0.005	< 0.005						<0.0020	<0.0020	<0.0020	< 0.005		< 0.002								
1,1,1-Trichloroethane	mg/kg	660	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
1,1,2,2-Tetrachloroethane	mg/kg	270	< 0.005	< 0.005									< 0.005										
1,1,2-Trichloro-1,2,2-Trifluoroethane	mg/kg	-	< 0.005	< 0.005									< 0.005										
1,1,2-Trichloroethane	mg/kg	89	< 0.005	< 0.005						< 0.01	< 0.01	< 0.01	< 0.005		< 0.01								
1,1-Dichloroethane	mg/kg	260	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
1,1-Dichloroethene	mg/kg	24	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
1,1-Dichloropropene	mg/kg	-	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
1,2,3 Trichlorobenzene	mg/kg	102	< 0.005	< 0.005						<0.0020	<0.0020	<0.0020	< 0.005		< 0.002								
1,2,3-Trichloropropane	mg/kg	-								< 0.05	< 0.05	< 0.05			< 0.05								
1,2,4-Trichlorobenzene	mg/kg	220	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
1,2,4-Trimethylbenzene	mg/kg	39	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
1,2-Dibromo-3-Chloropropane	mg/kg	-	< 0.005	< 0.005						< 0.05	< 0.05	< 0.05	< 0.005		< 0.05								
1,2-Dibromoethane	mg/kg	-	< 0.005	< 0.005						< 0.005	< 0.005	< 0.005	< 0.005		< 0.005								
1,2-Dichlorobenzene	mg/kg	2000	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
1,2-Dichloroethane	mg/kg	0.67	< 0.005	< 0.005						<0.0020	<0.0020	<0.0020	< 0.005		< 0.002								
1,2-Dichloropropane	mg/kg	3.1	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
1,3,5-Trimethylbenzene	mg/kg	-	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
1,3-Dichlorobenzene	mg/kg	30	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
1,3-Dichloropropane	mg/kg	-	< 0.005	< 0.005						<0.0020	<0.0020	<0.0020	< 0.005		< 0.002								
1,4-Dichlorobenzene	mg/kg	4400	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
1-naphthol	mg/kg	-	<0.2	<0.2						< 0.02	< 0.02	< 0.02	< 0.2		< 0.02								
2,2-Dichloropropane	mg/kg	-	< 0.005	< 0.005									< 0.005										
2-Chlorotoluene	mg/kg	-	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
2-isopropylphenol	mg/kg	-	< 0.1	< 0.1									< 0.1										
4-Chlorotoluene	mg/kg	-	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
4-Isopropyltoluene	mg/kg	-	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
Acenaphthene	mg/kg	84000	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Acenaphthylene	mg/kg	83000	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Acid Neutralisation Capacity*	+/- mmol/k																						
Aliphatics	mg/kg	-								5.9	< 5	5.8		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	
Aliphatics & Aromatics	mg/kg	-								15	< 10	14		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	
Aliphatics >C10< 12	mg/kg	9700	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 2	< 1	< 2	< 1	< 1	4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Aliphatics >C12< 16	mg/kg	59000	< 2	< 2	< 2	< 2	< 2	< 2	< 2	1.2	< 1	1.4	< 2	< 1	2.6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Aliphatics >C16<21	mg/kg	-	<8.0000	<8.0000	<8.0000	<8.0000	<8.0000	<8.0000	<8.0000	< 2	< 1	< 2	<8.0000	< 1	2.9	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Aliphatics >C21-35	mg/kg	-	<8.0000	<8.0000	<8.0000	<8.0000	<8.0000	<8.0000	<8.0000	<3.0000	< 1	<3.0000	<8.0000	< 1	15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Aliphatics >C35-44	mg/kg	1600000								< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Aliphatics >C5-35	mg/kg	-	< 10	< 10	< 10	< 10	< 10	< 10	< 10				< 10										
Aliphatics >C5-6	mg/kg	3200	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 1	< 0.05	< 0.001	< 1	< 0.05	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Aliphatics >C6-8	mg/kg	7800	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 1	< 0.05	< 0.001	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Aliphatics >C8< 10	mg/kg	2000	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 1	< 0.05	< 0.001	< 1	< 0.05	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Anthracene	mg/kg	520000	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Antimony	mg/kg	7400	2.4	3.4	< 1	4.8	< 1	2.5	3.1	< 2	< 2	< 2	4.9	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	
Aromatics	mg/kg	-								8.9	< 5	8.5		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	
Aromatics >C10< 12	mg/kg	16000	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1.4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Aromatics >C12< 16	mg/kg	36000	< 2	< 2	< 2	< 2	< 2	< 2	< 2	1.5	< 1	1.5	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Aromatics >C16<21	mg/kg	28000	< 10	< 10	< 10	< 10	< 10	< 10	< 10	2.1	< 1	2.3	< 10	< 1	2.2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Aromatics >C21-35	mg/kg	28000	< 10	< 10	< 10	< 10	< 10	< 10	< 10	5	< 1	4	< 10	< 1	14	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Aromatics >C35-44	mg/kg	28000								< 1	< 1	1.5		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Aromatics >C5-7	mg/kg	26000	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 1	< 0.05	< 0.001	< 1	< 0.05	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Aromatics >C6-35	mg/kg	-	< 10	< 10	< 10	< 10	< 10	< 10	< 10				< 10										
Aromatics >C7-8	mg/kg	56000	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 1	< 0.05	< 0.001	< 1	< 0.05	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Aromatics >C8< 10	mg/kg	3500	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.05	< 1	< 0.05	< 0.001	< 1	< 0.05	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Arsenic	mg/kg	640	8.3	18	7.1	20	11	10	14	17	5.7	25	25	6	9.4	7.5	4.2	6.4	18	28	8.6	8.6	
Barium	mg/kg	22000	110	160	140	400	310	250	350	390	75	470	420	72	230	65	30	94	310	78	110	110	
Benzene	mg/kg	27	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
Benzo (g,h,i) perylene	mg/kg	3900	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Benzo(a)anthracene	mg/kg	170	0.09	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Benzo(a)pyrene	mg/kg	35	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Benzo(b)fluoranthene	mg/kg	44	0.07	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Benzo(k)fluoranthene	mg/kg	1200	< 0.05	< 0.05																			

Determinant Name	Units	Commercial 1% SOM	S3TP24 0.2	S3TP24 2	S3TP25 1	S3TP26 0.2	S3TP27 1	S3TP29 0.5	S3TP34 0.2	S3WS01 0.5	S3WS04 0.5	S3WS07 0.5	S3WS07R 0.5	S3BH16 0.5	S3BH17 1	S3TP36 0.5	S3TP38 1	S3TP41 0.5	S3TP42 0.5	S3TP43 0.8	S3TP39 0.5		
Bromochloromethane	mg/kg	-								< 0.005	< 0.005	< 0.005			< 0.005								
Bromodichloromethane	mg/kg	2	< 0.005	< 0.005						< 0.005	< 0.005	< 0.005	< 0.005										
Bromomethane	mg/kg	-	< 0.005	< 0.005						< 0.02	< 0.02	< 0.02	< 0.005		< 0.02								
Cadmium	mg/kg	190	0.5	<0.2	0.3	1.9	1.6	0.7	1.8	2.5	0.35	4.8	2.3	0.33	1.3	0.19	0.18	0.21	1.8	0.15	0.62		
Catechol	mg/kg	-	< 0.1	< 0.1											< 0.1								
Chlorobenzene	mg/kg	56	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
Chloroethane	mg/kg	900	< 0.005	< 0.005						<0.0020	<0.0020	<0.0020	< 0.005		< 0.002								
Chloroethene	mg/kg	0.059	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
Chloroform	mg/kg	99	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
Chloromethane	mg/kg	1	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
Chromium	mg/kg	-	17	32	48	43	24	23	32	30	13	38	42	11	0	16	5.6	18	34	8.7	12		
Chromium - Hexavalent	mg/kg	33	< 1.2	< 1.2	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 0.5	< 0.5	< 0.5	< 1.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Chrysene	mg/kg	350	< 0.05	< 0.05	< 0.05	0.1	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
cis-1,2-Dichloroethene	mg/kg	14	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
cis-1,3-Dichloropropene	mg/kg	-	< 0.005	< 0.005						< 0.01	< 0.01	< 0.01	< 0.005		< 0.01								
Copper	mg/kg	68000	22	17	13	32	22	14	32	23	13	32	31	21	19	14	6.3	15	20	8	9.8		
Coronene	mg/kg	-																					
Cyanide Free	mg/kg	-	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.5	< 0.5	< 0.5	< 1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Dibenz-a-h-anthracene	mg/kg	3.5	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Dibromochloromethane	mg/kg	-	< 0.005	< 0.005						< 0.01	< 0.01	< 0.01	< 0.005		< 0.01								
Dibromomethane	mg/kg	-	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
Dichlorodifluoromethane	mg/kg	-								< 0.001	< 0.001	< 0.001			< 0.001								
Ethylbenzene	mg/kg	5700	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
F.O.C %	-	-	0.011	0.0023	0.0093	0.027	0.0093	0.01	0.023	0.013	0.016	0.019	0.013	0.028	0.017	0.001	< 0.001	0.015	0.0046	< 0.001	0.0018		
Fluoranthene	mg/kg	23000	0.13	< 0.05	< 0.05	0.1	< 0.05	< 0.05	< 0.05	0.19	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Fluorene	mg/kg	63000	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Hexachlorobutadiene (HCBD)	mg/kg	31	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
Indeno(1,2,3-cd)pyrene	mg/kg	500	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Iron	mg/kg	-	25000	39000	54000	49000	33000	28000	28000	36000	18000	40000	50000	14000	22000	19000	13000	18000	33000	17000	29000		
Isopropylbenzene	mg/kg	1300	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
Lead	mg/kg	2300	42	10	16	180	150	68	140	110	34	48	83	44	120	12	4.7	30	33	6.9	10		
Loss on ignition	%	-																					
m,p xylenes	mg/kg	-	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
Manganese	mg/kg	-	1200	720	1200	1600	1300	640	1300	2000	610	4500	2400	490	920	490	170	470	1400	240	1100		
Mass of Sample	kg	-	0.9	0.9	1.3	1.3	1.2	1.4	1.4						1.1								
Mercury	mg/kg	58	<0.3000	<0.3000	<0.3000	<0.3000	<0.3000	<0.3000	<0.3000	< 0.05	< 0.05	0.05	<0.3000	0.36	0.14	< 0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05	
Methyl tert-butyl ether (MTBE)	mg/kg	7500	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
Methylphenols	mg/kg	-	<0.3000	<0.3000									<0.3000										
Mineral Oil (C10 - C40)*	mg/kg	-																					
Moisture Content*	%	-	9.5	14	11	16	15	20	21						18								
Molybdenum	mg/kg	18000	1.2	0.5	0.84	2.3	1.3	1.2	1.6	1.8	1.3	2.9	2.4	1	1.2	1	< 0.5	0.9	1.8	0.9	1.1		
Napthalene	mg/kg	190	<0.0001	<0.0001	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	<0.0001	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
n-Butylbenzene	mg/kg	-	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
Nickel	mg/kg	980	19	34	36	40	30	21	32	35	12	65	47	12	25	19	8.4	15	40	12	28		
n-propylbenzene	mg/kg	3900	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
O-Xylene	mg/kg	6600	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								
PAH 17 Total	mg/kg	-																					
PAH,Total	mg/kg	-	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<2	<2	<2	<0.8000										
PCB, Total Of 7 Congeners	mg/kg	-																					
PCB< 101 2,2',4,5,5' - Pentachlorobiphenyl	mg/kg	-																					
PCB< 118 2,3',4,4',5 - Pentachlorobiphenyl	mg/kg	-																					
PCB< 138 2,2',3,4,4',5' - Hexachlorobiphenyl	mg/kg	-																					
PCB< 153 2,2',4,4',5,5' - Hexachlorobiphenyl	mg/kg	-																					
PCB< 180 2,2',3,4,4',5,5' - Heptachlorobiphenyl	mg/kg	-																					
PCB<28 2,4,4' - Trichlorobiphenyl	mg/kg	-																					
PCB< 52 2,2',5,5' - Tetrachlorobiphenyl	mg/kg	-																					
pH	pH Units	-	6.8	7.9	8	7.5	7.7	7.4	7.1						7.2	6.9	7.6	7.7	8.3	6.8	7.8	8.2	8
pH	-	-								7.3	6.5	7.6			6.9	7.6	7.7	8.3	6.8	7.8	8.2	8	
Phenanthrene	mg/kg	22000	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Phenol	mg/kg	440	< 0.1	< 0.1						< 0.02	< 0.02	< 0.02	< 0.1		< 0.02								
Phenol	mg/kg	-								< 0.1	< 0.1	< 0.1			< 0.02								
Pyrene	mg/kg	54000	0.12	< 0.05	< 0.05	0.09	< 0.05	< 0.05	< 0.05	0.16	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Resorcinol	mg/kg	-	< 0.1	< 0.1						< 0.02	< 0.02	< 0.02	< 0.1		< 0.02								
Sec-Butylbenzene	mg/kg	-	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001								

Determinant Name	Units	Commercial 1% SOM	S3TP24 0.2	S3TP24 2	S3TP25 1	S3TP26 0.2	S3TP27 1	S3TP29 0.5	S3TP34 0.2	S3WS01 0.5	S3WS04 0.5	S3WS07 0.5	S3WS07R 0.5	S3BH16 0.5	S3BH17 1	S3TP36 0.5	S3TP38 1	S3TP41 0.5	S3TP42 0.5	S3TP43 0.8	S3TP39 0.5
Selenium	mg/kg	12000	< 1	< 1	< 1	< 1	< 1	< 1	< 1	2	0.67	2.9	< 1	0.47	1	0.66	0.25	0.56	1.4	0.4	0.66
Stone Content*	%	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1				< 0.1								
Styrene	mg/kg	3200	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001						
Sulphate as SO4	g/l	-	0.0082	0.0065	0.0076	0.013	0.033	0.05	0.029	0.084	< 0.01	0.038	0.0099	0.016	< 0.01	0.014	< 0.01	0.14	0.034	< 0.01	0.06
Sulphur	mg/kg	-			150	410	230	260	380					0.05	0.039	< 0.01	< 0.01	0.025	0.019	< 0.01	< 0.01
Sulphur	%	-	0.019	0.006						0.02	0.042	0.015	0.032	0.05	0.039	< 0.01	< 0.01	0.025	0.019	< 0.01	< 0.01
Tert-Butylbenzene	mg/kg	-	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001						
Tetrachloroethene	mg/kg	19	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001						
Tetrachloromethane (Carbon Tetra Chloride)	mg/kg	2.9	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001						
Textural Classification*	Type	-																			
Toluene	mg/kg	56000	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.001	< 0.001	< 0.005		< 0.001						
Total BTEX*	mg/kg	-																			
Total Organic Carbon	%	-																			
Total Speciated Phenols	mg/kg	-	< 1.3	< 1.3									< 1.3								
trans-1,2-Dichloroethene	mg/kg	21	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001						
trans-1,3-Dichloropropene	mg/kg	-	< 0.005	< 0.005						< 0.01	< 0.01	< 0.01	< 0.005		< 0.01						
Tribromomethane	mg/kg	710	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001						
Trichloroethene	mg/kg	1.2	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001						
Trichlorofluoromethane	mg/kg	-	< 0.005	< 0.005						< 0.001	< 0.001	< 0.001	< 0.005		< 0.001						
Trimethylphenol	mg/kg	-	< 0.1	< 0.1									< 0.1								
Trivalent Chromium	mg/kg	8600	16	32	48	43	24	23	31	30	13	38	42	11	25	16	5.6	18	34	8.7	12
Vanadium	mg/kg	9000	23	58	40	66	36	35	42	37	16	60	70	15	29	21	8.2	20	46	28	17
Water Soluble Sulphate (2:1 Leachate Equivalent)	mg/l	-	8.2	6.5	7.6	13.4	33	50.4	28.9				9.9								
Xylene	mg/kg	-	< 0.005	< 0.005									< 0.005								
Xylenols	mg/kg	-								< 0.02	< 0.02	< 0.02			< 0.02						
Xylenols & Ethylphenols	mg/kg	-	< 0.3000	< 0.3000									< 0.3000								
Zinc	mg/kg	730000	74	54	77	230	170	140	200	220	70	280	270	66	150	39	21	64	250	33	42

Determinant Name	Units	Commercial 1% SOM	BH02	BH03	BH03A	BH03A	BH05	BH05	BH06	BH06	BH08	BH08	BH08	BH10	BH11	BH11	BH12	BH13	BH13	BH14	BH15	BH16	BH16	BH17
			0.6	0.5	0.1	0.6	0.3	3	0.4	1.3	0.6	8.6	10.5	0.1	0.1	3.5	0.3	1.5	14.4	0.4	0.7	0.1	0.7	0.4
1,1,1,2-Tetrachloroethane	mg/kg	110					<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000				<0.2000	<0.2000	<0.2000	<0.2000					
1,1,1-Trichloroethane	mg/kg	660					<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400				<0.1400	<0.1400	<0.1400	<0.1400					
1,1,2,2-Tetrachloroethane	mg/kg	270					<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000				<0.2000	<0.2000	<0.2000	<0.2000					
1,1,2-Trichloroethane	mg/kg	89					<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000				<0.2000	<0.2000	<0.2000	<0.2000					
1,1-Dichloroethane	mg/kg	260					<0.1600	<0.1600	<0.1600	<0.1600	<0.1600	<0.1600				<0.1600	<0.1600	<0.1600	<0.1600					
1,1-Dichloroethene	mg/kg	24					<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000				<0.2000	<0.2000	<0.2000	<0.2000					
1,1-Dichloropropene	mg/kg	-					<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000				<0.2000	<0.2000	<0.2000	<0.2000					
1,2,3-Trichlorobenzene	mg/kg	102					<0.4000	<0.4000	<0.4000	<0.4000	<0.4000	<0.4000				<0.4000	<0.4000	<0.4000	<0.4000					
1,2,3-Trichloropropane	mg/kg	-					<0.3200	<0.3200	<0.3200	<0.3200	<0.3200	<0.3200				<0.3200	<0.3200	<0.3200	<0.3200					
1,2,4-Trichlorobenzene	mg/kg	220					<0.4000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<0.4000	<0.1000	<0.1000	<0.1000					
1,2,4-Trimethylbenzene	mg/kg	39					<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800				<0.1800	<0.1800	<0.1800	<0.1800					
1,2-Dibromo-3-Chloropropane	mg/kg	-					<0.2800	<0.2800	<0.2800	<0.2800	<0.2800	<0.2800				<0.2800	<0.2800	<0.2800	<0.2800					
1,2-Dibromoethane	mg/kg	-					<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000				<0.2000	<0.2000	<0.2000	<0.2000					
1,2-Dichlorobenzene	mg/kg	2000					<0.2000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<0.2000	<0.1000	<0.1000	<0.1000					
1,2-Dichloroethane	mg/kg	0.67					<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<0.1000	<0.1000	<0.1000	<0.1000					
1,2-Dichloropropane	mg/kg	3.1					<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000				<0.2000	<0.2000	<0.2000	<0.2000					
1,3,5-Trichlorobenzene	mg/kg	23					<0.4000	<0.4000	<0.4000	<0.4000	<0.4000	<0.4000				<0.4000	<0.4000	<0.4000	<0.4000					
1,3,5-Trimethylbenzene	mg/kg	-					<0.1600	<0.1600	<0.1600	<0.1600	<0.1600	<0.1600				<0.1600	<0.1600	<0.1600	<0.1600					
1,3-Dichlorobenzene	mg/kg	30					<0.1600	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<0.1600	<0.1000	<0.1000	<0.1000					
1,3-Dichloropropane	mg/kg	-					<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400				<0.1400	<0.1400	<0.1400	<0.1400					
1,4-Dichlorobenzene	mg/kg	4400					<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<0.1000	<0.1000	<0.1000	<0.1000					
2-(2,4-Dichlorophenoxy)propionic Acid	mg/kg	-			<0.0100																<0.0100	<0.0100		<0.0100
2,2-Dichloropropane	mg/kg	-					<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000				<0.2000	<0.2000	<0.2000	<0.2000					
2,4,5-Trichlorophenol	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
2,4,5-Trichlorophenoxy Acetic Acid (T)	mg/kg	-			<0.0100																<0.0100	<0.0100		<0.0100
2,4,6-Trichlorophenol	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
2,4-Dichlorophenol	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
2,4-Dichlorophenoxy Acetic Acid (D)	mg/kg	-			<0.0100																<0.0100	<0.0100		<0.0100
2,4-Dimethylphenol	mg/kg	16000					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
2,4-Dinitrotoluene	mg/kg	3700					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
2,6-Dinitrotoluene	mg/kg	1900					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
2-Chloronaphthalene	mg/kg	370					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
2-Chlorophenol	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
2-Chlorotoluene	mg/kg	-					<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800				<0.1800	<0.1800	<0.1800	<0.1800					
2-Methyl-4,6-Dinitrophenol	mg/kg	-			<0.0100																<0.0100	<0.0100		<0.0100
2-Methylnaphthalene	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
2-Methylphenol	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
2-Nitroaniline	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
2-Nitrophenol	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
2-sec-Butyl-4,6-dinitrophenol	mg/kg	-			<0.0100																<0.0100	<0.0100		<0.0100
3-Nitroaniline	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
4,4-DDD*	mg/kg	-			<0.0500																<0.0500	<0.5000		<0.0500
4,4-DDE	mg/kg	-			<0.0500																<0.0500	<0.5000		<0.0500
4-Bromofluorobenzene Surrogate*	%	-	98.5	101	97.1	98	87.8	101	105	104	103	104	94.9	94	92.3	105	96.3	92.1	101	98.9	101	95.2	107	101
4-Bromophenyl Phenyl Ether	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
4-Chloro Phenyl Ether	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
4-Chloro-3-Methylphenol	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
4-Chloroaniline	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
4-Chlorotoluene	mg/kg	-					<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000				<0.2000	<0.2000	<0.2000	<0.2000					
4-Cpa	mg/kg	-																						
4-Isopropyltoluene	mg/kg	-			<0.0100																<0.0100	<0.0100		<0.0100
4-Methylphenol	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
4-Nitroaniline	mg/kg	-					<2.0000	<0.1000	<0.5000	<0.5000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
4-Nitrophenol	mg/kg	-					<2.0000	<0.1000	<0.5000	<0.5000	<0.1000	<0.1000				<2.0000	<0.1000	<0.1000	<0.1000					
Acenaphthene	mg/kg	84000	<0.0080	<0.0400	<0.0080	<0.0080	0.222	0.0114	<0.0080	<0.0080	0.0167	<0.0080		0.0425	7.71	0.0115	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Acenaphthene-d10	%	-	74.3	72.1	77.2	77.2	87.6	87.8	84.2	83.3	87.5	88.2	85.8	85.6	85.1	80.8	33.4	84.4	91	88			78.7	89.3
Acenaphthylene	mg/kg	83000	<0.0120	<0.0600	<0.0120	<0.0120	<0.0600	<0.0120	<0.0120	<0.0120	0.0166	<0.0120		0.17	0.177	<0.0120	0.0183	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120
Acifluorfen	mg/kg	-			<0.0100																<0.0100	<0.0100		<0.0100
Additional Asbestos Components*	No units	-	</																					

			BH02	BH03	BH03A	BH03A	BH05	BH05	BH06	BH06	BH08	BH08	BH08	BH10	BH11	BH11	BH12	BH13	BH13	BH14	BH15	BH16	BH16	BH17
Aliphatics >C10-44*	mg/kg	-	6.17	5.69	<5.0000	<5.0000	49.7	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000		14.2	11.7	<5.0000	7.15	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
Aliphatics >C12-16	mg/kg	59000	<1.0000	<1.0000	<1.0000	<1.0000	6.38	<1.0000	<1.0000	2.17	<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aliphatics >C16-21	mg/kg	-	<1.0000	<1.0000	<1.0000	<1.0000	17.5	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	1.68	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aliphatics >C21-35	mg/kg	-	5.86	5.33	3.37	2.05	17.6	2.34	<1.0000	<1.0000	<1.0000	<1.0000		12.8	7.66	<1.0000	6.99	<1.0000	<1.0000	2.77	<1.0000	<1.0000	<1.0000	<1.0000
Aliphatics >C35-44	mg/kg	1600000	<1.0000	<1.0000	<1.0000	<1.0000	8.07	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	1.79	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aliphatics >C5-6	mg/kg	3200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100		<0.0100	0.0139	0.0298	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aliphatics >C6-8	mg/kg	7800	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0248	<0.0100	0.0554	<0.0100	<0.0100		<0.0100	0.015	0.0442	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aliphatics >C8-10	mg/kg	2000	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0295	<0.0100	0.317	<0.0100	<0.0100		<0.0100	0.121	0.0873	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aliphatics C5-C10*	mg/kg	-	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	0.0543	<0.0500	0.373	<0.0500	<0.0500		<0.0500	0.15	0.161	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
alpha-Hexachlorocyclohexane	mg/kg	170			<0.0500																<0.0500	<0.5000	<0.0500	
Ammoniacal Nitrogen as N	mg/kg	-	<12.0000	<12.0000	<12.0000	<12.0000	30.8	14.4	<12.0000	<12.0000	<12.0000	<12.0000		<12.0000	<12.0000	<12.0000	<12.0000	<12.0000	<12.0000	<12.0000	<12.0000	<12.0000	<12.0000	<12.0000
Ammoniacal Nitrogen as NH4	mg/kg	-	2.21	1.63	1.77	2.02	4.27	4.28	5.57	4.19	4.57	5.88		3.41	2.91	5.92	2.7	4.89	6.21	0.633	2.9		3.35	5.01
Anthracene	mg/kg	520000	<0.0160	<0.0800	<0.0160	<0.0160	0.717	<0.0160	<0.0160	<0.0160	0.0566	<0.0160		0.281	38.3	0.0246	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160
Aromatics >C10-12	mg/kg	16000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aromatics >C10-44*	mg/kg	-	<5.0000	6.53	<5.0000	<5.0000	1260	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000		49.8	1540	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
Aromatics >C12-16	mg/kg	36000	<1.0000	<1.0000	<1.0000	<1.0000	5.39	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	26.5	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aromatics >C16-21	mg/kg	28000	<1.0000	1.1	<1.0000	<1.0000	48.8	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000		9.26	600	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aromatics >C21-35	mg/kg	28000	1.6	4.39	1.46	<1.0000	825	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000		35.8	784	<1.0000	2.56	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aromatics >C35-44	mg/kg	28000	<1.0000	<1.0000	<1.0000	<1.0000	377	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000		4.47	133	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aromatics >C40-44	mg/kg	-	<1.0000	<1.0000	<1.0000	<1.0000	83.9	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	17.2	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aromatics >C5-7	mg/kg	26000	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aromatics >C7-8	mg/kg	56000	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aromatics >C8-10	mg/kg	3500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0201	<0.0100	0.212	<0.0100	<0.0100		<0.0100	0.0803	0.0575	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aromatics >C5-C10*	mg/kg	-	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	0.212	<0.0500	<0.0500		<0.0500	0.0803	0.0575	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Arsenic	mg/kg	640	12.4	13.2	11.4	11.3	0.84	11.4	2.08	8.52	16.2	11.8		15.7	5.95	3.47	11	111	5.58	15.3	20.5		5.12	5.64
Azinphos-methyl	mg/kg	-			<0.0500																<0.0500	<0.5000	<0.0500	
Azobenzene	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000		<0.1000	<0.1000	<0.1000				
Benzazone	mg/kg	-			<0.0100																<0.0100	<0.0100		<0.0100
Benzene	mg/kg	27	<0.1800	<0.1800	<0.0090	<0.0090	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800
Benzo (g,h,i) perylene	mg/kg	3900	0.044	0.347	<0.0240	<0.0240	3.03	<0.0240	<0.0240	<0.0240	0.122	<0.0240		0.706	30.9	0.0252	0.052	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240
Benzo(a)anthracene	mg/kg	170	0.0494	0.319	<0.0140	<0.0140	2.58	0.0383	<0.0140	0.193	<0.0140	<0.0140		1.26	69.6	0.0453	0.258	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140
Benzo(a)pyrene	mg/kg	35	0.0514	0.392	<0.0150	<0.0150	3.2	0.0325	<0.0150	<0.0150	0.196	<0.0150		1.22	62.7	0.0364	0.123	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150
Benzo(b)fluoranthene	mg/kg	44	0.0827	0.566	<0.0150	<0.0150	2.33	0.0263	<0.0150	<0.0150	0.235	<0.0150		1.62	47.1	0.0531	0.0949	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150
Benzo(k)fluoranthene	mg/kg	1200	0.0308	0.198	<0.0140	<0.0140	3.02	<0.0140	<0.0140	<0.0140	0.117	<0.0140		0.541	51.6	0.0192	0.146	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140
beta-Hexachlorocyclohexane	mg/kg	65			<0.0500																<0.0500	<0.5000	<0.0500	
Bis(2-chloroethoxy)methane	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000		<0.1000	<0.1000	<0.1000				
Bis(2-chloroethyl)ether	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000		<0.1000	<0.1000	<0.1000				
Bis(2-chloroisopropyl)ether	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000		<0.1000	<0.1000	<0.1000				
Bis(2-ethylhexyl)phthalate	mg/kg	85000					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000				<2.0000		<0.1000	<0.1000	<0.1000				
Boron	mg/kg	240000	1.2	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	1.39		1.28	<1.0000	<1.0000	<1.0000	18.3	<1.0000	1.05	<1.0000	<1.0000	<1.0000	<1.0000
Bromobenzene	mg/kg	92					<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000				<0.2000		<0.2000	<0.2000	<0.2000				

			BH02	BH03	BH03A	BH03A	BH05	BH05	BH06	BH06	BH08	BH08	BH08	BH10	BH11	BH11	BH12	BH13	BH13	BH14	BH15	BH16	BH16	BH17
Cyanide	mg/kg	-	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	<1.0000	1.08	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Diazinon	mg/kg	-			<0.0500																<0.0500	<0.5000		<0.0500
Dibenz-a-h-anthracene	mg/kg	3.5	<0.0230	<0.1150	<0.0230	<0.0230	0.316	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230		0.163	4.02	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230
Dibenzofuran	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000			5.99		<0.1000	<0.1000	<0.1000					
Dibromochloromethane	mg/kg	-					<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000			<0.2000		<0.2000	<0.2000	<0.2000					
Dibromofluoromethane (surrogate)*	%	-	110	113	105	107	113	108	112	116	102	101	113	105	113	109	117	123	124	110	107	114	113	109
Dibromomethane	mg/kg	-					<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800			<0.1800		<0.1800	<0.1800	<0.1800					
Dicamba*	mg/kg	-			<0.0100																<0.0100	<0.0100		<0.0100
Dichlorodifluoromethane	mg/kg	-					<0.1200	<0.1200	<0.1200	<0.1200	<0.1200	<0.1200			<0.1200		<0.1200	<0.1200	<0.1200					
Dichloromethane	mg/kg	260					<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000			<0.2000		<0.2000	<0.2000	<0.2000					
Dichlorvos	mg/kg	140			<0.0500																<0.0500	<0.5000		<0.0500
Diclofop	mg/kg	-			<0.0100																<0.0100	<0.0100		<0.0100
Dieldrin	mg/kg	170			<0.0500																<0.0500	<0.5000		<0.0500
Diethylphthalate	mg/kg	140000					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000			<2.0000		<0.1000	<0.1000	<0.1000					
Dimethylphthalate	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000			<2.0000		<0.1000	<0.1000	<0.1000					
Di-N-Butyl Phthalate	mg/kg	15000					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000			<2.0000		<0.1000	<0.1000	<0.1000					
Di-N-Octyl Phthalate	mg/kg	89000					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000			<2.0000		<0.1000	<0.1000	<0.1000					
Disulfoton	mg/kg	-			<0.0500																<0.0500	<0.5000		<0.0500
Endosulfan I	mg/kg	5600			<0.0500																<0.0500	<0.5000		<0.0500
Endosulfan II	mg/kg	6300			<0.0500																<0.0500	<0.5000		<0.0500
Endosulfan Sulfate	mg/kg	-			<0.0500																<0.0500	<0.5000		<0.0500
Endrin	mg/kg	-			<0.0500																<0.0500	<0.5000		<0.0500
Enterococci	CFU/g	-																						
EPH >C10-40	mg/kg	-	<35.0000	<35.0000	<35.0000	<35.0000	676	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000		138	1760	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000
EPH Surrogate % recovery*	%	-	102	104	93.7	101	127	102	88.6	95.5	96	107	98.8	105	125	77.7	89.8	104	103	102	104	115	100	93.4
Ethion	mg/kg	-			<0.0500																<0.0500	<0.5000		<0.0500
Ethylbenzene	mg/kg	5700	<0.0800	<0.0800	<0.0040	<0.0040	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800
Ethylparathion	mg/kg	-			<0.0500																<0.0500	<0.5000		<0.0500
Fenitrothion	mg/kg	-			<0.0500																<0.0500	<0.5000		<0.0500
Fluoranthene	mg/kg	23000	0.096	0.488	<0.0170	<0.0170	5.28	0.0898	<0.0170	<0.0170	0.448	<0.0170		2.24	239	0.107	0.448	<0.0170	<0.0170	<0.0170	<0.0170	<0.0170	<0.0170	<0.0170
Fluorene	mg/kg	63000	<0.0100	<0.0500	<0.0100	<0.0100	0.186	<0.0100	<0.0100	<0.0100	0.0258	<0.0100		0.11	10.5	0.0144	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Fluroxypyr*	mg/kg	-			<0.0100																<0.0100	<0.0100		<0.0100
gamma-hexachlorocyclohexane	mg/kg	67			<0.0500																<0.0500	<0.5000		<0.0500
GRO >C5-10	mg/kg	-	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	0.0543	<0.0200	0.584	<0.0200	<0.0200		<0.0200	0.23	0.219	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
GRO Surrogate % recovery	%	-	110	90	94	101	69	122	117	95.9	104	107		108	137	119	89	6.7	108	90.8	92.6		99	94
Heptachlor	mg/kg	-			<0.0500																<0.0500	<0.5000		<0.0500
Heptachlor Epoxide	mg/kg	-			<0.0500																<0.0500	<0.5000		<0.0500
Hexachlorobenzene (HCB)	mg/kg	110					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000			<2.0000		<0.1000	<0.1000	<0.1000					
Hexachlorobutadiene (HCBD)	mg/kg	31					<0.4000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000			<0.4000		<0.1000	<0.1000	<0.1000					
Hexachlorocyclopentadiene	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000			<2.0000		<0.1000	<0.1000	<0.1000					
Hexachloroethane	mg/kg	21					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000			<2.0000		<0.1000	<0.1000	<0.1000					
Indeno(1,2,3-cd)pyrene	mg/kg	500	0.0394	0.4	<0.0180	<0.0180	2.09	0.0266	<0.0180	<0.0180	0.142	<0.0180		0.813	40.6	0.0283	0.0494	<0.0180	<0.0180	<0.0180	<0.0180	<0.0180	<0.0180	<0.0180
Ioxynil	mg/kg	-			<0.0100																<0.0100	<0.0100		<0.0100
Iron	mg/kg	27600	25800	31000	31300	21500	31900	3460	21400	50800	26500			24900	11900	5040	19200	25400	12000	31700	77100		13400	14500
Isophorone	mg/kg	-					<2.0000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000			<2.0000		<0.1000	<0.1000	<0.1000					
Isopropylbenzene	mg/kg	1300					<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000			<0.1000		<0.1000	<0.1000	<0.1000					
Lead	mg/kg	2300	251	139	155	149	83.5	56.8	4.33	40.6	22.6	8.85		246	43.9	11.5	64.3	43.9	6.4	64.8	19.4		7.65	11.6
m,p xylenes	mg/kg	-	<0.2000	<0.2000	<0.0100	<0.0100	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000
Malathion	mg/kg	-			<0.0500																<0.0500	<0.5000		<0.0500
MCPA	mg/kg	-			<0.0100																<0.0100	<0.0100		<0.0100
MCPB	mg/kg	-			<0.0100																<0.0100	<0.0100		<0.0100
Mecoprop (MCP) (2-(4-chloro-2-methylphenoxy)	mg/kg	-			<0.0100																<0.0100	<0.0100		<0.0100
Mercury	mg/kg	58	<0.1000	<0.1000	0.137	<0.1000	<0.1000	0.116	<0.1000	<0.1000	0.154	<0.1000		0.584	<0.1000	<0.1000	<0.1000	0.184	<0.1000	<0.1000	0.128	<0.1000	<0.1000	<0.1000
Methoxychlor																								

			BH18	BH18	BH18	BH19	BH24	BH25	BH25	BH25	BH25	BH26	BH26	BH26	BH27	BH28	BH28	BH29	BH30	BH30	BH30	BH30	BH31	BH32
Aliphatics >C10-44*	mg/kg	-		<5.0000	<5.0000	43			<5.0000		<5.0000	<5.0000		<5.0000		<5.0000	10.7		11.2	<5.0000	<5.0000	<5.0000		<5.0000
Aliphatics >C12-16	mg/kg	59000		<1.0000	<1.0000	3.39			<1.0000		<1.0000	<1.0000		<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000		<1.0000
Aliphatics >C16-21	mg/kg	-		<1.0000	<1.0000	12.1			<1.0000		<1.0000	<1.0000		<1.0000		<1.0000	1.17		<1.0000	<1.0000	<1.0000	<1.0000		<1.0000
Aliphatics >C21-35	mg/kg	-		2.98	<1.0000	11.4			<1.0000		<1.0000	<1.0000		<1.0000		<1.0000	8.19		6.14	<1.0000	<1.0000	<1.0000		<1.0000
Aliphatics >C35-44	mg/kg	1600000		<1.0000	<1.0000	16.1			<1.0000		<1.0000	<1.0000		<1.0000		<1.0000	3.08	1.31	5.03	<1.0000	<1.0000	<1.0000		<1.0000
Aliphatics >C5-6	mg/kg	3200		<0.0100	<0.0100	<0.0100			<0.0100		<0.0100	<0.0100		<0.0100		<0.0100	<0.0100		<0.0100	<0.0100	<0.0100	<0.0100		<0.0100
Aliphatics >C6-8	mg/kg	7800		<0.0100	<0.0100	0.0127			<0.0100		<0.0100	0.0106		<0.0100		<0.0100	<0.0100		<0.0100	<0.0100	<0.0100	<0.0100		<0.0100
Aliphatics >C8-10	mg/kg	2000		0.0101	<0.0100	0.0159			<0.0100		<0.0100	<0.0100		<0.0100		<0.0100	<0.0100		<0.0100	<0.0100	<0.0100	<0.0100		0.0105
Aliphatics C5-C10*	mg/kg	-		<0.0500	<0.0500	<0.0500			<0.0500		<0.0500	<0.0500		<0.0500		<0.0500	<0.0500		<0.0500	<0.0500	<0.0500	<0.0500		<0.0500
alpha-Hexachlorocyclohexane	mg/kg	170	<0.5000																					
Ammoniacal Nitrogen as N	mg/kg	-		<12.0000	<12.0000	<12.0000			<12.0000		<12.0000	<12.0000		<12.0000		<12.0000	<12.0000		13.5	<12.0000	<12.0000	<12.0000		<12.0000
Ammoniacal Nitrogen as NH4	mg/kg	-		3.26	2.49	4.8			6.7		<0.5000	5.87		0.898		8.22	6.23		6.45	7.22	8.33	7.95		5
Anthracene	mg/kg	520000		<0.0160	<0.0160	<0.3200			<0.0160		<0.0160	<0.0160		<0.0160		<0.0160	<0.0160		<0.0800	<0.0160	0.0222	<0.0160		<0.0160
Aromatics >C10-12	mg/kg	16000		<1.0000	<1.0000	<1.0000			<1.0000		<1.0000	<1.0000		<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000		<1.0000
Aromatics >C10-44*	mg/kg	-		<5.0000	<5.0000	240			<5.0000		<5.0000	<5.0000		<5.0000		<5.0000	5.73		35.5	<5.0000	<5.0000	<5.0000		<5.0000
Aromatics >C12-16	mg/kg	36000		<1.0000	<1.0000	<1.0000			<1.0000		<1.0000	<1.0000		<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000		<1.0000
Aromatics >C16-21	mg/kg	28000		<1.0000	<1.0000	<1.0000			<1.0000		<1.0000	<1.0000		<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000		<1.0000
Aromatics >C21-35	mg/kg	28000		<1.0000	<1.0000	123			<1.0000		1.03	<1.0000		<1.0000		<1.0000	4.6		29.3	<1.0000	<1.0000	<1.0000		<1.0000
Aromatics >C35-44	mg/kg	28000		<1.0000	<1.0000	116			<1.0000		<1.0000	<1.0000		<1.0000		<1.0000	1.49	<1.0000	5.99	<1.0000	<1.0000	<1.0000		<1.0000
Aromatics >C40-44	mg/kg	-		<1.0000	<1.0000	12.1			<1.0000		<1.0000	<1.0000		<1.0000		<1.0000	<1.0000		1.13	<1.0000	<1.0000	<1.0000		<1.0000
Aromatics >C5-7	mg/kg	26000		<0.0100	<0.0100	<0.0100			<0.0100		<0.0100	<0.0100		<0.0100		<0.0100	<0.0100		<0.0100	<0.0100	<0.0100	<0.0100		<0.0100
Aromatics >C7-8	mg/kg	56000		<0.0100	<0.0100	<0.0100			<0.0100		<0.0100	<0.0100		<0.0100		<0.0100	<0.0100		<0.0100	<0.0100	<0.0100	<0.0100		<0.0100
Aromatics >C8-10	mg/kg	3500		<0.0100	<0.0100	0.0106			<0.0100		<0.0100	<0.0100		<0.0100		<0.0100	<0.0100		<0.0100	<0.0100	<0.0100	<0.0100		<0.0100
Aromatics C5-C10*	mg/kg	-		<0.0500	<0.0500	<0.0500			<0.0500		<0.0500	<0.0500		<0.0500		<0.0500	<0.0500		<0.0500	<0.0500	<0.0500	<0.0500		<0.0500
Arsenic	mg/kg	640		10	2.64	2.9			4.21		12.5	5.31		11.1		4.23	14.5		1.61	29.6	4.65	5.18		<0.6000
Azinphos-methyl	mg/kg	-		<0.5000																				
Azobenzene	mg/kg	-		<0.1000		<1.0000			<0.1000		<0.1000	<0.1000		<0.1000		<0.1000	<0.1000		<0.2000	<0.1000	<0.1000	<0.1000		<0.1000
Benzazone	mg/kg	-		<0.0100																				
Benzene	mg/kg	27		<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800		<0.1800	<0.1800		<0.1800		<0.0090	<0.1800		<0.1800	<0.1800	<0.1800	<0.1800		<0.1800
Benzo (g,h,i) perylene	mg/kg	3900		0.0312	<0.0240	<0.4800	<0.1800	<0.1800	<0.0240		<0.0240	<0.0240		<0.0240		<0.0240	<0.0240		<0.1200	<0.0240	0.0689	<0.0240		<0.0240
Benzo(a)anthracene	mg/kg	170		0.0366	<0.0140	<0.2800			<0.0140		<0.0140	0.0149		<0.0140		<0.0140	<0.0140		<0.0700	<0.0140	0.0815	0.0178		<0.0140
Benzo(a)pyrene	mg/kg	35		0.0392	<0.0150	<0.3000			<0.0150		<0.0150	0.018		<0.0150		<0.0150	<0.0150		<0.0750	<0.0150	0.0952	0.023		<0.0150
Benzo(b)fluoranthene	mg/kg	44		0.0563	<0.0150	<0.3000			<0.0150		<0.0150	0.0166		<0.0150		<0.0150	<0.0150		<0.0750	<0.0150	0.128	0.0315		<0.0150
Benzo(k)fluoranthene	mg/kg	1200		0.0253	<0.0140	<0.2800			<0.0140		<0.0140	<0.0140		<0.0140		<0.0140	<0.0140		<0.0700	<0.0140	0.0471	<0.0140		<0.0140
beta-Hexachlorocyclohexane	mg/kg	65	<0.5000																					
Bis(2-chloroethoxy)methane	mg/kg	-		<0.1000		<1.0000			<0.1000		<0.1000	<0.1000		<0.1000		<0.1000	<0.1000		<0.2000	<0.1000	<0.1000	<0.1000		<0.1000
Bis(2-chloroethyl)ether	mg/kg	-		<0.1000		<1.0000			<0.1000		<0.1000	<0.1000		<0.1000		<0.1000	<0.1000		<0.2000	<0.1000	<0.1000	<0.1000		<0.1000
Bis(2-chloroisopropyl)ether	mg/kg	-		<0.1000		<1.0000			<0.1000		<0.1000	<0.1000		<0.1000		<0.1000	<0.1000		<0.2000	<0.1000	<0.1000	<0.1000		<0.1000
Bis(2-ethylhexyl)phthalate	mg/kg	85000		<0.1000		<1.0000			<0.1000		<0.1000	<0.1000		<0.1000		<0.1000	<0.1000		<0.2000	<0.1000	<0.1000	<0.1000		<0.1000
Boron	mg/kg	240000		<1.0000	<1.0000	<1.0000			<1.0000		<1.0000	<1.0000		<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000		<1.0000
Bromobenzene	mg/kg	92		<0.2000		<0.2000			<0.2000		<0.2000	<0.2000		<0.2000		<0.0100	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000		<0.2000
Bromochloromethane	mg/kg	-		<0.2000		<0.2000			<0.2000		<0.2000	<0.2000		<0.2000		<0.0100	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000		<0.2000
Bromodichloromethane	mg/kg	2		<0.1400		<0.1400			<0.1400		<0.1400	<0.1400		<0.1400		<0.0070	<0.1400		<0.1400	<0.1400	<0.1400	<0.1400		<0.1400
Bromomethane	mg/kg	-		<0.2000		<0.2000			<0.2000		<0.2000	<0.2000		<0.2000		<0.0100	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000		<0.2000
Bromoxynil	mg/kg	-		<0.0100																				
Butylbenzylphthalate	mg/kg	940000		<0.1000		<1.0000			<0.1000		<0.1000	<0.1000		<0.1000		<0.1000	<0.1000		<0.2000	<0.1000	<0.1000	<0.1000		<0.1000
Butyric Acid (4-(2,4-dichlorophenoxy)-Butanoic acid (DB))	mg/kg	-		<0.0100																				
Cadmium	mg/kg	190		0.352	0.137	2.25			0.446		2.98	0.452		1.36		0.22	1.65							

			BH18	BH18	BH18	BH19	BH24	BH25	BH25	BH25	BH25	BH26	BH26	BH26	BH27	BH28	BH28	BH29	BH30	BH30	BH30	BH30	BH31	BH32
Cyanide	mg/kg	-		<1.0000	<1.0000	<1.0000				<1.0000		<1.0000	<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	
Diazinon	mg/kg	-	<0.5000																					
Dibenz-a-h-anthracene	mg/kg	3.5		<0.0230	<0.0230	<0.4600				<0.0230		<0.0230	<0.0230		<0.0230	<0.0230		<0.1150	<0.0230	<0.0230	<0.0230		<0.0230	
Dibenzofuran	mg/kg	-		<0.1000		<1.0000				<0.1000		<0.1000	<0.1000		<0.1000	<0.1000		<0.2000	<0.1000	<0.1000	<0.1000		<0.1000	
Dibromochloromethane	mg/kg	-		<0.2000		<0.2000				<0.2000		<0.2000	<0.2000		<0.0100	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000		<0.2000	
Dibromofluoromethane (surrogate)*	%	-		109	115	108	107	118		114		108	125		105	112	112		106	110	120	127		117
Dibromomethane	mg/kg	-		<0.1800		<0.1800				<0.1800		<0.1800	<0.1800		<0.0090	<0.1800		<0.1800	<0.1800	<0.1800	<0.1800		<0.1800	
Dicamba*	mg/kg	-	<0.0100																					
Dichlorodifluoromethane	mg/kg	-		<0.1200		<0.1200				<0.1200		<0.1200	<0.1200		<0.0060	<0.1200		<0.1200	<0.1200	<0.1200	<0.1200		<0.1200	
Dichloromethane	mg/kg	260		<0.2000		<0.2000				<0.2000		<0.2000	<0.2000	0.299		<0.0100	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000		<0.2000
Dichlorvos	mg/kg	140	<0.5000																					
Diclofop	mg/kg	-	<0.0100																					
Dieldrin	mg/kg	170	<0.5000																					
Diethylphthalate	mg/kg	140000		<0.1000		<1.0000				<0.1000		<0.1000	<0.1000		<0.1000	<0.1000		<0.2000	<0.1000	<0.1000	<0.1000		<0.1000	
Dimethylphthalate	mg/kg	-		<0.1000		<1.0000				<0.1000		<0.1000	<0.1000		<0.1000	<0.1000		<0.2000	<0.1000	<0.1000	<0.1000		<0.1000	
Di-N-Butyl Phthalate	mg/kg	15000		<0.1000		<1.0000				<0.1000		<0.1000	<0.1000		<0.1000	<0.1000		<0.2000	<0.1000	<0.1000	<0.1000		<0.1000	
Di-N-Octyl Phthalate	mg/kg	89000		<0.1000		<1.0000				<0.1000		<0.1000	<0.1000		<0.1000	<0.1000		<0.2000	<0.1000	<0.1000	<0.1000		<0.1000	
Disulfoton	mg/kg	-	<0.5000																					
Endosulfan I	mg/kg	5600	<0.5000																					
Endosulfan II	mg/kg	6300	<0.5000																					
Endosulfan Sulfate	mg/kg	-	<0.5000																					
Endrin	mg/kg	-	<0.5000																					
Enterococci	CFU/g	-																						
EPH >C10-40	mg/kg	-		<35.0000	<35.0000	222				<35.0000		<35.0000	<35.0000		<35.0000	<35.0000		54.4	<35.0000	<35.0000	<35.0000		<35.0000	
EPH Surrogate % recovery*	%	-		102	96.7	97.9	105	85.9	88.6		98.7	92.5		89.6	90.1	86.9		104	105	92.1	92.4		103	
Ethion	mg/kg	-	<0.5000																					
Ethylbenzene	mg/kg	5700		<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800		<0.0800	<0.0800		<0.0800	<0.0040	<0.0800		<0.0800	<0.0800	<0.0800	<0.0800		<0.0800	
Ethylparathion	mg/kg	-	<0.5000																					
Fenitrothion	mg/kg	-	<0.5000																					
Fluoranthene	mg/kg	23000		0.0667	<0.0170	<0.3400				<0.0170		<0.0170	0.0225		<0.0170	<0.0170		<0.0850	<0.0170	0.173	0.0316		<0.0170	
Fluorene	mg/kg	63000		<0.0100	<0.0100	<0.2000				<0.0100		<0.0100	<0.0100		<0.0100	<0.0100		<0.0500	<0.0100	0.0117	<0.0100		<0.0100	
Fluroxypyr*	mg/kg	-	<0.0100																					
gamma-hexachlorocyclohexane	mg/kg	67	<0.5000																					
GRO >C5-10	mg/kg	-		<0.0200	<0.0200	<0.0200				<0.0200		<0.0200	<0.0200		<0.0200	<0.0200		<0.0200	<0.0200	<0.0200	<0.0200		<0.0200	
GRO Surrogate % recovery	%	-		106	110	80				105		97.2	111		94.7	122	103		101	107	105		96.3	
Heptachlor	mg/kg	-	<0.5000																					
Heptachlor Epoxide	mg/kg	-	<0.5000																					
Hexachlorobenzene (HCB)	mg/kg	110		<0.1000		<1.0000				<0.1000		<0.1000	<0.1000		<0.1000	<0.1000		<0.2000	<0.1000	<0.1000	<0.1000		<0.1000	
Hexachlorobutadiene (HCBd)	mg/kg	31		<0.1000		<0.4000				<0.1000		<0.1000	<0.1000		<0.1000	<0.1000		<0.0200	<0.1000	<0.1000	<0.1000		<0.1000	
Hexachlorocyclopentadiene	mg/kg	-		<0.2000		<1.0000				<0.1000		<0.1000	<0.1000		<0.1000	<0.1000		<0.2000	<0.1000	<0.1000	<0.1000		<0.1000	
Hexachloroethane	mg/kg	21		<0.1000		<1.0000				<0.1000		<0.1000	<0.1000		<0.1000	<0.1000		<0.2000	<0.1000	<0.1000	<0.1000		<0.1000	
Indeno(1,2,3-cd)pyrene	mg/kg	500		0.0341	<0.0180	<0.3600				<0.0180		<0.0180	<0.0180		<0.0180	<0.0180		<0.0900	<0.0180	0.0773	0.0237		<0.0180	
Ioxynil	mg/kg	-	<0.0100																					
Iron	mg/kg	-		23800	20400	4530				18200		28600	15400		28700	19400	22700		3620	7470	13300	14100		2000
Isophorone	mg/kg	-		<0.1000		<1.0000				<0.1000		<0.1000	<0.1000		<0.1000	<0.1000		<0.2000	<0.1000	<0.1000	<0.1000		<0.1000	
Isopropylbenzene	mg/kg	1300		<0.1000		<0.1000				<0.1000		<0.1000	<0.1000		<0.0050	<0.1000		<0.1000	<0.1000	<0.1000	<0.1000		<0.1000	
Lead	mg/kg	2300		16.4	5.23	29.2				7.7		54.9	11.2		69.2	7.25	42.4		6.28	41.3	9.63	8.1		2.27
m,p xylenes	mg/kg	-		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000		<0.2000	<0.2000		<0.2000	<0.0100	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000		<0.2000	
Malathion	mg/kg	-	<0.5000																					
MCPA	mg/kg	-	<0.0100																					
MCPB	mg/kg	-	<0.0100																					
Mecoprop (MCP) (2-(4-chloro-2-methylphenoxy)	mg/kg	-	<0.0100																					
Mercury	mg/kg	58		<0.1000	<0.1000	<0.1000				<0.1000		<0.1000	<0.1000		<0.1000	<0.1000		<0.1000	<0.1000	<0.1000	<0.1000		<0.1000	
Methoxychlor	mg/kg	-	<0.5000																					
Methyl tert-butyl ether (MTBE)	mg/kg	7500		<0.2000	<0.2000	<0.2000	<0.2300	<0.2000	<0.2000		<0.2000	<0.2000		<0.2000	<0.0100	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000		<0.2000	
Methyl tert-pentyl ether	mg/kg	-		<0.2000		<0.2000				<0.2000		<0.2000	<0.2000		<0.0100	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000		<0.2000	
Methylparathion	mg/kg	-	<0.5000																					
Mevinphos	mg/kg	-	<0.5000																					
Naphthalene-d8	%	-		85.7	89.3	92.8				92.3		86.4	93		80	86.3	86.6		79.4	85.6	88.2	89.1		85
Naphthalene	mg/kg	190		<0.0090	<0.0090	<0.1800				<0.0090		<0.												

			BH18	BH18	BH18	BH19	BH24	BH25	BH25	BH25	BH25	BH26	BH26	BH26	BH27	BH28	BH28	BH29	BH30	BH30	BH30	BH30	BH31	BH32
Organic matter	%	-		0.574	0.493	1.22			<0.3500		0.874	<0.3500		1.03		<0.3500	1.37		<0.3500	<0.3500	<0.3500	<0.3500		<0.3500
O-Xylene	mg/kg	6600		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000		<0.2000	<0.2000		<0.2000		<0.0100	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000		<0.2000
p,p - DDT	mg/kg	-	<0.5000																					
PAH 17 Total	mg/kg	-				<10.0000	<10.0000	<10.0000																
PAH, Total Detected USEPA 16	mg/kg	-		0.414	<0.1180	<2.3600			<0.1180		<0.1180	<0.1180		<0.1180		<0.1180	<0.1180		<0.5900	<0.1180	0.995	0.175		<0.1180
PCB 105	mg/kg	-		<0.0030																	<0.0030	<0.0030		
PCB 114	mg/kg	-		<0.0030																	<0.0030	<0.0030		
PCB 123	mg/kg	-		<0.0030																	<0.0030	<0.0030		
PCB 126	mg/kg	-		<0.0030																	<0.0030	<0.0030		
PCB 157	mg/kg	-		<0.0030																	<0.0030	<0.0030		
PCB 167	mg/kg	-		<0.0030																	<0.0030	<0.0030		
PCB 169	mg/kg	-		<0.0030																	<0.0030	<0.0030		
PCB 189	mg/kg	-		<0.0030																	<0.0030	<0.0030		
PCB 77	mg/kg	-		<0.0030																	<0.0030	<0.0030		
PCB 81	mg/kg	-		<0.0030																	<0.0030	<0.0030		
PCB, Total Of 7 Congeners	mg/kg	-				<0.4200	<0.0210	<0.0210																
PCB-101 2,2',4,5,5' - Pentachlorobiphenyl	mg/kg	-				<0.0600	<0.0030	<0.0030																
PCB-118 2,3',4,4',5' - Pentachlorobiphenyl	mg/kg	-		<0.0030		<0.0600	<0.0030	<0.0030														<0.0030	<0.0030	
PCB-138 2,2',3,4,4',5' - Hexachlorobiphenyl	mg/kg	-				<0.0600	<0.0030	<0.0030																
PCB-153 2,2',4,4',5,5' - Hexachlorobiphenyl	mg/kg	-				<0.0600	<0.0030	<0.0030																
PCB-156 2,3,3,4,4,5 - Hexachlorobiphenyl	mg/kg	-		<0.0030																		<0.0030	<0.0030	
PCB-180 2,2',3,4,4',5,5' - Heptachlorobiphenyl	mg/kg	-				<0.0600	<0.0030	<0.0030																
PCB-28 2,4,4' - Trichlorobiphenyl	mg/kg	-				<0.0600	<0.0030	<0.0030																
PCB-52 2,2',5,5' - Tetrachlorobiphenyl	mg/kg	-				<0.0600	<0.0030	<0.0030																
Pentachlorophenol (PCP)	mg/kg	400		<0.1000		<1.0000			<0.1000		<0.5000	<0.1000		<0.5000		<0.1000	<0.1000		<1.0000	<0.5000	<0.1000	<0.1000		<0.1000
Perylene-d12	%	-		73.4	76.6	90.6			96.7		86.3	101		85.1		78.8	88.2		82.1	82.9	100	86.6		77.5
pH	pH Units	-		7.28	8.59	8.55			8.51		7.35	9.03		7.56		8.51	7.03		9.3	9.05	8.51	8.43		9.83
Phenanthrene	mg/kg	22000		0.0234	<0.0150	<0.3000			<0.0150		<0.0150	<0.0150		<0.0150		<0.0150	<0.0150		<0.0750	<0.0150	0.056	<0.0150		<0.0150
Phenanthrene-d10	%	-		86.4	89.8	85.2			97.7		86.3	101		86		88.9	95		84	87	89.5	86		86.9
Phenol	mg/kg	440		<0.0100	<0.0100	<0.0100			<0.0100		<0.0100	<0.0100		<0.0100		<0.0100	<0.0100		<0.0100	<0.0100	<0.0100	<0.0100		<0.0100
Phenol (Monohydric)	mg/kg	-		<0.0350	<0.0350	<0.0350			<0.0350		<0.0350	<0.0350		<0.0350		<0.0350	<0.0350		<0.0350	<0.0350	<0.0350	<0.0350		<0.0350
Phorate	mg/kg	-	<0.5000																					
Propoxy carbazono-sodium*	mg/kg	-	<0.0100																					
Pyrene	mg/kg	54000		0.0588	<0.0150	<0.3000			<0.0150		<0.0150	0.0214		<0.0150		<0.0150	<0.0150		<0.0750	<0.0150	0.146	0.0312		<0.0150
Sec-Butylbenzene	mg/kg	-		<0.2000		<0.2000			<0.2000		<0.2000	<0.2000		<0.2000		<0.0100	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000		<0.2000
Selenium	mg/kg	12000		<1.0000	1.04	<1.0000			<1.0000		<1.0000	<1.0000		<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000		<1.0000
Silvex	mg/kg	-	<0.0100																					
Styrene	mg/kg	3200		<0.2000		<0.2000			<0.2000		<0.2000	<0.2000		<0.2000		<0.0100	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000		<0.2000
Sum of detected WHO 12 PCBs*	mg/kg	-		<0.0360																	<0.0360	<0.0360		
Tert-Butylbenzene	mg/kg	-		<0.2800		<0.2800			<0.2800		<0.2800	<0.2800		<0.2800		<0.0140	<0.2800		<0.2800	<0.2800	<0.2800	<0.2800		<0.2800
Tetrachloroethene	mg/kg	19		<0.1000		<0.1000			<0.1000		<0.1000	<0.1000		<0.1000		<0.0050	<0.1000		<0.1000	<0.1000	<0.1000	<0.1000		<0.1000
Tetrachloromethane (Carbon Tetra Chloride)	mg/kg	2.9		<0.2000		<0.2000			<0.2000		<0.2000	<0.2000		<0.2000		<0.0100	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000		<0.2000
Toluene	mg/kg	56000		<0.1400	<0.1400	<0.1400	<0.2000	<0.1400	<0.1400		<0.1400	<0.1400		<0.1400		<0.0070	<0.1400		<0.1400	<0.1400	<0.1400	<0.1400		<0.1400
Toluene-D8	%	-		97.7	98.9	96.9	99.7	99	101		99.7	96.9		102		96.2	102		97.5	96.5	99.2	97.1		101
Total BTEX	mg/kg	-		<0.8000	<0.8000	<0.8000			<0.8000		<0.8000	<0.8000		<0.8000		<0.0400	<0.8000		<0.8000	<0.8000	<0.8000	<0.8000		<0.8000
Total Coliforms*	CFU/g	-																						
Total Organic Carbon	%	-				0.707	<0.2000	<0.2000		0.41			0.15		0.12									0.51
TPH >C5-40*	mg/kg	-		<35.0000	<35.0000	222			<35.0000		<35.0000	<35.0000		<35.0000		<35.0000	<35.0000		54.4	<35.0000	<35.0000	<35.0000		<35.0000
trans-1,2-Dichloroethene	mg/kg	21		<0.2000		<0.2000			<0.2000		<0.2000	<0.2000		<0.2000		<0.0100	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000		<0.2000
trans-1,3-Dichloropropene	mg/kg	-		<0.2000		<0.2000			<0.2000		<0.2000	<0.2000		<0.2000		<0.0100	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000		<0.2000
Tribromomethane	mg/kg	710		<0.2000		<0.2000			<0.2000		<0.2000	<0.2000		<0.2000		<0.0100	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000		<0.2000
Trichloroethene	mg/kg	1.2		<0.1800		<0.1800			<0.1800		<0.1800	<0.1800		<0.1800		<0.0090	<0.1800		<0.1800	<0.1800	<0.1800	<0.1800		<0.1800
Trichlorofluoromethane	mg/kg	-		<0.1200		<0.1200			<0.1200		<0.1200	<0.1200		<0.1200		<0.0060	<0.1200		<0.1200	<0.1200	<0.1200	<0.1200		<0.1200
Triclopjr	mg/kg	-	<0.0100																					
Triclosan*	mg/kg	-	<0.0100																					
Vanadium	mg/kg	9000		26	28.3	5.41			9.2		34.9	9.89		40.2		9.31	24.8		3.24	4.59	10	11.1		2.22
Water Soluble Sulphate as SO4 2:1 Extract*	g/l	-		0.0123	0.0222	0.0642			0.0639		0.061	0.0233		0.063		0.0845	0.2							

			BH32	BH33	BH33	BH33	BH34	BH34	BH34	BH35	BH35	BH35	BH36	BH37	BH37	BH38	BH38	BH42	BH42	BH42	BH43	BH43	BH43	BH44
Aliphatics >C10-44*	mg/kg	-	<5.0000	8.57	<5.0000	12.5	7.57	<5.0000	13.3	<5.0000	<5.0000	<5.0000	<5.0000	7.53	<5.0000	<5.0000	<5.0000	<5.0000	47.7	<5.0000	5.95	<5.0000		
Aliphatics >C12-16	mg/kg	59000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aliphatics >C16-21	mg/kg	-	<1.0000	<1.0000	<1.0000	1.33	<1.0000	<1.0000	3.03	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aliphatics >C21-35	mg/kg	-	<1.0000	8.18	3.03	10.1	5.55	<1.0000	9.24	<1.0000	2.18	1.96	<1.0000	5.25	1.19	2.09	4.29	3.57	40.2	4.65	5.95	<1.0000		
Aliphatics >C35-44	mg/kg	1600000	<1.0000	<1.0000	<1.0000	<1.0000	2.02	<1.0000	1.06	<1.0000	<1.0000	<1.0000	<1.0000	2.28	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	7.52	<1.0000	<1.0000	<1.0000	<1.0000
Aliphatics >C5-6	mg/kg	3200	<0.0100	<0.0100	0.0128	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aliphatics >C6-8	mg/kg	7800	<0.0100	<0.0100	0.0277	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aliphatics >C8-10	mg/kg	2000	<0.0100	<0.0100	0.066	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aliphatics C5-C10*	mg/kg	-	<0.0500	<0.0500	0.107	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
alpha-Hexachlorocyclohexane	mg/kg	170																						
Ammoniacal Nitrogen as N	mg/kg	-	<12.0000	<12.0000	<12.0000	142	<12.0000	<12.0000	172	<12.0000	<12.0000	66.1	<12.0000	<12.0000	<12.0000	<12.0000	42.1	<12.0000	<12.0000	<12.0000	<12.0000	<12.0000	<12.0000	<12.0000
Ammoniacal Nitrogen as NH4	mg/kg	-	6.26	5.5	6.74	25.4	5.35	4.89	23.6	5.69	5.66	10.8	5.06	6.18	2.22	6.07	8.82	5.94	5.17	5.56	7.93	6.11		
Anthracene	mg/kg	520000	<0.0160	<0.0160	<0.0160	<0.0160	<0.0320	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160
Aromatics >C10-12	mg/kg	16000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aromatics >C10-44*	mg/kg	-	<5.0000	15.6	<5.0000	<5.0000	16.3	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000	9.34	<5.0000	6.86	<5.0000	<5.0000	15.1	<5.0000	<5.0000	<5.0000	<5.0000	<5.0000
Aromatics >C12-16	mg/kg	36000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aromatics >C16-21	mg/kg	28000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aromatics >C21-35	mg/kg	28000	<1.0000	14.5	<1.0000	2.16	14	<1.0000	3.02	<1.0000	2.21	<1.0000	<1.0000	8.17	<1.0000	5.86	<1.0000	<1.0000	13.3	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aromatics >C35-44	mg/kg	28000	<1.0000	<1.0000	<1.0000	<1.0000	2.25	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	1.08	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aromatics >C40-44	mg/kg	-	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000
Aromatics >C5-7	mg/kg	26000	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aromatics >C7-8	mg/kg	56000	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aromatics >C8-10	mg/kg	3500	<0.0100	<0.0100	0.0437	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aromatics >C5-C10*	mg/kg	-	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Arsenic	mg/kg	640	5.34	3.01	6.3	9.61	0.719	9.86	13.2	3.8	9.65	10.6	7.71	0.653	23.9	0.865	15	85.7	98.6	112	138	7.44		
Azinphos-methyl	mg/kg	-																						
Azobenzene	mg/kg	-		<0.1000	<0.1000	<0.1000	<0.2000	<0.1000		<0.1000	<0.1000		<0.1000	<0.2000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000
Bentazone	mg/kg	-																						
Benzene	mg/kg	27	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800
Benzo (g,h,i) perylene	mg/kg	3900	<0.0240	<0.0240	<0.0240	<0.0240	<0.0480	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240
Benzo(a)anthracene	mg/kg	170	0.0142	<0.0140	<0.0140	0.0327	<0.0280	<0.0140	0.0179	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140
Benzo(a)pyrene	mg/kg	35	<0.0150	<0.0150	<0.0150	0.0296	<0.0300	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150
Benzo(b)fluoranthene	mg/kg	44	0.0194	<0.0150	<0.0150	0.0502	<0.0300	0.0161	0.0297	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150
Benzo(k)fluoranthene	mg/kg	1200	<0.0140	<0.0140	<0.0140	<0.0140	<0.0280	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140
beta-Hexachlorocyclohexane	mg/kg	65																						
Bis(2-chloroethoxy)methane	mg/kg	-		<0.1000	<0.1000	<0.1000	<0.2000	<0.1000		<0.1000	<0.1000		<0.1000	<0.2000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000
Bis(2-chloroethyl)ether	mg/kg	-		<0.1000	<0.1000	<0.1000	<0.2000	<0.1000		<0.1000	<0.1000		<0.1000	<0.2000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000
Bis(2-chloroisopropyl)ether	mg/kg	-		<0.1000	<0.1000	<0.1000	<0.2000	<0.1000		<0.1000	<0.1000		<0.1000	<0.2000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000
Bis(2-ethylhexyl)phthalate	mg/kg	85000	<0.1000	<0.1000	<0.1000	<0.1000	<0.2000	<0.1000		<0.1000	<0.1000		<0.1000	<0.2000		<0.1000	<0.1000	<0.1000	<0.1000					

			BH32	BH33	BH33	BH33	BH34	BH34	BH34	BH35	BH35	BH35	BH36	BH37	BH37	BH38	BH38	BH42	BH42	BH42	BH43	BH43	BH43	BH44
Cyanide	mg/kg	-	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000		
Diazinon	mg/kg	-																						
Dibenz-a-h-anthracene	mg/kg	3.5	<0.0230	<0.0230	<0.0230	<0.0230	<0.0460	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	
Dibenzofuran	mg/kg	-		<0.1000	<0.1000	<0.1000	<0.2000	<0.1000		<0.1000	<0.1000		<0.1000	<0.2000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	
Dibromochloromethane	mg/kg	-		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000
Dibromofluoromethane (surrogate)*	%	-	108	108	110	111	122	108	111	110	109	111	110	130	110	112	109	119	111	109	119	131		109
Dibromomethane	mg/kg	-		<0.1800	<0.1800	<0.1800	<0.1800	<0.1800		<0.1800	<0.1800		<0.1800	<0.1800		<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	
Dicamba*	mg/kg	-																						
Dichlorodifluoromethane	mg/kg	-		<0.1200	<0.1200	<0.1200	<0.1200	<0.1200		<0.1200	<0.1200		<0.1200	<0.1200		<0.1200	<0.1200	<0.1200	<0.1200	<0.1200	<0.1200	<0.1200	<0.1200	
Dichloromethane	mg/kg	260		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000		<0.2000	<0.2000		<0.2000	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	
Dichlorvos	mg/kg	140																						
Diclofop	mg/kg	-																						
Dieldrin	mg/kg	170																						
Diethylphthalate	mg/kg	140000		<0.1000	<0.1000	<0.1000	<0.2000	<0.1000		<0.1000	<0.1000		<0.1000	<0.2000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	
Dimethylphthalate	mg/kg	-		<0.1000	<0.1000	<0.1000	<0.2000	<0.1000		<0.1000	<0.1000		<0.1000	<0.2000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	
Di-N-Butyl Phthalate	mg/kg	15000		<0.1000	<0.1000	<0.1000	<0.2000	<0.1000		<0.1000	<0.1000		<0.1000	<0.2000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	
Di-N-Octyl Phthalate	mg/kg	89000		<0.1000	<0.1000	<0.1000	<0.2000	<0.1000		<0.1000	<0.1000		<0.1000	<0.2000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	
Disulfoton	mg/kg	-																						
Endosulfan I	mg/kg	5600																						
Endosulfan II	mg/kg	6300																						
Endosulfan Sulfate	mg/kg	-																						
Endrin	mg/kg	-																						
Enterococci	CFU/g	-																						
EPH >C10-40	mg/kg	-	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	50.8	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	44.7	<35.0000	<35.0000	<35.0000		
EPH Surrogate % recovery*	%	-	102	96.3	89	94	98.3	97.1	92.3	96.1	104	95.6	111	97.7	98.7	104	103	89.8	95.5	99	88.2	103		93.6
Ethion	mg/kg	-																						
Ethylbenzene	mg/kg	5700	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800
Ethylparathion	mg/kg	-																						
Fenitrothion	mg/kg	-																						
Fluoranthene	mg/kg	23000	0.0239	<0.0170	<0.0170	0.0867	<0.0340	<0.0170	0.0394	<0.0170	<0.0170	<0.0170	<0.0170	<0.0170	<0.0170	<0.0170	<0.0170	<0.0170	<0.0170	<0.0170	<0.0170	<0.0170	<0.0170	
Fluorene	mg/kg	63000	<0.0100	<0.0100	<0.0100	0.0167	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Fluroxypyr*	mg/kg	-																						
gamma-hexachlorocyclohexane	mg/kg	67																						
GRO >C5-10	mg/kg	-	<0.0200	<0.0200	0.107	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	
GRO Surrogate % recovery	%	-	97.4	100	117	95.6	104	105	91	106	110	125	112	104	102	112	109	49	59.9	24.8	31.9	96.4		
Heptachlor	mg/kg	-																						
Heptachlor Epoxide	mg/kg	-																						
Hexachlorobenzene (HCB)	mg/kg	110		<0.1000	<0.1000	<0.1000	<0.2000	<0.1000		<0.1000	<0.1000		<0.1000	<0.2000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	
Hexachlorobutadiene (HCBd)	mg/kg	31		<0.1000	<0.1000	<0.1000	<0.2000	<0.1000		<0.1000	<0.1000		<0.1000	<0.2000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	
Hexachlorocyclopentadiene	mg/kg	-		<0.1000	<0.1000	<0.1000	<0.2000	<0.1000		<0.2000	<0.2000		<0.1000	<0.4000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	
Hexachloroethane	mg/kg	21		<0.1000	<0.1000	<0.1000	<0.2000	<0.1000		<0.1000	<0.1000		<0.1000	<0.2000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	
Indeno(1,2,3-cd)pyrene	mg/kg	500	<0.0180	<0.0180	0.0268	<0.0360	<0.0180	<0.0180	<0.0180	<0.0180	<0.0180	<0.0180	<0.0180	<0.0180	<0.0180	<0.0180	<0.0180	<0.0180	<0.0180	<0.0180	<0.0180	<0.0180	<0.0180	
Ioxynil	mg/kg	-																						
Iron	mg/kg	12000	4820	15400	23400	2400	15600	26900	12500	25600	23600	18500	2930	58300	2710	44900	32100	23400	33600	34100	19700			
Isophorone	mg/kg	-		<0.1000	<0.1000	<0.1000	<0.2000	<0.1000		<0.1000	<0.1000		<0.1000	<0.2000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	
Isopropylbenzene	mg/kg	1300		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000		<0.1000	<0.1000		<0.1000	<0.1000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	
Lead	mg/kg	2300	4.64	11.6	6.61	90.9	7.83	14.9	112	4.58	13	116	18.4	5.81	85	3.63	143	39.9	56.9	46	46	8.73		
m,p xylenes	mg/kg	-	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000
Malathion	mg/kg	-																						
MCPA	mg/kg	-																						
MCPB	mg/kg	-																						
Mecoprop (MCP) (2-(4-chloro-2-methylphenoxy)	mg/kg	-																						
Mercury	mg/kg	58	<0.1000	<0.1000	<																			

			BH32	BH33	BH33	BH33	BH34	BH34	BH34	BH35	BH35	BH35	BH36	BH37	BH37	BH38	BH38	BH42	BH42	BH42	BH43	BH43	BH43	BH44
Organic matter	%	-	<0.3500	<0.3500	<0.3500	3.07	<0.3500	<0.3500	4.91	<0.3500	<0.3500	0.879	<0.3500	1.78	0.886	0.95	2.26	2.41	5.07	5.1	7.84	0.474		
O-Xylene	mg/kg	6600	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000
p,p - DDT	mg/kg	-																						
PAH 17 Total	mg/kg	-																						<10.0000
PAH, Total Detected USEPA 16	mg/kg	-	<0.1180	<0.1180	<0.1180	0.461	<0.2360	<0.1180	0.144	<0.1180	<0.1180	<0.1180	<0.1180	<0.1180	<0.1180	<0.1180	<0.1180	<0.1180	<0.1180	<0.1180	<0.1180	<0.1180	<0.1180	<0.1180
PCB 105	mg/kg	-											<0.0030									<0.0030	<0.0030	
PCB 114	mg/kg	-											<0.0030									<0.0030	<0.0030	
PCB 123	mg/kg	-											<0.0030									<0.0030	<0.0030	
PCB 126	mg/kg	-											<0.0030									<0.0030	<0.0030	
PCB 157	mg/kg	-											<0.0030									<0.0030	<0.0030	
PCB 167	mg/kg	-											<0.0030									<0.0030	<0.0030	
PCB 169	mg/kg	-											<0.0030									<0.0030	<0.0030	
PCB 189	mg/kg	-											<0.0030									<0.0030	<0.0030	
PCB 77	mg/kg	-											<0.0030									<0.0030	<0.0030	
PCB 81	mg/kg	-											<0.0030									<0.0030	<0.0030	
PCB, Total Of 7 Congeners	mg/kg	-																						<0.0210
PCB-101 2,2',4,5,5' - Pentachlorobiphenyl	mg/kg	-																						<0.0030
PCB-118 2,3',4,4',5' - Pentachlorobiphenyl	mg/kg	-											<0.0030									<0.0030	<0.0030	<0.0030
PCB-138 2,2',3,4,4',5' - Hexachlorobiphenyl	mg/kg	-																						<0.0030
PCB-153 2,2',4,4',5,5' - Hexachlorobiphenyl	mg/kg	-																						<0.0030
PCB-156 2,3,3,4,4,5 - Hexachlorobiphenyl	mg/kg	-											<0.0030									<0.0030	<0.0030	<0.0030
PCB-180 2,2',3,4,4',5,5' - Heptachlorobiphenyl	mg/kg	-																						<0.0030
PCB-28 2,4,4' - Trichlorobiphenyl	mg/kg	-																						<0.0030
PCB-52 2,2',5,5' - Tetrachlorobiphenyl	mg/kg	-																						<0.0030
Pentachlorophenol (PCP)	mg/kg	400		<0.1000	<0.1000	<0.1000	<0.2000	<0.1000		<0.1000	<0.1000		<0.1000	<0.2000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	
Perylene-d12	%	-	78.7	99.4	79.7	77.1	76.3	77.7	74.4	82.3	101	89.7	84.4	80	95.6	84.1	79.2	3.1	4	7.28	3.03	83.4		
pH	pH Units	-	8.87	9.16	8.7	7.03	9.64	9.39	7.07	8.7	7.97	7.13	8.98	9.81	7.05	9.74	7.21	8.14	10.3	10.4	10.3	7.72		
Phenanthrene	mg/kg	22000	<0.0150	<0.0150	<0.0150	0.0891	<0.0300	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150
Phenanthrene-d10	%	-	91.5	91.8	88.2	89.2	86.3	88.4	85.1	86.5	90	88.6	85.4	90.8	89.4	88	37.3	37.8	29.6	27.7	82.6			
Phenol	mg/kg	440	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0122	<0.0100	0.0232	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Phenol (Monohydric)	mg/kg	-	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350
Phorate	mg/kg	-																						
Propoxy carbazono-sodium*	mg/kg	-																						
Pyrene	mg/kg	54000	0.0225	<0.0150	<0.0150	0.0763	<0.0300	0.017	0.0346	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150
Sec-Butylbenzene	mg/kg	-		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000
Selenium	mg/kg	12000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	1.17	1.76	2.75	1.92	<1.0000			
Silvex	mg/kg	-																						
Styrene	mg/kg	3200		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000		<0.2000	<0.2000		<0.2000	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000
Sum of detected WHO 12 PCBs*	mg/kg	-											<0.0360											<0.0360
Tert-Butylbenzene	mg/kg	-		<0.2800	<0.2800	<0.2800	<0.2800	<0.2800		<0.2800	<0.2800		<0.2800	<0.2800		<0.2800	<0.2800	<0.2800	<0.2800	<0.2800	<0.2800	<0.2800	<0.2800	<0.2800
Tetrachloroethene	mg/kg	19		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000		<0.1000	<0.1000		<0.1000	<0.1000		<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000	<0.1000
Tetrachloromethane (Carbon Tetra Chloride)	mg/kg	2.9		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000		<0.2000	<0.2000		<0.2000	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000
Toluene	mg/kg	56000	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400
Toluene-D8	%	-	97.6	105	99.5	98	106	95.5	100	99.3	98.9	97.8	99.3	97.8	99.2	99.5	100	99.3	96.1	99	100	101		101
Total BTEX	mg/kg	-	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000
Total Coliforms*	CFU/g	-																						
Total Organic Carbon	%	-																						0.59
TPH >C5-40*	mg/kg	-	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	50.8	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000	44.7	<35.0000	<35.0000	<35.0000	<35.0000	<35.0000
trans-1,2-Dichloroethene	mg/kg	21		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000		<0.2000	<0.2000		<0.2000	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000
trans-1,3-Dichloropropene	mg/kg	-		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000		<0.2000	<0.2000		<0.2000	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000
Tribromomethane	mg/kg	710		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000		<0.2000	<0.2000		<0.2000	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000
Trichloroethene	mg/kg	1.2		<0.1800	<0.1800	<0.1800	<0.1800	<0.1800		<0.1800	<0.1800		<0.1800	<0.1800		<0.1800	<0.1800	<0.1800	<0					

Determinant Name	Units	Commercial 1% SOM	BH44 1.4	BH44 5.4	BH45 0.55	BH45 7.5	BH45A 1.7	BH45A 6.4	BH47 0.1	BH48 0.7	BH49 0.1	BH49 0.5	BH51 0.1	BH52 0.1	BH53 0.1	BH53 0.5	BH54 0.4	BH55 0.1	BH58 0.3	BH60 0.3	BH61 1.3	BH62 0.3	BH63 0.4	BH65 0.1
1,1,1,2-Tetrachloroethane	mg/kg	110	<0.2000	<0.2000			<0.2000			<0.2000									<0.2000					
1,1,1-Trichloroethane	mg/kg	660	<0.1400	<0.1400			<0.1400			<0.1400									<0.1400					
1,1,1,2-Tetrachloroethane	mg/kg	270	<0.2000	<0.2000			<0.2000			<0.2000									<0.2000					
1,1,2-Trichloroethane	mg/kg	99	<0.2000	<0.2000			<0.2000			<0.2000									<0.2000					
1,1-Dichloroethane	mg/kg	260	<0.1600	<0.1600			<0.1600			<0.1600									<0.1600					
1,1-Dichloroethene	mg/kg	24	<0.2000	<0.2000			<0.2000			<0.2000									<0.2000					
1,1-Dichloropropene	mg/kg	-	<0.2000	<0.2000			<0.2000			<0.2000									<0.2000					
1,2,3 Trichlorobenzene	mg/kg	102	<0.4000	<0.4000			<0.4000			<0.4000									<0.4000					
1,2,3-Trichloropropane	mg/kg	-	<0.3200	<0.3200			<0.3200			<0.3200									<0.3200					
1,2,4-Trichlorobenzene	mg/kg	220	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
1,2,4-Trimethylbenzene	mg/kg	39	<0.1800	<0.1800			<0.1800			<0.1800									<0.1800					
1,2-Dibromo-3-Chloropropane	mg/kg	-	<0.2800	<0.2800			<0.2800			<0.2800									<0.2800					
1,2-Dibromoethane	mg/kg	-	<0.2000	<0.2000			<0.2000			<0.2000									<0.2000					
1,2-Dichlorobenzene	mg/kg	2000	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
1,2-Dichloroethane	mg/kg	0.67	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
1,2-Dichloropropane	mg/kg	3.1	<0.2000	<0.2000			<0.2000			<0.2000									<0.2000					
1,3,5 Trichlorobenzene	mg/kg	23	<0.4000	<0.4000			<0.4000			<0.4000									<0.4000					
1,3,5-Trimethylbenzene	mg/kg	-	<0.1600	<0.1600			<0.1600			<0.1600									<0.1600					
1,3-Dichlorobenzene	mg/kg	30	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
1,3-Dichloropropane	mg/kg	-	<0.1400	<0.1400			<0.1400			<0.1400									<0.1400					
1,4-Dichlorobenzene	mg/kg	4400	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
2-(2,4-Dichlorophenoxy)propionic Acid	mg/kg	-									<0.0100		<0.0100	<0.0100				<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
2,2-Dichloropropane	mg/kg	-	<0.2000	<0.2000			<0.2000			<0.2000									<0.2000					
2,4,5-Trichlorophenol	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
2,4,5-Trichlorophenoxy Acetic Acid (T)	mg/kg	-									<0.0100		<0.0100	<0.0100				<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
2,4,6-Trichlorophenol	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
2,4-Dichlorophenol	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
2,4-Dichlorophenoxy Acetic Acid (D)	mg/kg	-									<0.0100		<0.0100	<0.0100				<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
2,4-Dimethylphenol	mg/kg	16000	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
2,4-Dinitrotoluene	mg/kg	3700	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
2,6-Dinitrotoluene	mg/kg	1900	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
2-Chloronaphthalene	mg/kg	370	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
2-Chlorophenol	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
2-Chlorotoluene	mg/kg	-	<0.1800	<0.1800			<0.1800			<0.1800									<0.1800					
2-Methyl-4,6-Dinitrophenol	mg/kg	-									<0.0100		<0.0100	<0.0100				<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
2-Methylnaphthalene	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
2-Methylphenol	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
2-Nitroaniline	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
2-Nitrophenol	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
2-sec-Butyl-4,6-dinitrophenol	mg/kg	-									<0.0100		<0.0100	<0.0100				<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
3-Nitroaniline	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
4,4-DDD*	mg/kg	-									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
4,4-DDE	mg/kg	-									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
4-Bromofluorobenzene Surrogate*	%	-	91.1	97	89.6		94.3	98.1	73.7	99.1		100				101	101	93.7	104		101	95.3	97.1	92.5
4-Bromophenyl Phenyl Ether	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
4-Chloro Phenyl Ether	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
4-Chloro-3-Methylphenol	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
4-Chloroaniline	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
4-Chlorotoluene	mg/kg	-	<0.2000	<0.2000			<0.2000			<0.2000									<0.2000					
4-Cpa	mg/kg	-									<0.0100		<0.0100	<0.0100				<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
4-Isopropyltoluene	mg/kg	-	<0.2000	<0.2000			<0.2000			<0.2000									<0.2000					
4-Methylphenol	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
4-Nitroaniline	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
4-Nitrophenol	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.1000									<0.1000					
Acenaphthene	mg/kg	84000	<0.0080	<0.0080			<0.0080	<0.0080	<0.0080	0.00963		<0.0080			0.0127	<0.0080	<0.0080	<0.0080	<0.0080		<0.0080	<0.0080	<0.0080	<0.0080
Acenaphthene-d10	%	-	31.8	82.3			50	84.9	86.8	88.1		86.8			89	74.6	92.5	80		70.4	82.1	86.1	87	
Acenaphthylene	mg/kg	83000	<0.0120	<0.0120			<0.0120	<0.0120	0.0613	<0.0120		<0.0120			<0.0120	<0.0120	<0.0120	<0.0120	<0.0120		<0.0120	0.0238	0.0172	<0.0120
Acifluorfen	mg/kg	-									<0.0100		<0.0100	<0.0100				<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
Additional Asbestos Components*	No units	-																						
Aldrin	mg/kg	170									<0.5000		<0.0500	<0.0500	<0.5000			<0						

			BH44	BH44	BH45	BH45	BH45A	BH45A	BH47	BH48	BH49	BH49	BH51	BH52	BH53	BH53	BH54	BH55	BH58	BH60	BH61	BH62	BH63	BH65
Aliphatics >C10-44*	mg/kg	-	<5.0000	5.84			31.9	<5.0000	6.66	<5.0000		<5.0000				<5.0000	11.6	15.7	<5.0000		<5.0000	5.27	<5.0000	9.95
Aliphatics >C12-16	mg/kg	59000	<1.0000	<1.0000			<1.0000	<1.0000	<1.0000	<1.0000		<1.0000				<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000
Aliphatics >C16-21	mg/kg	-	<1.0000				<1.0000	<1.0000	<1.0000	<1.0000		<1.0000				<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000
Aliphatics >C21-35	mg/kg	-	<1.0000	5.84			29.7	4.35	6.37	<1.0000		2.31				4.52	10.8	14.6	<1.0000		1.44	5.15	1.15	9.4
Aliphatics >C35-44	mg/kg	1600000	<1.0000	<1.0000			1.64	<1.0000	<1.0000	<1.0000		<1.0000				<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000
Aliphatics >C5-6	mg/kg	3200	<0.0100	0.0111			0.0216	<0.0100	<0.0100	<0.0100		<0.0100				<0.0100	<0.0100	<0.0100	<0.0100		<0.0100	<0.0100	<0.0100	<0.0100
Aliphatics >C6-8	mg/kg	7800	<0.0100	0.0152			0.0204	<0.0100	<0.0100	<0.0100		<0.0100				<0.0100	<0.0100	<0.0100	<0.0100		0.0322	<0.0100	<0.0100	<0.0100
Aliphatics >C8-10	mg/kg	2000	<0.0100	0.0415			0.012	<0.0100	<0.0100	<0.0100		<0.0100				<0.0100	<0.0100	<0.0100	<0.0100		0.0616	<0.0100	<0.0100	<0.0100
Aliphatics C5-C10*	mg/kg	-	<0.0500	0.0677			0.054	<0.0500	<0.0500	<0.0500		<0.0500				<0.0500	<0.0500	<0.0500	<0.0500		0.0938	<0.0500	<0.0500	<0.0500
alpha-Hexachlorocyclohexane	mg/kg	170									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Ammoniacal Nitrogen as N	mg/kg	-	<12.0000	<12.0000			<12.0000	99.4	<12.0000	<12.0000		<12.0000				296	<12.0000	35	<12.0000		<12.0000	<12.0000	<12.0000	<12.0000
Ammoniacal Nitrogen as NH4	mg/kg	-	6.6	8.42			5.93	10.2	4.02	5.48		3.35				1.2	3.01	11.6	5.6		2.88	1.79	2.84	2.88
Anthracene	mg/kg	520000	<0.0160	<0.0160			<0.0160	<0.0160	0.0445	0.0278		<0.0160				0.0534	<0.0160	<0.0160	<0.0160		<0.0160	<0.0160	0.0254	<0.0160
Aromatics >C10-12	mg/kg	16000	<1.0000	<1.0000			<1.0000	<1.0000	<1.0000	<1.0000		<1.0000				<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000
Aromatics >C10-44*	mg/kg	-	<5.0000	<5.0000			6.99	<5.0000	11.6	<5.0000		<5.0000				13.1	<5.0000	<5.0000	<5.0000		<5.0000	5.26	<5.0000	9.03
Aromatics >C12-16	mg/kg	36000	<1.0000	<1.0000			<1.0000	<1.0000	<1.0000	<1.0000		<1.0000				<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000
Aromatics >C16-21	mg/kg	28000	<1.0000	<1.0000			<1.0000	<1.0000	1.52	<1.0000		<1.0000				2.5	<1.0000	<1.0000	<1.0000		<1.0000	1.19	<1.0000	<1.0000
Aromatics >C21-35	mg/kg	28000	<1.0000	2.76			5.93	<1.0000	8.95	2.15		<1.0000				9.57	2.54	2.45	<1.0000		1.33	3.07	1.04	2.92
Aromatics >C35-44	mg/kg	28000	<1.0000	<1.0000			<1.0000	<1.0000	<1.0000	1.18		<1.0000				<1.0000	1.31	<1.0000	<1.0000		<1.0000	1	<1.0000	5.88
Aromatics >C40-44	mg/kg	-	<1.0000	<1.0000			<1.0000	<1.0000	<1.0000	<1.0000		<1.0000				<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000
Aromatics >C5-7	mg/kg	26000	<0.0100	<0.0100			<0.0100	<0.0100	<0.0100	<0.0100		<0.0100				<0.0100	<0.0100	<0.0100	<0.0100		<0.0100	<0.0100	<0.0100	<0.0100
Aromatics >C7-8	mg/kg	56000	<0.0100	<0.0100			<0.0100	<0.0100	<0.0100	<0.0100		<0.0100				<0.0100	<0.0100	<0.0100	<0.0100		<0.0100	<0.0100	<0.0100	<0.0100
Aromatics >C8-10	mg/kg	3500	<0.0100	0.0273			<0.0100	<0.0100	<0.0100	<0.0100		<0.0100				<0.0100	<0.0100	<0.0100	<0.0100		0.0402	<0.0100	<0.0100	<0.0100
Aromatics C5-C10*	mg/kg	-	<0.0500	<0.0500			<0.0500	<0.0500	<0.0500	<0.0500		<0.0500				<0.0500	<0.0500	<0.0500	<0.0500		<0.0500	<0.0500	<0.0500	<0.0500
Arsenic	mg/kg	640	129	3.32			99.7	15.2	8.55	6.52		6.1				14.8	10.9	15.8	2.21		16.6	10.3	7.05	7.54
Azinphos-methyl	mg/kg	-									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Azobenzene	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.2000			<0.0100							<0.1000				
Bentazone	mg/kg	-									<0.0100		<0.0100	<0.0100	<0.0100			<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
Benzene	mg/kg	27	<0.1800	<0.1800	<0.1800		<0.1800	<0.1800	<0.0090	<0.1800		<0.1800				<0.1800	<0.0090	<0.1800	<0.1800		<0.1800	<0.0090	<0.1800	<0.1800
Benzo (g,h,i) perylene	mg/kg	3900	<0.0240	<0.0240			<0.0240	<0.0240	0.29	0.113		0.0316				0.222	<0.0240	0.0419	<0.0240		<0.0240	0.0969	0.0611	0.0548
Benzo(a)anthracene	mg/kg	170	<0.0140	<0.0140			<0.0140	<0.0140	0.324	0.0952		0.0361				0.315	0.0324	0.057	<0.0140		<0.0140	0.098	0.119	0.0705
Benzo(a)pyrene	mg/kg	35	<0.0150	<0.0150			<0.0150	<0.0150	0.386	0.11		0.0362				0.304	0.0284	0.0572	<0.0150		<0.0150	0.109	0.0966	0.0717
Benzo(b)fluoranthene	mg/kg	44	<0.0150	<0.0150			<0.0150	<0.0150	0.563	0.134		0.0489				0.42	0.0502	0.0454	<0.0150		<0.0150	0.172	0.123	0.115
Benzo(k)fluoranthene	mg/kg	1200	<0.0140	<0.0140			<0.0140	<0.0140	0.188	0.0516		0.0175				0.16	0.0199	0.0294	<0.0140		<0.0140	0.053	0.0492	0.0406
beta-Hexachlorocyclohexane	mg/kg	65									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Bis(2-chloroethoxy)methane	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.2000										<0.1000				
Bis(2-chloroethyl)ether	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.2000										<0.1000				
Bis(2-chloroisopropyl)ether	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.2000										<0.1000				
Bis(2-ethylhexyl)phthalate	mg/kg	85000	<0.1000	<0.1000			<0.1000			<0.2000										<0.1000				
Boron	mg/kg	240000	21.5	2.57			17.4	1.68	<1.0000	1.06		<1.0000				1.07	<1.0000	1.34	<1.0000		<1.0000	1.14	<1.0000	<1.0000
Bromobenzene	mg/kg	92	<0.2000	<0.2000			<0.2000			<0.2000										<0.2000				
Bromochloromethane	mg/kg	-	<0.2000	<0.2000			<0.2000			<0.2000										<0.2000				
Bromodichloromethane	mg/kg	2	<0.1400	<0.1400			<0.1400			<0.1400										<0.1400				
Bromomethane	mg/kg	-	<0.2000	<0.2000			<0.2000			<0.2000										<0.2000				
Bromoxynil	mg/kg	-									<0.0100		<0.0100	<0.0100	<0.0100			<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
Butylbenzylphthalate	mg/kg	940000	<0.1000	<0.1000			<0.1000			<0.2000										<0.1000				
Butyric Acid (4-(2,4-dichlorophenoxy)-Butanoic acid (DB))	mg/kg	-									<0.0100		<0.0100	<0.0100	<0.0100			<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
Cadmium	mg/kg	190	0.412	0.16			0.0947	1.48	0.495	0.418		0.173				1.76	1.35	1.53	0.285		2.17	0.823	0.261	0.393
Carbazole	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.2000										<0.1000				
Carbon Disulphide	mg/kg	11	<																					

			BH44	BH44	BH45	BH45	BH45A	BH45A	BH47	BH48	BH49	BH49	BH51	BH52	BH53	BH53	BH54	BH55	BH58	BH60	BH61	BH62	BH63	BH65
Cyanide	mg/kg	-	<1.0000	<1.0000			<1.0000	<1.0000	<1.0000	<1.0000		<1.0000				<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000
Diazinon	mg/kg	-									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Dibenz-a-h-anthracene	mg/kg	3.5	<0.0230	<0.0230			<0.0230	<0.0230	0.0487	<0.0230		<0.0230				0.0462	<0.0230	<0.0230	<0.0230		<0.0230	<0.0230	<0.0230	<0.0230
Dibenzofuran	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.2000														
Dibromochloromethane	mg/kg	-	<0.2000	<0.2000			<0.2000			<0.2000														
Dibromofluoromethane (surrogate)*	%	-	121	112	122		115	111	109	110		112				110	115	112	114		108	107	110	108
Dibromomethane	mg/kg	-	<0.1800	<0.1800			<0.1800			<0.1800														
Dicamba*	mg/kg	-									<0.0100		<0.0100	<0.0100	<0.0100			<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
Dichlorodifluoromethane	mg/kg	-	<0.1200	<0.1200			<0.1200			<0.1200														
Dichloromethane	mg/kg	260	<0.2000	<0.2000			<0.2000			<0.2000														
Dichlorvos	mg/kg	140									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Diclofop	mg/kg	-									<0.0100		<0.0100	<0.0100	<0.0100			<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
Dieldrin	mg/kg	170									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Diethylphthalate	mg/kg	140000	<0.1000	<0.1000			<0.1000			<0.2000														
Dimethylphthalate	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.2000														
Di-N-Butyl Phthalate	mg/kg	15000	<0.1000	<0.1000			<0.1000			<0.2000														
Di-N-Octyl Phthalate	mg/kg	89000	<0.1000	<0.1000			<0.1000			<0.2000														
Disulfoton	mg/kg	-									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Endosulfan I	mg/kg	5600									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Endosulfan II	mg/kg	6300									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Endosulfan Sulfate	mg/kg	-									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Endrin	mg/kg	-									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Enterococci	CFU/g	-																						
EPH >C10-40	mg/kg	-	<35.0000	<35.0000			<35.0000	<35.0000	<35.0000	<35.0000		<35.0000				<35.0000	<35.0000	<35.0000	<35.0000		<35.0000	<35.0000	<35.0000	<35.0000
EPH Surrogate % recovery*	%	-	95.2	95.2	94.6		87.4	92.6	98.8	93.6		94.4				99.4	95.6	98.7	92		98.3	99	91.9	91.3
Ethion	mg/kg	-									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Ethylbenzene	mg/kg	5700	<0.0800	<0.0800	<0.0800		<0.0800	<0.0800	<0.0040	<0.0800		<0.0800				<0.0800	<0.0040	<0.0800	<0.0800		<0.0800	<0.0040	<0.0800	<0.0800
Ethylparathion	mg/kg	-									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Fenitrothion	mg/kg	-									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Fluoranthene	mg/kg	23000	<0.0170	<0.0170			<0.0170	<0.0170	0.491	0.262		0.0601				0.633	0.0575	0.126	<0.0170		<0.0170	0.172	0.253	0.116
Fluorene	mg/kg	63000	<0.0100	<0.0100			<0.0100	<0.0100	<0.0100	<0.0100		<0.0100				<0.0100	<0.0100	<0.0100	<0.0100		<0.0100	<0.0100	<0.0100	<0.0100
Fluroxypyr*	mg/kg	-									<0.0100		<0.0100	<0.0100	<0.0100			<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
gamma-hexachlorocyclohexane	mg/kg	67									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
GRO >C5-10	mg/kg	-	<0.0200	0.0677			0.054	<0.0200	<0.0200	<0.0200		<0.0200				<0.0200	<0.0200	<0.0200	<0.0200		0.0938	<0.0500	<0.0200	<0.0200
GRO Surrogate % recovery	%	-	25	90			31.9	90.7	98.5	110		117				94.7	87.2	96	136		98	71.8	143	89.4
Heptachlor	mg/kg	-									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Heptachlor Epoxide	mg/kg	-									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Hexachlorobenzene (HCB)	mg/kg	110	<0.1000	<0.1000			<0.1000			<0.2000														
Hexachlorobutadiene (HCBd)	mg/kg	31	<0.1000	<0.1000			<0.1000			<0.2000														
Hexachlorocyclopentadiene	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.4000														
Hexachloroethane	mg/kg	21	<0.1000	<0.1000			<0.1000			<0.2000														
Indeno(1,2,3-cd)pyrene	mg/kg	500	<0.0180	<0.0180			<0.0180	<0.0180	0.351	0.106		0.0307				0.253	0.0236	0.0434	<0.0180		<0.0180	0.0861	0.0683	0.0663
Ioxynil	mg/kg	-									<0.0100		<0.0100	<0.0100	<0.0100			<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
Iron	mg/kg	-	34000	10300			28500	40100	19800	23800		22000				36500	23000	39500	2490		20800	25200	17900	17600
Isophorone	mg/kg	-	<0.1000	<0.1000			<0.1000			<0.2000														
Isopropylbenzene	mg/kg	1300	<0.1000	<0.1000			<0.1000			<0.1000														
Lead	mg/kg	2300	54.5	8.07			40.2	200	61.7	12		15.3				173	128	173	50.2		46.1	72.9	21.9	39.6
m,p xylenes	mg/kg	-	<0.2000	<0.2000	<0.2000		<0.2000	<0.2000	<0.0100	<0.2000		<0.2000				<0.2000	<0.0100	<0.2000	<0.2000		<0.2000	<0.0100	<0.2000	<0.2000
Malathion	mg/kg	-									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
MCPA	mg/kg	-									<0.0100		<0.0100	<0.0100	<0.0100			<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
MCPB	mg/kg	-									<0.0100		<0.0100	<0.0100	<0.0100			<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
Mecoprop (MCP) (2-(4-chloro-2-methylphenoxy)	mg/kg	-									<0.0100		<0.0100	<0.0100	<0.0100			<0.0100		<0.0100		<0.0100	<0.0100	<0.0100
Mercury	mg/kg	58	<0.1000	<0.1000			<0.1000	<0.1000	0.168	<0.1000		<0.1000				<0.1000	<0.1000	0.374	<0.1000		<0.1000	0.166	<0.1000	<0.1000
Methoxychlor	mg/kg	-									<0.5000		<0.0500	<0.0500	<0.5000			<0.0500		<0.0500		<0.0500	<0.0500	<0.0500
Methyl tert-butyl ether (MTBE)	mg/kg	7500	<0.2000	<0.2000	<0.2000		<0.2000	<0.2000	<0.0100	<0.2000		<0.2000				<0.2000	<0.0							

			BH44	BH44	BH45	BH45	BH45A	BH45A	BH47	BH48	BH49	BH49	BH51	BH52	BH53	BH53	BH54	BH55	BH58	BH60	BH61	BH62	BH63	BH65
Organic matter	%	-	4.97	<0.3500			4.79	2.74	9.15	0.734		0.56				2.74	4.28	5.05	0.745		1.14	3.81	0.497	2.47
O-Xylene	mg/kg	6600	<0.2000	<0.2000	<0.2000		<0.2000	<0.2000	<0.0100	<0.2000		<0.2000				<0.2000	<0.0100	<0.2000	<0.2000		<0.2000	<0.0100	<0.2000	<0.2000
p,p - DDT	mg/kg	-									<0.5000		<0.0500	<0.1500	<0.5000					<0.0500		<0.1000	<0.1000	<0.1000
PAH 17 Total	mg/kg	-			<10.0000																			
PAH, Total Detected USEPA 16	mg/kg	-	<0.1180	<0.1180			<0.1180	<0.1180	3.66	1.28		0.374				3.53	0.32	0.624	<0.1180		<0.1180	1.15	1.27	0.744
PCB 105	mg/kg	-	<0.0030	<0.0030																				
PCB 114	mg/kg	-	<0.0030	<0.0030																				
PCB 123	mg/kg	-	<0.0030	<0.0030																				
PCB 126	mg/kg	-	<0.0030	<0.0030																				
PCB 157	mg/kg	-	<0.0030	<0.0030																				
PCB 167	mg/kg	-	<0.0030	<0.0030																				
PCB 169	mg/kg	-	<0.0030	<0.0030																				
PCB 189	mg/kg	-	<0.0030	<0.0030																				
PCB 77	mg/kg	-	<0.0030	<0.0030																				
PCB 81	mg/kg	-	<0.0030	<0.0030																				
PCB, Total Of 7 Congeners	mg/kg	-			<0.4200																			
PCB-101 2,2',4,5,5' - Pentachlorobiphenyl	mg/kg	-			<0.0600																			
PCB-118 2,3',4,4',5' - Pentachlorobiphenyl	mg/kg	-	<0.0030	<0.0030	<0.0600														<0.0030					
PCB-138 2,2',3,4,4',5' - Hexachlorobiphenyl	mg/kg	-			<0.0600																			
PCB-153 2,2',4,4',5,5' - Hexachlorobiphenyl	mg/kg	-			<0.0600																			
PCB-156 2,3,3,4,4,5 - Hexachlorobiphenyl	mg/kg	-	<0.0030	<0.0030																				
PCB-180 2,2',3,4,4',5,5' - Heptachlorobiphenyl	mg/kg	-			<0.0600																			
PCB-28 2,4,4' - Trichlorobiphenyl	mg/kg	-			<0.0600																			
PCB-52 2,2',5,5' - Tetrachlorobiphenyl	mg/kg	-			<0.0600																			
Pentachlorophenol (PCP)	mg/kg	400	<0.1000	<0.1000			<0.1000			<0.2000														
Perylene-d12	%	-	6.16	89			2.89	85.2	96.1	85.6		77.2				88.3	71.4	83.1			77.3	72	74.6	95.7
pH	pH Units	-	10	8.64			9.95	6.93	7.93	9.14		9.01				7.8	7.51	6.06	9.72		7.86	7.46	7.32	6.7
Phenanthrene	mg/kg	22000	<0.0150	<0.0150			<0.0150	<0.0150	0.136	0.12		0.0202				0.201	0.0236	0.0461	<0.0150		<0.0150	0.0594	0.119	0.0378
Phenanthrene-d10	%	-	19.1	82.8			32.1	87	90.4	87.9		86.3				90.2	76.2	93.8	91.1		79.1	83.9	86.8	90.5
Phenol	mg/kg	440	<0.0100	<0.0100			<0.0100	<0.0100	<0.0100	<0.0100		<0.0100				<0.0100	<0.0100	<0.0100	<0.0100		<0.0100	<0.0100	<0.0100	<0.0100
Phenol (Monohydric)	mg/kg	-	<0.0350	<0.0350			<0.0350	<0.0350	<0.0350	<0.0350		<0.0350				<0.0350	<0.0350	<0.0350	<0.0350		<0.0350	<0.0350	<0.0350	<0.0350
Phorate	mg/kg	-									<0.5000		<0.0500	<0.0500	<0.5000				<0.0500		<0.0500	<0.0500	<0.0500	<0.0500
Propoxy carbazono-sodium*	mg/kg	-									<0.0100		<0.0100	<0.0100	<0.0100				<0.0100		<0.0100	<0.0100	<0.0100	<0.0100
Pyrene	mg/kg	54000	<0.0150	<0.0150			<0.0150	<0.0150	0.441	0.251		0.0537				0.58	0.051	0.113	<0.0150		<0.0150	0.156	0.217	0.1
Sec-Butylbenzene	mg/kg	-	<0.2000	<0.2000			<0.2000			<0.2000														
Selenium	mg/kg	12000	1.88	<1.0000			1.5	<1.0000	<1.0000	<1.0000		<1.0000				<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	<1.0000	<1.0000	<1.0000
Silvex	mg/kg	-									<0.0100		<0.0100	<0.0100	<0.0100				<0.0100		<0.0100	<0.0100	<0.0100	<0.0100
Styrene	mg/kg	3200	<0.2000	<0.2000			<0.2000			<0.2000														
Sum of detected WHO 12 PCBs*	mg/kg	-	<0.0360	<0.0360																				
Tert-Butylbenzene	mg/kg	-	<0.2800	<0.2800			<0.2800			<0.2800														
Tetrachloroethene	mg/kg	19	<0.1000	<0.1000			<0.1000			<0.1000														
Tetrachloromethane (Carbon Tetra Chloride)	mg/kg	2.9	<0.2000	<0.2000			<0.2000			<0.2000														
Toluene	mg/kg	56000	<0.1400	<0.1400	<0.1400		<0.1400	<0.1400	<0.0070	<0.1400		<0.1400				<0.1400	<0.0070	<0.1400	<0.1400		<0.1400	<0.0070	<0.1400	<0.1400
Toluene-D8	%	-	99.4	102	93.4		99.3	100	92	98.1		99.6				98.2	99	100	97.4		96.8	97.2	98.3	104
Total BTEX	mg/kg	-	<0.8000	<0.8000			<0.8000	<0.8000	<0.0400	<0.8000		<0.8000				<0.8000	<0.0400	<0.8000	<0.8000		<0.8000	<0.0400	<0.8000	<0.8000
Total Coliforms*	CFU/g	-																						
Total Organic Carbon	%	-			0.389	1.24																		
TPH >C5-40*	mg/kg	-	<35.0000	<35.0000			<35.0000	<35.0000	<35.0000	<35.0000		<35.0000				<35.0000	<35.0000	<35.0000	<35.0000		<35.0000	<35.0000	<35.0000	<35.0000
trans-1,2-Dichloroethene	mg/kg	21	<0.2000	<0.2000			<0.2000			<0.2000														
trans-1,3-Dichloropropene	mg/kg	-	<0.2000	<0.2000			<0.2000			<0.2000														
Tribromomethane	mg/kg	710	<0.2000	<0.2000			<0.2000			<0.2000														
Trichloroethene	mg/kg	1.2	<0.1800	<0.1800			<0.1800			<0.1800														
Trichlorofluoromethane	mg/kg	-	<0.1200	<0.1200			<0.1200			<0.1200														
Triclopyr	mg/kg	-									<0.0100		<0.0100	<0.0100	<0.0100				<0.0100		<0.0100	<0.0100	<0.0100	<0.0100
Triclosan*	mg/kg	-									<0.0100		<0.0100	<0.0100	<0.0100				<0.0100		<0.0100	<0.0100	<0.0100	<0.0100
Vanadium	mg/kg	9000	124	8.23			97.2	62.3	22.2	16.4		26				55.9	35.7	60.1	1.85		51	33.6	15.8	18.3
Water Soluble Sulphate as SO4 2:1 Extract*	g/l	-	1.35	0.131			1.25	0.0502	<0.0040	0.142		0.0145				0.0251	0.0703	0.0461	0.0139		0.0495	0.0146	<0.0040	<0.0040
Xylene	mg/kg	-	<0.4000	<0.4000			<0.4000	<0.4000	<0.0200	<0.4000		<0.4000				<0.4000	<0.0200	<0.4000	<0.4000		<0.4000	<0.0200	<0.4000	<0.4000
Xylenols	mg/kg	-	<0.0150	<0.0150			<0.0150	<0.0150	<0.0150	<0.0150		<0.0150				<0.0150	<0.0150	<0.0150	<0.0150		<0.0150	<0.0150	<0.0150	<0.0150
Zinc	mg/kg	730000	71.6	19.2			56.5	246	96	42.8		62.1												

Determinant Name	Units	Commercial 1% SOM	BH65	BH66	BH66	TP01	TP02	TP02	TP04	TP05	TP08	TP08	TP10	TP10	TP13	TP13	TP27	TP32	TP35	TP38	TP39	TP39	TP42	TP43
			0.4	0.1	1	0.2	0.2	1	1	1.6	0.5	1.2	0.2	1	0.2	0.8	0.7	0.7	0.7	0.1	0.1	0.4	0.7	0.6
1,1,1,2-Tetrachloroethane	mg/kg	110													<0.2000		<0.2000							<0.2000
1,1,1-Trichloroethane	mg/kg	660													<0.1400		<0.1400							<0.1400
1,1,2,2-Tetrachloroethane	mg/kg	270													<0.2000		<0.2000							<0.2000
1,1,2-Trichloroethane	mg/kg	89													<0.2000		<0.2000							<0.2000
1,1-Dichloroethane	mg/kg	260													<0.1600		<0.1600							<0.1600
1,1-Dichloroethene	mg/kg	24													<0.2000		<0.2000							<0.2000
1,1-Dichloropropene	mg/kg	-													<0.2000		<0.2000							<0.2000
1,2,3 Trichlorobenzene	mg/kg	102													<0.4000		<0.4000							<0.4000
1,2,3-Trichloropropane	mg/kg	-													<0.3200		<0.3200							<0.3200
1,2,4-Trichlorobenzene	mg/kg	220													<0.1000		<0.1000							<0.2000
1,2,4-Trimethylbenzene	mg/kg	39													<0.1800		<0.1800							<0.1800
1,2-Dibromo-3-Chloropropane	mg/kg	-													<0.2800		<0.2800							<0.2800
1,2-Dibromoethane	mg/kg	-													<0.2000		<0.2000							<0.2000
1,2-Dichlorobenzene	mg/kg	2000													<0.1000		<0.1000							<0.2000
1,2-Dichloroethane	mg/kg	0.67													<0.1000		<0.1000							<0.1000
1,2-Dichloropropane	mg/kg	3.1													<0.2000		<0.2000							<0.2000
1,3,5 Trichlorobenzene	mg/kg	23													<0.4000		<0.4000							<0.4000
1,3,5-Trimethylbenzene	mg/kg	-													<0.1600		<0.1600							<0.1600
1,3-Dichlorobenzene	mg/kg	30													<0.1000		<0.1000							<0.1600
1,3-Dichloropropane	mg/kg	-													<0.1400		<0.1400							<0.1400
1,4-Dichlorobenzene	mg/kg	4400													<0.1000		<0.1000							<0.1000
2-(2,4-Dichlorophenoxy)propionic Acid	mg/kg	-											<0.0100				<0.0100			<0.0100				
2,2-Dichloropropane	mg/kg	-													<0.2000		<0.2000							<0.2000
2,4,5-Trichlorophenol	mg/kg	-													<0.1000		<0.1000							<0.2000
2,4,5-Trichlorophenoxy Acetic Acid (T)	mg/kg	-											<0.0100				<0.0100			<0.0100				
2,4,6-Trichlorophenol	mg/kg	-													<0.1000		<0.1000							<0.2000
2,4-Dichlorophenol	mg/kg	-													<0.1000		<0.1000							<0.2000
2,4-Dichlorophenoxy Acetic Acid (D)	mg/kg	-											<0.0100				<0.0100			<0.0100				
2,4-Dimethylphenol	mg/kg	16000													<0.1000		<0.1000							<0.2000
2,4-Dinitrotoluene	mg/kg	3700													<0.1000		<0.1000							<0.2000
2,6-Dinitrotoluene	mg/kg	1900													<0.1000		<0.1000							<0.2000
2-Chloronaphthalene	mg/kg	370													<0.1000		<0.1000							<0.2000
2-Chlorophenol	mg/kg	-													<0.1000		<0.1000							<0.2000
2-Chlorotoluene	mg/kg	-													<0.1800		<0.1800							<0.1800
2-Methyl-4,6-Dinitrophenol	mg/kg	-												<0.0100			<0.0100			<0.0100				
2-Methylnaphthalene	mg/kg	-													<0.1000		<0.1000							<0.2000
2-Methylphenol	mg/kg	-													<0.1000		<0.1000							<0.2000
2-Nitroaniline	mg/kg	-													<0.1000		<0.1000							<0.2000
2-Nitrophenol	mg/kg	-													<0.1000		<0.1000							<0.2000
2-sec-Butyl-4,6-dinitrophenol	mg/kg	-												<0.0100			<0.0100			<0.0100				
3-Nitroaniline	mg/kg	-													<0.1000		<0.1000							<0.2000
4,4-DDD*	mg/kg	-													<0.0500			<0.0500			<0.0500			
4,4-DDE	mg/kg	-													<0.0500			<0.0500			<0.0500			
4-Bromofluorobenzene Surrogate*	%	-	98	103	94.7	98.1	101	99.8	101		98.2		102	99.9	106	99.3	98.6	98.7	105	98.7	98.2	95	99.6	97.3
4-Bromophenyl Phenyl Ether	mg/kg	-													<0.1000		<0.1000							<0.2000
4-Chloro Phenyl Ether	mg/kg	-													<0.1000		<0.1000							<0.2000
4-Chloro-3-Methylphenol	mg/kg	-													<0.1000		<0.1000							<0.2000
4-Chloroaniline	mg/kg	-													<0.1000		<0.1000							<0.2000
4-Chlorotoluene	mg/kg	-													<0.2000		<0.2000							<0.2000
4-Cpa	mg/kg	-													<0.0100			<0.0100			<0.0100			
4-Isopropyltoluene	mg/kg	-													<0.2000		<0.2000							<0.2000
4-Methylphenol	mg/kg	-													<0.1000		<0.1000							<0.2000
4-Nitroaniline	mg/kg	-													<0.5000		<0.1000							<0.2000
4-Nitrophenol	mg/kg	-													<0.5000		<0.1000							<0.2000
Acenaphthene	mg/kg	84000		<0.0080		<0.0080	<0.0080						0.0257		<0.0080		<0.0080	<0.0080	<0.0080	<0.0080		1.36		<0.0080 0.0582
Acenaphthene-d10	%	-		85		77	77.5						81.2		86.3		79.5	80.8	85	99.5				82.8 95.8
Acenaphthylene	mg/kg	83000		<0.0120		0.053	<0.0120						0.032		<0.0120		<0.0120	<0.0120	<0.0120	<0.0120	<0.1200			<0.0120 0.0702
Acifluorfen	mg/kg	-													<0.0100			<0.0100		<0.0100				
Additional Asbestos Components*	No units	-																						
Aldrin	mg/kg	170													<0.0500			<0.0500			<0.0500			
Aliphatics & Aromatics >C10-44	mg/kg	-		<10.0000		<10.0000	21.8								32.5		30	<10.0000	<10.0000	22.1	373			<10.0000 97.7
Aliphatics & Aromatics >C5-44	mg/kg	-		<10.0000		<10.0000	21.8								32.5		30	<10.0000	<10.0000	22.1	373			<10.0000 97.7
Aliphatics >C10-12	mg/kg	9700		<1.0000		<1.0000	<1.0000								<1.0000		<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000		<1.0000 <1.0000
Aliphatics >C10-40*	mg/kg	-	5.39		<5.0000					<5.0000	<5.0000					<5.0000		14.1		<5.0000			43.5	

			BH65	BH66	BH66	TP01	TP02	TP02	TP04	TP05	TP08	TP08	TP10	TP10	TP13	TP13	TP27	TP32	TP35	TP38	TP39	TP39	TP42	TP43	
Aliphatics >C10-44*	mg/kg	-		<5.0000		<5.0000	13.1						7.07		<5.0000		21.3	<5.0000	<5.0000	12.8	15.5		<5.0000	41.9	
Aliphatics >C12-16	mg/kg	59000		<1.0000		<1.0000	<1.0000						<1.0000		<1.0000		<1.0000	<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	<1.0000	
Aliphatics >C16-21	mg/kg	-		<1.0000		<1.0000	<1.0000						<1.0000		<1.0000		<1.0000	<1.0000	<1.0000	<1.0000	2.3		<1.0000	3.87	
Aliphatics >C21-35	mg/kg	-		<1.0000		3.53	12						6.81		1.97		20	<1.0000	<1.0000	11.2	11.3		<1.0000	32.5	
Aliphatics >C35-44	mg/kg	1600000		<1.0000		<1.0000	<1.0000						<1.0000		<1.0000		<1.0000	<1.0000	<1.0000	1.13	1.21		<1.0000	5.47	
Aliphatics >C5-6	mg/kg	3200		<0.0100		<0.0100	<0.0100						<0.0100		<0.0100		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100		<0.0100	<0.0100	
Aliphatics >C6-8	mg/kg	7800		<0.0100		<0.0100	<0.0100						<0.0100		<0.0100		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100		<0.0100	<0.0100	
Aliphatics >C8-10	mg/kg	2000		<0.0100		<0.0100	<0.0100						<0.0100		<0.0100		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100		<0.0100	<0.0100	
Aliphatics C5-C10*	mg/kg	-		<0.0500		<0.0500	<0.0500						<0.0500		<0.0500		<0.0500	<0.0500	<0.0500	<0.0500	<0.0500		<0.0500	<0.0500	
alpha-Hexachlorocyclohexane	mg/kg	170											<0.0500				<0.0500		<0.0500	<0.0500			<0.0500	<0.0500	
Ammoniacal Nitrogen as N	mg/kg	-		<12.0000		<12.0000	<12.0000						<12.0000		<12.0000		<12.0000	<12.0000	<12.0000	30.5	<12.0000		<12.0000	<12.0000	
Ammoniacal Nitrogen as NH4	mg/kg	-		2.5		2.62	2.4						1.97		5.59		0.638	3.01	2.24	13.2	4.84		2.36	4.7	
Anthracene	mg/kg	520000		<0.0160		0.0374	<0.0160						0.178		<0.0160		<0.0160	<0.0160	<0.0160	<0.0160	2.14		<0.0160	0.224	
Aromatics >C10-12	mg/kg	16000		<1.0000		<1.0000	<1.0000						<1.0000		<1.0000		<1.0000	<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	<1.0000	
Aromatics >C10-44*	mg/kg	-		<5.0000		<5.0000	8.68						25.5		<5.0000		8.69	<5.0000	<5.0000	9.36	358		<5.0000	55.9	
Aromatics >C12-16	mg/kg	36000		<1.0000		<1.0000	<1.0000						<1.0000		<1.0000		<1.0000	<1.0000	<1.0000	<1.0000	5.85		<1.0000	<1.0000	
Aromatics >C16-21	mg/kg	28000		<1.0000		<1.0000	<1.0000						4.44		<1.0000		<1.0000	<1.0000	<1.0000	<1.0000	88.9		<1.0000	8.42	
Aromatics >C21-35	mg/kg	28000		<1.0000		2.95	7.23						19		1.68		6.84	<1.0000	<1.0000	7.75	245		<1.0000	43.4	
Aromatics >C35-44	mg/kg	28000		<1.0000		<1.0000	<1.0000						2.02		<1.0000		<1.0000	<1.0000	<1.0000	1.03	18.5		<1.0000	4.02	
Aromatics >C40-44	mg/kg	-		<1.0000		<1.0000	<1.0000						<1.0000		<1.0000		<1.0000	<1.0000	<1.0000	2.18		<1.0000	<1.0000		
Aromatics >C5-7	mg/kg	26000		<0.0100		<0.0100	<0.0100						<0.0100		<0.0100		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100		<0.0100	<0.0100	
Aromatics >C7-8	mg/kg	56000		<0.0100		<0.0100	<0.0100						<0.0100		<0.0100		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100		<0.0100	<0.0100	
Aromatics >C8-10	mg/kg	3500		<0.0100		<0.0100	<0.0100						<0.0100		<0.0100		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100		<0.0100	<0.0100	
Aromatics C5-C10*	mg/kg	-		<0.0500		<0.0500	<0.0500						<0.0500		<0.0500		<0.0500	<0.0500	<0.0500	<0.0500	<0.0500		<0.0500	<0.0500	
Arsenic	mg/kg	640		6.91		8.69	14.3						15.6		1.2		17.2	6.01	5.79	5.31	7.49		8.44	8.51	
Azinphos-methyl	mg/kg	-											<0.0500				<0.0500		<0.0500	<0.0500					
Azobenzene	mg/kg	-													<0.1000		<0.1000							<0.2000	
Benzazone	mg/kg	-											<0.0100					<0.0100		<0.0100					
Benzene	mg/kg	27	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800		<0.1800		<0.0090		<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800
Benzo (g,h,i) perylene	mg/kg	3900		<0.0240		0.183	0.0303						0.504		<0.0240		0.0774	<0.0240	<0.0240	0.0442	4.2		<0.0240	0.899	
Benzo(a)anthracene	mg/kg	170		<0.0140		0.263	0.0371						0.802		<0.0140		0.102	<0.0140	<0.0140	0.0488	7.54		<0.0140	1.11	
Benzo(a)pyrene	mg/kg	35		<0.0150		0.278	0.0351						0.759		<0.0150		0.103	<0.0150	<0.0150	0.0533	6.84		<0.0150	1.17	
Benzo(b)fluoranthene	mg/kg	44		<0.0150		0.434	0.05						1.11		<0.0150		0.112	<0.0150	<0.0150	0.0945	9.29		<0.0150	1.76	
Benzo(k)fluoranthene	mg/kg	1200		<0.0140		0.151	<0.0140						0.39		<0.0140		0.0553	<0.0140	<0.0140	0.0305	4.05		<0.0140	0.959	
beta-Hexachlorocyclohexane	mg/kg	65											<0.0500					<0.0500		<0.0500					
Bis(2-chloroethoxy)methane	mg/kg	-													<0.1000		<0.1000							<0.2000	
Bis(2-chloroethyl)ether	mg/kg	-													<0.1000		<0.1000							<0.2000	
Bis(2-chloroisopropyl)ether	mg/kg	-													<0.1000		<0.1000							<0.2000	
Bis(2-ethylhexyl)phthalate	mg/kg	85000													<0.1000		<0.1000							<0.2000	
Boron	mg/kg	240000		<1.0000		<1.0000	1.25						1.25		<1.0000		1.89	<1.0000	<1.0000	<1.0000	<1.0000		<1.0000	<1.0000	
Bromobenzene	mg/kg	92													<0.2000		<0.2000							<0.2000	
Bromochloromethane	mg/kg	-													<0.2000		<0.2000							<0.2000	
Bromodichloromethane	mg/kg	2													<0.1400		<0.1400							<0.1400	
Bromomethane	mg/kg	-													<0.2000		<0.2000							<0.2000	
Bromoxynil	mg/kg	-											<0.0100					<0.0100		<0.0100					
Butylbenzylphthalate	mg/kg	940000													<0.1000		<0.1000							<0.2000	
Butyric Acid (4-(2,4-dichlorophenoxy)-Butanoic acid (DB))	mg/kg	-											<0.0100					<0.0100		<0.0100					
Cadmium	mg/kg	190		0.451		0.509	2.11						1.88		0.347		2.03	0.254	1.13	0.312	0.232		0.263	0.314	
Carbazole	mg/kg	-													<0.1000		<0.1000							<0.2000	
Carbon Disulphide	mg/kg	11													<0.1400		<0.1400							<0.1400	
Chlorobenzene	mg/kg	56													<0.1000		<0.1000							<0.1000	
Chloroethane	mg/kg	900													<0.2000		<0.2000							<0.2000	
Chloroethene	mg/kg	0.059													<0.1200		<0.1200							<0.1200	
Chloroform	mg/kg	99													<0.1600		<0.1600							<0.1600	
Chloromethane	mg/kg	1													<0.1400		<0.1400							<0.1400	
Chromium	mg/kg	-		10.5		12.3	28.9						24		2.93		42.6	5.68	9.13	6.58	12.5		7.14	174	
Chromium -																									

			BH65	BH66	BH66	TP01	TP02	TP02	TP04	TP05	TP08	TP08	TP10	TP10	TP13	TP13	TP27	TP32	TP35	TP38	TP39	TP39	TP42	TP43	
Cyanide	mg/kg	-		<1.0000		<1.0000	<1.0000						<1.0000		<1.0000		<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	
Diazinon	mg/kg	-											<0.0500					<0.0500		<0.0500					
Dibenz-a-h-anthracene	mg/kg	3.5		<0.0230		0.0398	<0.0230						0.0992				<0.0230	<0.0230	<0.0230	<0.0230	0.807		<0.0230	0.16	
Dibenzofuran	mg/kg	-															<0.1000	<0.1000						<0.2000	
Dibromochloromethane	mg/kg	-															<0.2000							<0.2000	
Dibromofluoromethane (surrogate)*	%	-	108	110	115	107	112	112	106		110		106	107	119	110	107	108	104	109	105	105	105	104	
Dibromomethane	mg/kg	-															<0.1800	<0.1800						<0.1800	
Dicamba*	mg/kg	-											<0.0100					<0.0100		<0.0100					
Dichlorodifluoromethane	mg/kg	-															<0.1200	<0.1200						<0.1200	
Dichloromethane	mg/kg	260															<0.2000	<0.2000						<0.2000	
Dichlorvos	mg/kg	140											<0.0500					<0.0500		<0.0500					
Diclofop	mg/kg	-											<0.0100					<0.0100		<0.0100					
Dieldrin	mg/kg	170											<0.0500					<0.0500		<0.0500					
Diethylphthalate	mg/kg	140000															<0.1000	<0.1000						<0.2000	
Dimethylphthalate	mg/kg	-															<0.1000	<0.1000						<0.2000	
Di-N-Butyl Phthalate	mg/kg	15000															<0.1000	<0.1000						<0.2000	
Di-N-Octyl Phthalate	mg/kg	89000															<0.1000	<0.1000						<0.2000	
Disulfoton	mg/kg	-											<0.0500					<0.0500		<0.0500					
Endosulfan I	mg/kg	5600											<0.0500					<0.0500		<0.0500					
Endosulfan II	mg/kg	6300											<0.0500					<0.0500		<0.0500					
Endosulfan Sulfate	mg/kg	-											<0.0500					<0.0500		<0.0500					
Endrin	mg/kg	-											<0.0500					<0.0500		<0.0500					
Enterococci	CFU/g	-																							
EPH >C10-40	mg/kg	-		<35.0000		<35.0000	<35.0000						48		<35.0000		<35.0000	<35.0000	<35.0000	<35.0000	67.7	314		<35.0000	296
EPH Surrogate % recovery*	%	-	95.1	103	95.5	95.7	86.9	88.7	102		95.1		90.6	92.5	97.6	104	90.1	93.5	108	104	112	102	100	120	
Ethion	mg/kg	-											<0.0500					<0.0500		<0.0500					
Ethylbenzene	mg/kg	5700	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800		<0.0800		<0.0040	<0.0040	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	
Ethylparathion	mg/kg	-											<0.0500					<0.0500		<0.0500					
Fenitrothion	mg/kg	-											<0.0500					<0.0500		<0.0500					
Fluoranthene	mg/kg	23000		<0.0170		0.448	0.0652						1.67		<0.0170		0.192	<0.0170	<0.0170	0.0811	21.1		<0.0170	2.62	
Fluorene	mg/kg	63000		<0.0100		<0.0100	<0.0100						0.0254		<0.0100		<0.0100	<0.0100	<0.0100	<0.0100	0.793		<0.0100	<0.0500	
Fluroxypyr*	mg/kg	-											<0.0100					<0.0100		<0.0100					
gamma-hexachlorocyclohexane	mg/kg	67											<0.0500					<0.0500		<0.0500					
GRO >C5-10	mg/kg	-		<0.0200		<0.0200	<0.0200						<0.0200		<0.0200		<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	
GRO Surrogate % recovery	%	-		109		91.5	92.4						89.8		110		87.8	95	116	91.5	101		97.5	104	
Heptachlor	mg/kg	-											<0.0500					<0.0500		<0.0500					
Heptachlor Epoxide	mg/kg	-											<0.0500					<0.0500		<0.0500					
Hexachlorobenzene (HCB)	mg/kg	110															<0.1000	<0.1000						<0.2000	
Hexachlorobutadiene (HCBD)	mg/kg	31															<0.1000	<0.1000						<0.2000	
Hexachlorocyclopentadiene	mg/kg	-															<0.1000	<0.1000						<0.2000	
Hexachloroethane	mg/kg	21															<0.1000	<0.1000						<0.2000	
Indeno(1,2,3-cd)pyrene	mg/kg	500		<0.0180		0.224	0.0291						0.51		<0.0180		0.073	<0.0180	<0.0180	0.0468	5.19		<0.0180	1.12	
Ioxynil	mg/kg	-											<0.0100					<0.0100		<0.0100					
Iron	mg/kg	-		20600		18600	22800						35400					<0.0100		<0.0100					
Isophorone	mg/kg	-																<0.1000		<0.1000					
Isopropylbenzene	mg/kg	1300																<0.1000		<0.1000					
Lead	mg/kg	2300		26.5		61.4	166						174		4.86		232	12.6	9.56	20.7	34.5		10.4	52.9	
m,p xylenes	mg/kg	-	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000		<0.2000		<0.0100	<0.0100	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	
Malathion	mg/kg	-											<0.0500					<0.0500		<0.0500					
MCPA	mg/kg	-											<0.0100					<0.0100		<0.0100					
MCPB	mg/kg	-											<0.0100					<0.0100		<0.0100					
Mecoprop (MCP) (2-(4-chloro-2-methylphenoxy)	mg/kg	-											<0.0100					<0.0100		<0.0100					
Mercury	mg/kg	58		<0.1000		0.143	0.737						<0.1000		<0.1000		0.593	<0.1000	<0.1000	<0.1000	<0.1000		<0.1000	<0.1000	
Methoxychlor	mg/kg	-											<0.0500					<0.0500		<0.0500					
Methyl tert-butyl ether (MTBE)	mg/kg	7500	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000		<0.2000		<0.0100	<0.0100	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	
Methyl tert-pentyl ether	mg/kg	-																<0.2000	<0.2000					<0.2000	
Methylparathion	mg/kg	-											<0.0500					<0.0500		<0.0500					
Mevinphos	mg/kg	-											<0.0500					<0.0500		<0.0500					
Naphthalene-d8	%	-		85.6		82.6	84.4						83.2		87.3		84.3	89.1	78.5	84.4	89.2		79.4	84.8	
Napthalene	mg/kg	190		<0.0090		<0.0090	<0.0090						<0.0090		<0.0090		<0.0090	<0.0090	<0.0090	<0.0090	0.135		<0.0090	<0.0450	
n-Butylbenzene	mg/kg	-															<0.2200	<0.2200						<0.2200	
Nickel	mg/kg	980		20		17	36.6						35.2		1.95		42.5	14.6	22.8	6.26	10.3		8.25	10.1	
Nitrobenzene	mg/kg	-																<0.1000		<0.1000					

			BH65	BH66	BH66	TP01	TP02	TP02	TP04	TP05	TP08	TP08	TP10	TP10	TP13	TP13	TP27	TP32	TP35	TP38	TP39	TP39	TP42	TP43	
Organic matter	%	-		0.884		8.55	3.95						4.12		<0.3500		4.36	<0.3500	<0.3500	1.27	3.5		<0.3500	1.83	
O-Xylene	mg/kg	6600	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000		<0.2000		<0.0100	<0.0100	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	
p,p - DDT	mg/kg	-											<0.1000					<0.1000		<0.0500					
PAH 17 Total	mg/kg	-	<10.0000		<10.0000			<10.0000	<10.0000		<10.0000		<10.0000		<10.0000				<10.0000			<10.0000			
PAH, Total Detected USEPA 16	mg/kg	-		<0.1180		2.9	0.367						8.92		<0.1180		1.05	<0.1180	<0.1180	0.551	98.7		<0.1180	13.9	
PCB 105	mg/kg	-																							
PCB 114	mg/kg	-																							
PCB 123	mg/kg	-																							
PCB 126	mg/kg	-																							
PCB 157	mg/kg	-																							
PCB 167	mg/kg	-																							
PCB 169	mg/kg	-																							
PCB 189	mg/kg	-																							
PCB 77	mg/kg	-																							
PCB 81	mg/kg	-																							
PCB, Total Of 7 Congeners	mg/kg	-	<0.0210		<0.0210			<0.0210	<0.0210		<0.0210		<0.0210		<0.0210				<0.0210			<0.1050			
PCB-101 2,2',4,5,5' - Pentachlorobiphenyl	mg/kg	-	<0.0030		<0.0030			<0.0030	<0.0030		<0.0030		<0.0030		<0.0030				<0.0030			<0.0150			
PCB-118 2,3',4,4',5' - Pentachlorobiphenyl	mg/kg	-	<0.0030		<0.0030			<0.0030	<0.0030		<0.0030		<0.0030		<0.0030				<0.0030			<0.0150			
PCB-138 2,2',3,4,4',5' - Hexachlorobiphenyl	mg/kg	-	<0.0030		<0.0030			<0.0030	<0.0030		<0.0030		<0.0030		<0.0030				<0.0030			<0.0150			
PCB-153 2,2',4,4',5,5' - Hexachlorobiphenyl	mg/kg	-	<0.0030		<0.0030			<0.0030	<0.0030		<0.0030		<0.0030		<0.0030				<0.0030			<0.0150			
PCB-156 2,3,3,4,4,5 - Hexachlorobiphenyl	mg/kg	-																							
PCB-180 2,2',3,4,4',5,5' - Heptachlorobiphenyl	mg/kg	-	<0.0030		<0.0030			<0.0030	<0.0030		<0.0030		<0.0030		<0.0030				<0.0030			<0.0150			
PCB-28 2,4,4' - Trichlorobiphenyl	mg/kg	-	<0.0030		<0.0030			<0.0030	<0.0030		<0.0030		<0.0030		<0.0030				<0.0030			<0.0150			
PCB-52 2,2',5,5' - Tetrachlorobiphenyl	mg/kg	-	<0.0030		<0.0030			<0.0030	<0.0030		<0.0030		<0.0030		<0.0030				<0.0030			<0.0150			
Pentachlorophenol (PCP)	mg/kg	400													<0.1000		<0.1000							<0.2000	
Perylene-d12	%	-		70		72.9	76.1						74.9					82.4	91	74.9	85.2	94.9	89.2	82.9	79
pH	pH Units	-		7.58		7.51	7.51						7.59		8.82		7.44	8.17	7.49	6.7	9.65		8	8.57	
Phenanthrene	mg/kg	22000		<0.0150		0.127	0.0271						0.508		<0.0150		0.0651	<0.0150	<0.0150	0.0295	10.2		<0.0150	0.873	
Phenanthrene-d10	%	-		85.5		85.9	82.8						84		101		87.6	89	81.9	84.7	101		82.5	94.2	
Phenol	mg/kg	440		<0.0100		<0.0100	<0.0100						<0.0100		<0.0100		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0206	
Phenol (Monohydric)	mg/kg	-		<0.0350		<0.0350	<0.0350						<0.0350		<0.0350		<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	<0.0350	
Phorate	mg/kg	-											<0.0500						<0.0500			<0.0500			
Propoxy carbazono-sodium*	mg/kg	-											<0.0100						<0.0100			<0.0100			
Pyrene	mg/kg	54000		<0.0150		0.393	0.0574						1.5		<0.0150		0.175	<0.0150	<0.0150	0.0689	18.3		<0.0150	2.54	
Sec-Butylbenzene	mg/kg	-													<0.2000		<0.2000							<0.2000	
Selenium	mg/kg	12000		<1.0000		<1.0000	<1.0000						<1.0000		<1.0000		<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	<1.0000	
Silvex	mg/kg	-											<0.0100						<0.0100						
Styrene	mg/kg	3200													<0.2000		<0.2000							<0.2000	
Sum of detected WHO 12 PCBs*	mg/kg	-																							
Tert-Butylbenzene	mg/kg	-													<0.2800		<0.2800							<0.2800	
Tetrachloroethene	mg/kg	19													<0.1000		<0.1000							<0.1000	
Tetrachloromethane (Carbon Tetra Chloride)	mg/kg	2.9													<0.2000		<0.2000							<0.2000	
Toluene	mg/kg	56000	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400		<0.1400		<0.0070	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	
Toluene-D8	%	-	98.1	98.5	97.5	97.6	96.9	96.8		100			94.9	100	99.7	101	98.4	98.3	100	99.1	96.9	96	99.5	97.5	
Total BTEX	mg/kg	-		<0.8000		<0.8000	<0.8000						<0.0400		<0.8000		<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	
Total Coliforms*	CFU/g	-																							
Total Organic Carbon	%	-	0.628		<0.2000					0.507	0.226	1.7	1.03	0.3						<0.2000			2.63		
TPH >C5-40*	mg/kg	-		<35.0000		<35.0000	<35.0000						48	7.58											
trans-1,2-Dichloroethene	mg/kg	21													<0.2000		<0.2000							<0.2000	
trans-1,3-Dichloropropene	mg/kg	-													<0.2000		<0.2000							<0.2000	
Tribromomethane	mg/kg	710													<0.2000		<0.2000							<0.2000	
Trichloroethene	mg/kg	1.2													<0.1800		<0.1800							<0.1800	
Trichlorofluoromethane	mg/kg	-													<0.1200		<0.1200							<0.1200	
Triclopnr	mg/kg	-											<0.0100						<0.0100			<0.0100			
Triclosan*	mg/kg	-											<0.0100						<0.0100			<0.0100			
Vanadium	mg/kg	9000		22.3		21.2	46.3						47.8		3.77		63.7	14.7	14.4	11.6	15.4		13.9	15.4	
Water Soluble Sulphate as SO4 2:1 Extract*	g/l	-		<0.0040		0.0064	0.0382						<0.0040		0.0086		0.0388	0.0274	0.0049	0.0111	0.0509		<0.0040	0.0187	
Xylene	mg/kg	-		<0.4000		<0.4000	<0.4000						<0.0200		<0.4000		<0.4000	<0.4000	<0.4000	<0.4000	<0.4000	<0.4000	<0.4000	<0.4000	
Xylenols	mg/kg	-		<0.0150		<0.0150	<0.0150						<0.0150		<0.0150		<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	
Zinc	mg/kg	730000		76.5		84	275						255		34.4		283	40.6	52.5	40.3	66.6		33.2	131	

Determinant Name	Units	Commercial 1% SOM	TP46	TP49	TP50	WS04	WS04	WS08	WS08	WS10	WS12	WS13	WS15	WS17	WS23	WS23	WS26	WS28	WS28	WS29	WS46	WS46	WS48	WS48	
			0.1	0.1	0.8	0.1	0.9	0.1	0.7	0.1	0.1	0.9	0.1	0.6	0.1	0.9	0.1	0.1	0.7	0.1	2.3	3	0.6	2.5	
1,1,1,2-Tetrachloroethane	mg/kg	110																			<0.2000	<0.2000	<0.2000		
1,1,1-Trichloroethane	mg/kg	660																			<0.1400	<0.1400	<0.1400		
1,1,2,2-Tetrachloroethane	mg/kg	270																			<0.2000	<0.2000	<0.2000		
1,1,2-Trichloroethane	mg/kg	89																			<0.2000	<0.2000	<0.2000		
1,1-Dichloroethane	mg/kg	260																			<0.1600	<0.1600	<0.1600		
1,1-Dichloroethene	mg/kg	24																			<0.2000	<0.2000	<0.2000		
1,1-Dichloropropene	mg/kg	-																			<0.2000	<0.2000	<0.2000		
1,2,3-Trichlorobenzene	mg/kg	102																			<0.4000	<0.4000	<0.4000		
1,2,3-Trichloropropane	mg/kg	-																			<0.3200	<0.3200	<0.3200		
1,2,4-Trichlorobenzene	mg/kg	220																			<0.4000	<0.1000	<0.1000		
1,2,4-Trimethylbenzene	mg/kg	39																			<0.1800	<0.1800	<0.1800		
1,2-Dibromo-3-Chloropropane	mg/kg	-																			<0.2800	<0.2800	<0.2800		
1,2-Dibromoethane	mg/kg	-																			<0.2000	<0.2000	<0.2000		
1,2-Dichlorobenzene	mg/kg	2000																			<0.2000	<0.1000	<0.1000		
1,2-Dichloroethane	mg/kg	0.67																			<0.1000	<0.1000	<0.1000		
1,2-Dichloropropane	mg/kg	3.1																			<0.2000	<0.2000	<0.2000		
1,3,5-Trichlorobenzene	mg/kg	23																			<0.4000	<0.4000	<0.4000		
1,3,5-Trimethylbenzene	mg/kg	-																			<0.1600	<0.1600	<0.1600		
1,3-Dichlorobenzene	mg/kg	30																			<0.1600	<0.1000	<0.1000		
1,3-Dichloropropane	mg/kg	-																			<0.1400	<0.1400	<0.1400		
1,4-Dichlorobenzene	mg/kg	4400																			<0.1000	<0.1000	<0.1000		
2-(2,4-Dichlorophenoxy)propionic Acid	mg/kg	-				<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100							
2,2-Dichloropropane	mg/kg	-																			<0.2000	<0.2000	<0.2000		
2,4,5-Trichlorophenol	mg/kg	-																			<5.0000	<0.1000	<0.1000		
2,4,5-Trichlorophenoxy Acetic Acid (T)	mg/kg	-				<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100							
2,4,6-Trichlorophenol	mg/kg	-																			<5.0000	<0.1000	<0.1000		
2,4-Dichlorophenol	mg/kg	-																			<5.0000	<0.1000	<0.1000		
2,4-Dichlorophenoxy Acetic Acid (D)	mg/kg	-				<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100							
2,4-Dimethylphenol	mg/kg	16000																			<5.0000	<0.1000	<0.1000		
2,4-Dinitrotoluene	mg/kg	3700																			<5.0000	<0.1000	<0.1000		
2,6-Dinitrotoluene	mg/kg	1900																			<5.0000	<0.1000	<0.1000		
2-Chloronaphthalene	mg/kg	370																			<5.0000	<0.1000	<0.1000		
2-Chlorophenol	mg/kg	-																			<5.0000	<0.1000	<0.1000		
2-Chlorotoluene	mg/kg	-																			<0.1800	<0.1800	<0.1800		
2-Methyl-4,6-Dinitrophenol	mg/kg	-				<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100							
2-Methylnaphthalene	mg/kg	-																			47.5	<0.1000	0.48		
2-Methylphenol	mg/kg	-																			<5.0000	<0.1000	<0.1000		
2-Nitroaniline	mg/kg	-																			<5.0000	<0.1000	<0.1000		
2-Nitrophenol	mg/kg	-																			<5.0000	<0.1000	<0.1000		
2-sec-Butyl-4,6-dinitrophenol	mg/kg	-				<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100							
3-Nitroaniline	mg/kg	-																			<5.0000	<0.1000	<0.1000		
4,4-DDD*	mg/kg	-				<0.0500		<0.0500		<0.0500		<0.0500		<0.0500		<0.0500		<0.0500							
4,4-DDE	mg/kg	-				<0.0500		<0.0500		<0.0500		<0.0500		<0.0500		<0.0500		<0.0500							
4-Bromofluorobenzene Surrogate*	%	-	97.7	96	102		105		105	99.1		97.9		96.9		100	96.7		85.4	94.1	87.1	101	90.4		
4-Bromophenyl Phenyl Ether	mg/kg	-																			<5.0000	<0.1000	<0.1000		
4-Chloro Phenyl Ether	mg/kg	-																			<5.0000	<0.1000	<0.1000		
4-Chloro-3-Methylphenol	mg/kg	-																			<5.0000	<0.1000	<0.1000		
4-Chloroaniline	mg/kg	-																			<5.0000	<0.1000	<0.1000		
4-Chlorotoluene	mg/kg	-																			<0.2000	<0.2000	<0.2000		
4-Cpa	mg/kg	-				<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100							
4-Isopropyltoluene	mg/kg	-																			<0.2000	<0.2000	<0.2000		
4-Methylphenol	mg/kg	-																			8.26	<0.1000	<0.1000		
4-Nitroaniline	mg/kg	-																			<5.0000	<0.1000	<0.1000		
4-Nitrophenol	mg/kg	-																			<5.0000	<0.1000	<0.1000		
Acenaphthene	mg/kg	84000	<0.0080	<0.0080	<0.0080		<0.0080		<0.0080	<0.0080		<0.0080		<0.0080		<0.0080	<0.0080		<0.0080	<0.0080	<5.0000	<0.0080	0.0114		
Acenaphthene-d10	%	-	96.3	80.9	95		87.9		89.9	90.1		88.4		92.4		76.8	79.1		77.1	84	380	82.6	90.7		
Acenaphthylene	mg/kg	83000	0.0747	<0.0120	<0.0120		<0.0120		<0.0120	<0.0120		<0.0120		<0.0120		<0.0120	<0.0120		<0.0120	<0.0120	<5.0000	<0.0120	0.0744		
Acifluorfen	mg/kg	-				<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100							
Additional Asbestos Components*	No units	-																							
Aldrin	mg/kg	170				<0.0500		<0.0500		<0.0500		<0.0500		<0.0500		<0.0500		<0.0500							
Aliphatics & Aromatics >C10-44	mg/kg	-	21.4	19.6	<10.0000		<10.0000		<10.0000	<10.0000		<10.0000		<10.0000		<10.0000	15.7		<10.0000	15.9	50600	<10.0000	44.8		
Aliphatics & Aromatics >C5-44	mg/kg	-	21.4	19.6	<10.0000		<10.0000		<10.0000	<10.0000		<10.0000		<10.0000		<10.0000	15.7		<10.0000	15.9	50600	<10.0000	44.8		
Aliphatics >C10-12	mg/kg	9700	<1.0000	<1.0000	<1.0000		<1.0000		<1.0000	<1.0000		<1.0000		<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	35.3	<1.0000	<1.0000		
Aliphatics >C10-40*	mg/kg	-																			<5.0000	305			

			TP46	TP49	TP50	WS04	WS04	WS08	WS08	WS10	WS12	WS13	WS15	WS17	WS23	WS23	WS26	WS28	WS28	WS29	WS46	WS46	WS48	WS48
Aliphatics >C10-44*	mg/kg	-	9.47	10.4	<5.0000		<5.0000		<5.0000	<5.0000		<5.0000		6.16		<5.0000	9.18		<5.0000	8.27	804	<5.0000	18.9	
Aliphatics >C12-16	mg/kg	59000	<1.0000	<1.0000	<1.0000		<1.0000		<1.0000	<1.0000		<1.0000		<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	453	<1.0000	<1.0000	
Aliphatics >C16-21	mg/kg	-	<1.0000	<1.0000	<1.0000		<1.0000		<1.0000	<1.0000		<1.0000		<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	270	<1.0000	2.07	
Aliphatics >C21-35	mg/kg	-	8.97	9.22	1.88		<1.0000		1.41	2.42		<1.0000		5.63		1.59	8.74		<1.0000	6.94	45.3	1.34	15.1	
Aliphatics >C35-44	mg/kg	1600000	<1.0000	1.15	<1.0000		<1.0000		<1.0000	<1.0000		<1.0000		<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<10.0000	<1.0000	<1.0000	
Aliphatics >C5-6	mg/kg	3200	<0.0100	<0.0100	<0.0100		<0.0100		<0.0100	<0.0100		<0.0100		<0.0100		<0.0100	<0.0100		<0.0100	<0.0100	0.602	0.0372	<0.0100	
Aliphatics >C6-8	mg/kg	7800	<0.0100	<0.0100	<0.0100		<0.0100		<0.0100	<0.0100		<0.0100		<0.0100		<0.0100	<0.0100		<0.0100	<0.0100	0.53	0.0552	<0.0100	
Aliphatics >C8-10	mg/kg	2000	<0.0100	<0.0100	<0.0100		<0.0100		<0.0100	<0.0100		<0.0100		<0.0100		<0.0100	<0.0100		<0.0100	<0.0100	1.84	0.408	<0.0100	
Aliphatics C5-C10*	mg/kg	-	<0.0500	<0.0500	<0.0500		<0.0500		<0.0500	<0.0500		<0.0500		<0.0500		<0.0500	<0.0500		<0.0500	<0.0500	2.98	0.5	<0.0500	
alpha-Hexachlorocyclohexane	mg/kg	170				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Ammoniacal Nitrogen as N	mg/kg	-	19.5	<12.0000	<12.0000		<12.0000		<12.0000	<12.0000		<12.0000		<12.0000		<12.0000	<12.0000		<12.0000	<12.0000	<12.0000	19.6	<12.0000	
Ammoniacal Nitrogen as NH4	mg/kg	-	4.45	3.45	4.11		1.24		1.81	2.32		2.31		2.26		1.24	1.71		0.909	1.76	6.18	14.2	8.75	
Anthracene	mg/kg	520000	0.0578	<0.0160	<0.0160		<0.0160		<0.0160	<0.0160		<0.0160		<0.0160		<0.0160	<0.0160		<0.0160	<0.0160	<5.0000	<0.0160	0.143	
Aromatics >C10-12	mg/kg	16000	<1.0000	<1.0000	<1.0000		<1.0000		<1.0000	<1.0000		<1.0000		<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	46900	<1.0000	<1.0000	
Aromatics >C10-44*	mg/kg	-	11.9	9.17	<5.0000		<5.0000		<5.0000	<5.0000		<5.0000		<5.0000		<5.0000	6.51		<5.0000	7.6	49800	<5.0000	26	
Aromatics >C12-16	mg/kg	36000	<1.0000	<1.0000	<1.0000		<1.0000		<1.0000	<1.0000		<1.0000		<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	2070	<1.0000	1.84	
Aromatics >C16-21	mg/kg	28000	1.45	<1.0000	<1.0000		<1.0000		<1.0000	<1.0000		<1.0000		<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	841	<1.0000	3.58	
Aromatics >C21-35	mg/kg	28000	9.39	7.65	<1.0000		1.2		<1.0000	<1.0000		1.15		1.24		<1.0000	4.75		<1.0000	6.08	48.5	1.14	19	
Aromatics >C35-44	mg/kg	28000	<1.0000	<1.0000	<1.0000		<1.0000		1.2	<1.0000		<1.0000		<1.0000		1.86	1.41		<1.0000	<1.0000	<10.0000	<1.0000	1.38	
Aromatics >C40-44	mg/kg	-	<1.0000	<1.0000	<1.0000		<1.0000		<1.0000	<1.0000		<1.0000		<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<10.0000	<1.0000	<1.0000	
Aromatics >C5-7	mg/kg	26000	<0.0100	<0.0100	<0.0100		<0.0100		<0.0100	<0.0100		<0.0100		<0.0100		<0.0100	<0.0100		<0.0100	<0.0100	<0.2000	<0.0100	<0.0100	
Aromatics >C7-8	mg/kg	56000	<0.0100	<0.0100	<0.0100		<0.0100		<0.0100	<0.0100		<0.0100		<0.0100		<0.0100	<0.0100		<0.0100	<0.0100	<0.2000	<0.0100	<0.0100	
Aromatics >C8-10	mg/kg	3500	<0.0100	<0.0100	<0.0100		<0.0100		<0.0100	<0.0100		<0.0100		<0.0100		<0.0100	<0.0100		<0.0100	<0.0100	1.23	0.272	<0.0100	
Aromatics C5-C10*	mg/kg	-	<0.0500	<0.0500	<0.0500		<0.0500		<0.0500	<0.0500		<0.0500		<0.0500		<0.0500	<0.0500		<0.0500	<0.0500	1.23	0.272	<0.0500	
Arsenic	mg/kg	640	6.8	5.67	8.86		11.2		12.3	14.5		9.82		14.8		18.8	14.9		15.7	15.9	610	104	20.5	
Azinphos-methyl	mg/kg	-				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Azobenzene	mg/kg	-																			<5.0000	<0.1000	<0.1000	
Bentazone	mg/kg	-				<0.0100		<0.0100			<0.0100		<0.0100		<0.0100			<0.0100						
Benzene	mg/kg	27	<0.1800	<0.1800	<0.1800		<0.1800		<0.1800	<0.1800		<0.1800		<0.1800		<0.1800	<0.1800		<0.1800	<0.1800	<0.1800	<0.1800	<0.1800	
Benzo (g,h,i) perylene	mg/kg	3900	0.267	0.104	<0.0240		<0.0240		<0.0240	<0.0240		<0.0240		0.0535		<0.0240	0.0565		<0.0240	0.0466	<5.0000	<0.0240	0.393	
Benzo(a)anthracene	mg/kg	170	0.355	0.0902	0.0213		<0.0140		<0.0140	<0.0140		<0.0140		0.0649		<0.0140	0.059		<0.0140	0.0687	<5.0000	<0.0140	0.776	
Benzo(a)pyrene	mg/kg	35	0.361	0.111	0.0221		<0.0150		<0.0150	<0.0150		<0.0150		0.0635		<0.0150	0.064		<0.0150	0.0647	<5.0000	<0.0150	0.612	
Benzo(b)fluoranthene	mg/kg	44	0.554	0.205	0.0346		<0.0150		<0.0150	0.0236		<0.0150		0.101		<0.0150	0.111		<0.0150	0.109	<5.0000	<0.0150	0.975	
Benzo(k)fluoranthene	mg/kg	1200	0.214	0.0606	<0.0140		<0.0140		<0.0140	<0.0140		<0.0140		0.0329		<0.0140	0.0356		<0.0140	0.0359	<5.0000	<0.0140	0.339	
beta-Hexachlorocyclohexane	mg/kg	65				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Bis(2-chloroethoxy)methane	mg/kg	-																			<5.0000	<0.1000	<0.1000	
Bis(2-chloroethyl)ether	mg/kg	-																			<5.0000	<0.1000	<0.1000	
Bis(2-chloroisopropyl)ether	mg/kg	-																			<5.0000	<0.1000	<0.1000	
Bis(2-ethylhexyl)phthalate	mg/kg	85000																			<5.0000	<0.1000	0.468	
Boron	mg/kg	240000	<1.0000	<1.0000	<1.0000		<1.0000		<1.0000	1.14		<1.0000		<1.0000		<1.0000	1.36		<1.0000	1.33	<1.0000	1.14	<1.0000	
Bromobenzene	mg/kg	92																			<0.2000	<0.2000	<0.2000	
Bromochloromethane	mg/kg	-																			<0.2000	<0.2000	<0.2000	
Bromodichloromethane	mg/kg	2																			<0.1400	<0.1400	<0.1400	
Bromomethane	mg/kg	-																			<0.2000	<0.2000	<0.2000	
Bromoxynil	mg/kg	-				<0.0100		<0.0100			<0.0100		<0.0100		<0.0100			<0.0100						
Butylbenzylphthalate	mg/kg	940000																			<5.0000	<0.1000	<0.1000	
Butyric Acid (4-(2,4-dichlorophenoxy)-Butanoic acid (DB))	mg/kg	-				<0.0100		<0.0100			<0.0100		<0.0100		<0.0100			<0.0100						
Cadmium	mg/kg	190	0.18	0.324	0.0706		2.41		2.04	2		1.52		2.26		3.83	2.32		3.64	2.09	0.101	0.0545	0.534	
Carbazole	mg/kg	-																			<5.0000	<0.1000	<0.1000	
Carbon Disulphide	mg/kg	11																			<0.1400	<0.1400	<0.1400	
Chlorobenzene	mg/kg	56																			<0.1000	<0.1000	<0.1000	
Chloroethane	mg/kg	900																						

			TP46	TP49	TP50	WS04	WS04	WS08	WS08	WS10	WS12	WS13	WS15	WS17	WS23	WS23	WS26	WS28	WS28	WS29	WS46	WS46	WS48	WS48
Cyanide	mg/kg	-	<1.0000	<1.0000	<1.0000		<1.0000		<1.0000	<1.0000		<1.0000		<1.0000		<1.0000	<1.0000	<1.0000	<1.0000		13.6	17.8	<1.0000	
Diazinon	mg/kg	-				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500		<0.0500							
Dibenz-a-h-anthracene	mg/kg	3.5	0.068	<0.0230	<0.0230		<0.0230		<0.0230	<0.0230		<0.0230		<0.0230		<0.0230	<0.0230	<0.0230	<0.0230		<5.0000	<0.0230	0.071	
Dibenzofuran	mg/kg	-																				28.9	<0.1000	<0.1000
Dibromochloromethane	mg/kg	-																			<0.2000	<0.2000	<0.2000	
Dibromofluoromethane (surrogate)*	%	-	104	105	102		110		105	108		114		109		112	105		106	115		108	113	103
Dibromomethane	mg/kg	-																				<0.1800	<0.1800	<0.1800
Dicamba*	mg/kg	-				<0.0100		<0.0100			<0.0100		<0.0100		<0.0100			<0.0100						
Dichlorodifluoromethane	mg/kg	-																				<0.1200	<0.1200	<0.1200
Dichloromethane	mg/kg	260																				<0.2000	<0.2000	<0.2000
Dichlorvos	mg/kg	140				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Diclofop	mg/kg	-				<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100						
Dieldrin	mg/kg	170				<0.0500		<0.0500		<0.0500		<0.0500		<0.0500		<0.0500		<0.0500						
Diethylphthalate	mg/kg	140000																				<5.0000	<0.1000	<0.1000
Dimethylphthalate	mg/kg	-																				<5.0000	<0.1000	<0.1000
Di-N-Butyl Phthalate	mg/kg	15000																				<5.0000	<0.1000	<0.1000
Di-N-Octyl Phthalate	mg/kg	89000																				<5.0000	<0.1000	<0.1000
Disulfoton	mg/kg	-				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Endosulfan I	mg/kg	5600				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Endosulfan II	mg/kg	6300				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Endosulfan Sulfate	mg/kg	-				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Endrin	mg/kg	-				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Enterococci	CFU/g	-																				<10.0000		7200
EPH >C10-40	mg/kg	-	47.1	<35.0000	<35.0000		<35.0000		<35.0000	<35.0000		<35.0000		<35.0000		<35.0000	<35.0000		<35.0000	<35.0000		20100	<35.0000	61
EPH Surrogate % recovery*	%	-	96	102	106		94.2		102	99.9		90.3		104		103	105		101	105		139	93.2	98.6
Ethion	mg/kg	-				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Ethylbenzene	mg/kg	5700	<0.0800	<0.0800	<0.0800		<0.0800		<0.0800	<0.0800		<0.0800		<0.0800		<0.0800	<0.0800		<0.0800	<0.0800		<0.0800	<0.0800	<0.0800
Ethylparathion	mg/kg	-				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Fenitrothion	mg/kg	-				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Fluoranthene	mg/kg	23000	0.67	0.149	<0.0170		<0.0170		<0.0170	0.0267		<0.0170		0.121		<0.0170	0.119		<0.0170	0.129		<5.0000	<0.0170	1.31
Fluorene	mg/kg	63000	0.011	<0.0100	<0.0100		<0.0100		<0.0100	<0.0100		<0.0100		<0.0100		<0.0100	<0.0100		<0.0100	<0.0100		<5.0000	<0.0100	0.0234
Fluroxypyr*	mg/kg	-				<0.0100		<0.0100			<0.0100		<0.0100		<0.0100			<0.0100						
gamma-hexachlorocyclohexane	mg/kg	67				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
GRO >C5-10	mg/kg	-	<0.0200	<0.0200	<0.0200		<0.0200		<0.0200	<0.0200		<0.0200		<0.0200		<0.0200	<0.0200		<0.0200	<0.0200		4.2	0.773	<0.0200
GRO Surrogate % recovery	%	-	99.3	85.7	114		103		108	80.7		101		101		108	84		122	95.2		104	102	71.6
Heptachlor	mg/kg	-				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Heptachlor Epoxide	mg/kg	-				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Hexachlorobenzene (HCB)	mg/kg	110																				<5.0000	<0.1000	<0.1000
Hexachlorobutadiene (HCBD)	mg/kg	31																				<0.4000	<0.1000	<0.1000
Hexachlorocyclopentadiene	mg/kg	-																				<5.0000	<0.2000	<0.1000
Hexachloroethane	mg/kg	21																				<5.0000	<0.1000	<0.1000
Indeno(1,2,3-cd)pyrene	mg/kg	500	0.305	0.139	0.0213		<0.0180		<0.0180	<0.0180		<0.0180		0.0546		<0.0180	0.051		<0.0180	0.0483		<5.0000	<0.0180	0.426
Ioxynil	mg/kg	-				<0.0100		<0.0100			<0.0100		<0.0100		<0.0100			<0.0100						
Iron	mg/kg	-	16500	10900	21900		28500		28600	33700		24800		36700		43000	32800		31800	35700		2620	31200	24300
Isophorone	mg/kg	-																				<5.0000	<0.1000	<0.1000
Isopropylbenzene	mg/kg	1300																				<0.1000	<0.1000	<0.1000
Lead	mg/kg	2300	74	37.5	27		68.6		55.2	131		97.6		138		97.2	142		69.1	140		70.8	16.5	145
m,p xylenes	mg/kg	-	<0.2000	<0.2000	<0.2000		<0.2000		<0.2000	<0.2000		<0.2000		<0.2000		<0.2000	<0.2000		<0.2000	<0.2000		<0.2000	<0.2000	<0.2000
Malathion	mg/kg	-				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
MCPA	mg/kg	-				<0.0100		<0.0100			<0.0100		<0.0100		<0.0100			<0.0100						
MCPB	mg/kg	-				<0.0100		<0.0100			<0.0100		<0.0100		<0.0100			<0.0100						
Mecoprop (MCP) (2-(4-chloro-2-methylphenoxy)	mg/kg	-				<0.0100		<0.0100			<0.0100		<0.0100		<0.0100			<0.0100						
Mercury	mg/kg	58	<0.1000	<0.1000	<0.1000		<0.1000		<0.1000	<0.1000		<0.1000		<0.1000		<0.1000	<0.1000		<0.1000	<0.1000		0.579	<0.1000	<0.1000
Methoxychlor	mg/kg	-				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Methyl tert-butyl ether (MTBE)	mg/kg	7500	<0.2000	<0.2000	<0.2000		<0.2000		<0.2000	<0.2000		<0.2000		<0.2000		<0.2000	<0.2000		<0.2000	<0.2000		<0.2000	<0.2000	<0.2000
Methyl tert-pentyl ether	mg/kg	-																				<0.2000	<0.2000	<0.2000
Methylparathion	mg/kg	-				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Mevinphos	mg/kg	-				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Naphthalene-d8	%	-	88.3	82.8	88.4		88.4		87.2	87.9		88.4		87.6		87.								

			TP46	TP49	TP50	WS04	WS04	WS08	WS08	WS10	WS12	WS13	WS15	WS17	WS23	WS23	WS26	WS28	WS28	WS29	WS46	WS46	WS48	WS48
Organic matter	%	-	3.36	1.66	0.819		0.952		1.46	3.4		0.845		2.6		1.38	2.74		0.641	5.38	0.888	0.9	26.5	
O-Xylene	mg/kg	6600	<0.2000	<0.2000	<0.2000		<0.2000		<0.2000	<0.2000		<0.2000		<0.2000		<0.2000	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	
p,p - DDT	mg/kg	-				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
PAH 17 Total	mg/kg	-																	<10.0000		19100			
PAH, Total Detected USEPA 16	mg/kg	-	4.06	1.15	0.156		<0.1180		<0.1180	<0.1180		<0.1180		0.716		<0.1180	0.706		<0.1180	0.729	19100	0.354	7.89	
PCB 105	mg/kg	-																			<0.0030		<0.0030	
PCB 114	mg/kg	-																			<0.0030		<0.0030	
PCB 123	mg/kg	-																			<0.0030		<0.0030	
PCB 126	mg/kg	-																			<0.0030		<0.0030	
PCB 157	mg/kg	-																			<0.0030		<0.0030	
PCB 167	mg/kg	-																			<0.0030		<0.0030	
PCB 169	mg/kg	-																			<0.0030		<0.0030	
PCB 189	mg/kg	-																			<0.0030		<0.0030	
PCB 77	mg/kg	-																			<0.0030		<0.0030	
PCB 81	mg/kg	-																			<0.0030		<0.0030	
PCB, Total Of 7 Congeners	mg/kg	-																		<0.0210	<0.0210			
PCB-101 2,2',4,5,5' - Pentachlorobiphenyl	mg/kg	-																		<0.0030	<0.0030			
PCB-118 2,3',4,4',5' - Pentachlorobiphenyl	mg/kg	-																		<0.0030	<0.0030		<0.0030	
PCB-138 2,2',3,4,4',5' - Hexachlorobiphenyl	mg/kg	-																		<0.0030	<0.0030			
PCB-153 2,2',4,4',5,5' - Hexachlorobiphenyl	mg/kg	-																		<0.0030	<0.0030			
PCB-156 2,3,3,4,4,5 - Hexachlorobiphenyl	mg/kg	-																			<0.0030		<0.0030	
PCB-180 2,2',3,4,4',5,5' - Heptachlorobiphenyl	mg/kg	-																		<0.0030	<0.0030			
PCB-28 2,4,4' - Trichlorobiphenyl	mg/kg	-																		<0.0030	<0.0030			
PCB-52 2,2',5,5' - Tetrachlorobiphenyl	mg/kg	-																		<0.0030	<0.0030			
Pentachlorophenol (PCP)	mg/kg	400																			<5.0000	<0.1000	<0.1000	
Perylene-d12	%	-	80.1	92	80.6		84.4		84.7	74.7		87.1		75.9		78.5	75.7		78.2	91.5	360	68.8	71.2	
pH	pH Units	-	6.71	6.46	7.64		7.49		7.3	7.56		7.71		7.66		7.66	6.44		7.42	6.53	12.5	3.13	8.24	
Phenanthrene	mg/kg	22000	0.204	0.0543	<0.0150		<0.0150		<0.0150	<0.0150		<0.0150		0.0411		<0.0150	0.0424		<0.0150	0.0468	79.6	<0.0150	0.513	
Phenanthrene-d10	%	-	95.9	77.4	94.8		87.8		86.3	84.3		82.9		90.7		74.1	87.6		80	90.5	440	80.1	91.2	
Phenol	mg/kg	440	<0.0100	<0.0100	<0.0100		0.0124		<0.0100	<0.0100		<0.0100		<0.0100		<0.0100	<0.0100		<0.0100	<0.0100	1.58	<0.0100	<0.0100	
Phenol (Monohydric)	mg/kg	-	<0.0350	<0.0350	<0.0350		<0.0350		<0.0350	<0.0350		<0.0350		<0.0350		<0.0350	<0.0350		<0.0350	<0.0350	56.1	<0.0350	<0.0350	
Phorate	mg/kg	-				<0.0500		<0.0500			<0.0500		<0.0500		<0.0500			<0.0500						
Propoxy carbazono-sodium*	mg/kg	-				<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100						
Pyrene	mg/kg	54000	0.56	0.137	0.0392		<0.0150		<0.0150	0.0233		<0.0150		0.109		<0.0150	0.102		<0.0150	0.113	<5.0000	<0.0150	1.18	
Sec-Butylbenzene	mg/kg	-																			<0.2000	<0.2000	<0.2000	
Selenium	mg/kg	12000	<1.0000	<1.0000	<1.0000		<1.0000		1.01	<1.0000		<1.0000		1.32		<1.0000	1.1		<1.0000	1.16	<1.0000	<1.0000	<1.0000	
Silvex	mg/kg	-				<0.0100		<0.0100			<0.0100		<0.0100		<0.0100			<0.0100						
Styrene	mg/kg	3200																			<0.2000	<0.2000	<0.2000	
Sum of detected WHO 12 PCBs*	mg/kg	-																			<0.0360	<0.0360	<0.0360	
Tert-Butylbenzene	mg/kg	-																			<0.2800	<0.2800	<0.2800	
Tetrachloroethene	mg/kg	19																			<0.1000	<0.1000	<0.1000	
Tetrachloromethane (Carbon Tetra Chloride)	mg/kg	2.9																			<0.2000	<0.2000	<0.2000	
Toluene	mg/kg	56000	<0.1400	<0.1400	<0.1400		<0.1400		<0.1400	<0.1400		<0.1400		<0.1400		<0.1400	<0.1400		<0.1400	<0.1400	<0.1400	<0.1400	<0.1400	
Toluene-D8	%	-	98	101	98.7		99.3		97.8	97.5		97.3		97.1		101	95.8		113	100	96.8	100	98.4	
Total BTEX	mg/kg	-	<0.8000	<0.8000	<0.8000		<0.8000		<0.8000	<0.8000		<0.8000		<0.8000		<0.8000	<0.8000		<0.8000	<0.8000	<0.8000	<0.8000	<0.8000	
Total Coliforms*	CFU/g	-																				<10.0000		<10.0000
Total Organic Carbon	%	-																	0.372		0.515			
TPH >C5-40*	mg/kg	-	47.1	<35.0000	<35.0000		<35.0000		<35.0000	<35.0000		<35.0000		<35.0000		<35.0000	<35.0000		<35.0000	<35.0000	20100	<35.0000	61	
trans-1,2-Dichloroethene	mg/kg	21																			<0.2000	<0.2000	<0.2000	
trans-1,3-Dichloropropene	mg/kg	-																			<0.2000	<0.2000	<0.2000	
Tribromomethane	mg/kg	710																			<0.2000	<0.2000	<0.2000	
Trichloroethene	mg/kg	1.2																			<0.1800	<0.1800	0.28	
Trichlorofluoromethane	mg/kg	-																			<0.1200	<0.1200	<0.1200	
Triclopyr	mg/kg	-				<0.0100		<0.0100			<0.0100		<0.0100		<0.0100			<0.0100						
Triclosan*	mg/kg	-				<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100						
Vanadium	mg/kg	9000	15.3	10.5	21.8		29.8		42.8	48.9		28.2		50.7		50.1	49.4		33.1	48.4	4.68	43.4	49.1	
Water Soluble Sulphate as SO4 2:1 Extract*	g/l	-	0.0135	0.0146	0.0204		0.0559		0.0332	0.0254		0.0301		0.0203		0.0246	0.017		0.0195	0.0054	1.08	1.02	0.0394	
Xylene	mg/kg	-	<0.4000	<0.4000	<0.4000		<0.4000		<0.4000	<0.4000		<0.4000		<0.4000		<0.4000	<0.4000		<0.4000	<0.4000	<0.4000	<0.4000	<0.4000	
Xylenols	mg/kg	-	<0.0150	<0.0150	<0.0150		<0.0150		<0.0150	<0.0150		<0.0150		<0.0150		<0.0150	<0.0150		<0.0150	<0.0150	42.8	<0.0150	<0.0150	
Zinc	mg/kg	730000	68.1	53.3	58.5		222		217	258		188		288		389	250		273	282	51.8	69.8	287	

Determinant Name	Units	Commercial 1% SOM	WS50A	WS50A	WS54	WS54	WS57	WS57	WS64	WS64	WS65	WS66	WS66	WS68	WS69	WS72	WS72	WS73
			1.5	2.5	0.6	3	0.1	1	0.1	1.8	0.6	0.1	0.9	0.1	0.1	0.1	0.8	0.1
1,1,1,2-Tetrachloroethane	mg/kg	110	<0.2000															
1,1,1-Trichloroethane	mg/kg	660	<0.1400															
1,1,1,2-Tetrachloroethane	mg/kg	270	<0.2000															
1,1,2-Trichloroethane	mg/kg	89	<0.2000															
1,1-Dichloroethane	mg/kg	260	<0.1600															
1,1-Dichloroethene	mg/kg	24	<0.2000															
1,1-Dichloropropene	mg/kg	-	<0.2000															
1,2,3 Trichlorobenzene	mg/kg	102	<0.4000															
1,2,3-Trichloropropane	mg/kg	-	<0.3200															
1,2,4-Trichlorobenzene	mg/kg	220	<0.1000															
1,2,4-Trimethylbenzene	mg/kg	39	<0.1800															
1,2-Dibromo-3-Chloropropane	mg/kg	-	<0.2800															
1,2-Dibromoethane	mg/kg	-	<0.2000															
1,2-Dichlorobenzene	mg/kg	2000	<0.1000															
1,2-Dichloroethane	mg/kg	0.67	<0.1000															
1,2-Dichloropropane	mg/kg	3.1	<0.2000															
1,3,5 Trichlorobenzene	mg/kg	23	<0.4000															
1,3,5-Trimethylbenzene	mg/kg	-	<0.1600															
1,3-Dichlorobenzene	mg/kg	30	<0.1000															
1,3-Dichloropropane	mg/kg	-	<0.1400															
1,4-Dichlorobenzene	mg/kg	4400	<0.1000															
2-(2,4-Dichlorophenoxy)propionic Acid	mg/kg	-					<0.0100		<0.0100			<0.0100		<0.0100				
2,2-Dichloropropane	mg/kg	-	<0.2000															
2,4,5-Trichlorophenol	mg/kg	-	<0.1000															
2,4,5-Trichlorophenoxy Acetic Acid (T)	mg/kg	-					<0.0100		<0.0100			<0.0100		<0.0100				
2,4,6-Trichlorophenol	mg/kg	-	<0.1000															
2,4-Dichlorophenol	mg/kg	-	<0.1000															
2,4-Dichlorophenoxy Acetic Acid (D)	mg/kg	-					<0.0100		<0.0100			<0.0100		<0.0100				
2,4-Dimethylphenol	mg/kg	16000	<0.1000															
2,4-Dinitrotoluene	mg/kg	3700	<0.1000															
2,6-Dinitrotoluene	mg/kg	1900	<0.1000															
2-Chloronaphthalene	mg/kg	370	<0.1000															
2-Chlorophenol	mg/kg	-	<0.1000															
2-Chlorotoluene	mg/kg	-	<0.1800															
2-Methyl-4,6-Dinitrophenol	mg/kg	-					<0.0100		<0.0100			<0.0100		<0.0100				
2-Methylnaphthalene	mg/kg	-	<0.1000															
2-Methylphenol	mg/kg	-	<0.1000															
2-Nitroaniline	mg/kg	-	<0.1000															
2-Nitrophenol	mg/kg	-	<0.1000															
2-sec-Butyl-4,6-dinitrophenol	mg/kg	-					<0.0100		<0.0100			<0.0100		<0.0100				
3-Nitroaniline	mg/kg	-	<0.1000															
4,4-DDD*	mg/kg	-					<0.0500		<0.0500			<0.0500		<0.0500				
4,4-DDE	mg/kg	-					<0.0500		<0.0500			<0.0500		<0.0500				
4-Bromofluorobenzene Surrogate*	%	-	100		100			105		98.4	99	65.8	84.3	96.7	96.3	97.3	99.5	102
4-Bromophenyl Phenyl Ether	mg/kg	-	<0.1000															
4-Chloro Phenyl Ether	mg/kg	-	<0.1000															
4-Chloro-3-Methylphenol	mg/kg	-	<0.1000															
4-Chloroaniline	mg/kg	-	<0.1000															
4-Chlorotoluene	mg/kg	-	<0.2000															
4-Cpa	mg/kg	-					<0.0100		<0.0100			<0.0100		<0.0100				
4-Isopropyltoluene	mg/kg	-	<0.2000															
4-Methylphenol	mg/kg	-	<0.1000															
4-Nitroaniline	mg/kg	-	<0.1000															
4-Nitrophenol	mg/kg	-	<0.1000															
Acenaphthene	mg/kg	84000	<0.0080		<0.0080			<0.0080		<0.0080	0.0148		<0.0080	<0.0080	0.0119		<0.0080	<0.0080
Acenaphthene-d10	%	-	88.4		87.1			90.3		94.8	96.8		95.3	91.6	92.3		98.4	84.6
Acenaphthylene	mg/kg	83000	<0.0120		<0.0120			<0.0120		<0.0120	0.017		<0.0120	0.0146	0.0173		<0.0120	0.0471
Acifluorfen	mg/kg	-					<0.0100		<0.0100			<0.0100		<0.0100				
Additional Asbestos Components*	No units	-																
Aldrin	mg/kg	170					<0.0500		<0.0500			<0.0500		<0.0500				
Aliphatics & Aromatics >C10-44	mg/kg	-	<10.0000		80.5			<10.0000		<10.0000	17.9		<10.0000	22.4	15.3		<10.0000	17.9
Aliphatics & Aromatics >C5-44	mg/kg	-	<10.0000		80.5			<10.0000		<10.0000	17.9		<10.0000	22.4	15.3		<10.0000	17.9
Aliphatics >C10-12	mg/kg	9700	<1.0000		<1.0000			<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000		<1.0000	<1.0000
Aliphatics >C10-40*	mg/kg	-										13.9				21.8		

			WS50A	WS50A	WS54	WS54	WS57	WS57	WS64	WS64	WS65	WS66	WS66	WS68	WS69	WS72	WS72	WS73
Aliphatics >C10-44*	mg/kg	-	<5.0000		51			<5.0000		<5.0000	5.24		<5.0000	14.5	7.97		<5.0000	8.49
Aliphatics >C12-16	mg/kg	59000	<1.0000		<1.0000			<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000		<1.0000	<1.0000
Aliphatics >C16-21	mg/kg	-	<1.0000		1.46			<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000		<1.0000	<1.0000
Aliphatics >C21-35	mg/kg	-	1.49		44.2			<1.0000		<1.0000	5.12		2.54	13.2	7.59		<1.0000	7.88
Aliphatics >C35-44	mg/kg	1600000	<1.0000		5.36			<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000		<1.0000	<1.0000
Aliphatics >C5-6	mg/kg	3200	0.0246		<0.0100			<0.0100		0.0295	<0.0100		<0.0100	<0.0100	<0.0100		<0.0100	<0.0100
Aliphatics >C6-8	mg/kg	7800	0.0283		<0.0100			<0.0100		0.0372	<0.0100		<0.0100	<0.0100	<0.0100		<0.0100	<0.0100
Aliphatics >C8-10	mg/kg	2000	0.204		<0.0100			<0.0100		0.292	<0.0100		<0.0100	<0.0100	<0.0100		<0.0100	<0.0100
Aliphatics C5-C10*	mg/kg	-	0.257		<0.0500			<0.0500		0.359	<0.0500		<0.0500	<0.0500	<0.0500		<0.0500	<0.0500
alpha-Hexachlorocyclohexane	mg/kg	170					<0.0500		<0.0500				<0.0500	<0.0500				
Ammoniacal Nitrogen as N	mg/kg	-	<12.0000		<12.0000			<12.0000		<12.0000	<12.0000		<12.0000	<12.0000	<12.0000		<12.0000	<12.0000
Ammoniacal Nitrogen as NH4	mg/kg	-	1.04		0.527			5.03		5.25	6.42		6.55	5.11	5.35		5.04	2.5
Anthracene	mg/kg	520000	<0.0160		<0.0160			<0.0160		<0.0160	0.0596		<0.0160	0.018	0.029		<0.0160	0.0277
Aromatics >C10-12	mg/kg	16000	<1.0000		<1.0000			<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000		<1.0000	<1.0000
Aromatics >C10-44*	mg/kg	-	<5.0000		29.5			<5.0000		<5.0000	12.7		<5.0000	7.86	7.35		<5.0000	9.43
Aromatics >C12-16	mg/kg	36000	<1.0000		<1.0000			<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000		<1.0000	<1.0000
Aromatics >C16-21	mg/kg	28000	<1.0000		5.17			<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	1.36		<1.0000	<1.0000
Aromatics >C21-35	mg/kg	28000	<1.0000		22.1			<1.0000		<1.0000	10.9		<1.0000	6.04	4.99		<1.0000	7
Aromatics >C35-44	mg/kg	28000	<1.0000		2.22			<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000		<1.0000	<1.0000
Aromatics >C40-44	mg/kg	-	<1.0000		<1.0000			<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000		<1.0000	<1.0000
Aromatics >C5-7	mg/kg	26000	<0.0100		<0.0100			<0.0100		<0.0100	<0.0100		<0.0100	<0.0100	<0.0100		<0.0100	<0.0100
Aromatics >C7-8	mg/kg	56000	<0.0100		<0.0100			<0.0100		<0.0100	<0.0100		<0.0100	<0.0100	<0.0100		<0.0100	<0.0100
Aromatics >C8-10	mg/kg	3500	0.137		<0.0100			<0.0100		0.195	<0.0100		<0.0100	<0.0100	<0.0100		<0.0100	<0.0100
Aromatics C5-C10*	mg/kg	-	0.137		<0.0500			<0.0500		0.195	<0.0500		<0.0500	<0.0500	<0.0500		<0.0500	<0.0500
Arsenic	mg/kg	640	21		18.7			7.87		2.95	5.58		4.96	10.4	7.62		1.81	6.38
Azinphos-methyl	mg/kg	-					<0.0500		<0.0500				<0.0500	<0.0500				
Azobenzene	mg/kg	-	<0.1000															
Benzazone	mg/kg	-					<0.0100		<0.0100				<0.0100					
Benzene	mg/kg	27	<0.1800		<0.1800			<0.1800		<0.1800	<0.1800		<0.0090	<0.1800	<0.1800	<0.1800	<0.1800	<0.1800
Benzo (g,h,i) perylene	mg/kg	3900	<0.0240		0.033			<0.0240		<0.0240	0.218		<0.0240	0.165	0.232		<0.0240	0.185
Benzo(a)anthracene	mg/kg	170	<0.0140		0.0368			<0.0140		<0.0140	0.273		<0.0140	0.153	0.25		<0.0140	0.163
Benzo(a)pyrene	mg/kg	35	<0.0150		0.0382			<0.0150		<0.0150	0.267		<0.0150	0.189	0.28		<0.0150	0.207
Benzo(b)fluoranthene	mg/kg	44	<0.0150		0.0676			<0.0150		<0.0150	0.406		0.0203	0.188	0.33		<0.0150	0.302
Benzo(k)fluoranthene	mg/kg	1200	<0.0140		0.0231			<0.0140		<0.0140	0.117		<0.0140	0.0952	0.138		<0.0140	0.146
beta-Hexachlorocyclohexane	mg/kg	65					<0.0500		<0.0500				<0.0500	<0.0500				
Bis(2-chloroethoxy)methane	mg/kg	-	<0.1000															
Bis(2-chloroethyl)ether	mg/kg	-	<0.1000															
Bis(2-chloroisopropyl)ether	mg/kg	-	<0.1000															
Bis(2-ethylhexyl)phthalate	mg/kg	85000	<0.1000															
Boron	mg/kg	240000	1.3		1.56			<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000		<1.0000	<1.0000
Bromobenzene	mg/kg	92	<0.2000															
Bromochloromethane	mg/kg	-	<0.2000															
Bromodichloromethane	mg/kg	2	<0.1400															
Bromomethane	mg/kg	-	<0.2000															
Bromoxynil	mg/kg	-					<0.0100		<0.0100				<0.0100	<0.0100				
Butylbenzylphthalate	mg/kg	940000	<0.1000															
Butyric Acid (4-(2,4-dichlorophenoxy)-Butanoic acid (DB))	mg/kg	-					<0.0100		<0.0100				<0.0100	<0.0100				
Cadmium	mg/kg	190	3.56		1.94			0.452		0.0247	0.12		0.0808	0.205	0.247		0.0441	0.272
Carbazole	mg/kg	-	<0.1000															
Carbon Disulphide	mg/kg	11	<0.1400															
Chlorobenzene	mg/kg	56	<0.1000															
Chloroethane	mg/kg	900	<0.2000															
Chloroethene	mg/kg	0.059	<0.1200															
Chloroform	mg/kg	99	<0.1600															
Chloromethane	mg/kg	1	<0.1400															
Chromium	mg/kg	-	36.7		50.4			4.22		4.48	50.7		7.54	5.08	6.14		2.97	5.81
Chromium - Hexavalent	mg/kg	33	<0.6000		<0.6000			<0.6000		<0.6000	<0.6000		<0.6000	<0.6000	<0.6000		<0.6000	<0.6000
Chrysene	mg/kg	350	<0.0100		0.0381			<0.0100		<0.0100	0.253		0.0127	0.184	0.265		<0.0100	0.181
Chrysene-d12*	%	-	70.4		70.4			72		73.5	81.2		74.2	76.1	75.8		80.8	96.4
cis-1,2-Dichloroethene	mg/kg	14	<0.1200															
cis-1,3-Dichloropropene	mg/kg	-	<0.2000															
Clostridia Perfringens*	CFU/g	-		12		<10.0000												
Copper	mg/kg	68000	29.5		61.9			8.31		4.28	13.5		8.06	18.5	20.3		3.74	13.9
Coronene	mg/kg	-											<0.2000			<0.2000		
Cresols*	mg/kg	-	<0.0100		<0.0100			<0.0100		<0.0100	0.0555		<0.0100	0.011	0.0107		<0.0100	0.0104

			WS50A	WS50A	WS54	WS54	WS57	WS57	WS64	WS64	WS65	WS66	WS66	WS68	WS69	WS72	WS72	WS73
Cyanide	mg/kg	-	<1.0000		<1.0000			<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000		<1.0000	<1.0000
Diazinon	mg/kg	-					<0.0500		<0.0500				<0.0500		<0.0500			
Dibenz-a-h-anthracene	mg/kg	3.5	<0.0230		<0.0230			<0.0230		<0.0230	0.0392		<0.0230	0.0343	0.0466		<0.0230	0.0356
Dibenzofuran	mg/kg	-	<0.1000															
Dibromochloromethane	mg/kg	-	<0.2000															
Dibromofluoromethane (surrogate)*	%	-	107		105			120		110	107	102	102	106	107	106	106	104
Dibromomethane	mg/kg	-	<0.1800															
Dicamba*	mg/kg	-					<0.0100		<0.0100				<0.0100		<0.0100			
Dichlorodifluoromethane	mg/kg	-	<0.1200															
Dichloromethane	mg/kg	260	<0.2000															
Dichlorvos	mg/kg	140					<0.0500		<0.0500				<0.0500		<0.0500			
Diclofop	mg/kg	-					<0.0100		<0.0100				<0.0100		<0.0100			
Dieldrin	mg/kg	170					<0.0500		<0.0500				<0.0500		<0.0500			
Diethylphthalate	mg/kg	140000	<0.1000															
Dimethylphthalate	mg/kg	-	<0.1000															
Di-N-Butyl Phthalate	mg/kg	15000	<0.1000															
Di-N-Octyl Phthalate	mg/kg	89000	<0.1000															
Disulfoton	mg/kg	-					<0.0500		<0.0500				<0.0500		<0.0500			
Endosulfan I	mg/kg	5600					<0.0500		<0.0500				<0.0500		<0.0500			
Endosulfan II	mg/kg	6300					<0.0500		<0.0500				<0.0500		<0.0500			
Endosulfan Sulfate	mg/kg	-					<0.0500		<0.0500				<0.0500		<0.0500			
Endrin	mg/kg	-					<0.0500		<0.0500				<0.0500		<0.0500			
Enterococci	CFU/g	-																
EPH >C10-40	mg/kg	-	<35.0000		<35.0000			<35.0000		<35.0000	<35.0000		<35.0000	56.5	<35.0000		<35.0000	<35.0000
EPH Surrogate % recovery*	%	-	95.5		106			99.1		92.4	109	90.7	87.2	106	106	116	112	112
Ethion	mg/kg	-					<0.0500		<0.0500				<0.0500		<0.0500			
Ethylbenzene	mg/kg	5700	<0.0800		<0.0800			<0.0800		<0.0800	<0.0800	<0.0040	<0.0040	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800
Ethylparathion	mg/kg	-					<0.0500		<0.0500				<0.0500		<0.0500			
Fenitrothion	mg/kg	-					<0.0500		<0.0500				<0.0500		<0.0500			
Fluoranthene	mg/kg	23000	<0.0170		0.0776			<0.0170		<0.0170	0.582		0.0264	0.322	0.62		<0.0170	0.271
Fluorene	mg/kg	63000	<0.0100		<0.0100			<0.0100		<0.0100	0.0141		<0.0100	<0.0100	<0.0100		<0.0100	<0.0100
Fluroxpyr*	mg/kg	-					<0.0100		<0.0100				<0.0100		<0.0100			
gamma-hexachlorocyclohexane	mg/kg	67					<0.0500		<0.0500				<0.0500		<0.0500			
GRO >C5-10	mg/kg	-	0.394		<0.0200			<0.0200		0.553	<0.0200		<0.0200	<0.0200	<0.0200		<0.0200	<0.0200
GRO Surrogate % recovery	%	-	109		99			98.2		103	101		107	101	99.4		104	99.2
Heptachlor	mg/kg	-					<0.0500		<0.0500				<0.0500		<0.0500			
Heptachlor Epoxide	mg/kg	-					<0.0500		<0.0500				<0.0500		<0.0500			
Hexachlorobenzene (HCB)	mg/kg	110	<0.1000															
Hexachlorobutadiene (HCBd)	mg/kg	31	<0.1000															
Hexachlorocyclopentadiene	mg/kg	-	<0.1000															
Hexachloroethane	mg/kg	21	<0.1000															
Indeno(1,2,3-cd)pyrene	mg/kg	500	<0.0180		0.0408			<0.0180		<0.0180	0.242		<0.0180	0.209	0.285		<0.0180	0.181
Ioxynil	mg/kg	-					<0.0100		<0.0100				<0.0100		<0.0100			
Iron	mg/kg	66000			38200			16900		4410	13300		14200	23400	13300		3810	9690
Isophorone	mg/kg	-	<0.1000															
Isopropylbenzene	mg/kg	1300	<0.1000															
Lead	mg/kg	2300	42.2		283			10.9		9.85	24.7		19.7	42.9	32.7		1.84	38.8
m,p xylenes	mg/kg	-	<0.2000		<0.2000			<0.2000		<0.2000	<0.2000	<0.0100	<0.0100	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000
Malathion	mg/kg	-					<0.0500		<0.0500				<0.0500		<0.0500			
MCPA	mg/kg	-					<0.0100		<0.0100				<0.0100		<0.0100			
MCPB	mg/kg	-					<0.0100		<0.0100				<0.0100		<0.0100			
Mecoprop (MCP) (2-(4-chloro-2-methylphenoxy)	mg/kg	-					<0.0100		<0.0100				<0.0100		<0.0100			
Mercury	mg/kg	58	<0.1000		<0.1000			<0.1000		<0.1000	<0.1000		<0.1000	<0.1000	<0.1000		<0.1000	<0.1000
Methoxychlor	mg/kg	-					<0.0500		<0.0500				<0.0500		<0.0500			
Methyl tert-butyl ether (MTBE)	mg/kg	7500	<0.2000		<0.2000			<0.2000		<0.2000	<0.2000		<0.0100	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000
Methyl tert-pentyl ether	mg/kg	-	<0.2000															
Methylparathion	mg/kg	-					<0.0500		<0.0500				<0.0500		<0.0500			
Mevinphos	mg/kg	-					<0.0500		<0.0500				<0.0500		<0.0500			
Naphthalene-d8	%	-	84.7		84.4			85.9		90.4	83.6		91.7	90.7	90.1		85.1	83
Naphthalene	mg/kg	190	<0.0090		<0.0090			<0.0090		<0.0090	0.0412		<0.0090	<0.0090	<0.0090		<0.0090	0.0218
n-Butylbenzene	mg/kg	-	<0.2200															
Nickel	mg/kg	980	48.9		41.1			9.91		4.59	7.87		7.76	10.8	7.07		8.43	5.42
Nitrobenzene	mg/kg	-	<0.1000															
N-Nitroso-Di-N-Propylamine	mg/kg	-	<0.1000															
n-propylbenzene	mg/kg	3900	<0.2000															

			WS50A	WS50A	WS54	WS54	WS57	WS57	WS64	WS64	WS65	WS66	WS66	WS68	WS69	WS72	WS72	WS73
Organic matter	%	-	1.32		5.14			<0.3500		<0.3500	0.759		0.771	2.33	1.64		<0.3500	2.36
O-Xylene	mg/kg	6600	<0.2000		<0.2000			<0.2000		<0.2000	<0.0100		<0.0100	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000
p,p - DDT	mg/kg	-					<0.0500		<0.0500					<0.0500				
PAH 17 Total	mg/kg	-										<10.0000				<10.0000		
PAH, Total Detected USEPA 16	mg/kg	-	<0.1180		0.455			<0.1180		<0.1180	3.29		<0.1180	1.95	3.26		<0.1180	1.88
PCB 105	mg/kg	-	<0.0030															
PCB 114	mg/kg	-	<0.0030															
PCB 123	mg/kg	-	<0.0030															
PCB 126	mg/kg	-	<0.0030															
PCB 157	mg/kg	-	<0.0030															
PCB 167	mg/kg	-	<0.0030															
PCB 169	mg/kg	-	<0.0030															
PCB 189	mg/kg	-	<0.0030															
PCB 77	mg/kg	-	<0.0030															
PCB 81	mg/kg	-	<0.0030															
PCB, Total Of 7 Congeners	mg/kg	-										<0.0210				<0.0210		
PCB-101 2,2',4,5,5' - Pentachlorobiphenyl	mg/kg	-										<0.0030				<0.0030		
PCB-118 2,3',4,4',5' - Pentachlorobiphenyl	mg/kg	-	<0.0030									<0.0030				<0.0030		
PCB-138 2,2',3,4,4',5' - Hexachlorobiphenyl	mg/kg	-										<0.0030				<0.0030		
PCB-153 2,2',4,4',5,5' - Hexachlorobiphenyl	mg/kg	-										<0.0030				<0.0030		
PCB-156 2,3,3,4,4,5 - Hexachlorobiphenyl	mg/kg	-	<0.0030															
PCB-180 2,2',3,4,4',5,5' - Heptachlorobiphenyl	mg/kg	-										<0.0030				<0.0030		
PCB-28 2,4,4' - Trichlorobiphenyl	mg/kg	-										<0.0030				<0.0030		
PCB-52 2,2',5,5' - Tetrachlorobiphenyl	mg/kg	-										<0.0030				<0.0030		
Pentachlorophenol (PCP)	mg/kg	400	<0.1000															
Perylene-d12	%	-	76.4		80.3			79.2		82.3	86.4		80.2	88.1	87.3		89.6	96.6
pH	pH Units	-	7.56		7.83			7.71		7.99	8.25		7.78	7.64	6.96		7.65	7.36
Phenanthrene	mg/kg	22000	<0.0150		0.0323			<0.0150		<0.0150	0.245		<0.0150	0.0914	0.225		<0.0150	0.109
Phenanthrene-d10	%	-	87.1		86.3			89.9		90.1	97.6		89.8	88	87.8		96.8	87.6
Phenol	mg/kg	440	<0.0100		<0.0100			<0.0100		<0.0100	0.0333		<0.0100	0.011	<0.0100		<0.0100	<0.0100
Phenol (Monohydric)	mg/kg	-	<0.0350		<0.0350			<0.0350		<0.0350	0.0888		<0.0350	<0.0350	<0.0350		<0.0350	<0.0350
Phorate	mg/kg	-					<0.0500		<0.0500			<0.0500		<0.0500				
Propoxy carbazone-sodium*	mg/kg	-					<0.0100		<0.0100			<0.0100		<0.0100				
Pyrene	mg/kg	54000	<0.0150		0.0679			<0.0150		<0.0150	0.503		0.0227	0.286	0.528		<0.0150	<0.0150
Sec-Butylbenzene	mg/kg	-	<0.2000															
Selenium	mg/kg	12000	1.45		<1.0000			<1.0000		<1.0000	<1.0000		<1.0000	<1.0000	<1.0000		<1.0000	<1.0000
Silvex	mg/kg	-					<0.0100		<0.0100			<0.0100		<0.0100				
Styrene	mg/kg	3200	<0.2000															
Sum of detected WHO 12 PCBs*	mg/kg	-	<0.0360															
Tert-Butylbenzene	mg/kg	-	<0.2800															
Tetrachloroethene	mg/kg	19	<0.1000															
Tetrachloromethane (Carbon Tetra Chloride)	mg/kg	2.9	<0.2000															
Toluene	mg/kg	56000	<0.1400		<0.1400			<0.1400		<0.1400	<0.1400		<0.0070	<0.0070	<0.1400	<0.1400	<0.1400	<0.1400
Toluene-D8	%	-	97.2		97.9			101		100	98.1		96.9	99.3	98.5		99.1	108
Total BTEX	mg/kg	-	<0.8000		<0.8000			<0.8000		<0.8000	<0.8000		<0.0400	<0.8000	<0.8000		<0.8000	<0.8000
Total Coliforms*	CFU/g	-				9450												
Total Organic Carbon	%	-										1.13				1.58		
TPH >C5-40*	mg/kg	-	<35.0000		<35.0000			<35.0000		<35.0000	<35.0000		<35.0000	56.5	<35.0000		<35.0000	<35.0000
trans-1,2-Dichloroethene	mg/kg	21	<0.2000															
trans-1,3-Dichloropropene	mg/kg	-	<0.2000															
Tribromomethane	mg/kg	710	<0.2000															
Trichloroethene	mg/kg	1.2	<0.1800															
Trichlorofluoromethane	mg/kg	-	<0.1200															
Triclopyr	mg/kg	-					<0.0200		<0.0100			<0.0100		<0.0100				
Triclosan*	mg/kg	-					<0.0100		<0.0100			<0.0100		<0.0100				
Vanadium	mg/kg	9000	64.1		63.9			11.9		6.73	15		13.1	19.3	14.5		5.39	9.91
Water Soluble Sulphate as SO4 2:1 Extract*	g/l	-	0.098		0.0579			<0.0040		<0.0040	<0.0040		<0.0040	0.0498	0.0193		0.0134	0.156
Xylene	mg/kg	-	<0.4000		<0.4000			<0.4000		<0.4000	<0.4000		<0.0200	<0.4000	<0.4000		<0.4000	<0.4000
Xylenols	mg/kg	-	<0.0150		<0.0150			<0.0150		<0.0150	<0.0150		<0.0150	<0.0150	<0.0150		<0.0150	<0.0150
Zinc	mg/kg	730000	410		315			29.8		13.3	42		31.5	67.5	47		11.9	41.8

			S3BH16	S3BH17	S3TP41
Determinant Name	Units	EQS (mg/l)	0.5	1	0.5
1-naphthol	mg/l	-		< 0.005	
Acenaphthene	mg/l	-	< 0.00001	< 0.0001	< 0.00001
Acenaphthylene	mg/l	-	< 0.00001	< 0.0001	< 0.00001
Aliphatics	mg/l	-		< 0.005	
Aliphatics & Aromatics	mg/l	-		< 0.01	
Aliphatics >C10< 12	mg/l	-		< 0.0001	
Aliphatics >C12< 16	mg/l	-		< 0.0001	
Aliphatics >C16-21	mg/l	-		< 0.0001	
Aliphatics >C21-35	mg/l	-		< 0.0001	
Aliphatics >C35-44	mg/l	-		< 0.0001	
Aliphatics >C5-6	mg/l	-		< 0.0001	
Aliphatics >C6-8	mg/l	-		< 0.0001	
Aliphatics >C8< 10	mg/l	-		< 0.0001	
Ammoniacal Nitrogen as N	mg/l	0.2	0.086	0.086	0.078
Anthracene	mg/l	0.0001	< 0.00001	< 0.0001	< 0.00001
Antimony	mg/l	-	< 0.0005	< 0.0005	< 0.0005
Aromatics	mg/l	-		< 0.005	
Aromatics >C10< 12	mg/l	-		< 0.0001	
Aromatics >C12< 16	mg/l	-		< 0.0001	
Aromatics >C16-21	mg/l	-		< 0.0001	
Aromatics >C21-35	mg/l	-		< 0.0001	
Aromatics >C35-44	mg/l	-		< 0.0001	
Aromatics >C5-7	mg/l	-		< 0.0001	
Aromatics >C7-8	mg/l	-		< 0.0001	
Aromatics >C8< 10	mg/l	-		< 0.0001	
Arsenic	mg/l	0.05	0.0019	0.00092	0.00089
Barium	mg/l	-	0.0066	0.031	0.01
Benzo (g,h,i) perylene	mg/l	-	< 0.00001	< 0.0001	< 0.00001
Benzo(a)anthracene	mg/l	-	< 0.00001	< 0.0001	< 0.00001
Benzo(a)pyrene	mg/l	0.00000017	< 0.00001	< 0.0001	< 0.00001
Benzo(b)fluoranthene	mg/l	-	< 0.00001	< 0.0001	< 0.00001
Benzo(k)fluoranthene	mg/l	-	< 0.00001	< 0.0001	< 0.00001
Beryllium	mg/l	-	< 0.001	< 0.001	< 0.001
Boron	mg/l	2	0.05	0.068	0.051
Cadmium	mg/l	0.00008	< 0.00011	< 0.00011	< 0.00011
Calcium	mg/l	-	3	9.4	3
Chloride	mg/l	250	1.2	1.6	2.3
Chromium	mg/l	0.005	0.00068	0.00087	0.0012
Chromium - Hexavalent	mg/l	0.0034	< 0.02	< 0.02	< 0.02
Chrysene	mg/l	-	< 0.00001	< 0.0001	< 0.00001
Complex Cyanide	mg/l	-	< 0.05	< 0.05	< 0.05
Copper	mg/l	0.00231	0.0055	0.0033	0.0044
Cyanide	mg/l	0.001	< 0.05	< 0.05	< 0.05
Cyanide Free	mg/l	-	< 0.05	< 0.05	< 0.05
Dibenz-a-h-anthracene	mg/l	-	< 0.00001	< 0.0001	< 0.00001
Fluoranthene	mg/l	0.0000063	< 0.00001	< 0.0001	< 0.00001
Fluorene	mg/l	-	< 0.00001	< 0.0001	< 0.00001
Fluoride	mg/l	-	0.54	0.89	0.26

			S3BH16	S3BH17	S3TP41
Determinant Name	Units	EQS (mg/l)	0.5	1	0.5
Hardness, Total as CaCO3	mg/l	-		33	
Indeno(1,2,3-cd)pyrene	mg/l	-	< 0.00001	< 0.0001	< 0.00001
Iron	mg/l	1	0.65	1.1	1.2
Lead	mg/l	0.0012	0.0021	0.0023	0.0015
Magnesium	mg/l	-	0.97	2.4	0.46
Manganese	mg/l	0.22	0.025	0.0072	0.037
Mercury	mg/l	0.00007	< 0.00005	< 0.00001	< 0.00005
Molybdenum	mg/l	-	0.00097	0.00061	0.00044
Napthalene	mg/l	0.002	< 0.00001	< 0.0001	< 0.00001
Nickel	mg/l	0.00588	0.001	0.0012	0.0013
Nitrate as NO3	mg/l	-		2	
PAH, Total Detected USEPA 16	mg/l	-	< 0.0002	< 0.002	< 0.0002
pH	-	-	6.9	7.2	6.3
Phenanthrene	mg/l	-	< 0.00001	< 0.0001	< 0.00001
Phenol	mg/l	0.0077		< 0.005	
Phenol	mg/l	-		< 0.03	
Pyrene	mg/l	-	< 0.00001	< 0.0001	< 0.00001
Resorcinol	mg/l	-		< 0.005	
Selenium	mg/l	-	< 0.0005	< 0.0005	< 0.0005
Sulphate as SO4	mg/l	400	< 1	12	2.9
Sulphide	mg/l	-		< 0.05	
TPH >C6-40	mg/l	-	< 0.01		< 0.01
Trivalent Chromium	mg/l	-		< 0.02	
Vanadium	mg/l	0.02	0.0025	0.0014	0.0016
Xylenols	mg/l	-		< 0.005	
Zinc	mg/l	0.01723	0.016	0.011	0.011

			S3BH01	S3BH01	S3BH02	S3BH02R	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05R	S3BH05R	S3BH05R	S3BH05R	S3BH06
Determinant Name	Units	EQS (mg/l)	0.5	1.4	0.5	0.5	1.5	1.65	2.5	3.2	1.5	1.65	2.5	3.2	1.2
1-naphthol	mg/l	-	<0.0050	<0.0050	<0.0050	<0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0050
3,5-Dimethylphenol	mg/l	-				<0.0005					<0.0005	<0.0005	<0.0005	<0.0005	
Acenaphthene	mg/l	-													
Acenaphthylene	mg/l	-													
Ammonia Free As N	mg/l	-													<0.0500
Ammoniacal Nitrogen as N	mg/l	0.2	0.075	0.073	0.12	0.018	0.058	<0.0500	0.052	2.6	0.031	0.36	0.11	0.84	
Antimony	mg/l	-	<0.0005	<0.0005	<0.0005	<0.0017	0.0016	0.01	0.00074	<0.0005	<0.0017	<0.0017	<0.0017	<0.0017	<0.0005
Arsenic	mg/l	0.05	0.0025	0.0012	0.00051	<0.0010	0.0092	0.069	0.00025	0.0062	0.047	0.0096	0.0041	0.017	0.001
Barium	mg/l	-	0.048	0.015	0.014	0.014	0.012	0.019	0.047	0.025	0.045	0.032	0.024	0.04	0.043
Benzo (g,h,i) perylene	mg/l	-													
Benzo(a)anthracene	mg/l	-													
Benzo(a)pyrene	mg/l	0.00000017													
Benzo(b)fluoranthene	mg/l	-													
Benzo(k)fluoranthene	mg/l	-													
Beryllium	mg/l	-	<0.0010	<0.0010	<0.0010	<0.0002	<0.0010	<0.0010	<0.0010	<0.0010	<0.0002	<0.0002	<0.0002	0.0002	<0.0010
Beryllium	mg/kg	-													<0.0005
Beryllium	-	-													
Boron	mg/l	2	0.037	0.024	0.038	0.022	0.023	0.023	0.051	0.18	0.093	0.1	0.14	0.2	0.023
Cadmium	mg/l	0.00008	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00009	<0.0001	0.00011	0.00024	<0.0001
Cadmium (dissolved)*	mg/l	-													
Calcium	mg/l	-	5.1	<2.0000	15	1.1	78	190	180	330	200	340	310	69	7.4
Catechol	mg/l	-				<0.0005					<0.0005	<0.0005	<0.0005	<0.0005	
Chloride	mg/l	250	7.2	36	9.5	0.25	<1.0000	2.5	3.6	30	3.8	2.3	3.6	14	4.5
Chromium	mg/l	0.005	0.0087	0.0027	0.00057	0.003					0.001	<0.0004	<0.0004	<0.0004	
Chromium - Hexavalent	mg/l	0.0034	<0.0200	<0.0200	<0.0200	<0.0050	0.0005	0.00034	<0.0001	<0.0001	<0.0050	<0.0050	<0.0050	<0.0050	<0.0200
Chrysene	mg/l	-													
Complex Cyanide	mg/l	-	<0.0500	<0.0500	<0.0500	<0.0010	<0.0050	<0.0050	<0.0050	<0.0050	0.11	0.22	0.75	0.052	<0.0050
Copper	mg/l	0.001	0.0053	0.002	0.0027	0.03	0.0018	0.002	0.00062	0.027	0.015	0.014	0.013	0.023	0.00086
Cyanide	mg/l	-	<0.0500	<0.0500	<0.0500	<0.0010	<0.0050	0.006	<0.0050	<0.0050	0.11	0.22	0.83	0.052	<0.0050
Cyanide Free	mg/l	-	<0.0500	<0.0500	<0.0500	<0.0010	<0.0050	0.006	<0.0050	<0.0050	0.004	0.005	0.078	<0.0010	<0.0050
Dibenz-a-h-anthracene	mg/l	-													

			S3BH01	S3BH01	S3BH02	S3BH02R	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05R	S3BH05R	S3BH05R	S3BH05R	S3BH06
Determinant Name	Units	EQS (mg/l)	0.5	1.4	0.5	0.5	1.5	1.65	2.5	3.2	1.5	1.65	2.5	3.2	1.2
Dissolved Organic Carbon	mg/l	-	29	75	9.9										
Fluoranthene	mg/l	0.0000063													
Fluorene	mg/l	-													
Fluoride	mg/l	-	0.38	0.62	0.34	0.71	0.45	1	0.91	0.58	0.68	0.84	1	0.53	0.2
Hardness, Calcium as CaCO3	mg/l	-	8	<6.0000	19										
Indeno(1,2,3-cd)pyrene	mg/l	-													
Iron	mg/l	1	1.9	2.2	0.26	1.4					0.05	0.083	0.21	0.33	0.15
Isopropylphenol*	mg/l	-				<0.0005					<0.0005	<0.0005	<0.0005	<0.0005	
Lead	mg/l	0.0012	0.0055	0.0012	<0.0005	0.0021	<0.0005	0.00056	<0.0005	<0.0005	<0.0010	<0.0010	0.0019	0.0011	<0.0005
Magnesium	mg/l	-	1.8	0.49	2.4	0.46	10	20	13	53	13	11	11	7	1.2
Manganese	mg/l	0.22	0.074	0.022	0.0067	0.028	<0.0005	<0.0005	<0.0005	0.16	0.0053	0.0099	0.082	0.15	0.0027
Mercury	mg/l	0.00007	<0.0001	<0.0001	<0.0001	<0.0000	<0.0000	<0.0000	<0.0000	<0.0000	0.0000081	<0.0000	0.0000119	<0.0000	<0.0001
Methylphenols	mg/l	0.1				<0.0005					<0.0005	<0.0005	<0.0005	<0.0005	
Molybdenum	mg/l	-	0.00071	0.0025	0.00071	0.0016	0.01	0.0076	0.0016	0.00039	0.0056	0.0067	0.0059	0.0004	0.0036
Napthalene	mg/l	0.002													
Nickel	mg/l	0.004	0.0057	0.0022	0.0016	0.0023	<0.0005	<0.0005	<0.0005	0.0023	0.001	0.0024	0.0022	0.026	<0.0005
pH	pH Units	-				6.2					7.6	7.5	7.6	5.2	
pH	-	-	8.1	8.1	8.5		9	8.5	8.2	7.8					6.3
Phenanthrene	mg/l	-													
Phenol	mg/l	0.0077	<0.0050	<0.0050	<0.0050	<0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0050
Phenol	mg/l	-	<0.0300	<0.0300	<0.0300		<0.0300	<0.0300	<0.0300	<0.0300					<0.0300
Polynuclear aromatic hydrocarbons	mg/l	-													
Pyrene	mg/l	-													
Resorcinol	mg/l	-	<0.0050	<0.0050	<0.0050	<0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0050
Selenium	mg/l	-	<0.0005	<0.0005	<0.0005	<0.0040	0.0013	0.0043	0.0011	0.002	<0.0040	<0.0040	<0.0040	<0.0040	0.0011
Sulphate as SO4	mg/l	400	11	13	11	1.6	23	88	97	260	412	754	631	215	20
Total Cyanide*	mg/l	-													
Total Speciated Phenols	mg/l	-				<0.0035					<0.0035	<0.0035	<0.0035	<0.0035	
TPH >C10-40	mg/l	-													
Trimethylphenol	mg/l	-				<0.0005					<0.0005	<0.0005	<0.0005	<0.0005	
Trivalent Chromium	mg/l	-	<0.0200	<0.0200	<0.0200	<0.0050					<0.0050	<0.0050	<0.0050	<0.0050	<0.0200

			S3BH01	S3BH01	S3BH02	S3BH02R	S3BH05	S3BH05	S3BH05	S3BH05	S3BH05R	S3BH05R	S3BH05R	S3BH05R	S3BH06
Determinant Name	Units	EQS (mg/l)	0.5	1.4	0.5	0.5	1.5	1.65	2.5	3.2	1.5	1.65	2.5	3.2	1.2
Vanadium	mg/l	0.02	0.011	0.0026	0.00067	0.0029	0.0029	0.0013	<0.0005	<0.0005	<0.0017	<0.0017	0.003	<0.0017	<0.0005
Xylenols	mg/l	-	<0.0050	<0.0050	<0.0050										<0.0050
Zinc	mg/l	0.0109	0.028	0.0094	0.003	0.015	0.0026	0.0037	0.0031	0.0045	0.012	0.015	0.012	0.051	0.0026
Zinc (Available)	mg/l	-													

			S3BH06R	S3BH07R	S3BH08B	S3BH08B	S3BH09R	S3BH11	S3BH11	S3BH14R	S3BH14R	S3BH15	S3BH15	S3TP06
Determinant Name	Units	EQS (mg/l)	1.2	2	0.2	1.4	1	0.5	2.5	0.2	1	0.5	6.9	0.2
1-naphthol	mg/l	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	<0.0050	<0.0005	<0.0005	<0.0005	<0.0050	
3,5-Dimethylphenol	mg/l	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	<0.0005	<0.0005		
Acenaphthene	mg/l	-												<0.0000
Acenaphthylene	mg/l	-												<0.0000
Ammonia Free As N	mg/l	-											<0.0500	
Ammoniacal Nitrogen as N	mg/l	0.2	0.025	0.021	<0.0150	0.02	0.032	<0.0500	<0.0500	0.018	0.036	0.025		<0.0150
Antimony	mg/l	-	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	0.0014	<0.0005	<0.0017	<0.0017	<0.0017	0.021	<0.0017
Arsenic	mg/l	0.05	0.021	<0.0010	<0.0010	0.0023	0.0014	0.0025	<0.0002	0.0019	0.0012	0.0014	0.15	<0.0010
Barium	mg/l	-	0.02	0.095	0.054	0.046	0.056	0.012	0.034	0.023	0.036	0.052	0.04	0.035
Benzo (g,h,i) perylene	mg/l	-												<0.0000
Benzo(a)anthracene	mg/l	-												<0.0000
Benzo(a)pyrene	mg/l	0.00000017												<0.0000
Benzo(b)fluoranthene	mg/l	-												<0.0000
Benzo(k)fluoranthene	mg/l	-												<0.0000
Beryllium	mg/l	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0010	<0.0010	<0.0002	<0.0002	<0.0002	<0.0010	<0.0002
Beryllium	mg/kg	-											<0.0005	
Beryllium	-	-												
Boron	mg/l	2	0.049	0.028	0.035	0.034	0.043	<0.0100	<0.0100	0.027	0.022	0.016	1.9	0.034
Cadmium	mg/l	0.00008	<0.0001	0.00022	<0.0001	<0.0001	0.00009	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium (dissolved)*	mg/l	-												
Calcium	mg/l	-	22	12	13	7.4	11	4.9	13	7.9	13	11	2400	2.8
Catechol	mg/l	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	<0.0005	<0.0005		
Chloride	mg/l	250	1.3	220	12	4.2	5	1.3	13	0.6	1.4	4.4	55	0.85
Chromium	mg/l	0.005	<0.0004	<0.0004	0.0049	0.007	0.0024	0.0034	<0.0005	0.0025	0.0029	0.003		0.0048
Chromium - Hexavalent	mg/l	0.0034	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0200	<0.0200	<0.0050	<0.0050	<0.0050	<0.0200	<0.0050
Chrysene	mg/l	-												<0.0000
Complex Cyanide	mg/l	-	0.0069	<0.0010	<0.0010	<0.0010	<0.0010	<0.0500	<0.0500	0.0018	0.0017	<0.0010	<0.0050	<0.0100
Copper	mg/l	0.001	0.022	0.02	0.034	0.0082	0.045	0.0041	<0.0005	0.042	0.03	0.016	0.00057	0.02
Cyanide	mg/l	-	0.0069	<0.0010	<0.0010	<0.0010	<0.0010	<0.0500	<0.0500	0.0018	0.0017	<0.0010	<0.0050	<0.0100
Cyanide Free	mg/l	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0500	<0.0500	<0.0010	<0.0010	<0.0010	<0.0050	<0.0100
Dibenz-a-h-anthracene	mg/l	-												<0.0000

			S3BH06R	S3BH07R	S3BH08B	S3BH08B	S3BH09R	S3BH11	S3BH11	S3BH14R	S3BH14R	S3BH15	S3BH15	S3TP06
Determinant Name	Units	EQS (mg/l)	1.2	2	0.2	1.4	1	0.5	2.5	0.2	1	0.5	6.9	0.2
Dissolved Organic Carbon	mg/l	-						4.8	2.9					
Fluoranthene	mg/l	0.0000063												<0.0000
Fluorene	mg/l	-												<0.0000
Fluoride	mg/l	-	0.6	0.34	0.72	0.52	0.61	0.27	0.13	0.34	0.28	0.96	0.25	0.78
Hardness,Calcium as CaCO3	mg/l	-						<6.0000	17					
Indeno(1,2,3-cd)pyrene	mg/l	-												<0.0000
Iron	mg/l	1	0.18	0.091	0.86	2.4	1.2	1.1	0.047	1.2	1.7	2.4	<0.0050	1.4
Isopropylphenol*	mg/l	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	<0.0005	<0.0005		
Lead	mg/l	0.0012	<0.0010	<0.0010	0.0023	0.0038	0.0024	0.00088	<0.0005	0.0047	0.0039	0.0013	<0.0005	0.0066
Magnesium	mg/l	-	3.3	4.2	3.1	3.1	2.5	0.65	2.5	2.6	2.5	2.2	26	1.3
Manganese	mg/l	0.22	0.008	0.0059	0.051	0.064	0.018	0.0095	0.0042	0.024	0.034	0.14	0.0053	0.042
Mercury	mg/l	0.00007	0.0000173	<0.0000	0.0000115	<0.0000	<0.0000	<0.0001	<0.0001	<0.0000	<0.0000	<0.0000	0.0001	<0.0005
Methylphenols	mg/l	0.1	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	<0.0005	<0.0005		
Molybdenum	mg/l	-	0.0027	0.0006	0.0042	<0.0004	0.0006	0.0023	0.00079	0.0016	0.0028	0.0018	0.43	0.0009
Napthalene	mg/l	0.002												<0.0000
Nickel	mg/l	0.004	0.0013	0.0007	0.003	0.0026	0.0026	0.0025	<0.0005	0.0029	0.0028	0.0036	<0.0005	0.0045
pH	pH Units	-	7.6	6.4	7.5	7.5	6			6.6	6.4	7.7		7.1
pH	-	-						7.6	7.3				7.8	
Phenanthrene	mg/l	-												<0.0000
Phenol	mg/l	0.0077	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	<0.0050	<0.0005	<0.0005	<0.0005	<0.0050	
Phenol	mg/l	-						<0.0300	<0.0300				<0.0300	
Polynuclear aromatic hydrocarbons	mg/l	-												<0.0002
Pyrene	mg/l	-												<0.0000
Resorcinol	mg/l	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	<0.0050	<0.0005	<0.0005	<0.0005	<0.0050	
Selenium	mg/l	-	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.00071	0.00054	<0.0040	<0.0040	<0.0040	0.025	<0.0040
Sulphate as SO4	mg/l	400	16.1	16.9	5.9	7.7	36.5	<1.0000	34	11.3	33.8	2	1500	1.5
Total Cyanide*	mg/l	-												
Total Speciated Phenols	mg/l	-	<0.0035	<0.0035	<0.0035	<0.0035	<0.0035			<0.0035	<0.0035	<0.0035		
TPH >C10-40	mg/l	-												<0.0100
Trimethylphenol	mg/l	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	<0.0005	<0.0005		
Trivalent Chromium	mg/l	-	<0.0050	<0.0050	<0.0050	0.007	<0.0050	<0.0200	<0.0200	<0.0050	<0.0050	<0.0050	<0.0200	<0.0050

			S3BH06R	S3BH07R	S3BH08B	S3BH08B	S3BH09R	S3BH11	S3BH11	S3BH14R	S3BH14R	S3BH15	S3BH15	S3TP06
Determinant Name	Units	EQS (mg/l)	1.2	2	0.2	1.4	1	0.5	2.5	0.2	1	0.5	6.9	0.2
Vanadium	mg/l	0.02	0.0062	<0.0017	0.0037	0.0035	0.0034	0.0029	<0.0005	0.0073	0.0053	0.0025	0.12	0.0046
Xylenols	mg/l	-						<0.0050	<0.0050				<0.0050	
Zinc	mg/l	0.0109	0.011	0.016	0.018	0.026	0.03	0.0057	0.004	0.018	0.029	0.016	<0.0025	0.03
Zinc (Available)	mg/l	-												

			S3TP07	S3TP18	S3TP19	S3TP21	S3TP22	S3TP23	S3TP24	S3TP24	S3TP29	S3TP34	S3WS01	S3WS04	S3WS07
Determinant Name	Units	EQS (mg/l)	1	0.5	1	0.5	0.5	0.5	0.2	2	0.5	0.2	0.5	0.5	0.5
1-naphthol	mg/l	-				<0.0005		<0.0005	<0.0005	<0.0005				<0.0050	
3,5-Dimethylphenol	mg/l	-				<0.0005		<0.0005	<0.0005	<0.0005					
Acenaphthene	mg/l	-	<0.0000	<0.0000	<0.0000		<0.0000				<0.0000	<0.0000			
Acenaphthylene	mg/l	-	<0.0000	<0.0000	<0.0000		<0.0000				<0.0000	<0.0000			
Ammonia Free As N	mg/l	-												<0.0500	
Ammoniacal Nitrogen as N	mg/l	0.2	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	0.025	0.017	<0.0150	0.1	0.081	0.06		0.067
Antimony	mg/l	-	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0005	0.00055	<0.0005
Arsenic	mg/l	0.05	<0.0010	0.001	<0.0010	<0.0010	0.002	0.0018	<0.0010	<0.0010	<0.0010	<0.0010	<0.0002	0.0019	<0.0002
Barium	mg/l	-	0.014	0.0023	0.0015	0.011	0.0109	0.0037	0.0058	0.014	0.045	0.039	<0.0050	0.028	<0.0050
Benzo (g,h,i) perylene	mg/l	-	<0.0000	<0.0000	<0.0000		<0.0000				<0.0000	<0.0000			
Benzo(a)anthracene	mg/l	-	<0.0000	<0.0000	<0.0000		<0.0000				<0.0000	<0.0000			
Benzo(a)pyrene	mg/l	0.00000017	<0.0000	<0.0000	<0.0000		<0.0000				<0.0000	<0.0000			
Benzo(b)fluoranthene	mg/l	-	<0.0000	<0.0000	<0.0000		<0.0000				<0.0000	<0.0000			
Benzo(k)fluoranthene	mg/l	-	<0.0000	<0.0000	<0.0000		<0.0000				<0.0000	<0.0000			
Beryllium	mg/l	-	<0.0002		<0.0002	<0.0002		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0010	<0.0010	<0.0010
Beryllium	mg/kg	-												<0.0005	
Beryllium	-	-		<0.0002			<0.0002								
Boron	mg/l	2	0.026	<0.0100	<0.0100	0.014	0.01	0.019	0.022	0.015	0.013	0.023	<0.0100	0.042	<0.0100
Cadmium	mg/l	0.00008	<0.0001		<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium (dissolved)*	mg/l	-		<0.0001			<0.0001								
Calcium	mg/l	-	6.4	1.6	1.4	13	2.6	1.3	2.2	9.3	3.4	2.4	5.3	21	2.3
Catechol	mg/l	-				<0.0005		<0.0005	<0.0005	<0.0005					
Chloride	mg/l	250	1.2	0.82	0.9	20	0.74	1.9	0.91	1.3	0.28	0.15	1.2	3.8	<1.0000
Chromium	mg/l	0.005	<0.0004	<0.0004	<0.0004	<0.0004	0.0008	<0.0004	0.0005	<0.0004	0.0043	0.0049			
Chromium - Hexavalent	mg/l	0.0034	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0001	<0.0200	<0.0001
Chrysene	mg/l	-	<0.0000	<0.0000	<0.0000		<0.0000				<0.0000	<0.0000			
Complex Cyanide	mg/l	-	<0.0100		<0.0100	<0.0010		<0.0010	<0.0010	<0.0010	<0.0100	<0.0100	<0.0050	<0.0050	<0.0050
Copper	mg/l	0.001	0.0049		0.0098	0.0026		0.012	0.014	0.0032	0.024	0.036	<0.0005	0.0076	<0.0005
Cyanide	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0010	<0.0100	<0.0010	<0.0010	<0.0010	<0.0100	<0.0100	<0.0050	<0.0050	<0.0050
Cyanide Free	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0010	<0.0100	<0.0010	<0.0010	<0.0010	<0.0100	<0.0100	<0.0050	<0.0050	<0.0050
Dibenz-a-h-anthracene	mg/l	-	<0.0000	<0.0000	<0.0000		<0.0000				<0.0000	<0.0000			

			S3TP07	S3TP18	S3TP19	S3TP21	S3TP22	S3TP23	S3TP24	S3TP24	S3TP29	S3TP34	S3WS01	S3WS04	S3WS07
Determinant Name	Units	EQS (mg/l)	1	0.5	1	0.5	0.5	0.5	0.2	2	0.5	0.2	0.5	0.5	0.5
Dissolved Organic Carbon	mg/l	-													
Fluoranthene	mg/l	0.000063	<0.0000	<0.0000	<0.0000		<0.0000				<0.0000	<0.0000			
Fluorene	mg/l	-	<0.0000	<0.0000	<0.0000		<0.0000				<0.0000	<0.0000			
Fluoride	mg/l	-	0.58	0.065	0.19	0.76	0.17	0.22	0.68	0.3	0.56	0.34	0.36	0.16	0.43
Hardness,Calcium as CaCO3	mg/l	-													
Indeno(1,2,3-cd)pyrene	mg/l	-	<0.0000	<0.0000	<0.0000		<0.0000				<0.0000	<0.0000			
Iron	mg/l	1	0.23	0.084	0.094	0.006	0.42	0.036	0.26	0.013	2.1	1.8		0.23	
Isopropylphenol*	mg/l	-				<0.0005		<0.0005	<0.0005	<0.0005					
Lead	mg/l	0.0012	0.0025	<0.0010	0.0026	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0034	0.0053	<0.0005	<0.0005	<0.0005
Magnesium	mg/l	-	1.9	0.33	0.24	5.2	0.67	0.29	0.7	2.4	1.4	1.1	1.8	3.4	0.68
Manganese	mg/l	0.22	0.015	0.000027	0.013	0.041	0.000033	0.016	0.025	0.031	0.022	0.03	<0.0005	0.0064	<0.0005
Mercury	mg/l	0.00007	<0.0005		<0.0005	<0.0000		0.0000146	0.0000159	<0.0000	<0.0005	<0.0005	<0.0000	<0.0001	<0.0000
Methylphenols	mg/l	0.1				<0.0005		<0.0005	<0.0005	<0.0005					
Molybdenum	mg/l	-	0.0004	<0.0004	0.0007	<0.0004	<0.0004	<0.0004	<0.0004	0.0007	<0.0004	<0.0004	<0.0002	0.00074	<0.0002
Napthalene	mg/l	0.002	<0.0000	<0.0000	<0.0000		<0.0000				<0.0000	<0.0000			
Nickel	mg/l	0.004	<0.0003	0.0004	0.0003	<0.0003	0.0011	0.0005	0.0011	0.0007	0.0035	0.0039	<0.0005	0.0025	<0.0005
pH	pH Units	-	7.2	6.9	6.8	7.6	7.1	7.2	7	7.3	6	6.6			
pH	-	-											8.1	6.7	8.3
Phenanthrene	mg/l	-	<0.0000	<0.0000	<0.0000		<0.0000				<0.0000	<0.0000			
Phenol	mg/l	0.0077				<0.0005		<0.0005	<0.0005	<0.0005				<0.0050	
Phenol	mg/l	-											<0.0300	<0.0300	<0.0300
Polynuclear aromatic hydrocarbons	mg/l	-	<0.0002	<0.0002	<0.0002		<0.0002				<0.0002	<0.0002			
Pyrene	mg/l	-	<0.0000	<0.0000	<0.0000		<0.0000				<0.0000	<0.0000			
Resorcinol	mg/l	-				<0.0005		<0.0005	<0.0005	<0.0005				<0.0050	
Selenium	mg/l	-	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0005	0.0015	<0.0005
Sulphate as SO4	mg/l	400	13.6	1.2	0.6	14.2	2.8	1.1	0.7	3.5	8.5	4.3	19	15	4.4
Total Cyanide*	mg/l	-		<0.0100			<0.0100								
Total Speciated Phenols	mg/l	-				<0.0035		<0.0035	<0.0035	<0.0035					
TPH >C10-40	mg/l	-	<0.0100	<0.0100	<0.0100		<0.0100				<0.0100	<0.0100			
Trimethylphenol	mg/l	-				<0.0005		<0.0005	<0.0005	<0.0005					
Trivalent Chromium	mg/l	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		<0.0200	

			S3TP07	S3TP18	S3TP19	S3TP21	S3TP22	S3TP23	S3TP24	S3TP24	S3TP29	S3TP34	S3WS01	S3WS04	S3WS07
Determinant Name	Units	EQS (mg/l)	1	0.5	1	0.5	0.5	0.5	0.2	2	0.5	0.2	0.5	0.5	0.5
Vanadium	mg/l	0.02	<0.0017	0.0031	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	0.004	0.0031	<0.0005	0.00075	<0.0005
Xylenols	mg/l	-												<0.0050	
Zinc	mg/l	0.0109	0.0066		0.012	0.0033		0.0042	0.0064	0.0023	0.025	0.026	0.0035	0.015	0.0039
Zinc (Available)	mg/l	-		0.0045			0.0039								

			S3WS07R
Determinant Name	Units	EQS (mg/l)	0.5
1-naphthol	mg/l	-	<0.0005
3,5-Dimethylphenol	mg/l	-	<0.0005
Acenaphthene	mg/l	-	
Acenaphthylene	mg/l	-	
Ammonia Free As N	mg/l	-	
Ammoniacal Nitrogen as N	mg/l	0.2	<0.0150
Antimony	mg/l	-	<0.0017
Arsenic	mg/l	0.05	<0.0010
Barium	mg/l	-	0.0053
Benzo (g,h,i) perylene	mg/l	-	
Benzo(a)anthracene	mg/l	-	
Benzo(a)pyrene	mg/l	0.00000017	
Benzo(b)fluoranthene	mg/l	-	
Benzo(k)fluoranthene	mg/l	-	
Beryllium	mg/l	-	<0.0002
Beryllium	mg/kg	-	
Beryllium	-	-	
Boron	mg/l	2	0.059
Cadmium	mg/l	0.00008	0.0001
Cadmium (dissolved)*	mg/l	-	
Calcium	mg/l	-	2
Catechol	mg/l	-	<0.0005
Chloride	mg/l	250	0.38
Chromium	mg/l	0.005	<0.0004
Chromium - Hexavalent	mg/l	0.0034	
Chrysene	mg/l	-	
Complex Cyanide	mg/l	-	<0.0010
Copper	mg/l	0.001	0.014
Cyanide	mg/l	-	<0.0010
Cyanide Free	mg/l	-	<0.0010
Dibenz-a-h-anthracene	mg/l	-	

			S3WS07R
Determinant Name	Units	EQS (mg/l)	0.5
Dissolved Organic Carbon	mg/l	-	
Fluoranthene	mg/l	0.0000063	
Fluorene	mg/l	-	
Fluoride	mg/l	-	0.6
Hardness, Calcium as CaCO3	mg/l	-	
Indeno(1,2,3-cd)pyrene	mg/l	-	
Iron	mg/l	1	0.1
Isopropylphenol*	mg/l	-	<0.0005
Lead	mg/l	0.0012	<0.0010
Magnesium	mg/l	-	0.64
Manganese	mg/l	0.22	0.0039
Mercury	mg/l	0.00007	<0.0000
Methylphenols	mg/l	0.1	<0.0005
Molybdenum	mg/l	-	0.0011
Napthalene	mg/l	0.002	
Nickel	mg/l	0.004	0.0009
pH	pH Units	-	6
pH	-	-	
Phenanthrene	mg/l	-	
Phenol	mg/l	0.0077	<0.0005
Phenol	mg/l	-	
Polynuclear aromatic hydrocarbons	mg/l	-	
Pyrene	mg/l	-	
Resorcinol	mg/l	-	<0.0005
Selenium	mg/l	-	<0.0040
Sulphate as SO4	mg/l	400	2.8
Total Cyanide*	mg/l	-	
Total Speciated Phenols	mg/l	-	<0.0035
TPH >C10-40	mg/l	-	
Trimethylphenol	mg/l	-	<0.0005
Trivalent Chromium	mg/l	-	-

			S3WS07R
Determinant Name	Units	EQS (mg/l)	0.5
Vanadium	mg/l	0.02	<0.0017
Xylenols	mg/l	-	
Zinc	mg/l	0.0109	0.0051
Zinc (Available)	mg/l	-	

			BH03A	BH05	BH05	BH06	BH06	BH08	BH08	BH08	BH11	BH12
Determinant Name	Units	EQS (mg/l)	0.6	0.3	3	0.4	1.3	0.6	8.6	10.5	0.1	0.3
Ammoniacal Nitrogen as N*	mg/l	-	<0.2000	<0.2000	0.274	<0.2000	<0.2000	<0.2000	<0.2000		<0.2000	<0.2000
Ammoniacal Nitrogen as NH4	mg/l	-	<0.3000	<0.3000	0.352	<0.3000	<0.3000	<0.3000	<0.3000		<0.3000	<0.3000
Antimony	mg/l	-								<0.0010		
Arsenic	mg/l	0.05	<0.0005	0.00181	0.00419	<0.0005	<0.0005	0.00271	0.00138	<0.0005	0.0108	0.00109
Barium	mg/l	-								0.0357		
Boron	mg/l	2	0.111	0.0627	0.146	0.0111	0.0174	0.0861	0.116		0.077	0.0416
Cadmium	mg/l	0.00008	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000738	0.000314	0.000117	<0.0001
Chloride	mg/l	250								7.3		
Chromium	mg/l	0.005	<0.0010	0.0031	<0.0010	<0.0010	<0.0010	0.00112	<0.0010	<0.0010	0.00954	0.00283
Chromium - Hexavalent	mg/l	0.0034	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300		<0.0300	<0.0300
Copper	mg/l	0.001	<0.0003	0.00469	0.000635	0.000326	<0.0003	0.000744	<0.0003	<0.0003	0.00786	0.00617
Cyanide	mg/l	-	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500		<0.0500	<0.0500
Cyanide Free	mg/l	-	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500		<0.0500	<0.0500
Dissolved Organic Carbon	mg/l	-								<3.0000		
Fluoride	mg/l	-								<0.5000		
Iron	mg/l	1	0.285	0.13	0.422	<0.0190	<0.0190	0.502	1.42		4.26	0.381
Lead	mg/l	0.0012	0.000765	0.00065	0.000893	<0.0002	<0.0002	0.000636	0.000689	<0.0002	0.0146	0.00203
Mercury	mg/l	0.00007	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.0000185	0.0000114
Molybdenum	mg/l	-								0.539		
Nickel	mg/l	0.004	<0.0004	0.000559	0.0029	0.000475	<0.0004	0.000534	0.000812	<0.0004	0.00621	0.00202
pH	-	-	7.97	8.68	9.17	9.39	8.52	8.83	7.62	7.96	8.81	7.54
Phenol (Monohydric)	mg/l	-								<0.0160		
Selenium	mg/l	-	<0.0010	0.00119	0.0013	<0.0010	<0.0010	<0.0010	<0.0010	0.00124	<0.0010	<0.0010
Sulphate as SO4	mg/l	400								87.6		
Sulphide	mg/l	-	0.0419	<0.0100	<0.0100	<0.0100	<0.0100	0.157	<0.0100		0.0738	<0.0100
Temperature (lab)	mg/l	-	22	22.1	21.8	19.6	18.7	19.9	19.9	19.8	18.7	21.7
Total dissolved solids	mg/l	-								176		
Vanadium	mg/l	0.02	<0.0010	0.00414	<0.0010	<0.0010	<0.0010	0.00152	0.00101		0.0213	<0.0010
Zinc	mg/l	0.0109	0.0109	0.00699	0.0528	<0.0010	0.0529	0.00395	0.0162	<0.0010	0.108	0.00307

			BH13	BH13	BH16	BH17	BH18	BH19	BH24	BH25	BH25	BH25
Determinant Name	Units	EQS (mg/l)	1.5	14.4	0.1	0.4	0.5	0.2	1	0.4	1	6.2
Ammoniacal Nitrogen as N*	mg/l	-	<0.2000	<0.2000		<0.2000	<0.2000	<0.2000			<0.2000	<0.2000
Ammoniacal Nitrogen as NH4	mg/l	-	<0.3000	<0.3000		<0.3000	<0.3000	<0.3000			<0.3000	<0.3000
Antimony	mg/l	-			0.00138			<0.0010	<0.0010	<0.0010		
Arsenic	mg/l	0.05	0.173	0.00251	0.00231	0.00129	0.000839	0.00122	0.00139	0.000529	0.00106	0.00181
Barium	mg/l	-			0.00787			0.0235	0.151	0.0927		
Boron	mg/l	2	1.14	0.0579		0.0139	0.025	0.0152			<0.0100	0.0376
Cadmium	mg/l	0.00008	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chloride	mg/l	250			4.6			2.8	12.4	20.3		
Chromium	mg/l	0.005	<0.0010	0.0832	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Chromium - Hexavalent	mg/l	0.0034	<0.0300	<0.0300		<0.0300	<0.0300	<0.0300			<0.0300	<0.0300
Copper	mg/l	0.001	<0.0003	<0.0003	0.00658	0.00208	<0.0003	<0.0003	0.00603	<0.0003	0.00104	<0.0003
Cyanide	mg/l	-	<0.0500	<0.0500		<0.0500	<0.0500	<0.0500			<0.0500	<0.0500
Cyanide Free	mg/l	-	<0.0500	<0.0500		<0.0500	<0.0500	<0.0500			<0.0500	<0.0500
Dissolved Organic Carbon	mg/l	-			4.19			3.45	4.52	<3.0000		
Fluoride	mg/l	-			<0.5000			<0.5000	<0.5000	<0.5000		
Iron	mg/l	1	<0.0190	0.227		1.6	0.278	<0.0190			0.294	0.379
Lead	mg/l	0.0012	<0.0002	<0.0002	0.000658	0.00105	0.00029	<0.0002	0.000385	<0.0002	<0.0002	0.000704
Mercury	mg/l	0.00007	< 0.00001	< 0.00001	0.0000151	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/l	-			<0.0030			<0.0030	<0.0030	<0.0030		
Nickel	mg/l	0.004	<0.0004	<0.0004	0.00102	0.000867	0.000826	<0.0004	0.000497	<0.0004	0.00095	0.00294
pH	-	-	10.3	9.01	7.45	7.29	8.07	9.12	8.29	9.77	8.42	8.08
Phenol (Monohydric)	mg/l	-			<0.0160			<0.0160	<0.0160	<0.0160		
Selenium	mg/l	-	0.0334	0.00102	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00165	0.00183	0.00189
Sulphate as SO4	mg/l	400			<2.0000			14.3	<2.0000	2.5		
Sulphide	mg/l	-	<0.0100	0.0561		<0.0100	<0.0100	<0.0100			<0.0100	<0.0100
Temperature (lab)	mg/l	-	20	19.9	22.4	19.1	14.9	20.7	20.7	20.2	20.3	20.6
Total dissolved solids	mg/l	-			63.6			89.5	85.2	110		
Vanadium	mg/l	0.02	0.17	<0.0010		0.00165	<0.0010	0.00166			<0.0010	<0.0010
Zinc	mg/l	0.0109	0.00108	0.0034	0.00255	0.0103	0.00935	0.00104	0.00293	<0.0010	<0.0010	0.00172

			BH26	BH26	BH28	BH28	BH30	BH30	BH30	BH30	BH32	BH32
Determinant Name	Units	EQS (mg/l)	0.9	4.6	1	6.4	0.4	1	10.8	11.7	0.4	1
Ammoniacal Nitrogen as N*	mg/l	-	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000
Ammoniacal Nitrogen as NH4	mg/l	-	<0.3000	<0.3000	<0.3000	<0.3000	<0.3000	<0.3000	<0.3000	<0.3000	<0.3000	<0.3000
Antimony	mg/l	-										
Arsenic	mg/l	0.05	0.00133	0.00198	0.00106	0.00511	<0.0005	0.000909	0.00152	0.000542	<0.0005	0.000806
Barium	mg/l	-										
Boron	mg/l	2	0.0102	0.108	<0.0100	0.121	<0.0100	0.0103	0.0114	<0.0100	<0.0100	0.0525
Cadmium	mg/l	0.00008	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chloride	mg/l	250										
Chromium	mg/l	0.005	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Chromium - Hexavalent	mg/l	0.0034	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300
Copper	mg/l	0.001	<0.0003	0.00115	0.00137	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Cyanide	mg/l	-	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Cyanide Free	mg/l	-	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Dissolved Organic Carbon	mg/l	-										
Fluoride	mg/l	-										
Iron	mg/l	1	<0.0190	1.28	0.38	0.517	<0.0190	<0.0190	0.475	0.757	<0.0190	0.35
Lead	mg/l	0.0012	<0.0002	0.0027	<0.0002	0.000315	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury	mg/l	0.00007	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/l	-										
Nickel	mg/l	0.004	<0.0004	0.00207	0.000499	0.00272	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
pH	-	-	9.25	8.41	8.45	7.81	9.74	8.86	8.91	8.11	9.87	8.97
Phenol (Monohydric)	mg/l	-										
Selenium	mg/l	-	0.00238	0.00135	0.00136	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sulphate as SO4	mg/l	400										
Sulphide	mg/l	-	0.0187	<0.0100	<0.0100	0.0712	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0717
Temperature (lab)	mg/l	-	17.7	20.6	21	18.3	20.8	20.7	21.2	21.2	20.5	20
Total dissolved solids	mg/l	-										
Vanadium	mg/l	0.02	<0.0010	0.00166	<0.0010	<0.0010	<0.0010	<0.0010	0.00176	<0.0010	<0.0010	<0.0010
Zinc	mg/l	0.0109	<0.0010	0.0537	<0.0010	0.0386	<0.0010	<0.0010	0.0996	0.0012	0.0374	0.00139

			BH33	BH33	BH33	BH34	BH34	BH34	BH35	BH36	BH37	BH38
Determinant Name	Units	EQS (mg/l)	1	2.2	6.9	0.4	0.9	5.2	1	1	0.4	0.4
Ammoniacal Nitrogen as N*	mg/l	-	<0.2000	<0.2000	4.58	<0.2000	<0.2000	6.62	<0.2000	<0.2000	<0.2000	<0.2000
Ammoniacal Nitrogen as NH4	mg/l	-	<0.3000	<0.3000	5.89	<0.3000	<0.3000	8.51	<0.3000	<0.3000	<0.3000	<0.3000
Antimony	mg/l	-										
Arsenic	mg/l	0.05	0.00226	0.000709	0.00854	0.000615	0.00328	0.0223	0.00111	0.00202	0.000583	<0.0005
Barium	mg/l	-										
Boron	mg/l	2	<0.0100	<0.0100	0.198	<0.0100	0.067	0.0799	<0.0100	0.0114	0.0134	<0.0100
Cadmium	mg/l	0.00008	<0.0001	<0.0001	0.000105	<0.0001	<0.0001	0.000148	<0.0001	<0.0001	<0.0001	<0.0001
Chloride	mg/l	250										
Chromium	mg/l	0.005	<0.0010	<0.0010	0.00318	<0.0010	<0.0010	0.00414	<0.0010	<0.0010	<0.0010	<0.0010
Chromium - Hexavalent	mg/l	0.0034	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300
Copper	mg/l	0.001	<0.0003	<0.0003	0.00343	<0.0003	<0.0003	0.0134	0.000667	0.000756	<0.0003	0.000996
Cyanide	mg/l	-	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Cyanide Free	mg/l	-	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Dissolved Organic Carbon	mg/l	-										
Fluoride	mg/l	-										
Iron	mg/l	1	0.308	<0.0190	1.29	<0.0190	0.245	4.44	0.1	0.813	<0.0190	<0.0190
Lead	mg/l	0.0012	<0.0002	<0.0002	0.00677	<0.0002	0.000241	0.0338	<0.0002	0.000674	<0.0002	<0.0002
Mercury	mg/l	0.00007	< 0.00001	< 0.00001	0.0000425	< 0.00001	< 0.00001	0.0000272	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/l	-										
Nickel	mg/l	0.004	<0.0004	<0.0004	0.0128	<0.0004	<0.0004	0.0145	0.000512	0.00107	<0.0004	0.000482
pH	-	-	9.28	8.94	7.78	9.67	9.42	8.12	8.84	8.87	9.88	9.86
Phenol (Monohydric)	mg/l	-										
Selenium	mg/l	-	0.00188	<0.0010	0.00187	<0.0010	0.00167	0.00239	0.00253	0.00211	<0.0010	<0.0010
Sulphate as SO4	mg/l	400										
Sulphide	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0202
Temperature (lab)	mg/l	-	19.8	20.5	19.8	20.5	17.4	20.2	18	19.6	17.6	20.4
Total dissolved solids	mg/l	-										
Vanadium	mg/l	0.02	0.00126	<0.0010	0.00563	<0.0010	0.00228	0.00919	<0.0010	0.00157	<0.0010	<0.0010
Zinc	mg/l	0.0109	0.00177	0.007	0.125	0.00887	0.0017	0.0103	<0.0010	0.00492	0.00175	<0.0010

			BH38	BH42	BH42	BH42	BH43	BH43	BH44	BH44	BH44	BH45
Determinant Name	Units	EQS (mg/l)	5.7	1	9.8	10.5	1.3	6.9	0.4	1.4	5.4	0.55
Ammoniacal Nitrogen as N*	mg/l	-	0.805	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000		<0.2000	<0.2000	
Ammoniacal Nitrogen as NH4	mg/l	-	1.04	<0.3000	<0.3000	<0.3000	<0.3000	<0.3000		<0.3000	<0.3000	
Antimony	mg/l	-							<0.0010			<0.0010
Arsenic	mg/l	0.05	0.00547	0.0822	0.046	0.0345	0.0783	0.000814	<0.0005	0.045	0.00907	0.00743
Barium	mg/l	-							0.24			0.0315
Boron	mg/l	2	0.0579	0.446	0.577	0.563	0.98	0.18		0.965	0.183	
Cadmium	mg/l	0.00008	<0.0001	<0.0001	0.000207	0.000745	<0.0001	0.000977	<0.0001	<0.0001	0.000296	<0.0001
Chloride	mg/l	250							10.3			5.9
Chromium	mg/l	0.005	0.00153	<0.0010	0.00866	0.00351	0.0113	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Chromium - Hexavalent	mg/l	0.0034	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300		<0.0300	<0.0300	
Copper	mg/l	0.001	0.00157	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00197
Cyanide	mg/l	-	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500		<0.0500	<0.0500	
Cyanide Free	mg/l	-	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500		<0.0500	<0.0500	
Dissolved Organic Carbon	mg/l	-							<3.0000			3.37
Fluoride	mg/l	-							<0.5000			<0.5000
Iron	mg/l	1	0.677	<0.0190	<0.0190	<0.0190	<0.0190	0.124		<0.0190	<0.0190	
Lead	mg/l	0.0012	0.00104	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury	mg/l	0.00007	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum	mg/l	-							<0.0030			<0.0030
Nickel	mg/l	0.004	0.00502	<0.0004	<0.0004	0.00094	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
pH	-	-	8.33	8.4	10.7	10.6	10.7	8.92	9.74	10.5	9.04	9.45
Phenol (Monohydric)	mg/l	-							<0.0160			<0.0160
Selenium	mg/l	-	0.00312	0.00657	0.0106	0.0205	0.0152	0.00141	<0.0010	0.00701	0.0032	<0.0010
Sulphate as SO4	mg/l	400							<2.0000			<2.0000
Sulphide	mg/l	-	0.0677	<0.0100	<0.0100	<0.0100	<0.0100	0.0246		<0.0100	0.0257	
Temperature (lab)	mg/l	-	20.5	19.8	19.9	19.4	21.1	20.5	19.1	20.6	18.9	20
Total dissolved solids	mg/l	-							100			71.6
Vanadium	mg/l	0.02	0.00228	0.0424	0.202	0.182	0.195	<0.0010		0.155	0.00171	
Zinc	mg/l	0.0109	0.00453	0.00145	0.00186	0.00152	<0.0010	0.226	0.0254	0.00128	<0.0010	<0.0010

			BH45A	BH48	BH54	BH58	BH61	BH62	BH65	BH66	BH66	TP02
Determinant Name	Units	EQS (mg/l)	1.7	0.7	0.4	0.3	1.3	0.3	0.4	0.1	1	1
Ammoniacal Nitrogen as N*	mg/l	-	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000		<0.2000		
Ammoniacal Nitrogen as NH4	mg/l	-	<0.3000	<0.3000	<0.3000	<0.3000	<0.3000	<0.3000		<0.3000		
Antimony	mg/l	-							<0.0010		<0.0010	<0.0010
Arsenic	mg/l	0.05	0.0466	0.000686	0.000542	0.000653	<0.0005	0.00155	0.000969	0.000583	0.00171	<0.0005
Barium	mg/l	-							0.114		0.01	0.00912
Boron	mg/l	2	0.759	0.135	0.177	<0.0100	0.129	0.0511		0.0268		
Cadmium	mg/l	0.00008	0.000336	<0.0001	0.000117	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chloride	mg/l	250							<2.0000		<2.0000	2.8
Chromium	mg/l	0.005	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00161	<0.0010	<0.0010	<0.0010	<0.0010
Chromium - Hexavalent	mg/l	0.0034	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300		<0.0300		
Copper	mg/l	0.001	<0.0003	<0.0003	0.00625	0.000659	<0.0003	0.00298	0.00149	<0.0003	<0.0003	<0.0003
Cyanide	mg/l	-	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500		<0.0500		
Cyanide Free	mg/l	-	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500		<0.0500		
Dissolved Organic Carbon	mg/l	-							3.88		5.85	4.82
Fluoride	mg/l	-							0.832		<0.5000	<0.5000
Iron	mg/l	1	<0.0190	<0.0190	0.341	<0.0190	0.418	0.391		0.123		
Lead	mg/l	0.0012	<0.0002	<0.0002	0.00169	<0.0002	<0.0002	0.00118	<0.0002	<0.0002	<0.0002	0.000379
Mercury	mg/l	0.00007	<0.00001	<0.00001	0.0000159	<0.00001	<0.00001	0.0000154	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum	mg/l	-							<0.0030		<0.0030	<0.0030
Nickel	mg/l	0.004	<0.0004	<0.0004	0.00329	<0.0004	<0.0004	0.00148	0.000631	0.000551	0.000738	<0.0004
pH	-	-	10.6	8.66	7.99	9.9	7.81	8.03	8.19	7.01	7.87	6.96
Phenol (Monohydric)	mg/l	-							<0.0160		<0.0160	<0.0160
Selenium	mg/l	-	0.0135	<0.0010	<0.0010	<0.0010	0.00135	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sulphate as SO4	mg/l	400							<2.0000		<2.0000	13.8
Sulphide	mg/l	-	<0.0100	0.0156	0.0688	<0.0100	<0.0100	<0.0100		<0.0100		
Temperature (lab)	mg/l	-	20	17.2	21.3	19.5	20.7	21.5	20.2	14.2	16.3	20.7
Total dissolved solids	mg/l	-							86.3		63	58
Vanadium	mg/l	0.02	0.16	<0.0010	<0.0010	<0.0010	<0.0010	0.00285		<0.0010		
Zinc	mg/l	0.0109	0.00121	0.0674	0.0882	0.00127	0.0125	0.00786	0.00615	0.00497	0.00185	0.0341

			TP04	TP08	TP10	TP13	TP13	TP27	TP32	TP35	TP39	TP43
Determinant Name	Units	EQS (mg/l)	1	0.5	1	0.2	0.8	0.7	0.7	0.7	0.4	0.6
Ammoniacal Nitrogen as N*	mg/l	-				<0.2000		<0.2000	<0.2000			<0.2000
Ammoniacal Nitrogen as NH4	mg/l	-				<0.3000		<0.3000	<0.3000			<0.3000
Antimony	mg/l	-	<0.0010	<0.0010	<0.0010		0.00123			<0.0010	0.00122	
Arsenic	mg/l	0.05	<0.0005	0.000797	0.000545	<0.0005	0.00256	0.00107	<0.0005	0.000603	0.00355	0.00567
Barium	mg/l	-	0.0496	0.0681	0.0124		0.0122			0.0183	0.0175	
Boron	mg/l	2				<0.0100		0.0636	0.0105			0.0168
Cadmium	mg/l	0.00008	0.0000935	<0.0001	<0.0001	<0.0001	<0.0001	0.000193	<0.0001	<0.0001	<0.0001	<0.0001
Chloride	mg/l	250	6.3	2.9	<2.0000		5			2.3	2.3	
Chromium	mg/l	0.005	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00108	<0.0010	0.00166	<0.0010	0.0106
Chromium - Hexavalent	mg/l	0.0034				<0.0300		<0.0300	<0.0300			<0.0300
Copper	mg/l	0.001	<0.0003	0.00362	0.00277	0.00169	0.00167	0.0119	0.000532	0.00251	0.0106	0.00601
Cyanide	mg/l	-				<0.0500		<0.0500	<0.0500			<0.0500
Cyanide Free	mg/l	-				<0.0500		<0.0500	<0.0500			<0.0500
Dissolved Organic Carbon	mg/l	-	3.47	7.46	6		8.42			3.22	9.31	
Fluoride	mg/l	-	<0.5000	0.861	0.718		0.982			<0.5000	<0.5000	
Iron	mg/l	1				0.453		1.22	0.247			0.101
Lead	mg/l	0.0012	<0.0002	0.0028	0.0011	<0.0002	0.00055	0.00427	0.000266	0.000543	0.00276	0.000869
Mercury	mg/l	0.00007	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.0000127	<0.00001	<0.00001	0.0000181	0.0000221
Molybdenum	mg/l	-	<0.0030	<0.0030	<0.0030		<0.0030			<0.0030	<0.0030	
Nickel	mg/l	0.004	<0.0004	0.00156	0.000603	<0.0004	0.000706	0.00462	0.000911	0.00127	0.000732	0.00117
pH	-	-	7.74	7.98	8.29	8.9	8.73	8.08	8.93	7.55	7.75	8.97
Phenol (Monohydric)	mg/l	-	<0.0160	<0.0160	<0.0160		<0.0160			<0.0160	<0.0160	
Selenium	mg/l	-	<0.0010	<0.0010	<0.0010	<0.0010	0.00106	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sulphate as SO4	mg/l	400	20.9	14.7	3.4		<2.0000			<2.0000	<2.0000	
Sulphide	mg/l	-				0.193		0.0384	<0.0100			0.012
Temperature (lab)	mg/l	-	19.8	2.1	19.1	20	20	17.7	13.5	22.2	21.7	21.4
Total dissolved solids	mg/l	-	78.5	73.8	48.6		129			44.3	102	
Vanadium	mg/l	0.02				<0.0010		0.00145	<0.0010			0.00405
Zinc	mg/l	0.0109	0.0101	0.0157	0.00249	0.00709	0.161	0.0136	0.00171	0.0135	0.00581	0.00753

			TP44	TP45	WS28	WS46	WS48	WS50A	WS54	WS64	WS65	WS66
Determinant Name	Units	EQS (mg/l)	0.1	0.1	0.7	2.3	1.5	0.7	1.5	0.7	0.6	0.1
Ammoniacal Nitrogen as N*	mg/l	-	0.222	<0.2000		<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	<0.2000	
Ammoniacal Nitrogen as NH4	mg/l	-	<0.3000	<0.3000		<0.3000	<0.3000	<0.3000	<0.3000	<0.3000	<0.3000	
Antimony	mg/l	-			<0.0010	<0.0010						<0.0010
Arsenic	mg/l	0.05	0.00227	0.00431	<0.0005	0.0669	0.00352	0.00101	0.00112	0.00158	0.00175	0.00212
Barium	mg/l	-			0.0123	0.125						0.00927
Boron	mg/l	2	0.0171	0.0191		<0.0100	0.0398	0.0676	0.0753	0.019	0.0762	
Cadmium	mg/l	0.00008	<0.0001	<0.0001	0.000152	<0.0001	<0.0001	<0.0001	0.000184	<0.0001	<0.0001	<0.0001
Chloride	mg/l	250			<2.0000	119						<2.0000
Chromium	mg/l	0.005	<0.0010	0.0164	<0.0010	0.0015	0.0017	<0.0010	<0.0010	<0.0010	0.00945	<0.0010
Chromium - Hexavalent	mg/l	0.0034	<0.0300	<0.0300		0.0463	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	
Copper	mg/l	0.001	0.00125	0.00631	<0.0003	0.0728	0.00313	<0.0003	<0.0003	0.00347	0.00524	0.00411
Cyanide	mg/l	-	<0.0500	<0.0500		0.48	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	
Cyanide Free	mg/l	-	<0.0500	<0.0500		<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	
Dissolved Organic Carbon	mg/l	-			4.24	103						9.8
Fluoride	mg/l	-			<0.5000	0.885						0.522
Iron	mg/l	1	0.373	0.22		0.167	0.0416	0.134	0.121	0.307	0.667	
Lead	mg/l	0.0012	0.00174	0.0019	0.000675	0.0486	0.000444	0.000285	0.000427	0.000441	0.00222	0.00068
Mercury	mg/l	0.00007	0.0000325	0.0000206	<0.00001	0.000869	0.0000179	0.0000115	<0.00001	0.0000119	0.0000163	<0.00001
Molybdenum	mg/l	-			<0.0030	0.00341						<0.0030
Nickel	mg/l	0.004	0.00138	0.000781	<0.0004	0.015	<0.0004	0.000641	0.00243	0.000702	0.00068	0.000738
pH	-	-	7.32	8.79	6.95	12.6	8.27	8.49	8.46	7.94	8.22	8.31
Phenol (Monohydric)	mg/l	-			<0.0160	14.4						<0.0160
Selenium	mg/l	-	<0.0010	<0.0010	<0.0010	0.00518	<0.0010	<0.0010	0.00125	<0.0010	<0.0010	<0.0010
Sulphate as SO4	mg/l	400			9.3	1040						<2.0000
Sulphide	mg/l	-	0.023	0.0104		<0.0100	<0.0100	0.0402	0.078	<0.0100	<0.0100	
Temperature (lab)	mg/l	-	21.5	22	22.5	18.4	19.4	19.9	19.7	18.1	21.8	15.2
Total dissolved solids	mg/l	-			46	9350						101
Vanadium	mg/l	0.02	0.00352	0.00353		<0.0010	0.00291	<0.0010	<0.0010	0.0029	0.00151	
Zinc	mg/l	0.0109	0.0866	0.101	0.0566	0.0193	0.00219	0.00847	0.0018	0.0017	0.0121	0.00245

			WS67	WS70	WS71	WS72
Determinant Name	Units	EQS (mg/l)	0.7	0.8	0.7	0.1
Ammoniacal Nitrogen as N*	mg/l	-	<0.2000	<0.2000	0.401	
Ammoniacal Nitrogen as NH4	mg/l	-	<0.3000	<0.3000	0.516	
Antimony	mg/l	-				<0.0010
Arsenic	mg/l	0.05	0.0038	0.00266	0.0034	0.00408
Barium	mg/l	-				0.2
Boron	mg/l	2	0.0583	0.0191	0.0226	
Cadmium	mg/l	0.00008	<0.0001	<0.0001	<0.0001	<0.0001
Chloride	mg/l	250				3.7
Chromium	mg/l	0.005	<0.0010	<0.0010	<0.0010	<0.0010
Chromium - Hexavalent	mg/l	0.0034	<0.0300	<0.0300	<0.0300	
Copper	mg/l	0.001	0.00344	0.00345	0.00817	0.00806
Cyanide	mg/l	-	<0.0500	<0.0500	<0.0500	
Cyanide Free	mg/l	-	<0.0500	<0.0500	<0.0500	
Dissolved Organic Carbon	mg/l	-				8.88
Fluoride	mg/l	-				<0.5000
Iron	mg/l	1	0.237	0.941	0.526	
Lead	mg/l	0.0012	0.00182	0.00118	0.00176	0.00214
Mercury	mg/l	0.00007	0.0000264	0.0000149	0.0000231	0.000025
Molybdenum	mg/l	-				<0.0030
Nickel	mg/l	0.004	0.00163	0.000798	0.00136	0.00111
pH	-	-	8.2	7.48	7.62	8
Phenol (Monohydric)	mg/l	-				<0.0160
Selenium	mg/l	-	<0.0010	<0.0010	<0.0010	<0.0010
Sulphate as SO4	mg/l	400				<2.0000
Sulphide	mg/l	-	<0.0100	<0.0100	<0.0100	
Temperature (lab)	mg/l	-	22.1	19.3	22	22.1
Total dissolved solids	mg/l	-				76.9
Vanadium	mg/l	0.02	0.00268	0.00268	0.00294	
Zinc	mg/l	0.0109	0.00796	0.00184	0.00935	0.138

Determinant Name	Units	EQS (mg/l)	S3WS01		S3WS05		S3WS06		S3WS07		S3BH07
			Jan-23	Feb-23	Jan-23	Feb-23	Jan-23	Feb-23	Jan-23	Feb-23	Feb-23
1,1,1,2-Tetrachloroethane	mg/l	0.14	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,1,1-Trichloroethane	mg/l	0.1	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0235	<0.003
1,1,2,2-Tetrachloroethane	mg/l	0.14	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,1,2-Trichloro-1,2,2-Trifluoroethane	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,1,2-Trichloroethane	mg/l	0.4	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,1-Dichloroethane	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0109	<0.003
1,1-Dichloroethene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0113	<0.003
1,1-Dichloropropene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,2,3 Trichlorobenzene	mg/l	0.0004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,2,4-Trichlorobenzene	mg/l	0.0004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,2,4-Trimethylbenzene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,2-Dibromo-3-Chloropropane	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,2-Dibromoethane	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,2-Dichlorobenzene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,2-Dichloroethane	mg/l	0.01	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,2-Dichloropropane	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,3,5-Trimethylbenzene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,3-Dichlorobenzene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,3-Dichloropropane	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,4-Dichlorobenzene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1-naphthol	mg/l	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.003	<0.0005	<0.0005
2,2-Dichloropropane	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
2-Chlorotoluene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
3,5-Dimethylphenol	mg/l	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.003	<0.0005	<0.0005
4-Chlorotoluene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
4-Isopropyltoluene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Acenaphthene	mg/l	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.003	<0.00001	Insufficient Sample
Acenaphthylene	mg/l	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.003	<0.00001	Insufficient Sample
Aliphatics >C10-12	mg/l	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.003	<0.01	Insufficient Sample
Aliphatics >C12-16	mg/l	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.003	<0.01	<0.01
Aliphatics >C16-21	mg/l	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.003	<0.01	Insufficient Sample
Aliphatics >C21-35	mg/l	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.003	<0.01	Insufficient Sample
Aliphatics >C5-35	mg/l	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.003	<0.01	Insufficient Sample
Aliphatics >C5-6	mg/l	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.001	<0.001
Aliphatics >C6-8	mg/l	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.001	<0.001
Aliphatics >C8-10	mg/l	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.001	<0.001
Ammoniacal Nitrogen as N	mg/l	0.2	0.02	0.016	0.029	0.059	0.023	0.048	<0.003	0.04	0.63
Anthracene	mg/l	0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.003	<0.00001	Insufficient Sample
Antimony	-	-	-0.0004	0.0005	0.0008	0.0011	0.0004	0.0007	<0.003	-0.0004	0.0008
Aromatics >C10-12	mg/l	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.003	<0.01	<0.01
Aromatics >C12-16	mg/l	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.003	<0.01	Insufficient Sample
Aromatics >C16-21	mg/l	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.003	<0.01	Insufficient Sample
Aromatics >C21-35	mg/l	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.003	<0.01	Insufficient Sample
Aromatics >C5-7	mg/l	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.001	Insufficient Sample
Aromatics >C6-35	mg/l	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.001	<0.001
Aromatics >C7-8	mg/l	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.001	<0.001
Aromatics >C8-10	mg/l	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.001	<0.001
Arsenic	mg/l	0.05	<0.0002	0.00026	0.0004	0.0005	0.0006	0.0007	<0.003	0.00292	0.00256

Determinant Name	Units	EQS (mg/l)	S3WS01		S3WS05		S3WS06		S3WS07		S3BH07
			Jan-23	Feb-23	Jan-23	Feb-23	Jan-23	Feb-23	Jan-23	Feb-23	Feb-23
Barium	mg/l	-	0.099	0.094	0.07	0.066	0.1	0.068	<0.003	0.049	0.19
Benzene	mg/l	0.01	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Benzo (g,h,i) perylene	mg/l	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.003	<0.00001	Insufficient Sample
Benzo(a)anthracene	mg/l	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.003	<0.00001	Insufficient Sample
Benzo(a)pyrene	mg/l	0.00000017	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.003	<0.00001	Insufficient Sample
Benzo(b)fluoranthene	mg/l	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.003	<0.00001	Insufficient Sample
Benzo(k)fluoranthene	mg/l	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.003	<0.00001	Insufficient Sample
Beryllium	mg/l	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.003	<0.0001	<0.0001
Bicarbonate as HCO3 (titration)*	mgHCO3/l	-	210	-	470	-	39	-	250	-	-
Boron	mg/l	2	0.18	0.11	0.057	0.064	0.062	0.058	0.17	0.17	0.17
Bromobenzene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Bromodichloromethane	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Bromomethane	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Cadmium	mg/l	0.00008	0.0002	0.00022	0	0.00003	0.0003	0.00028	0.0001	0.00007	0.00003
Calcium	mg/l	-	170	120	88	110	110	67	410	550	140
Catechol	mg/l	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chloride	mg/l	250	63	61	14	17	45	25	130	160	1700
Chlorobenzene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chloroethane	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chloroethene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chloroform	mg/l	0.0025	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chloromethane	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	mg/l	0.005	0.0002	<0.0002	0.0006	0.0007	0.0005	0.0007	<0.0002	<0.0002	<0.0002
Chromium - Hexavalent	mg/l	0.0034	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chrysene	mg/l	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	Insufficient Sample
cis-1,2-Dichloroethene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.01	0.0191	<0.003
cis-1,3-Dichloropropene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Copper (Available)	mg/l	0.00231	0.001	0.0006	0.0025	0.0014	0.011	0.017	0.001	0.0007	<0.0005
Cyanide	mg/l	0.001	<0.01	<0.001	<0.01	<0.001	<0.01	0.0017	<0.01	<0.001	0.013
Cyanide Free	mg/l	-	<0.01	<0.0010	<0.01	<0.0010	<0.01	<0.0010	<0.01	<0.0010	<0.0010
Dibenz-a-h-anthracene	mg/l	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	Insufficient Sample
Dibromochloromethane	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Dibromomethane	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Ethylbenzene	mg/l	0.02	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Fluoranthene	mg/l	0.0000063	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	Insufficient Sample
Fluorene	mg/l	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	Insufficient Sample
Hexachlorobutadiene (HCBD)	mg/l	0.0001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Indeno(1,2,3-cd)pyrene	mg/l	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	Insufficient Sample
Iron	mg/l	1	-0.004	0.006	0.076	0.031	0.034	0.14	0.004	0.041	0.061
Isopropylbenzene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Isopropylphenol*	mg/l	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Lead	mg/l	0.0012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
m,p xylenes	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Magnesium	mg/l	-	34	31	12	14	21	13	67	71	37
Manganese	mg/l	0.22	0.028	6	0.0057	0.0016	0.03	0.033	0.18	0.049	2.2
Mercury	mg/l	0.00007	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Methyl tert-butyl ether (MTBE)	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Methylphenols	mg/l	0.1	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Determinant Name	Units	EQS (mg/l)	S3WS01		S3WS05		S3WS06		S3WS07		S3BH07
			Jan-23	Feb-23	Jan-23	Feb-23	Jan-23	Feb-23	Jan-23	Feb-23	Feb-23
Napthalene	mg/l	0.002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	Insufficient Sample
n-Butylbenzene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Nickel	mg/l	0.00588	0.0024	0.0056	0.0033	0.0035	0.0082	0.011	0.0026	0.0058	0.011
Nitrate as N	mg/l	-	0.92	1.61	23.2	31.9	23.5	15.7	12.7	11.5	Insufficient Sample
Nitrate as NO3	mg/l	-	4.05	7.14	103	141	104	69.4	56.3	50.7	Insufficient Sample
n-propylbenzene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
O-Xylene	mg/l	0.03	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
PAH, Total Detected USEPA 16	mg/l	-	<0.00016	<0.00016	<0.00016	<0.00016	<0.00016	<0.00016	<0.00016	<0.00016	<0.00016
pH	pH Units	-	7.1	7.4	6.9	7.2	6.6	6.3	7.4	7.3	6.8
Phenanthrene	mg/l	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	Insufficient Sample
Phenol	mg/l	0.0077	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Pyrene	mg/l	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	Insufficient Sample
Resorcinol	mg/l	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Sec-Butylbenzene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Selenium	mg/l	-	0.0033	0.0031	0.0007	0.0009	0.0013	0.0015	0.0026	0.0032	0.0016
Sodium	mg/l	-	48	38	16	15	45	40	76	61	1200
Styrene	mg/l	0.05	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Sulphate as SO4	mg/l	400	285	219	46	39.3	214	137	740	1100	228
Sulphur	mg/l	-	95	73	15	13	71	46	250	370	76
Tert-Butylbenzene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Tetrachloroethene	mg/l	0.01	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Tetrachloromethane (Carbon Tetra Chloride)	mg/l	0.012	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Toluene	mg/l	0.074	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Total Alkalinity as CaCO3	mgCaCO3/l	-	170	-	380	-	32	-	200	-	-
Total dissolved solids	mg/l	-	550	660	270	460	540	860	1500	2200	3300
Total hardness	mgCaCO3/l	-	558	439	272	345	349	221	1300	1660	496
Total Speciated Phenols	mg/l	-	<0.0035	<0.0035	<0.0035	<0.0035	<0.0035	<0.0035	<0.0035	<0.0035	<0.0035
trans-1,2-Dichloroethene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
trans-1,3-Dichloropropene	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Tribromomethane	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Trichloroethene	mg/l	0.01	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0096	0.0196	<0.003
Trichlorofluoromethane	mg/l	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Trimethylphenol	mg/l	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Trivalent Chromium	mg/l	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vanadium	mg/l	0.02	<0.0002	<0.0002	0.0004	0.0006	0.0002	0.0002	0.0016	0.0036	0.0004
Zinc (Available)	mg/l	-	0.0044	0.0019	0.004	<0.0005	0.0065	0.0058	0.0016	<0.0005	0.0055

			BH01			BH02		BH03		BH03A	BH05			BH06			BH07			BH09			Feb-22	
			Feb-22	Aug-21	Nov-21	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21		
Methyl tert-butyl ether (MTBE)	mg/l	-	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030		
Methyl tert-pentyl ether	mg/l	-																						
Methylparathion	mg/l	-	< 0.00001		< 0.00004															< 0.00001	<0.0001	< 0.00004		
Mevinphos	mg/l	-	< 0.00001		< 0.00004															< 0.00001	<0.0001	< 0.00004		
Napthalene	mg/l	-	0.002	< 0.00001	< 0.00001	0.000011	< 0.00001	0.0000121	0.00116	< 0.00001	0.000025	< 0.00001	< 0.00001	0.0000272	< 0.00001	< 0.00001	0.000164	0.0000269	< 0.00001	0.0000201	< 0.00001	< 0.00001		
n-Butylbenzene	mg/l	-																						
Nickel	mg/l	-	0.00588	0.00183	0.00191	0.00259	0.00166	0.00262	0.00375	0.00172	0.00251	0.00105	0.0103	0.00428	0.00606	0.0034	0.00533	0.00538	0.0152	0.00431	0.00549	0.00313	0.00442	0.0054
Nitrate as NO3	mg/l	-	<0.3000	<0.3000	20.9	<0.3000	19.4	0.501	<0.3000	<0.3000	31.9	<0.3000	<0.3000	5.13	<0.3000	6.42	<0.3000	<0.3000	<0.3000	<0.3000	19.4	<0.3000	<0.3000	
Nitrobenzene	mg/l	-																						
N-Nitroso-Di-N-Propylamine	mg/l	-																						
n-propylbenzene	mg/l	-																						
o,p - DDE	mg/l	-	< 0.00001		< 0.00001															< 0.00001	< 0.00001	< 0.00001		
o,p - DDT	mg/l	-	< 0.00001		< 0.00002															< 0.00001	< 0.00002	< 0.00002		
o,p - TDE	mg/l	-	< 0.00001		< 0.00001															< 0.00001	< 0.00001	< 0.00001		
o,p'-Methoxychlor*	mg/l	-	< 0.00001		< 0.00002															< 0.00001	< 0.00002	< 0.00002		
Orthophosphate*	mg/l	-																						
O-Xylene	mg/l	-	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030		
p,p - DDT	mg/l	-	0.00001	< 0.00001	< 0.00002															< 0.00001	< 0.00002	< 0.00002		
PAH, Total Detected USEPA 16	mg/l	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0082	<0.0001	<0.0001	0.00112	0.00326	<0.0001	<0.0001	0.00028	0.000202	<0.0001	<0.0001	<0.0001	<0.0001	0.00036	<0.0001	<0.0001	
Pendimethalin	mg/l	-	0.0003	< 0.00001	< 0.00004															< 0.00001	< 0.0001	< 0.00004		
Pentachlorophenol (PCP)	mg/l	-	0.0004	< 0.00004	< 0.00004															< 0.00004	< 0.0002	< 0.00004		
Permethrin	mg/l	-	0.000001	< 0.00001	< 0.00001															< 0.00001	< 0.00001	< 0.00001		
Permethrin II*	mg/l	-	< 0.00001	< 0.00001	< 0.00001															< 0.00001	< 0.00001	< 0.00001		
pH	pH Units	-	7.58	7.37	7.53	7.4	7.38	7.21	7.38	6.72	7.43	7.7	7.11	7.29	7.36	7.16	7.02	7.52	6.92	7.17	7.71	6.96	7.17	
Phenanthrene	mg/l	-	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	0.0000222	0.0000672	0.000113	0.0000172	< 0.000005	0.0000134	0.0000147	< 0.000005	< 0.000005	0.0000131	< 0.000005	0.0000168	0.0000121	0.00000904	
Phenol	mg/l	-	0.0077	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
Phenol (Monohydric)	mg/l	-	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	
Phorate	mg/l	-	< 0.00001		< 0.00004															< 0.00001	< 0.0001	< 0.00004		
Phosalone	mg/l	-	< 0.00001		< 0.00004															< 0.00001	< 0.0002	< 0.00004		
Phosphorus as P	mg/l	-																						
Pirimiphos-methyl	mg/l	-	< 0.00001		< 0.00004															< 0.00001	< 0.0001	< 0.00004		
Propetamphos	mg/l	-	< 0.00001		< 0.00004															< 0.00001	< 0.0001	< 0.00004		
Pyrene	mg/l	-	< 0.000005	< 0.000005	< 0.000005	0.00000864	< 0.000005	< 0.000005	< 0.000005	< 0.000005	0.000163	0.000497	< 0.000005	0.0000144	0.0000467	< 0.000005	< 0.000005	0.0000146	< 0.000005	0.0000501	< 0.000005	0.000013		
Sec-Butylbenzene	mg/l	-																						
Selenium	mg/l	-	<0.0010	<0.0010	0.00274	<0.0010	0.00258	0.00122	<0.0010	<0.0010	0.00469	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Silvex	mg/l	-	<0.0001		<0.0001															<0.0001	<0.0005	<0.0001		
Simazine	mg/l	-	0.001	< 0.00001	< 0.00004															< 0.00001	< 0.0001	< 0.00004		
Styrene	mg/l	-	0.05																					
Sulphate as SO4	mg/l	-	400	495	266	1560	257	1570	274	262	190	60.5	2240	184	1350	2570	1310	191	462	188	191	189	185	184
Sulphide	mg/l	-	0.0122	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0188	0.022	<0.0100	<0.0100	0.0181	<0.0100	<0.0100	0.0237	<0.0100	<0.0100	<0.0100	0.183	0.01	0.0118	
Tecnazene	mg/l	-	< 0.00001		< 0.00004															< 0.00001	< 0.0001	< 0.00004		
Tert-Butylbenzene	mg/l	-																						
Tetrachloroethene	mg/l	-	0.01																					
Tetrachloromethane (Carbon Tetra Chloride)	mg/l	-	0.012																					
Toluene	mg/l	-	0.074	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040		
Toluene-D8	%	-																						
Total BTEX	mg/l	-	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280		
Trairdimefon	mg/l	-	< 0.00001		< 0.00004															< 0.00001	< 0.0001	< 0.00004		
trans - Chlordane	mg/l	-	< 0.00001		< 0.00001															< 0.00001	< 0.00001	< 0.00001		
trans-1,2-Dichloroethene	mg/l	-																						
trans-1,3-Dichloropropene	mg/l	-																						
Triallate	mg/l	-	< 0.00001		< 0.00004															< 0.00001	< 0.0001	< 0.00004		
Triazophos	mg/l	-	< 0.00001		< 0.00004															< 0.00001	< 0.0001	< 0.00004		
Tribromomethane	mg/l	-																						
Trichloroethene	mg/l	-	0.01																					
Trichlorofluoromethane	mg/l	-																						
Triclopyr	mg/l	-	<0.0001		<0.0001															<0.0001	<0.0003	<0.0001		
Trifluralin	mg/l	-	0.00003	< 0.00001	< 0.00001															< 0.00001	< 0.00001	< 0.00001		
Vanadium	mg/l	-	0.0																					

Determinant Name	Units	EQS (mg/l)	BH10		BH11			BH12			BH14			BH15			BH16			BH17			
			Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22
1,1,1,2-Tetrachloroethane	mg/l	0.14			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,1,1-Trichloroethane	mg/l	0.1			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,1,2,2-Tetrachloroethane	mg/l	0.14			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,1,2-Trichloroethane	mg/l	0.4			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,1-Dichloroethane	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,1-Dichloroethene	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,1-Dichloropropene	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,2,3 Trichlorobenzene	mg/l	0.0004			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,2,3-Trichloropropane	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,2,4-Trichlorobenzene	mg/l	0.0004			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,2,4-Trimethylbenzene	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,2-Dibromo-3-Chloropropane	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,2-Dibromoethane	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,2-Dichlorobenzene	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,2-Dichloroethane	mg/l	0.01			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,2-Dichloropropane	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,3,5 Trichlorobenzene	mg/l	0.0004			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,3,5-Trimethylbenzene	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,3-Dichlorobenzene	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,3-Dichloropropane	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
1,4-Dichlorobenzene	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
2-(2,4-Dichlorophenoxy)propionic Acid	mg/l	-																					
2,2-Dichloropropane	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
2,3,6-Trichlorobenzoic Acid (Tba)	mg/l	-																					
2,4,5-Trichlorophenol	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
2,4,6-Trichlorophenol	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
2,4-Dichlorophenol	mg/l	0.0042			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
2,4-Dichlorophenoxy Acetic Acid (D)	mg/l	0.0003																					
2,4-Dimethylphenol	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
2,4-Dinitrotoluene	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
2,6-Dinitrotoluene	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
2-Chloronaphthalene	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
2-Chlorophenol	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
2-Chlorotoluene	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
2-Methyl-4,6-Dinitrophenol	mg/l	-																					
2-Methylnaphthalene	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
2-Methylphenol	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
2-Nitroaniline	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
2-Nitrophenol	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
3-Nitroaniline	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
4,4-DDD*	mg/l	-																					
4,4-DDE	mg/l	-																					
4-bromofluorobenzene	%	-			97.4	99.3	98.9	97.3	87.3	101													
4-Bromophenyl Phenyl Ether	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
4-Chloro Phenyl Ether	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
4-Chloro-3-Methylphenol	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
4-Chloroaniline	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
4-Chlorotoluene	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
4-Isopropyltoluene	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
4-Methylphenol	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
4-Nitroaniline	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
4-Nitrophenol	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
Acenaphthene	mg/l	-			<0.0001	<0.000005	<0.00005	<0.000005	<0.000005	<0.000005													
Acenaphthylene	mg/l	-			<0.0001	<0.000005	<0.00005	<0.000005	<0.000005	<0.000005													
Aldrin	mg/l	0.00001																					
Aliphatics & Aromatics >C5-35	mg/l	-			0.646	<0.0100	0.032	<0.0100	<0.0100	<0.0100	13.9	<0.0100	<0.0100	0.146	<0.0100	0.079	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aliphatics >C10-12	mg/l	-			<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.113	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aliphatics >C12-16	mg/l	-			<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.068	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aliphatics >C12-35	mg/l	-			0.646	<0.0100	0.032	<0.0100	<0.0100	<0.0100	12	<0.0100	<0.0100	0.146	<0.0100	0.079	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aliphatics >C16-21	mg/l	-			<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.513	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aliphatics >C16-C35	mg/l	-			0.646	<0.0100	0.032	<0.0100	<0.0100	<0.0100	11.9	<0.0100	<0.0100	0.146	<0.0100	0.079	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aliphatics >C21-35	mg/l	-			0.646	<0.0100	0.032	<0.0100	<0.0100	<0.0100	11.4	<0.0100	<0.0100	0.146	<0.0100	0.079	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aliphatics >C5-6	mg/l	-			<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100

			BH10		BH11			BH12			BH14			BH15			BH16			BH17			
			Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22
Cresols*	mg/l	-	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	0.01	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	
Cyanide	mg/l	0.001	<0.0500	<0.0500	<0.0500	0.9	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	
Cyanide Free	mg/l	-	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	
Demeton-s-methyl	mg/l	-											< 0.00001	<0.0001	< 0.00004								
Deta-Hexachlorocyclohexane	mg/l	-											< 0.00001	< 0.00001	< 0.00001								
Diazinon	mg/l	0.00001											< 0.00001	<0.0001	< 0.00004								
Dibenz-a-h-anthracene	mg/l	-	<0.0001	< 0.000005	<0.0005	0.00000533	< 0.000005	< 0.000005	0.000261	< 0.000005	< 0.000005	< 0.000005	0.0000247	< 0.000005	< 0.000005	< 0.000005	0.0000101	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	
Dibenzofuran	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
Dibromochloromethane	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
Dibromofluoromethane	%	-			104	110	115	117	111														
Dibromomethane	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
Dicamba*	mg/l	-											< 0.00004	<0.0004	< 0.00004								
Dichlobenil	mg/l	-											< 0.00001	<0.0001	< 0.00004								
Dichlorodifluoromethane	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
Dichloromethane	mg/l	0.02			<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030													
Dichlorvos	mg/l	0.0000006																					
Diieldrin	mg/l	0.00001																					
Diethylphthalate	mg/l	0.2			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
Dimethoate	mg/l	0.00048																					
Dimethylphthalate	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
Di-N-Butyl Phthalate	mg/l	0.008			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
Di-N-Octyl Phthalate	mg/l	-			<0.0500	<0.0050	<0.0050	<0.0050	<0.2000	<0.0050													
Dissolved Organic Carbon	mg/l	-	6.24	3.65	7.63	8.39	3.74	<3.0000	14.2	7.1	<3.0000	3.62	<3.0000	8.07	5.15	3.69	<3.0000	3.64	3.13	<3.0000	3.83	3.09	<3.0000
Disulfoton	mg/l	-												< 0.00001	<0.0001	<0.0002							
Endosulfan I	mg/l	0.000005												< 0.00001	< 0.00001	< 0.00001							
Endosulfan II	mg/l	0.000005												< 0.00002	< 0.00002	< 0.00002							
Endosulfan Sulfate	mg/l	-												< 0.00002	< 0.00002	< 0.00002							
Endrin	mg/l	0.00001												< 0.00001	< 0.00001	< 0.00001							
Ethion	mg/l	-												< 0.00001	<0.0001	< 0.00004							
Ethylbenzene	mg/l	0.02	<0.0050	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
Ethylparathion	mg/l	-												< 0.00001	<0.0001	< 0.00004							
Faecal Coliforms Confirmed	CFU/100ml	-						0	0	3													
Faecal streptococci (Confirmed)	CFU/100ml	-						2	1	3			1										
Faecal streptococci (Presumptive)	CFU/100ml	-						2	1	10			1										
Fenitrothion	mg/l	-												< 0.00001	<0.0001	< 0.00004							
Fenthion	mg/l	-												< 0.00001	<0.0001	< 0.00004							
Fluoranthene	mg/l	0.0000063	0.0000959	< 0.000005	<0.0005	0.0000479	< 0.000005	< 0.000005	0.002	0.000097	0.000018	0.0000354	< 0.000005	0.000207	0.0000565	< 0.000005	0.0000237	0.0000741	< 0.000005	0.0000087	< 0.000005	0.0000111	5.79E-06
Fluorene	mg/l	-	<0.0001	0.0000114	<0.0005	< 0.000005	0.0000111	< 0.000005	<0.0001	< 0.000005	< 0.000005	< 0.000005	< 0.000005	0.00000648	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Fluroxypyr*	mg/l	-												<0.0001	<0.0010	<0.0001							
gamma-hexachlorocyclohexane	mg/l	0.00002												< 0.00001	< 0.00001	< 0.00001							
GRO >C5-12	mg/l	-	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	0.359	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	
GRO Surrogate % recovery	%	-	110	101	97	92	101	86	88	98	85	97	104	103	94	103	84	92	106	108	90	102	81
Hardness, Total as CaCO3	mg/l	-	1470	507	366	913	506	1770	19200	226	1770	3860	1660	366	1560	516	349	1650	1350	660	857	775	887
Heptachlor	mg/l	2E-10												< 0.00001	< 0.00001	< 0.00001							
Heptachlor Epoxide	mg/l	2E-10												< 0.00001	< 0.00001	< 0.00001							
Hexachlorobenzene (HCB)	mg/l	0.00001			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010				< 0.00001	<0.0001	< 0.00004							
Hexachlorobutadiene (HCBd)	mg/l	0.0001			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010				< 0.00001	<0.0001	< 0.00004							
Hexachlorocyclopentadiene	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
Hexachloroethane	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
Indeno(1,2,3-cd)pyrene	mg/l	-	<0.0001	< 0.000005	<0.0005	0.0000303	< 0.000005	< 0.000005	0.00133	< 0.000005	< 0.000005	0.0000222	< 0.000005	0.0000932	0.0000551	< 0.000005	< 0.000005	0.0000395	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Ioxynil	mg/l	-												<0.0001	<0.0005	<0.0001							
Iron	mg/l	1	<0.0190	1.19	0.0288	0.331	2.2	0.0936	<0.0190	0.0485	0.154	0.0545	<0.0190	0.107	<0.0190	1.96	<0.0190	<0.0190	<0.0190	<0.0190	<0.0190	<0.0190	<0.0190
Isodrin	mg/l	0.00001												< 0.00001	< 0.00001	< 0.00001							
Isophorone	mg/l	-			<0.0100	<0.0010	<0.0010	<0.0010	<0.0400	<0.0010													
Isopropylbenzene	mg/l	-			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													
Lead	mg/l	0.0012	0.000444	<0.0002	<0.0002	<0.0002	<0.0002	0.000244	<0.0002	<0.0002	0.000717	<0.0002	<0.0002	0.000252	<0.0002	<0.0002	<0.0002	<0.0002	0.000323	<0.0002	<0.0002	0.000329	<0.0002
m,p xylenes	mg/l	-	<0.0080	<0.0080	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	
Malathion	mg/l	-																					

Determinant Name	Units	EQS (mg/l)	BH18		BH19			BH21			BH22			BH56			BH60			BH61			WS08	
			Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21
1,1,1,2-Tetrachloroethane	mg/l	0.14			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,1,1-Trichloroethane	mg/l	0.1			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,1,2,2-Tetrachloroethane	mg/l	0.14			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,1,2-Trichloroethane	mg/l	0.4			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,1-Dichloroethane	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,1-Dichloroethene	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,1-Dichloropropene	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,2,3 Trichlorobenzene	mg/l	0.0004			<0.0010	<0.0010	<0.0010	< 0.00001	< 0.00001	<0.0004	< 0.00001	< 0.0001	< 0.00004							< 0.00001	<0.0001	< 0.00004		
1,2,3-Trichloropropane	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,2,4-Trichlorobenzene	mg/l	0.0004			<0.0010	<0.0010	<0.0010	< 0.00001	< 0.00002	<0.0004	< 0.00001	< 0.0001	< 0.00004							0.0000117	<0.0001	< 0.00004		
1,2,4-Trimethylbenzene	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,2-Dibromo-3-Chloropropane	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,2-Dibromoethane	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,2-Dichlorobenzene	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,2-Dichloroethane	mg/l	0.01			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,2-Dichloropropane	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,3,5 Trichlorobenzene	mg/l	0.0004			<0.0010	<0.0010	<0.0010	< 0.00001	< 0.00002	<0.0004	< 0.00001	< 0.0001	< 0.00004							< 0.00001	<0.0001	< 0.00004		
1,3,5-Trimethylbenzene	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,3-Dichlorobenzene	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,3-Dichloropropane	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
1,4-Dichlorobenzene	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
2-(2,4-Dichlorophenoxy)propionic Acid	mg/l	-						<0.0001	<0.0005	<0.0002	<0.0001	<0.0010	<0.0001							<0.0001	<0.0010	<0.0002		
2,2-Dichloropropane	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
2,3,6-Trichlorobenzoic Acid (Tba)	mg/l	-						<0.0001	<0.0003	<0.0001	<0.0001	<0.0005	<0.0001							<0.0001	<0.0005	<0.0001		
2,4,5-Trichlorophenol	mg/l	-			<0.0100	<0.0040	<0.0100	<0.0001	<0.0003	<0.0001	<0.0001	<0.0005	<0.0001							<0.0001	<0.0005	<0.0001		
2,4,6-Trichlorophenol	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
2,4-Dichlorophenol	mg/l	0.0042			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
2,4-Dichlorophenoxy Acetic Acid (D)	mg/l	0.0003						<0.0001	<0.0003	<0.0001	<0.0001	<0.0005	<0.0001							<0.0001	<0.0005	<0.0001		
2,4-Dimethylphenol	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
2,4-Dinitrotoluene	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
2,6-Dinitrotoluene	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
2-Chloronaphthalene	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
2-Chlorophenol	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
2-Chlorotoluene	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
2-Methyl-4,6-Dinitrophenol	mg/l	-						<0.0001	<0.0005	<0.0002	<0.0001	<0.0010	<0.0001							<0.0001	<0.0010	<0.0002		
2-Methylnaphthalene	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
2-Methylphenol	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
2-Nitroaniline	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
2-Nitrophenol	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
3-Nitroaniline	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
4,4-DDD*	mg/l	-						< 0.00001	< 0.00001	<0.0001	< 0.00001	< 0.00001	< 0.0001							< 0.00001	< 0.00001	< 0.00001		
4,4-DDE	mg/l	-						< 0.00001	< 0.00001	<0.0001	< 0.00001	< 0.00001	< 0.0001							< 0.00001	< 0.00001	< 0.00001		
4-bromofluorobenzene	%	-			96.8	97.8	102													98.5	100	99.3		
4-Bromophenyl Phenyl Ether	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
4-Chloro Phenyl Ether	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
4-Chloro-3-Methylphenol	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
4-Chloroaniline	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
4-Chlorotoluene	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
4-Isopropyltoluene	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
4-Methylphenol	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
4-Nitroaniline	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
4-Nitrophenol	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010		
Acenaphthene	mg/l	-	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	0.0000082	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.0001	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Acenaphthylene	mg/l	-	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.0001	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Aldrin	mg/l	0.00001						< 0.00001	< 0.00001	<0.0001	< 0.00001	< 0.00001	< 0.0001							< 0.00001	< 0.00001	< 0.0000		

		BH18		BH19		BH21			BH22			BH56			BH60			BH61			WS08			
		Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	
Aliphatics >C6-8	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	
Aliphatics >C8-10	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	
alpha-Hexachlorocyclohexane	mg/l	0.00002							<0.00001	<0.00001	<0.0001	<0.00001	<0.00001	<0.0001					<0.00001	<0.00001	<0.00001			
Ammoniacal Nitrogen as N	mg/l	0.2	0.184	0.035	0.063	0.975	0.031	0.038	0.022	0.046	0.079	0.019	0.027	0.122	0.785	0.126	0.163	0.099	0.1	0.122	0.104	0.109	0.139	0.05
Ammoniacal Nitrogen as NH4	mg/l	-	0.237	0.045	0.081	1.25	0.0399	0.0489	0.0283	0.0591	0.102	0.0244	0.0347	0.157	1.01	0.162	0.21	0.127	0.129	0.157	0.134	0.14	0.179	0.0643
Anthracene	mg/l	0.0001	<0.000005	<0.000005	0.00000515	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.0000326	<0.000005	<0.000005	<0.000005	<0.0001	<0.000005	<0.000005	<0.0001	<0.000005	<0.000005	<0.0001	<0.000005	<0.000005	<0.000005
Aromatics >C10-12	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aromatics >C12-16	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aromatics >C12-35	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.421	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aromatics >C16-21	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aromatics >C21-35	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.421	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aromatics >C5-7	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aromatics >C7-8	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Aromatics >C8-10	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Arsenic	mg/l	0.05	0.00168	0.00403	0.000527	0.000882	<0.0005	<0.0005	<0.0005	0.000504	<0.0005	0.000502	0.000559	0.00127	0.0113	0.000507	0.00109	0.00179	0.00192	0.00222	0.00375	0.000596	0.000533	0.0013
Atrazine	mg/l	0.0006						<0.00001	<0.00001	<0.0004	<0.00001	<0.0001	<0.00004							<0.00001	<0.0001	<0.00004		
Azinphos-ethyl	mg/l	-						<0.00002	<0.00002	<0.0008	<0.00002	<0.0002	<0.0001							<0.00002	<0.0002	<0.0001		
Azinphos-methyl	mg/l	-						<0.00002	<0.00004	<0.0008	<0.00002	<0.0002	<0.0001							<0.00002	<0.0005	<0.0001		
Azobenzene	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0100	<0.0100	<0.0100		
Benazolin	mg/l	-						<0.00004	<0.0002	<0.0001	<0.00004	<0.0004	<0.00004							<0.00004	<0.0004	<0.0001		
Benzene	mg/l	0.01	<0.0070	<0.0070	<0.0010	<0.0010	<0.0010	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0010	<0.0010	<0.0010	<0.0070	<0.0070
Benzo (g,h,i) perylene	mg/l	-	<0.000005	<0.000005	0.0000232	<0.000005	<0.000005	<0.000005	<0.000005	0.000128	0.000217	<0.000005	0.0000241	<0.000005	<0.0001	<0.000005	<0.000005	0.000179	<0.000005	<0.000005	0.000106	<0.000005	<0.000005	<0.000005
Benzo(a)anthracene	mg/l	-	<0.000005	<0.000005	0.0000215	<0.000005	<0.000005	<0.000005	<0.000005	0.000171	0.000193	<0.000005	0.0000167	<0.000005	0.000347	<0.000005	<0.000005	0.000134	<0.000005	<0.000005	0.0000586	<0.000005	<0.000005	<0.000005
Benzo(a)pyrene	mg/l	0.0000017	<0.0000	<0.0000	0.0000251	<0.0000	<0.0000	<0.0000	<0.0000	0.000262	<0.0000	0.0000275	0.00000457	0.000189	<0.0000	<0.0000	0.000224	<0.0000	<0.0000	0.000132	<0.0000	0.0000769	<0.0000	<0.0000
Benzo(b)fluoranthene	mg/l	-	<0.000005	<0.000005	0.0000331	<0.000005	<0.000005	<0.000005	<0.000005	0.000329	<0.000005	0.0000407	0.00000649	0.000252	<0.000005	<0.000005	0.000309	<0.000005	<0.000005	0.000189	<0.000005	0.000011	<0.000005	<0.000005
Benzo(k)fluoranthene	mg/l	-	<0.000005	<0.000005	0.0000163	<0.000005	<0.000005	<0.000005	<0.000005	0.000172	<0.000005	0.0000177	<0.000005	<0.0001	<0.000005	<0.000005	0.000145	<0.000005	<0.000005	0.0000948	<0.000005	<0.000005	<0.000005	<0.000005
beta-Hexachlorocyclohexane	mg/l	0.00002						<0.00001	<0.00001	<0.0001	<0.00001	<0.0001	<0.0001							<0.00001	<0.00001	<0.00001		
Bis(2-chloroethoxy)methane	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0100	<0.0100	<0.0100		
Bis(2-chloroethyl)ether	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0100	<0.0100	<0.0100		
Bis(2-ethylhexyl)phthalate	mg/l	0.0013			<0.0200	<0.0080	<0.0200													<0.0020	<0.0200	<0.0020		
BOD + ATU (5 day)	mg/l	-																						
Boron	mg/l	2	0.285	0.151	0.0434	0.0486	0.0475	0.0519	0.0446	0.384	0.0395	0.0423	0.0515	0.123	0.126	0.127	0.157	0.121	0.182	0.0736	0.143	0.136	0.102	0.0656
Bromobenzene	mg/l	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
Bromochloromethane	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
Bromodichloromethane	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
Bromomethane	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010		
Bromoxynil	mg/l	-						<0.00004	<0.0002	<0.0001	<0.00004	<0.0004	<0.00004							<0.00004	<0.0004	<0.0001		
Butylbenzylphthalate	mg/l	0.0075			<0.0100	<0.0040	<0.0100													<0.0100	<0.0100	<0.0100		
Butyric Acid (4-(2,4-dichlorophenoxy)-Butanoic acid (DB))	mg/l	-						<0.0001	<0.0005	<0.0002	<0.0001	<0.0010	<0.0001							<0.0001	<0.0010	<0.0002		
C.Perrifngens	CFU/100ml	-																						
Cadmium	mg/l	0.00008	<0.0001	<0.0001	<0.0001	0.000173	0.00011	0.00143	<0.0001	0.000481	<0.0001	<0.0001	0.0000913	0.000799	<0.0001	0.000135	0.00855	<0.0001	0.00479	<0.0001	0.00103	0.000113	0.000809	<0.0001
Calcium	mg/l	-	511	300	91	98.2	81.5	101	90.6	90.1	85.5	93.7	84.2	156	120	151	229	149	215	130	153	145	83.5	169
Carbazole	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0100	<0.0100	<0.0100		
Carbon Disulphide																								

			BH18			BH19			BH21			BH22			BH56			BH60			BH61			WS08		
			Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21		
Methyl tert-butyl ether (MTBE)	mg/l	-	<0.0030	<0.0030	<0.0010	0.036	<0.0010	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010	<0.0030	<0.0030		
Methyl tert-pentyl ether	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010				
Methylparathion	mg/l	-							<0.00001	<0.00001	<0.0004	<0.00001	<0.0001	<0.00004						<0.00001	<0.0001	<0.00004				
Mevinphos	mg/l	-							<0.00001	<0.00001	<0.0004	<0.00001	<0.0001	<0.00004						<0.00001	<0.0001	<0.00004				
Naphthalene	mg/l	-	0.002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0001	<0.00001	<0.00001	<0.00001	<0.00001	0.0000219	<0.0002	0.0000267	0.0000278	0.000103	0.000241	0.0000117	0.000221	0.0000152	<0.00001	<0.00001
n-Butylbenzene	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010				
Nickel	mg/l	-	0.00588	0.00131	0.000967	0.00123	0.00474	0.00141	0.0104	0.000416	0.000829	0.00102	<0.0004	0.00154	0.0051	0.00877	0.0044	0.231	0.00583	0.237	0.00581	0.129	0.00418	0.00543	0.00193	
Nitrate as NO3	mg/l	-	22.1	38.4	32.3	1.08	30.4	31.8	42.2	28.9	31.5	43.4	30.6	<0.3000	<0.3000	<0.3000	0.898	<0.3000	2.69	<0.3000	<0.3000	<0.3000	0.813	<0.3000		
Nitrobenzene	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010				
N-Nitroso-DI-N-Propylamine	mg/l	-			<0.0100	<0.0040	<0.0100													<0.0010	<0.0100	<0.0010				
n-propylbenzene	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010				
o,p - DDE	mg/l	-						<0.00001	<0.00001	<0.0001	<0.00001	<0.00001	<0.0001							<0.00001	<0.00001	<0.00001				
o,p - DDT	mg/l	-						<0.00001	<0.00002	<0.0002	<0.00001	<0.00001	<0.0001							<0.00001	<0.00002	<0.00002				
o,p - TDE	mg/l	-						<0.00001	<0.00001	<0.0001	<0.00001	<0.00001	<0.0001							<0.00001	<0.00001	<0.00001				
o,p'-Methoxychlor*	mg/l	-						<0.00001	<0.00002	<0.0002	<0.00001	<0.00002	<0.0001							<0.00001	<0.00002	<0.00002				
Orthophosphate*	mg/l	-																								
O-Xylene	mg/l	-	0.03	<0.0030	<0.0030	<0.0010	<0.0010	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010	<0.0030	<0.0030		
p,p - DDT	mg/l	-	0.00001					<0.00001	<0.00002	<0.0002	<0.00001	<0.00002	<0.0001							<0.00001	<0.00002	<0.00002				
PAH, Total Detected USEPA 16	mg/l	-	<0.0001	<0.0001	0.000272	<0.0001	<0.0001	<0.0001	<0.0001	0.000539	0.0025	<0.0001	0.000272	<0.0001	0.00226	<0.0001	0.00229	0.000301		<0.0001	0.00142	<0.0001	0.0000862	<0.0001		
Pendimethalin	mg/l	-	0.0003					<0.00001	<0.00001	<0.0004	<0.00001	<0.0001	<0.00004							<0.00001	<0.0001	<0.00004				
Pentachlorophenol (PCP)	mg/l	-	0.0004		<0.0100	<0.0040	<0.0100	<0.00004	<0.0002	<0.0001	<0.00004	<0.0004	<0.00004							<0.00004	<0.0004	<0.0001				
Permethrin	mg/l	-	0.000001					<0.00001	<0.00001	<0.0001	<0.00001	<0.00001	<0.0001							<0.00001	<0.00001	<0.00001				
Permethrin II*	mg/l	-						<0.00001	<0.00001	<0.0001	<0.00001	<0.00001	<0.0001							<0.00001	<0.00001	<0.00001				
pH	pH Units	-	7.56	7.37	7.46	6.88	7.4	7.59	7.73	7.44	7.52	7.54	7.43	7.39	7	6.99	6.78	6.89	6.6	7.01	6.75	6.97	6.92	7.35		
Phenanthrene	mg/l	-	<0.000005	<0.000005	0.0000195	<0.000005	<0.000005	<0.000005	<0.000005	0.0000892	0.000142	<0.000005	0.0000205	0.00000709	0.000264	<0.000005	<0.000005	0.000151	0.0000272	<0.000005	0.000118	0.0000107	0.0000157	<0.000005		
Phenol	mg/l	-	0.0077	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020		
Phenol (Monohydric)	mg/l	-	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160	<0.0160		
Phorate	mg/l	-						<0.00001	<0.00001	<0.0004	<0.00001	<0.0001	<0.00004							<0.00001	<0.0001	<0.00004				
Phosalone	mg/l	-						<0.00001	<0.00001	<0.0004	<0.00001	<0.0001	<0.00004							<0.00001	<0.0002	<0.00004				
Phosphorus as P	mg/l	-																								
Pirimiphos-methyl	mg/l	-						<0.00001	<0.00001	<0.0004	<0.00001	<0.0001	<0.00004							<0.00001	<0.0001	<0.00004				
Propetamphos	mg/l	-						<0.00001	<0.0001	<0.0004	<0.00001	<0.0001	<0.00004							<0.00001	<0.0001	<0.00004				
Pyrene	mg/l	-	<0.000005	<0.000005	0.0000441	0.0000126	0.0000073	0.0000183	<0.000005	<0.000005	0.000346	<0.000005	0.0000339	0.0000116	0.000345	<0.000005	7.33E-06	0.000351	0.0000072	7.51E-06	0.000209	<0.000005	0.0000256	<0.000005		
Sec-Butylbenzene	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010				
Selenium	mg/l	-	0.00175	0.0016	0.00453	<0.0010	0.00415	<0.0010	0.00368	0.0033	0.0044	0.00381	0.00388	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Silvex	mg/l	-						<0.0010	<0.0005	<0.0002	<0.0001	<0.0001	<0.0001							<0.0010	<0.0010	<0.0002				
Simazine	mg/l	-	0.001					<0.00001	0.0000577	<0.0004	<0.00001	<0.0001	<0.00004							<0.00001	<0.0001	<0.00004				
Styrene	mg/l	-	0.05		<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010				
Sulphate as SO4	mg/l	-	400	1240	598	60.9	23.4	54.5	60.1	94.6	56.5	59.7	89.8	55	181	208	194	497	114	512	91.6	325	185	155	247	
Sulphide	mg/l	-	0.015	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0267		
Tecnazene	mg/l	-						<0.00001	<0.00001	<0.0004	<0.00001	<0.0001	<0.00004							<0.00001	<0.0001	<0.00004				
Tert-Butylbenzene	mg/l	-			<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010				
Tetrachloroethene	mg/l	-	0.01		<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010				
Tetrachloromethane (Carbon Tetra Chloride)	mg/l	-	0.012		<0.0010	<0.0010	<0.0010													<0.0010	<0.0010	<0.0010				
Toluene	mg/l	-	0.074	<0.0040	<0.0040	<0.0010	<0.0010	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0010	<0.0010	<0.0010	<0.0040	<0.0040		
Toluene-D8	%	-			100	101	101													98.5	100	99.7				
Total BTEX	mg/l	-	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280	<0.0280		
Traidimefon	mg/l	-						<0.00001	<0.0																	

		WS12				WS15				WS25		WS26			WS31			WS48	WS50	WS54			
		Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-22	Nov-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Feb-22	Aug-21	Nov-21	Aug-21	Aug-21	Feb-22	Aug-21	Nov-21	Nov-21	
Aliphatics >C6-8	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	
Aliphatics >C8-10	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	
alpha-Hexachlorocyclohexane	mg/l	0.00002		<0.0001		<0.00001	<0.00002	<0.00001		<0.00001	<0.00001	<0.00001											
Ammoniacal Nitrogen as N	mg/l	0.2	0.116	0.16	0.054	0.164	0.134	0.59	0.113	0.552	0.132	0.031	0.022	0.136	0.079	0.145	0.146	0.249	0.229	0.024	0.215	0.219	
Ammoniacal Nitrogen as NH4	mg/l	-	0.149	0.206	0.0694	0.211	0.172	0.759	0.145	0.71	0.17	0.0399	0.0283	0.175	0.102	0.186	0.188	0.32	0.294	0.0309	0.276	0.282	
Anthracene	mg/l	0.0001	<0.000005	<0.0005	<0.000005	<0.000005	<0.000005	0.0000153	<0.000005	0.00000984	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.00144	0.00000631	0.00000716	<0.000005	<0.000005	
Aromatics >C10-12	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.037	<0.0100	<0.0100	<0.0100	
Aromatics >C12-16	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	<0.0100	<0.0100	<0.0100	
Aromatics >C12-35	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.651	<0.0100	<0.0100	<0.0100	
Aromatics >C16-21	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.154	<0.0100	<0.0100	<0.0100	
Aromatics >C21-35	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.497	<0.0100	<0.0100	<0.0100	
Aromatics >C5-7	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	
Aromatics >C7-8	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	
Aromatics >C8-10	mg/l	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	
Arsenic	mg/l	0.05	<0.0005	0.00175	0.00146	0.00199	0.00116	0.00167	<0.0005	0.00809	<0.0005	<0.0005	<0.0005	<0.0005	0.00116	0.00115	<0.0005	0.00552	0.00303	0.00682	0.00308	0.00232	
Atrazine	mg/l	0.0006			<0.00001		<0.00001	<0.0001	<0.00004			<0.00001	<0.00001	<0.00001									
Azinphos-ethyl	mg/l	-			<0.00002		<0.00002	<0.0002	<0.0001			<0.00002	<0.00002	<0.00002									
Azinphos-methyl	mg/l	-			<0.00004		<0.00002	<0.0002	<0.0001			<0.00002	<0.00002	<0.00002									
Azobenzene	mg/l	-			<0.0010																		
Benazolin	mg/l	-			<0.00004		<0.00004	<0.0004	<0.00004			<0.00004	<0.0002	<0.00004				<0.0040	<0.0010	<0.0010	<0.0010	<0.0010	
Benzene	mg/l	0.01	<0.0070	<0.0070	<0.0010	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Benzo (g,h,i) perylene	mg/l	-	<0.000005	<0.0005	<0.000005	<0.000005	<0.000005	0.0000821	<0.000005	0.0000559	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.0000121	<0.000005	0.00874	0.0000379	<0.000005	<0.000005	<0.000005	
Benzo(a)anthracene	mg/l	-	<0.000005	<0.0005	<0.000005	<0.000005	<0.000005	0.0000791	<0.000005	0.0000525	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.0000167	<0.000005	0.00871	0.0000419	0.00000615	<0.000005	<0.000005	
Benzo(a)pyrene	mg/l	0.00000017	<0.0000	<0.0002	<0.0000	<0.0000	<0.0000	0.0000989	<0.0000	0.0000668	<0.0000	<0.0000	<0.0000	<0.0000	<0.0000	0.00000794	<0.0000	0.0122	0.0000333	0.00000866	<0.0000	<0.0000	
Benzo(b)fluoranthene	mg/l	-	<0.000005	<0.0005	<0.000005	<0.000005	<0.000005	0.0000128	<0.000005	0.0000128	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.0000107	<0.000005	0.0165	0.0000473	0.0000012	<0.000005	<0.000005	
Benzo(k)fluoranthene	mg/l	-	<0.000005	<0.0005	<0.000005	<0.000005	<0.000005	0.0000524	<0.000005	0.0000362	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.00596	0.0000186	0.00000695	<0.000005	<0.000005	
beta-Hexachlorocyclohexane	mg/l	0.00002			<0.0001		<0.00001	<0.00002	<0.00001			<0.00001	<0.00001	<0.00001				<0.0040	<0.0010	<0.0010	<0.0010	<0.0010	
Bis(2-chloroethoxy)methane	mg/l	-			<0.0010													<0.0040	<0.0010	<0.0010	<0.0010	<0.0010	
Bis(2-chloroethyl)ether	mg/l	-			<0.0010													<0.0040	<0.0010	<0.0010	<0.0010	<0.0010	
Bis(2-ethylhexyl)phthalate	mg/l	0.0013			<0.0020													<0.0080	<0.0020	<0.0020	<0.0020	<0.0020	
BOD + ATU (5 day)	mg/l	-																7.81	<1.0000	<1.0000	<1.0000		
Boron	mg/l	2	0.13	0.0692	0.0704	0.0882	0.124	0.121	0.136	0.126	0.134	0.0809	0.0948	0.136	0.08	0.0673	0.135	0.232	0.213	0.275	0.214	0.216	
Bromobenzene	mg/l	-			<0.0010													<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Bromochloromethane	mg/l	-			<0.0010													<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Bromodichloromethane	mg/l	-			<0.0010													<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Bromomethane	mg/l	-			<0.0010													<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Bromoxynil	mg/l	-			<0.00004		<0.00004	<0.0004	<0.00004			<0.00004	<0.0002	<0.00004				<0.0040	<0.0010	<0.0010	<0.0010	<0.0010	
Butylbenzylphthalate	mg/l	0.0075			<0.0010													<0.0040	<0.0010	<0.0010	<0.0010	<0.0010	
Butyric Acid (4-(2,4-dichlorophenoxy)-Butanoic acid (DB))	mg/l	-			<0.0001		<0.0001	<0.0010	<0.0001			<0.0001	<0.0005	<0.0001									
C.Perrifngens	CFU/100ml	-																		0			0
Cadmium	mg/l	0.00008	0.000134	<0.0001	<0.0001	<0.0001	0.000747	<0.0001	0.000157	<0.0001	0.00014	<0.0001	<0.0001	0.000139	0.0000919	<0.0001	0.000171	0.00158	0.00394	0.000124	0.00407	0.00315	
Calcium	mg/l	-	147	150	175	152	151	125	150	117	149	61.8	56.7	150	67.1	152	147	247	208	567	210	210	
Carbazole	mg/l	-			<0.0010													<0.0040	<0.0010	<0.0010	<0.0010	<0.0010	
Carbon Disulphide	mg/l	-			<0.0010													<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Carbophenothion	mg/l	-			<0.00001		<0.00001	<0.0001	<0.00004			<0.00001	<0.00001	<0.00001									
Chemical oxygen demand	mg/l	-																950	40.5	9.9	34.2		
Chlordane - alpha	mg/l	-			<0.00001		<0.00001	<0.00002	<0.00001			<0.00001	<0.00001	<0.00001									
Chlorfenvinphos	mg/l	0.0001			<0.00001		<0.00001	<0.0001	<0.00004			<0.000											

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Determinant Name	Units	EQS (mg/l)	
1,1,1,2-Tetrachloroethane	mg/l	0.14	
1,1,1-Trichloroethane	mg/l	0.1	
1,1,2,2-Tetrachloroethane	mg/l	0.14	
1,1,2-Trichloroethane	mg/l	0.4	
1,1-Dichloroethane	mg/l	-	
1,1-Dichloroethene	mg/l	-	
1,1-Dichloropropene	mg/l	-	
1,2,3 Trichlorobenzene	mg/l	0.0004	<0.0001
1,2,3-Trichloropropane	mg/l	-	
1,2,4-Trichlorobenzene	mg/l	0.0004	<0.0001
1,2,4-Trimethylbenzene	mg/l	-	
1,2-Dibromo-3-Chloropropane	mg/l	-	
1,2-Dibromoethane	mg/l	-	
1,2-Dichlorobenzene	mg/l	-	
1,2-Dichloroethane	mg/l	0.01	
1,2-Dichloropropane	mg/l	-	
1,3,5 Trichlorobenzene	mg/l	0.0004	<0.0001
1,3,5-Trimethylbenzene	mg/l	-	
1,3-Dichlorobenzene	mg/l	-	
1,3-Dichloropropane	mg/l	-	
1,4-Dichlorobenzene	mg/l	-	
2-(2,4-Dichlorophenoxy)propionic Acid	mg/l	-	<0.0010
2,2-Dichloropropane	mg/l	-	
2,3,6-Trichlorobenzoic Acid (Tba)	mg/l	-	<0.0005
2,4,5-Trichlorophenol	mg/l	-	<0.0005
2,4,6-Trichlorophenol	mg/l	-	
2,4-Dichlorophenol	mg/l	0.0042	
2,4-Dichlorophenoxy Acetic Acid (D)	mg/l	0.0003	<0.0005
2,4-Dimethylphenol	mg/l	-	
2,4-Dinitrotoluene	mg/l	-	
2,6-Dinitrotoluene	mg/l	-	
2-Chloronaphthalene	mg/l	-	
2-Chlorophenol	mg/l	-	
2-Chlorotoluene	mg/l	-	
2-Methyl-4,6-Dinitrophenol	mg/l	-	<0.0010
2-Methylnaphthalene	mg/l	-	
2-Methylphenol	mg/l	-	
2-Nitroaniline	mg/l	-	
2-Nitrophenol	mg/l	-	
3-Nitroaniline	mg/l	-	
4,4-DDD*	mg/l	-	<0.0001
4,4-DDE	mg/l	-	<0.0001
4-bromofluorobenzene	%	-	
4-Bromophenyl Phenyl Ether	mg/l	-	
4-Chloro Phenyl Ether	mg/l	-	
4-Chloro-3-Methylphenol	mg/l	-	
4-Chloroaniline	mg/l	-	
4-Chlorotoluene	mg/l	-	
4-Isopropyltoluene	mg/l	-	
4-Methylphenol	mg/l	-	
4-Nitroaniline	mg/l	-	
4-Nitrophenol	mg/l	-	
Acenaphthene	mg/l	-	< 0.000005
Acenaphthylene	mg/l	-	< 0.000005
Aldrin	mg/l	0.00001	<0.0001
Aliphatics & Aromatics >C5-35	mg/l	-	2.34
Aliphatics >C10-12	mg/l	-	0.075
Aliphatics >C12-16	mg/l	-	0.022
Aliphatics >C12-35	mg/l	-	1.93
Aliphatics >C16-21	mg/l	-	0.12
Aliphatics >C16-C35	mg/l	-	1.91
Aliphatics >C21-35	mg/l	-	1.79
Aliphatics >C5-6	mg/l	-	<0.0100

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Aliphatics >C6-8	mg/l	-	<0.0100
Aliphatics >C8-10	mg/l	-	0.056
alpha-Hexachlorocyclohexane	mg/l	0.00002	<0.0001
Ammoniacal Nitrogen as N	mg/l	0.2	0.198
Ammoniacal Nitrogen as NH4	mg/l	-	0.255
Anthracene	mg/l	0.0001	<0.000005
Aromatics >C10-12	mg/l	-	0.05
Aromatics >C12-16	mg/l	-	<0.0100
Aromatics >C12-35	mg/l	-	0.177
Aromatics >C16-21	mg/l	-	0.018
Aromatics >C21-35	mg/l	-	0.159
Aromatics >C5-7	mg/l	-	<0.0100
Aromatics >C7-8	mg/l	-	<0.0100
Aromatics >C8-10	mg/l	-	0.038
Arsenic	mg/l	0.05	0.00196
Atrazine	mg/l	0.0006	<0.0001
Azinphos-ethyl	mg/l	-	<0.0002
Azinphos-methyl	mg/l	-	<0.0002
Azobenzene	mg/l	-	
Benazolin	mg/l	-	<0.0004
Benzene	mg/l	0.01	<0.0070
Benzo (g,h,i) perylene	mg/l	-	0.0000193
Benzo(a)anthracene	mg/l	-	0.0000169
Benzo(a)pyrene	mg/l	0.00000017	0.0000263
Benzo(b)fluoranthene	mg/l	-	0.0000268
Benzo(k)fluoranthene	mg/l	-	0.00000661
beta-Hexachlorocyclohexane	mg/l	0.00002	<0.0001
Bis(2-chloroethoxy)methane	mg/l	-	
Bis(2-chloroethyl)ether	mg/l	-	
Bis(2-ethylhexyl)phthalate	mg/l	0.0013	
BOD + ATU (5 day)	mg/l	-	
Boron	mg/l	2	0.226
Bromobenzene	mg/l	-	
Bromochloromethane	mg/l	-	
Bromodichloromethane	mg/l	-	
Bromomethane	mg/l	-	
Bromoxynil	mg/l	-	<0.0004
Butylbenzylphthalate	mg/l	0.0075	
Butyric Acid (4-(2,4-dichlorophenoxy)-Butanoic acid (DB))	mg/l	-	<0.0010
C.Peffringens	CFU/100ml	-	
Cadmium	mg/l	0.00008	0.00398
Calcium	mg/l	-	215
Carbazole	mg/l	-	
Carbon Disulphide	mg/l	-	
Carbophenothion	mg/l	-	<0.0001
Chemical oxygen demand	mg/l	-	
Chlordane - alpha	mg/l	-	<0.0001
Chlorfenvinphos	mg/l	0.0001	<0.0001
Chlorobenzene	mg/l	-	
Chloroethane	mg/l	-	
Chloroethene	mg/l	-	
Chloroform	mg/l	0.0025	
Chloromethane	mg/l	-	
Chlorpyrifos-methyl*	mg/l	-	<0.0001
Chlorpyrifos	mg/l	0.00003	<0.0001
Chromium	mg/l	0.005	<0.0010
Chromium - Hexavalent	mg/l	0.0034	<0.0300
Chrysene	mg/l	-	0.0000103
cis-1,2-Dichloroethene	mg/l	-	
cis-1,3-Dichloropropene	mg/l	-	
Clopyralid	mg/l	-	<0.0004
Coilforms Total (Confirmed)	CFU/100ml	-	
Coilforms Total (Presumptive)	CFU/100ml	-	
Copper	mg/l	0.00231	0.00283

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Cresols*	mg/l	-	<0.0060
Cyanide	mg/l	0.001	<0.0500
Cyanide Free	mg/l	-	<0.0500
Demeton-s-methyl	mg/l	-	<0.0001
Deta-Hexachlorocyclohexane	mg/l	-	<0.0001
Diazinon	mg/l	0.00001	<0.0001
Dibenz-a-h-anthracene	mg/l	-	< 0.000005
Dibenzofuran	mg/l	-	
Dibromochloromethane	mg/l	-	
Dibromofluoromethane	%	-	
Dibromomethane	mg/l	-	
Dicamba*	mg/l	-	<0.0004
Dichlobenil	mg/l	-	<0.0001
Dichlorodifluoromethane	mg/l	-	
Dichloromethane	mg/l	0.02	
Dichlorvos	mg/l	0.0000006	<0.0001
Dieldrin	mg/l	0.00001	<0.0001
Diethylphthalate	mg/l	0.2	
Dimethoate	mg/l	0.00048	<0.0001
Dimethylphthalate	mg/l	-	
Di-N-Butyl Phthalate	mg/l	0.008	
Di-N-Octyl Phthalate	mg/l	-	
Dissolved Organic Carbon	mg/l	-	10.9
Disulfoton	mg/l	-	<0.0001
Endosulfan I	mg/l	0.000005	<0.0001
Endosulfan II	mg/l	0.000005	<0.0001
Endosulfan Sulfate	mg/l	-	<0.0001
Endrin	mg/l	0.00001	<0.0001
Ethion	mg/l	-	<0.0001
Ethylbenzene	mg/l	0.02	<0.0050
Ethylparathion	mg/l	-	<0.0001
Faecal Coliforms Confirmed	CFU/100ml	-	
Faecal streptococci (Confirmed)	CFU/100ml	-	
Faecal streptococci (Presumptive)	CFU/100ml	-	
Fenitrothion	mg/l	-	<0.0001
Fenthion	mg/l	-	<0.0001
Fluoranthene	mg/l	0.0000063	0.0000392
Fluorene	mg/l	-	< 0.000005
Fluroxypyr*	mg/l	-	<0.0010
gamma-hexachlorocyclohexane	mg/l	0.00002	<0.0001
GRO >C5-12	mg/l	-	0.232
GRO Surrogate % recovery	%	-	93
Hardness, Total as CaCO3	mg/l	-	1140
Heptachlor	mg/l	2E-10	<0.0001
Heptachlor Epoxide	mg/l	2E-10	<0.0001
Hexachlorobenzene (HCB)	mg/l	0.00001	<0.0001
Hexachlorobutadiene (HCBd)	mg/l	0.0001	<0.0001
Hexachlorocyclopentadiene	mg/l	-	
Hexachloroethane	mg/l	-	
Indeno(1,2,3-cd)pyrene	mg/l	-	< 0.000005
Ioxynil	mg/l	-	<0.0005
Iron	mg/l	1	0.339
Isodrin	mg/l	0.00001	<0.0001
Isophorone	mg/l	-	
Isopropylbenzene	mg/l	-	
Lead	mg/l	0.0012	<0.0002
m,p xylenes	mg/l	-	<0.0080
Malathion	mg/l	-	<0.0001
Manganese*	mg/l	-	1.38
MCPA	mg/l	-	<0.0005
MCPB	mg/l	-	<0.0005
Mecoprop (MCP) (2-(4-chloro-2-methylphenoxy)	mg/l	-	<0.0004
Mercury	mg/l	0.00007	< 0.00001
Methoxychlor	mg/l	-	<0.0001

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Methyl tert-butyl ether (MTBE)	mg/l	-	<0.0030
Methyl tert-pentyl ether	mg/l	-	
Methylparathion	mg/l	-	<0.0001
Mevinphos	mg/l	-	<0.0001
Naphthalene	mg/l	0.002	< 0.00001
n-Butylbenzene	mg/l	-	
Nickel	mg/l	0.00588	0.0423
Nitrate as NO3	mg/l	-	74.3
Nitrobenzene	mg/l	-	
N-Nitroso-Di-N-Propylamine	mg/l	-	
n-propylbenzene	mg/l	-	
o,p - DDE	mg/l	-	<0.0001
o,p - DDT	mg/l	-	<0.0001
o,p - TDE	mg/l	-	<0.0001
o,p'-Methoxychlor*	mg/l	-	<0.0001
Orthophosphate*	mg/l	-	
O-Xylene	mg/l	0.03	<0.0030
p,p - DDT	mg/l	0.00001	<0.0001
PAH, Total Detected USEPA 16	mg/l	-	0.000225
Pendimethalin	mg/l	0.0003	<0.0001
Pentachlorophenol (PCP)	mg/l	0.0004	<0.0004
Permethrin	mg/l	0.000001	<0.0001
Permethrin II*	mg/l	-	<0.0001
pH	pH Units	-	7.4
Phenanthrene	mg/l	-	< 0.000005
Phenol	mg/l	0.0077	<0.0020
Phenol (Monohydric)	mg/l	-	<0.0160
Phorate	mg/l	-	<0.0001
Phosalone	mg/l	-	<0.0001
Phosphorus as P	mg/l	-	
Pirimiphos-methyl	mg/l	-	<0.0001
Propetamphos	mg/l	-	<0.0001
Pyrene	mg/l	-	0.0000793
Sec-Butylbenzene	mg/l	-	
Selenium	mg/l	-	<0.0010
Silvex	mg/l	-	<0.0010
Simazine	mg/l	0.001	<0.0001
Styrene	mg/l	0.05	
Sulphate as SO4	mg/l	400	502
Sulphide	mg/l	-	<0.0100
Tecnazene	mg/l	-	<0.0001
Tert-Butylbenzene	mg/l	-	
Tetrachloroethene	mg/l	0.01	
Tetrachloromethane (Carbon Tetra Chloride)	mg/l	0.012	
Toluene	mg/l	0.074	<0.0040
Toluene-D8	%	-	
Total BTEX	mg/l	-	<0.0280
Traidimefon	mg/l	-	<0.0001
trans - Chlordane	mg/l	-	<0.0001
trans-1,2-Dichloroethene	mg/l	-	
trans-1,3-Dichloropropene	mg/l	-	
Triallate	mg/l	-	<0.0001
Triazophos	mg/l	-	<0.0001
Tribromomethane	mg/l	-	
Trichloroethene	mg/l	0.01	
Trichlorofluoromethane	mg/l	-	
Triclopyr	mg/l	-	<0.0005
Trifluralin	mg/l	0.00003	<0.0001
Vanadium	mg/l	0.02	<0.0010
Xylene	mg/l	-	<0.0110
Xylenols	mg/l	-	<0.0080
Zinc	mg/l	0.01723	0.214

Determinant Name	Units	EQS (mg/l)	SW1			SW2			SW3		SW4		SW5			SW6		
			Mar-22	Aug-21	Nov-21	Mar-22	Aug-21	Nov-21	Mar-22	Nov-21	Mar-22	Nov-21	Mar-22	Aug-21	Nov-21	Mar-22	Aug-21	Nov-21
Acenaphthene	mg/l	-	< 0.000005	< 0.000005	< 0.000005	0.0000051	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	0.0000066
Acenaphthylene	mg/l	-	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Aliphatics & Aromatics >C5-35	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Aliphatics >C10-12	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatics >C12-16	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatics >C12-35	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatics >C16-21	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatics >C16-C35	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatics >C21-35	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatics >C5-6	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatics >C6-8	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatics >C8-10	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ammoniacal Nitrogen as N	mg/l	0.2	0.174	0.082	0.473	0.164	0.088	0.443	0.17	0.404	0.159	0.405	0.162	0.097	0.41	0.17	0.093	0.446
Ammoniacal Nitrogen as NH4	mg/l	-	0.224	0.105	0.608	0.21	0.113	0.57	0.219	0.519	0.204	0.521	0.209	0.125	0.527	0.218	0.12	0.573
Anthracene	mg/l	0.0001	< 0.000005	< 0.000005	< 0.000005	0.0000086	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	0.0000064
Aromatics >C10-12	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatics >C12-16	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Aromatics >C12-35	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Aromatics >C16-21	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatics >C21-35	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatics >C5-7	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatics >C7-8	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatics >C8-10	mg/l	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Arsenic	mg/l	0.05	0.0012	0.00156	0.00144	0.00163	0.00153	0.00138	0.00142	0.00176	0.00146	0.00179	0.00137	0.00173	0.00192	0.00129	0.0017	0.00197
Benzene	mg/l	0.01	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Benzo (g,h,i) perylene	mg/l	-	0.0000058	< 0.000005	0.0000139	0.0000765	< 0.000005	0.0000095	0.0000058	0.0000062	< 0.000005	< 0.000005	0.0000246	0.0000179	< 0.000005	0.0000444	0.0000464	0.0000464
Benzo(a)anthracene	mg/l	-	< 0.000005	< 0.000005	0.0000141	0.0000593	< 0.000005	0.0000142	< 0.000005	0.000011	< 0.000005	0.0000137	< 0.000005	0.0000169	0.000018	< 0.000005	0.0000325	0.0000482
Benzo(a)pyrene	mg/l	0.00000017	0.0000113	< 0.000002	0.0000208	0.0000795	< 0.000002	0.0000181	0.0000109	0.0000159	0.0000111	0.0000163	0.0000103	0.0000135	0.0000217	0.0000118	0.0000456	0.0000601
Benzo(b)fluoranthene	mg/l	-	0.0000175	< 0.000005	0.00003	0.0000114	< 0.000005	0.0000282	0.0000164	0.0000264	0.0000146	0.0000243	0.0000344	0.0000133	0.0000636	0.0000133	0.0000636	0.0000861
Benzo(k)fluoranthene	mg/l	-	0.0000077	< 0.000005	0.000013	0.0000502	< 0.000005	0.0000103	0.0000062	0.0000107	0.000007	0.0000087	0.0000061	0.0000084	0.0000133	0.0000072	0.000031	0.0000341
Boron	mg/l	2	0.0916	0.144	0.107	0.0901	0.141	0.108	0.0904	0.111	0.0907	0.11	0.0921	0.149	0.107	0.0899	0.148	0.111
Cadmium	mg/l	0.00008	< 0.000008	< 0.000008	0.000124	0.000204	< 0.000008	< 0.000008	0.000128	0.000241	0.000169	0.000218	0.000121	0.000091	0.000388	0.000122	0.0000952	0.00037
Calcium	mg/l	-	97.9	83.3	75.9	96.1	83.2	76	96.8	82.5	96	82.2	96.3	90.7	81.9	96.1	90.9	84
Chromium	mg/l	0.005	< 0.001	< 0.001	0.00105	< 0.001	< 0.001	< 0.001	< 0.001	0.00121	< 0.001	0.00128	< 0.001	< 0.001	0.00213	< 0.001	< 0.001	0.00194
Chromium - Hexavalent	mg/l	0.0034	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Chrysenes	mg/l	-	0.0000104	< 0.000005	0.0000214	0.00008	< 0.000005	0.0000193	< 0.000005	0.0000183	0.0000088	0.0000192	0.0000104	0.0000159	0.0000271	< 0.000005	0.0000403	0.000073
Copper	mg/l	0.00231	0.00373	0.00419	0.00523	0.00586	0.00429	0.00366	0.00447	0.0067	0.00482	0.00679	0.00448	0.00486	0.0101	0.00445	0.00466	0.00873
Cresols*	mg/l	-	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Cyanide	mg/l	0.001	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Cyanide Free	mg/l	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz-a-h-anthracene	mg/l	-	< 0.000005	< 0.000005	< 0.000005	0.0000304	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Dissolved Organic Carbon	mg/l	-	6.86	6.73	8.49	6.33	7.66	9.16	6.75	9.27	6.73	9.48	6.62	6.84	9.36	6.86	6.84	9.44
Ethylbenzene	mg/l	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	mg/l	0.0000063	0.0000195	0.0000307	0.0000271	0.000133	0.0000183	0.0000303	0.0000181	0.0000249	0.0000189	0.0000287	0.0000168	0.0000207	0.0000373	0.0000156	0.0000778	0.000107
Fluorene	mg/l	-	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
GRO >C5-12	mg/l	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
GRO Surrogate % recovery	%	-	99	101	100	91	107	105	97	101	95	104	95	93	104	80	105	105
Hardness, Total as CaCO3	mg/l	-	325	294	269	320	304	268	324	282	319	282	314	333	278	329		

			SW1			SW2			SW3		SW4		SW5			SW6		
			Mar-22	Aug-21	Nov-21	Mar-22	Aug-21	Nov-21	Mar-22	Nov-21	Mar-22	Nov-21	Mar-22	Aug-21	Nov-21	Mar-22	Aug-21	Nov-21
Phenol (Monohydric)	mg/l	-	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	
Pyrene	mg/l	-	0.0000203	0.0000233	0.000027	0.000137	0.0000166	0.0000302	0.0000196	0.0000251	0.0000204	0.0000296	0.000019	0.0000218	0.0000375	0.0000185	0.0000793	0.000106
Selenium	mg/l	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	
Sulphate as SO4	mg/l	400	132	124	104	132	124	105	134	116	132	116	132	145	116	132	149	116
Sulphide	mg/l	-	< 0.01	0.0143	0.0152	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0125	< 0.01	< 0.01	< 0.01	< 0.01
Toluene	mg/l	0.074	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	
Total BTEX	mg/l	-	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	
Vanadium	mg/l	0.02	0.00106	0.00162	0.00151	0.00224	0.00141	< 0.001	0.00164	0.00203	0.00173	0.00161	0.0019	0.00147	0.003	0.0015	0.0017	0.00223
Xylene	mg/l	-	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	
Xylenols	mg/l	-	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	0.01	< 0.008
Zinc	mg/l	0.01723	0.0124	0.0147	0.0239	0.0292	0.0138	0.0172	0.0214	0.0334	0.0232	0.0332	0.0193	0.0154	0.0547	0.0195	0.0159	0.0544

Determinant Name	Units	Commercial 1% SOM	PoS Park 1% SOM	BH-W01	BH-W02A	WS-W1	WS-W1	WS-W2
				0.4	1	0.2	1.2	0.2
Acenaphthene	mg/kg	84000	29000	< 0.09	< 0.09			< 0.09
Acenaphthylene	mg/kg	83000	29000	< 0.09	0.13			< 0.09
Anthracene	mg/kg	520000	150000	< 0.09	0.27			< 0.09
Arsenic	mg/kg	640	170	6.7	6.4			6.6
Barium	mg/kg	22000	5800	170	213			98.9
Benzo (g,h,i) perylene	mg/kg	3900	1400	< 0.09	2.12			0.17
Benzo(a)anthracene	mg/kg	170	49	< 0.09	1.68			0.18
Benzo(a)pyrene	mg/kg	35	11	< 0.09	2.4			0.19
Benzo(b)fluoranthene	mg/kg	44	13	< 0.09	2.82			0.25
Benzo(k)fluoranthene	mg/kg	1200	370	< 0.09	1.09			0.14
Beryllium	mg/kg	12	63	0.943	0.44			0.565
Cadmium	mg/kg	190	560	0.2	0.32			0.2
Chromium	mg/kg	-	-	27.4	17.4			15
Chromium - Hexavalent	mg/kg	33	220	< 0.1	< 0.1			< 0.1
Chrysene	mg/kg	350	93	< 0.09	1.84			0.2
Copper	mg/kg	68000	44000	16.6	20.6			16.9
Cyanide	mg/kg	-	-	< 0.6	< 0.5			< 0.5
Dibenz-a-h-anthracene	mg/kg	3.5	1.1	< 0.09	0.41			< 0.09
EPH >C10-12	mg/kg	-	-	< 2	< 2			< 2
EPH >C12-16	mg/kg	-	-	< 2	4.32			< 2
EPH >C16< 21	mg/kg	-	-	< 2	27.6			3.25
EPH >C21-35	mg/kg	-	-	17.1	268			99.8
EPH >C8-40	mg/kg	-	-	31	357			126
Fluoranthene	mg/kg	23000	6300	< 0.09	2.92			0.3
Fluorene	mg/kg	63000	20000	< 0.09	< 0.09			< 0.09
GRO >C8-10	mg/kg	-	-	3.89	2.56			2.39
Indeno(1,2,3-cd)pyrene	mg/kg	500	150	< 0.09	2.6			0.19
Lead	mg/kg	2300	1300	14	22.2			19
Mercury	mg/kg	58	30	< 0.5	< 0.5			< 0.5
Napthalene	mg/kg	190	1200	0.15	< 0.09			0.15
Natural Moisture Content 105C	%	-	-	13.4	7.1			6.6
Nickel	mg/kg	980	800	32	17.2			13.9
PAH,Total	mg/kg	-	-	< 1.54	< 21.91			< 2.62
pH	pH Units	-	-	8.6	9.1	7.9	8.3	7.7
Phenanthrene	mg/kg	22000	6200	< 0.09	0.7			0.1
Phenol Index	mg/kg	-	-	< 0.6	< 0.5			< 0.5
Pyrene	mg/kg	54000	15000	< 0.09	2.7			0.28
Selenium	mg/kg	12000	1800	< 0.5	< 0.5			< 0.5
SO4-- (H2O sol) mg/l*	mg/l	-	-			18	23	
Vanadium	mg/kg	9000	5000	32.5	19.5			17.6
Zinc	mg/kg	730000	170000	102	73			39.3

			S3BH16	S3BH17	S3TP36	S3TP38	S3TP41	S3TP42	S3TP43	ST3P39
Determinant Name	Units	Commercial 1% SOM	0.5	1	0.5	1	0.5	0.5	0.8	0.5
1,1,1,2-Tetrachloroethane	mg/kg	110		< 0.002						
1,1,1-Trichloroethane	mg/kg	660		< 0.001						
1,1,2-Trichloroethane	mg/kg	89		< 0.01						
1,1-Dichloroethane	mg/kg	260		< 0.001						
1,1-Dichloroethene	mg/kg	24		< 0.001						
1,1-Dichloropropene	mg/kg	-		< 0.001						
1,2,3-Trichlorobenzene	mg/kg	102		< 0.002						
1,2,3-Trichloropropane	mg/kg	-		< 0.05						
1,2,4-Trichlorobenzene	mg/kg	220		< 0.001						
1,2,4-Trimethylbenzene	mg/kg	39		< 0.001						
1,2-Dibromo-3-Chloropropane	mg/kg	-		< 0.05						
1,2-Dibromoethane	mg/kg	-		< 0.005						
1,2-Dichlorobenzene	mg/kg	2000		< 0.001						
1,2-Dichloroethane	mg/kg	0.67		< 0.002						
1,2-Dichloropropane	mg/kg	3.1		< 0.001						
1,3,5-Trimethylbenzene	mg/kg	-		< 0.001						
1,3-Dichlorobenzene	mg/kg	30		< 0.001						
1,3-Dichloropropane	mg/kg	-		< 0.002						
1,4-Dichlorobenzene	mg/kg	4400		< 0.001						
1-naphthol	mg/kg	-		< 0.02						
2-Chlorotoluene	mg/kg	-		< 0.001						
4-Chlorotoluene	mg/kg	-		< 0.001						
4-Isopropyltoluene	mg/kg	-		< 0.001						
Acenaphthene	mg/kg	84000	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	83000	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatics	mg/kg	-	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Aliphatics & Aromatics	mg/kg	-	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatics >C10< 12	mg/kg	9700	< 1	4	< 1	< 1	< 1	< 1	< 1	< 1
Aliphatics >C10-35	mg/kg	-		25						
Aliphatics >C12< 16	mg/kg	59000	< 1	2.6	< 1	< 1	< 1	< 1	< 1	< 1
Aliphatics >C16< 21	mg/kg	-	< 1	2.9	< 1	< 1	< 1	< 1	< 1	< 1
Aliphatics >C21-35	mg/kg	-	< 1	15	< 1	< 1	< 1	< 1	< 1	< 1
Aliphatics >C35-40	mg/kg	-		< 10						
Aliphatics >C35-44	mg/kg	1600000	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Aliphatics >C5-6	mg/kg	3200	< 1	< 0.05	< 1	< 1	< 1	< 1	< 1	< 1
Aliphatics >C6-8	mg/kg	7800	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Aliphatics >C8< 10	mg/kg	2000	< 1	< 0.05	< 1	< 1	< 1	< 1	< 1	< 1
Anthracene	mg/kg	520000	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Antimony	mg/kg	7400	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2

			S3BH16	S3BH17	S3TP36	S3TP38	S3TP41	S3TP42	S3TP43	ST3P39
Determinant Name	Units	Commercial 1% SOM	0.5	1	0.5	1	0.5	0.5	0.8	0.5
Aromatics	mg/kg	-	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Aromatics >C10< 12	mg/kg	16000	< 1	1.4	< 1	< 1	< 1	< 1	< 1	< 1
Aromatics >C12< 16	mg/kg	36000	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Aromatics >C16< 21	mg/kg	28000	< 1	2.2	< 1	< 1	< 1	< 1	< 1	< 1
Aromatics >C21-35	mg/kg	28000	< 1	14	< 1	< 1	< 1	< 1	< 1	< 1
Aromatics >C35-40	mg/kg	-		9.1						
Aromatics >C35-44	mg/kg	28000	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Aromatics >C5-7	mg/kg	26000	< 1	< 0.05	< 1	< 1	< 1	< 1	< 1	< 1
Aromatics >C7-8	mg/kg	56000	< 1	< 0.05	< 1	< 1	< 1	< 1	< 1	< 1
Aromatics >C8< 10	mg/kg	3500	< 1	< 0.05	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic	mg/kg	640	6	9.4	7.5	4.2	6.4	18	28	8.6
Barium	mg/kg	22000	72	230	65	30	94	310	78	110
Benzene	mg/kg	27		< 0.001						
Benzo (g,h,i) perylene	mg/kg	3900	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	mg/kg	170	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	35	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	44	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	1200	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Beryllium	mg/kg	12	0.7	1	0.7	< 0.5	0.7	1.4	0.6	0.7
Boron	mg/kg	240000	1.1	3.2	0.44	< 0.4	0.56	0.73	< 0.4	0.51
Bromobenzene	mg/kg	92		< 0.001						
Bromochloromethane	mg/kg	-		< 0.005						
Bromodichloromethane	mg/kg	2		< 0.005						
Bromomethane	mg/kg	-		< 0.02						
Cadmium	mg/kg	190	0.33	1.3	0.19	0.18	0.21	1.8	0.15	0.62
Chlorobenzene	mg/kg	56		< 0.001						
Chloroethane	mg/kg	900		< 0.002						
Chloroethene	mg/kg	0.059		< 0.001						
Chloroform	mg/kg	99		< 0.001						
Chloromethane	mg/kg	1		< 0.001						
Chromium	mg/kg	-	11		16	5.6	18	34	8.7	12
Chromium - Hexavalent	mg/kg	33	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	mg/kg	350	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
cis< 1,2-Dichloroethene	mg/kg	14		< 0.001						
cis< 1,3-Dichloropropene	mg/kg	-		< 0.01						
Copper	mg/kg	68000	21	19	14	6.3	15	20	8	9.8
Cyanide Free	mg/kg	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz-a-h-anthracene	mg/kg	3.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibromochloromethane	mg/kg	-		< 0.01						

			S3BH16	S3BH17	S3TP36	S3TP38	S3TP41	S3TP42	S3TP43	ST3P39
Determinant Name	Units	Commercial 1% SOM	0.5	1	0.5	1	0.5	0.5	0.8	0.5
Dibromomethane	mg/kg	-		< 0.001						
Dichlorodifluoromethane	mg/kg	-		< 0.001						
Dichloromethane	mg/kg	260		< 0.05						
EPH >C10-35	mg/kg	-		52						
Ethylbenzene	mg/kg	5700		< 0.001						
F.O.C %	-	-	0.028	0.017	0.001	< 0.001	0.015	0.0046	< 0.001	0.0018
Fluoranthene	mg/kg	23000	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	63000	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene (HCBD)	mg/kg	31		< 0.001						
Indeno(1,2,3-cd)pyrene	mg/kg	500	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/kg	-	14000	22000	19000	13000	18000	33000	17000	29000
Isopropylbenzene	mg/kg	1300		< 0.001						
Lead	mg/kg	2300	44	120	12	4.7	30	33	6.9	10
m,p xylenes	mg/kg	-		< 0.001						
Manganese	mg/kg	-	490	920	490	170	470	1400	240	1100
Mercury	mg/kg	58	0.36	0.14	< 0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05
Methyl tert-butyl ether (MTBE)	mg/kg	7500		< 0.001						
Molybdenum	mg/kg	18000	1	1.2	1	< 0.5	0.9	1.8	0.9	1.1
Napthalene	mg/kg	190	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
n-Butylbenzene	mg/kg	-		< 0.001						
Nickel	mg/kg	980	12	25	19	8.4	15	40	12	28
n-propylbenzene	mg/kg	3900		< 0.001						
O-Xylene	mg/kg	6600		< 0.001						
PAH, Total Detected USEPA 16	mg/kg	-	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
pH	-	-	6.9	7.6	7.7	8.3	6.8	7.8	8.2	8
Phenanthrene	mg/kg	22000	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	440		< 0.02						
Phenol	mg/kg	-		< 0.1						
Pyrene	mg/kg	54000	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Resorcinol	mg/kg	-		< 0.02						
Sec-Butylbenzene	mg/kg	-		< 0.001						
Selenium	mg/kg	12000	0.47	1	0.66	0.25	0.56	1.4	0.4	0.66
Styrene	mg/kg	3200		< 0.001						
Sulphate as SO4	g/l	-	0.016	< 0.01	0.014	< 0.01	0.14	0.034	< 0.01	0.06
Sulphur	%	-	0.05	0.039	< 0.01	< 0.01	0.025	0.019	< 0.01	< 0.01
Tert-Butylbenzene	mg/kg	-		< 0.001						
Tetrachloroethene	mg/kg	19		< 0.001						
Tetrachloromethane (Carbon Tetra Chloride)	mg/kg	2.9		< 0.001						
Toluene	mg/kg	56000		< 0.001						

			S3BH16	S3BH17	S3TP36	S3TP38	S3TP41	S3TP42	S3TP43	ST3P39
Determinant Name	Units	Commercial 1% SOM	0.5	1	0.5	1	0.5	0.5	0.8	0.5
Total Aliphatic VPH >C5-C10*	mg/kg	-		< 0.25						
Total Aromatic EPH >C10-C35*	mg/kg	-		18						
Total Aromatic EPH >C10-C40*	mg/kg	-		27						
Total Aromatic VPH >C5-C10*	mg/kg	-		< 0.25						
Total VPH >C5-C10*	mg/kg	-		< 0.5						
TPH >C6-40	mg/kg	-		< 10						
trans< 1,2-Dichloroethene	mg/kg	21		< 0.001						
trans< 1,3-Dichloropropene	mg/kg	-		< 0.01						
Tribromomethane	mg/kg	710		< 0.001						
Trichloroethene	mg/kg	1.2		< 0.001						
Trichlorofluoromethane	mg/kg	-		< 0.001						
Trivalent Chromium	mg/kg	8600	11	25	16	5.6	18	34	8.7	12
Vanadium	mg/kg	9000	15	29	21	8.2	20	46	28	17
Xylenols	mg/kg	-		< 0.02						
Zinc	mg/kg	730000	66	150	39	21	64	250	33	42

Appendix D: Factual reports

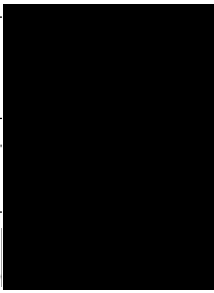
Factual Ground Investigation Report

A46 Newark Bypass

Client: Skanska

Project Number: G221209

Date of Issue: 22/05/2023

Project Title	A46 Newark Bypass			Project Ref	G221209	
Prepared By	Izaak Lovatt, BSc Engineering Manager					
Checked By	Jono Wright MEng, Engineering Manager					
Approved By	David Buckley CEng, Divisional Director					
Issue No	Status	Reason	Date	Prep.	Check	Approval
001	DRAFT	Awaiting Client Comment	08/03/2023	IL	JW	DB
002	FINAL		19/04/2023	IL	JW	DB
003	FINAL	Final Comments	22/05/2023	IL	JW	DB

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1 Introduction

1.1 Appointment

Strata Geotechnics was appointed to undertake a ground investigation at the A46 Newark Bypass site by Skanska. The specification for the works was provided by the client's Investigation Supervisor Mott MacDonald. Instruction to proceed with the work was received on 10th October 2022.

This report presents a site-wide factual account of the site works undertaken.

1.2 Site Location and Description

The site is located along a 6km section of the A46 between Farndon Roundabout and Winthorpe Roundabout in Newark-on-Trent. The work was undertaken from a central compound located at central grid reference E482270, N356372.

The site predominantly consists of agricultural land in close proximity to the north and south of the A46. Locations were also undertaken 3km to the north near Kelham village and on the A46 road infrastructure.

A site location plan is included in Appendix A.

1.3 Purpose of Investigation

The purpose of this investigation was to determine the subsurface ground and groundwater conditions at the site of the proposed infrastructure development. It is understood that the development will comprise widening a 6.5km length of the existing A46 including earthwork widening and new structures crossing the River Trent, Nether Lock and the Nottingham-Lincoln and East Coast Main Line Railways.

This information was obtained from a combination of laboratory testing, non-intrusive and intrusive investigation techniques.

1.4 Scope of the Investigation

The Ground Investigation was carried out between 20/10/2022 and 10/02/2022. The works comprised:

- 6 no. cable percussive boreholes to a maximum depth ranging from 15.60m to 5.05m BGL as specified by the client's Investigation Supervisor.
- 4 no. Sonic boreholes to a maximum depth ranging from 7.00 to 21.00 BGL as specified by the client's Investigation Supervisor
- Rotary follow on was undertaken on 9 no. of these locations with a maximum depth ranging from 20.50m to 33.00m BGL as specified by the client's Investigation Supervisor.
- Geophysical borehole logging was undertaken in the 9 no. rotary cored holes with dual density and P & S suspension logging undertaken.
- 9 no. windowless sampled boreholes to a maximum depth of 5.00m BGL as specified by the Investigation Supervisor. 2 no. locations refused shallow at 4.00m BGL
- 22 no. machine excavated trial pits to a target depth of 3.00m BGL as specified by the client's Investigation Supervisor. 15 no. pits refused early due to pit stability.
- 9 no. Soak away tests were undertaken within the machine excavated pits, 6 no of which were backfilled with gravel to prevent instability.
- 38 no. Cone Penetration Tests (CPT) to a maximum depth ranging from 1.50m to 13.00m BGL. Where tests refused at a shallow depth, the test was repeated at an adjacent location with the addition suffix of "A" or "B" as required.
- 2 no surface resistivity assessments were undertaken following a Wenner array electrode spacing of 0.5,1.0,2.0,3.0m .

The works were undertaken as detailed by specification: Ref RDP A46 Newark Bypass P01 provided by Skanska

1.4.1 In-situ testing

1.4.1.1 *Standard Penetration Tests (SPTs)*

In-situ Standard Penetration Tests (SPTs) were conducted within the boreholes to ascertain 'N' values of the various lithologies encountered. This test acts as a proxy to ascertain the relative density of granular material. Relative density is determined in accordance with BS5930 table 10 for granular materials only. For fine grained or cohesive deposits consistency has been derived by hand field tests carried out by the logging engineer rather than from SPT results. SPT 'N' values detailed in this report have not been corrected for overburden pressure or hammer energy efficiency.

1.4.1.2 *In-situ Cone Penetration Testing (CPT)*

In-situ Cone Penetration Testing (CPT) with pore water pressure measurement, shear wave velocity and dissipation testing was conducted. The CPTs provide a continuous measurement of cone resistance and pore pressure at the test location, which can be correlated to obtain various geotechnical parameters including undrained shear strength of cohesive strata and relative density of granular material. The soil type can also be inferred from the test.

Results derived from testing is presented in Appendix I.

1.4.1.3 *In-situ Photo Ionisation Detector (PID)*

In-situ Photo Ionisation Detector (PID) tests conducted in conjunction with environmental sampling to assist in determining appropriate samples for testing at specified locations.

1.4.2 Monitoring Wells and Instruments

12 no. 50mm Installation pipes, with response zones ranging from 2.50m to 4.70m bgl in depth, were installed to allow monitoring of groundwater and water sample abstraction.

Table 1-1 Installed Monitoring Pipework

Location ID	Hole depth (m)	Diameter (mm)	Response Top (m bgl)	Response Base (m bgl)	Cover Type	Installed Instrument
S3BH05	5.00	50	1.00	2.80	Flush	None
S3BH06	5.00	50	0.50	2.50	Flush	None
S3BH07	5.00	50	1.00	3.00	Flush	None
S3WS01	4.00	50	1.00	3.00	Flush	Level Logger
S3WS01R	5.45	50	1.00	5.00	Flush	Level Logger
S3WS04	5.00	50	1.50	3.50	Flush	Level Logger
S3WS05	5.00	50	1.00	3.00	Flush	Level Logger
S3WS06	5.00	50	1.00	3.00	Flush	Level Logger
S3WS07	4.00	50	1.00	3.00	Flush	Level Logger
S3CPWS07	5.05	50	1.00	3.50	Flush	Level logger
S3BH16	8.63	50	0.50	8.50	Flush	Level Logger
S3BH17	6.05	50	1.00	6.00	Flush	Level logger

Monitoring of 9 no. pre-existing locations has also been requested. Installed response zones are unknown. At the time of writing, 2 no. of these locations had not been visited, BH16 could not be located and BH56 did not have an agreed access route.

Table 1-2 Pre-existing Monitoring Pipework

Location ID	Hole depth (m)	Diameter (mm)	Cover Type	Installed Instrument
BH07	5	50	Flush	Level logger
BH15	3.52	50	Flush	Level logger
BH17	16.95	50	Flush	Level logger
BH09	4.17	50	Flush	Level logger
BH56	3.65	50	Flush	Level Logger
WS31	3.90	50	Flush	Level logger
BH03A	4.18	50	Flush	Level logger
WS08	3.96	50	Raised	Level logger
BH16	Unvisited			

Monitoring installations should be appropriately decommissioned at the end of their useful life in accordance with the appropriate Environmental Agency guidance. For additional information contact the author.

Results derived from the installed instruments are presented in Appendix J.

1.4.3 Service Clearance

Before any intrusive works, all the locations were scanned utilising a CAT (Cable Avoidance Tool) and associated generator by the main contractor. As a final precaution a hand inspection pit was dug to 1.20m bgl for every borehole location, while trial pits were scanned at 300mm intervals up to and including 1.20m bgl.

1.4.4 Sampling Provision

During the investigation Environmental jar samples (ES) were recovered at pre-determined intervals for contamination testing purposes. Disturbed (D) and Bulk (B), samples were also recovered at specified depths and at every strata change for descriptive purposes and for geotechnical testing. Rotary Core (C) sampling was requested upon reaching appropriate strata for descriptive purposes and for geotechnical testing. Rotary core sub samples (CSS) were selected from the core and preserved for the purposes of geotechnical testing. The exploratory hole logs are presented in Appendix B.

1.4.5 Laboratory testing

Laboratory testing was requested by the client comprising geo-environmental, geotechnical and geo-chemical testing as follows:

1.4.5.1 *Geo-Environmental*

Five geo-environmental suites have been scheduled. The determinants within these suites were detailed by the RDP A46 Newark Bypass P01 specification Appendix B and include:

- Mott MacDonald Groundwater Suite
- Mott MacDonald Soil Comprehensive Suite
- Mott MacDonald Leachate Suite
- Mott MacDonald Soil Greenfield Suite
- Mott MacDonald Leachate Greenfield Suite

Geo-Environmental results are presented in Appendix E.

1.4.5.2 *Geo-chemical*

The client has requested the following geo-chemical testing has been scheduled.

- BRE Suite A – Greenfield Pyrite absent

Geo-chemical results are presented in Appendix F.

1.4.5.3 *Geotechnical*

The client has requested the following geotechnical testing has been scheduled.

- Moisture Content (MC)
- Atterberg Limits (Liquid Limit/Plastic Limit/Plasticity Index)
- Particle Size Distribution by Wet Sieve and Sedimentation by Pipette (PSD)
- Unconfined Compressive Strength of Soil/Rock
- Point Load Index of Rock

Geotechnical results are presented in Appendix F.

All the above tests have been carried out in accordance with the relevant standards at UKAS and MCERTS accredited laboratories. Standards adhered to include: BS1377:1990-2022, BS EN 17892 (where appropriate) and BRE SD1 for sulphate suites.

Samples collected during this investigation will be retained on the premises of Strata Geotechnics until the 31st of May. Should any additional laboratory tests be required, please contact Strata Geotechnics prior to the above disposal date.

2 Limitations of Study

Strata Geotechnics are a wholly owned subsidiary of Van Elle Limited (VEL).

This report is for the sole use and benefit of Skanska in accordance with their brief and should not be relied upon or used by other parties without explicit prior written agreement from VEL. VEL disclaim any responsibility to the client and others in respect of any matters outside the above scope.

The investigation has been carried out to our understanding of current legislation and best practice; designed to produce information adequate for the appraisal of potential site conditions in relation to the proposed future use of the site. This investigation generally adhered to the guidelines outlined in BS5930:2015+A1:2020, Code of Practice for Site Investigations. In regard to testing of soils, the investigation generally adheres to guidance outlined in BS1377:1990 to 2022 and Testing of Soils for Civil Engineering Purposes and BS EN 17892 where appropriate.

New information, legislation, local authority planning conditions or changes to best practice may necessitate further fieldworks and revision/reissue of the ground investigation report after the date of this report issue. Further assessment, investigation or construction activities over time may reveal conditions that were not found during the period of these investigations and, therefore, could not have been taken into account in the preparation of the report. VEL reserves the right to amend their conclusions and recommendations in the light of further information that may become available.

Interpretation and recommendations should not be assumed valid for either adjacent areas of land or alternative land uses. Should the proposed site use change, the findings of this report should be re-assessed for the new end-use.

Intrusive investigations can only investigate ground beneath a small proportion of the total site area. Attention is drawn to the fact that the findings are based on data obtained from the borehole samples and in-situ testing. Where comments are made based on information obtained from third parties, VEL assumes that all third-party information is true and correct. No independent action has been undertaken to validate the findings of third-party information, unless specifically stated. The possibility of variation in ground conditions around the borehole should not be overlooked. As such these do not necessarily address all aspects of the ground behaviour on site. Any opinion or diagram of a possible configuration of strata beyond the borehole or extrapolated to greater depth is conjectural and given for guidance only, no responsibility is accepted as to its accuracy. No liability can be accepted for such variations.

This investigation was undertaken in good faith with regards to the request and requirements of Skanska at the time of quotation, it does not constitute a full interpretative report with regards to the geotechnical or environmental status of the site. There may be other sources of information not included in this report that hold data relevant to the site that could materially affect the conclusions made in this report.

Where applicable this report should be presented to the relevant statutory authority, planning body, or design engineers as soon as possible for their review, comment and/or acceptance.

It is possible therefore that the intrusive investigation undertaken by VEL, whilst fully appropriate, may not have encountered all significant subsurface conditions. Consequently, no liability can be accepted for conditions not revealed by the exploratory holes.

3 Results of the Ground Investigation

3.1 Published Ground Conditions

The published geological records available from the British Geological Survey indicates that the Site is underlain by, moving north-west to south-east, the Balderton Sand and Gravel member, Holme Pierrepont Sand and Gravel Member and Alluvium, all comprising sand and gravel (and alluvium silt) from the Quaternary period. The predominant underlying solid bedrock geology is listed as the Mercia Mudstone Group, which comprises mudstone with occasional sandstone bands formed between 252.2 and 201.3Ma during the Triassic Period. At the southwest extent of the site the solid bedrock geology is listed as Edwalton Member and Gunthorpe Member both comprising mudstone, formed between 237.0 and 228.4Ma and 247.1 and 237.0Ma respectively, during the Triassic period.

3.2 Encountered Ground Conditions

Table 3-1 Summary of ground conditions encountered

Location	Made Ground	Superficial Silt, Sand & Gravel	Mercia Mudstone Completely weathered mudstone	Mercia Mudstone Partially weathered Mudstone
S3BH01	0.00 – 0.40	0.40 – 4.10	4.10 – 18.00	18.00 – 30.25
S3BH02	N/A	0.00 – 0.80	0.80 – 7.00	7.00 – 25.00
S3BH02R	0.00 – 0.50	N/A	N/A	N/A
S3BH05	0.00 – 2.80	2.80 – 5.00	N/A	N/A
S3BH05R	0.00 – 2.90	2.90 – 3.30	N/A	N/A
S3BH06	0.00 – 2.70	2.70 – 5.00	N/A	N/A
S3BH06R	0.00 – 2.90	2.90 – 3.00	N/A	N/A
S3BH07	0.00 – 1.20	1.20 – 5.00	N/A	N/A
S3BH07R	N/A	0.00 – 3.40	N/A	N/A
S3BH08	0.00 – 0.91	N/A	N/A	N/A
S3BH08A	0.00 – 0.72	N/A	N/A	N/A
S3BH08B	0.00 – 0.20	0.20 – 6.20	6.20 – 9.50	9.50 – 25.00
S3BH09	N/A	0.00 – 2.40	N/A	2.40 – 25.00
S3BH09R	N/A	0.00 – 1.00	N/A	N/A
S3BH10	0.00 – 1.20	1.20 – 6.50	N/A	6.50 – 20.50
S3BH11	0.00 – 1.20	1.20 – 13.50	N/A	13.50 – 25.30
S3BH13	N/A	0.00 – 2.30	N/A	2.30 – 25.00
S3BH14	0.00 – 1.20	1.20 – 6.90	N/A	6.90 – 25.00
S3BH14R	0.00 – 0.30	0.30 – 1.00	N/A	N/A
S3BH15	0.00 – 7.00	7.00 – 15.00	N/A	15.00 – 33.00
S3CPWS07	0.00 – 0.90	0.90 – 3.60	N/A	3.60 – 5.05

Location	Made Ground	Superficial Silt, Sand & Gravel	Mercia Mudstone Completely weathered mudstone	Mercia Mudstone Partially weathered Mudstone
S3TP06	N/A	0.00 – 1.60	N/A	N/A
S3TP07	N/A	0.00 – 2.10	N/A	N/A
S3TP08	N/A	0.00 – 1.80	N/A	N/A
S3TP10	N/A	0.00 – 2.00	N/A	N/A
S3TP12	N/A	0.00 – 2.50	N/A	N/A
S3TP17	N/A	0.00 – 2.30	N/A	N/A
S3TP18	N/A	0.00 – 2.50	N/A	N/A
S3TP19	N/A	0.00 – 3.00	N/A	N/A
S3TP21	N/A	0.00 – 3.00	N/A	N/A
S3TP22	N/A	0.00 – 3.00	N/A	N/A
S3TP23	N/A	0.00 – 2.90	N/A	2.90 – 3.00
S3TP24	N/A	0.00 – 2.80	N/A	2.80 – 3.00
S3TP25	N/A	0.00 – 1.50	N/A	1.50 – 3.00
S3TP26	N/A	0.00 – 3.00	N/A	N/A
S3TP27	N/A	0.00 – 2.80	N/A	N/A
S3TP28	N/A	0.00 – 1.40	N/A	N/A
S3TP29	N/A	0.00 – 1.50	N/A	N/A
S3TP30	N/A	0.00 – 1.80	N/A	N/A
S3TP31	N/A	0.00 – 1.50	N/A	N/A
S3TP32	N/A	0.00 – 1.20	N/A	N/A
S3TP33	N/A	0.00 – 1.50	N/A	N/A
S3TP34	N/A	0.00 – 1.10	N/A	N/A
S3WS01	0.00 – 3.00	N/A	N/A	N/A
S3WS01R	N/A	0.00 – 5.45	N/A	N/A
S3WS04	N/A	0.00 – 5.00	N/A	N/A
S3WS05	N/A	0.00 – 5.00	N/A	N/A
S3WS06	N/A	0.00 – 5.00	N/A	N/A
S3WS07	0.00 – 1.00	1.00 – 4.00	N/A	N/A
S3WS07R	0.00 – 0.50	N/A	N/A	N/A

Locations denoted with 'R' have been re-excavated/drilled in close proximity to previous locations to achieve greater depth or obtain additional samples. S3BH08 refused within the inspection pit on 2 no. occasions and was reattempted, the third attempt was successful and reached scheduled depth. These additional locations are denoted as S3BH08A & B

3.2.1 Made Ground

Made Ground was encountered from the surface in 19 no of the exploratory locations. This stratum was varied of clay, sand and gravel with varying secondary constituents. The gravel present consisted of quartz, brick, sandstone, siltstone, coal, concrete, clinker & ash with content of glass noted.

Geomembrane was encountered at 0.70mbgl in S3BH08 & S3BH08A and a concrete obstruction at 0.30m in S3BH10.

3.2.2 Superficial Deposits

Very soft to stiff dark brown to brown/greyish brown/ greenish grey/ light to dark grey clay with secondary constituents of varying proportions of fine to coarse sand and gravel. Gravel comprises subangular to rounded fine to coarse mudstone, siltstone, sandstone and quartzite. Locally with pockets and lenses of sand and clay and occasional roots and rootlets. Fully Weathered Mercia Mudstone

Loose to very dense black/orangish brown/yellowish brown/reddish brown/ light to dark brown/ light to dark grey/ white fine to coarse sand with secondary constituents of varying proportions of silt and gravel. Locally sampled as a sand and gravel unit. The gravel comprises subangular to rounded fine to coarse sandstone, mudstone, siltstone, granite, basalt, quartzite, flint, quartz and chert. Locally with black speckling and interbedded. At shallow depths occasional rootlets have been sampled.

Medium dense to dense reddish brown/light brown/dark brown/orangish brown/light grey/dark grey angular to rounded fine to coarse gravel with secondary constituents of varying proportions of clay, silt and fine to coarse sand. Gravel comprises sandstone, mudstone, siltstone, basalt, quartzite, chert and flint.

3.2.3 Completely Weathered Mercia Mudstone

Firm to stiff reddish brown/ reddish grey/greenish grey CLAY occasionally with secondary constituents of fine to coarse sand and angular fine to coarse gravel of mudstone. Pockets of fine to coarse sand were also noted.

3.2.4 Partially Weathered Mercia Mudstone

Extremely weak to medium strong red/reddish brown/grey/light grey MUDSTONE locally recovered non intact with bands of siltstone and sandstone. Gypsum veins, bands and crystals were frequently present. Fractures were predominantly at 0 to 10 degrees ranging from very closely to widely spaced planar smooth with no infill. Fractures from 15 to 60 degrees were also present however less frequently.

Please refer to the exploratory hole logs in Appendix B for a more detailed account of the conditions encountered during the investigation.

3.3 In-situ Tests

3.3.1 In-situ PID Tests

In total 8 no. PID readings were taken within the exploratory location S3BH05. All recorded readings were less than 2ppm

Full results can be found within the exploratory hole logs in Appendix B.

3.3.2 Infiltration Tests

9 no. Infiltration tests were undertaken, 6 no. in accordance with BRE 365 while 3 no. did not have sufficient time to drain due to site constraints. Of the 6 no. compliant tests 3 non drained within 24hrs allowing for an estimation of soil infiltration rate (f) which ranged between 1.11×10^{-04} to 1.88×10^{-06} m/s.

A full set of data can be found in Appendix K.

3.3.3 In-situ Standard Penetration Tests (SPT)

Standard penetration tests (SPT's) were carried out with the use of a normal solid cone or split spoon sampler in the solid deposits encountered within the boreholes in order to determine the relative strength / density of the materials tested. Where the full penetration depth could not be achieved, the bottom sampling depth is indicated as less than 0.45m from the top (start of test), with the actual depth of penetration being recorded in millimetres. The results are shown as 'N' values on the graphic borehole record sheets, these have not been corrected for hammer efficiency or over burden pressure. Where possible a disturbed sample was collected also.

A summary of SPT results by geological unit is presented below:

Table 3-3 SPT Range by Geology

Strata	SPT Range ('N')	Notes
Made Ground	4 - 10	Indicative of variable low strength soils
Superficial	3 – 50+	Indicative of variable low to high strength soils
Mercia Mudstone IVb	14 - >50	Indicative of variable low to high strength soils
Mercia Mudstone <IVb	4 - >50	Indicative of variable low to high strength soils

3.4 In-situ Cone Penetration Testing (CPT)

In total 47 no. tests were undertaken (CPT01 to CPT15, CPT19 to CPT40, CPT42). The tests all terminated between 1.00m to 13.01m BGL upon refusal. The soil behaviour type inferred from the CPT was generally consistent with the ground conditions observed with the boreholes.

The results are presented within Appendix I.

3.5 Laboratory Testing

The laboratory test results indicate that the soils at the site are:

Table 3-4 Geotechnical & Geochemical Results by Geology

Geotechnical	Made Ground	Superficial	Mercia Mudstone
Moisture Content %	5.9 - 32	3.6 – 55.0	15 - 35
Plasticity Index %	N/A	13 - 29	10 - 14
Point Load Size Corrected (MPa)	N/A	N/A	0.02 – 0.71
Uniaxial Compressive Strength (MPa)	N/A	N/A	1.00 – 4.43
Geochemical	Made Ground	Superficial	Mercia Mudstone
pH	N/A	7.7 – 8.1	6.5 – 8.7
Water Soluble sulphate mg/l	N/A	168 - 1805	23 – 1607
Total Sulphate mg/kg	N/A	623 - 14056	124 – 60341
Total Sulphur mg/kg	N/A	366 - 5197	313 – 18410
Total Sulphur %	N/A	0.04 - 0.52	0.03-1.84

3.6 Groundwater

Below is a summary of groundwater encountered during the drilling works.

Table 3-5 Waterstrikes During Drilling

Location	Depth groundwater was encountered (m BGL)	Water level after 20 minutes (m BGL)
S3BH08	2.70	2.00
S3BH09	3.10	2.30
S3BH10	1.90	1.30
S3BH13	2.30	1.90
S3BH14	4.30	3.70
S3BH14	1.30	1.25
S3CPWS07	0.90	0.70
S3TP06	1.60	1.50
S3TP07	2.10	2.05
S3TP08	1.70	1.60
S3TP10	2.00	1.95
S3TP12	2.40	2.35
S3TP23	3.10	3.05
S3TP26	2.90	2.80
S3TP27	2.80	2.73
S3TP28	1.40	1.30
S3TP29	1.40	1.30
S3TP30	1.70	1.65
S3TP31	1.30	1.20
S3TP32	1.20	1.15
S3TP33	1.50	1.40
S3TP34	1.10	1.05
S3WS01	2.00	2.00
S3WS06	3.00	2.80

Water strikes are detailed on the exploratory hole logs presented in Appendix B.

Changes in groundwater level may occur for a number of reasons, including seasonal effects and variations in drainage. The long term groundwater elevation may increase or decrease at some time in the future. Groundwater direction has not been determined as part of this report.

3.7 Groundwater and ground gas monitoring

During drilling combined groundwater and ground gas-monitoring installations were placed in 12 no. of the boreholes upon completion with a further 9 no. pre-existing locations. 15 no. of these locations has been installed with a continuous data logger to allow for automated daily readings. Details of the installed locations are included on the Borehole Logs in Appendix B.

The 50mm installations are scheduled to be monitored on 7 no. occasions over the course of one year: groundwater levels were recorded on each occasion to date.

To date 3 no. water monitoring visits have been undertaken, the results are presented in Appendix J. 3 no. locations (BH56 & BH16 & BH17) were installed on visit 3.5 but are yet to have continuous monitoring readings.

Monitoring Visit	Date	No. of Locations Monitored
1	25 th -26 th January	14
2	27 th -28 th February	15
3	27 th March & 3 th – 04 th April	16
3.5	19 th May	3
4	24 th – 25 th July	Proposed
5	23 th – 24 th October	Proposed
6	29 th – 30 th January	Proposed

3.8 Groundwater Sampling

During the monitoring phase of the works, the client requested water sampling on three of the monitoring rounds from exploratory hole installations as detailed in the specification. Water samples were collected in accordance with the specification utilising low flow sampling pumps (bladder) and methods, monitoring key parameters (such as pH, Electrical Conductivity, Redox Potential, Turbidity etc) at uniform intervals until stabilisation occurred. The samples were taken following stabilisation of readings. Stabilisation is defined as readings within tolerance over three intervals. Samples were then sent to the lab for full analysis as described in section 1.4.1.5.

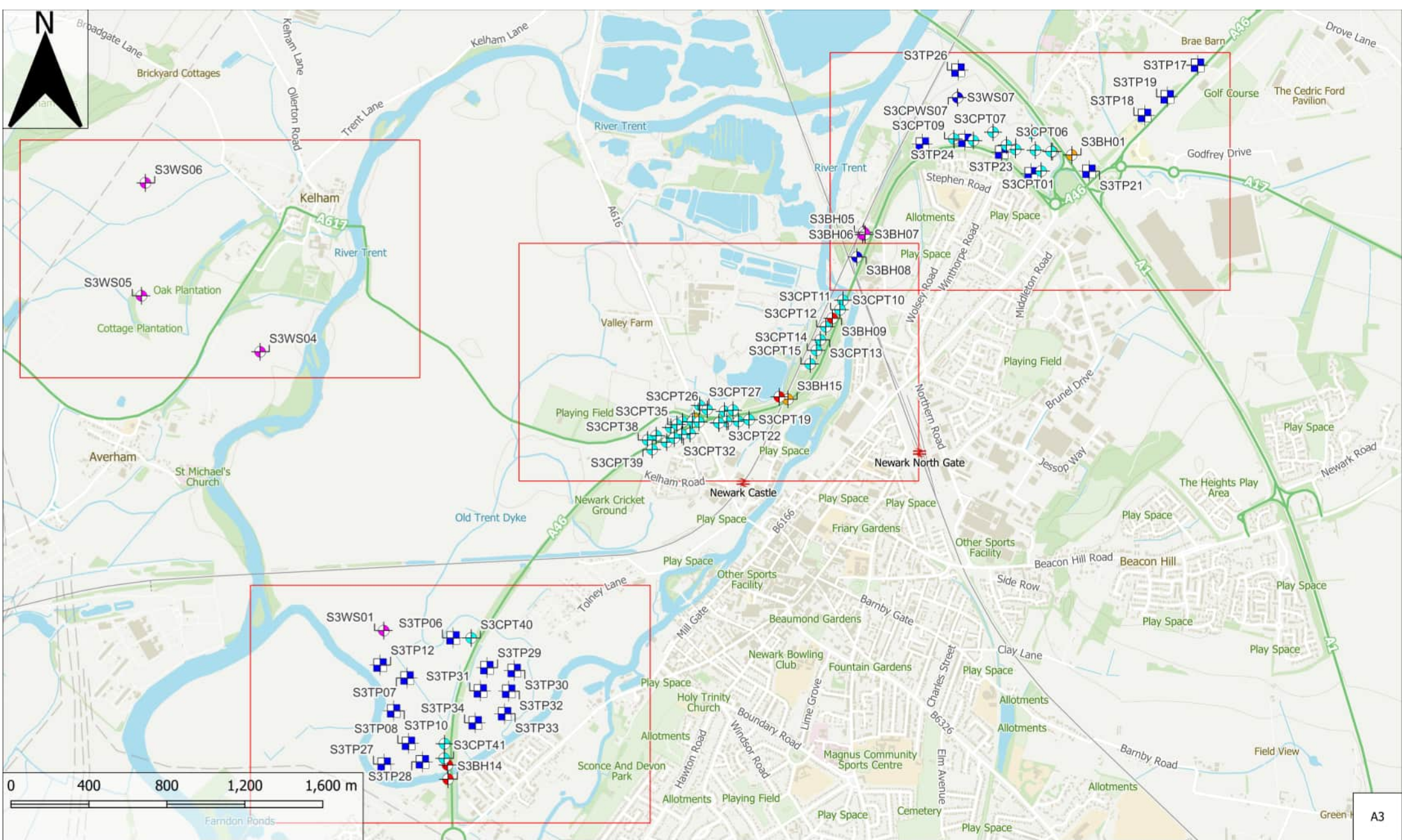
Water sampling records and in-situ parameters are recorded in Appendix J.

4 References

- British Geological Survey (BGS – formerly the Institute of Geological Sciences (IGS))
www.bgs.ac.uk and BGS Geindex: <http://mapapps2.bgs.ac.uk/geoindex/home.html>.
- BS 5930:2015 A1 - 2020 Code of Practice for Site Investigations.
- BS EN ISO 14688 Identification, Description and classification of soils
- BS EN ISO 14689 Identification, Description and classification of rocks
- BS1377:1990-2022, Methods for Testing of Soils for Civil Engineering Purposes.
- BS EN ISO 17892, Geotechnical investigation and testing. Laboratory testing of soil
- BS 8574:2014- Geotechnical Data Management
- Soil and Rock Description in Engineering Practice, D. Norbury.
- BRE Special Digest 365 (Revised 2016) – Soakaway design

APPENDICES

Appendix A: Drawings



A3



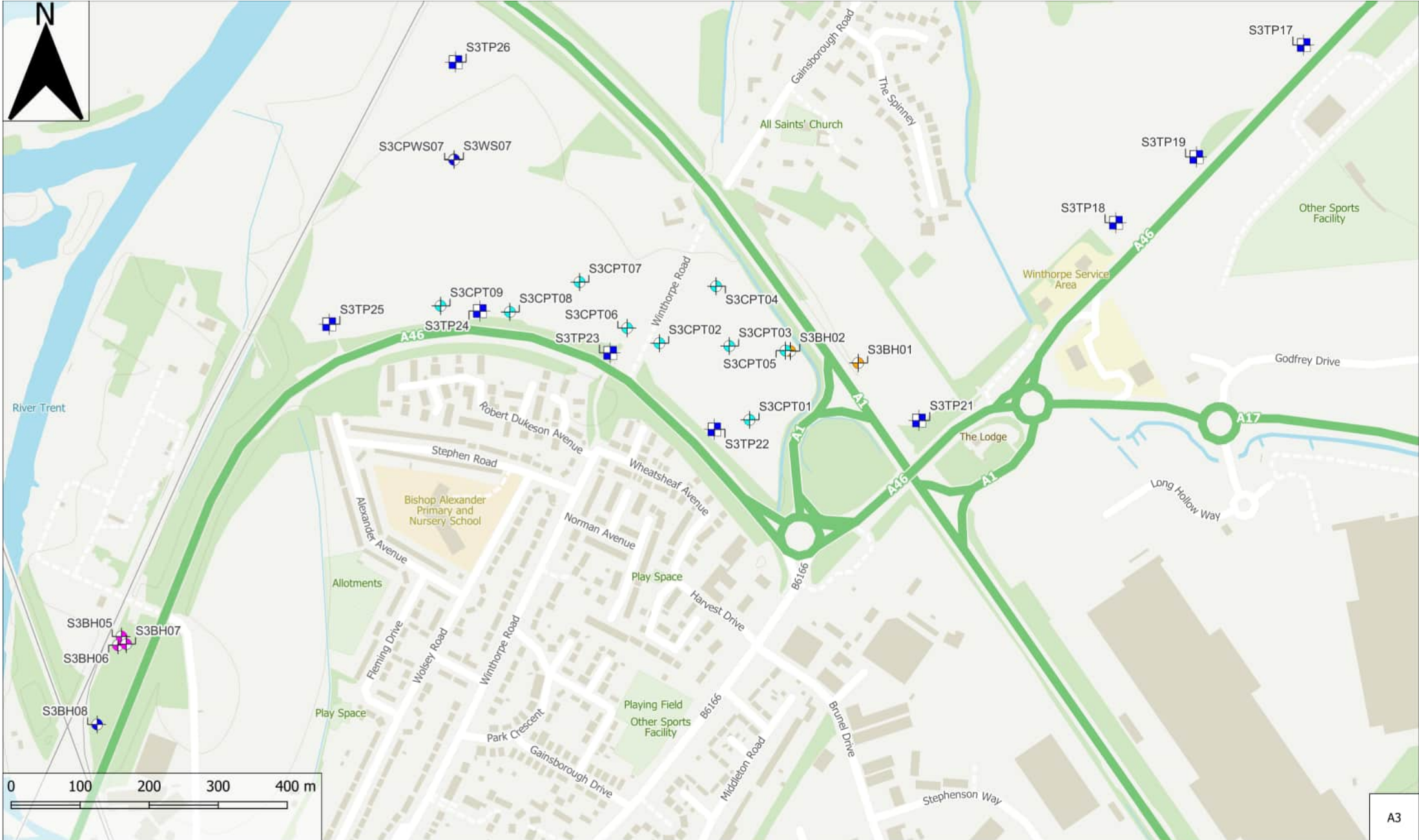
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G221209	A46 - Newark	Exploratory Hole Location Plan - Overview

Legend	
	CP
	CP+RC
	RC
	WLS
	TP
	CPT

Client: Skanska

Scale:	Drawing Ref.
1:17,500	G221209/A46-Newark/Overview/Rev.0/TK/2023-04-20

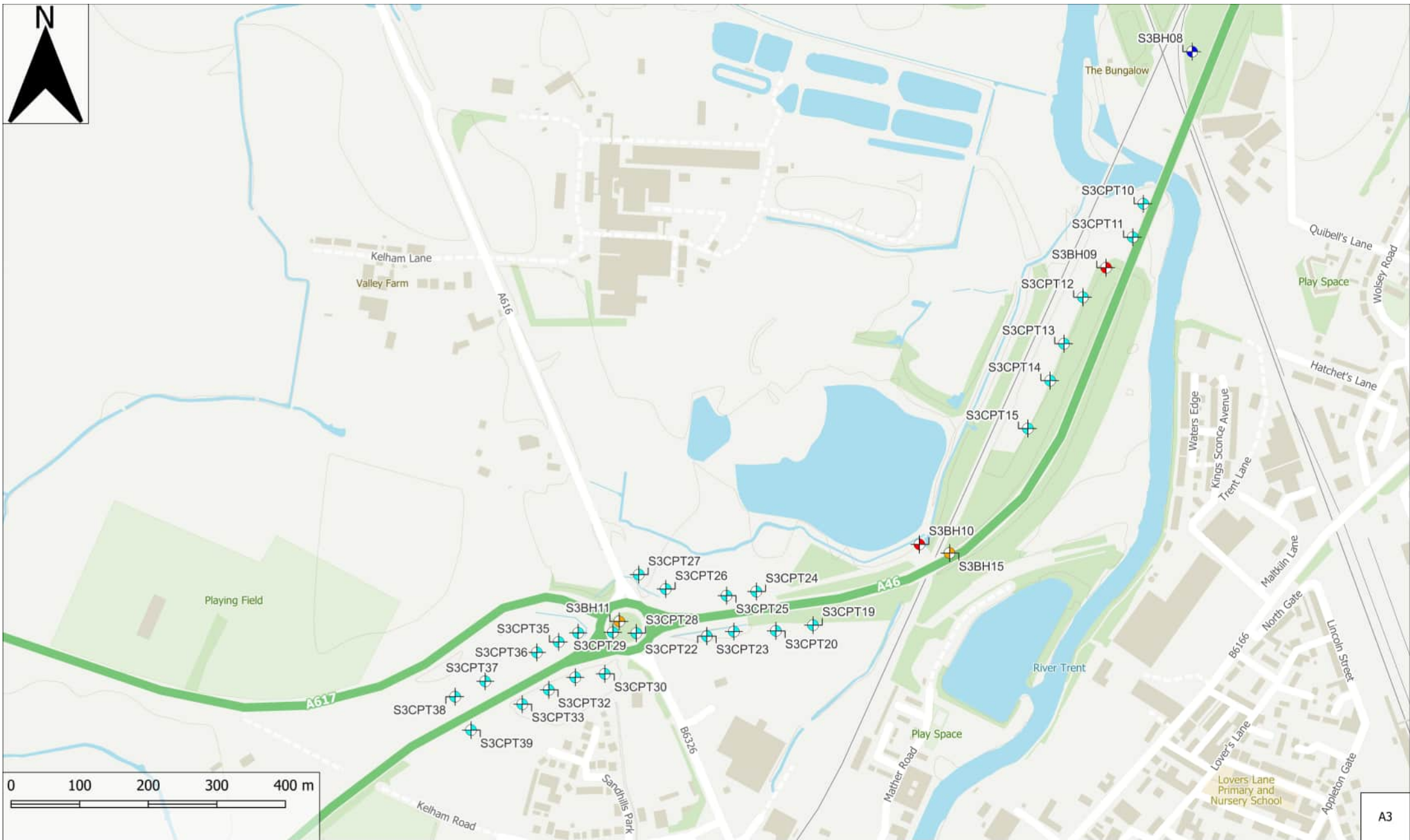
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Checked By:	<input type="text" value="IL"/>
Approved By:	<input type="text" value="JW"/>



A3



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Client.	Skanska	Drawing Ref.	G221209/A46-Newark/Inset1/Rev.0/TK/2023-04-20		Checked By: <input type="text" value="IL"/>		
	1:5,000					Approved By: <input type="text" value="JW"/>	



A3



Client: Skanska

Project No.
G221209
1:5,000

Project Name.
A46 - Newark

Drawing Name.
Exploratory Hole Location
Plan - Inset 2

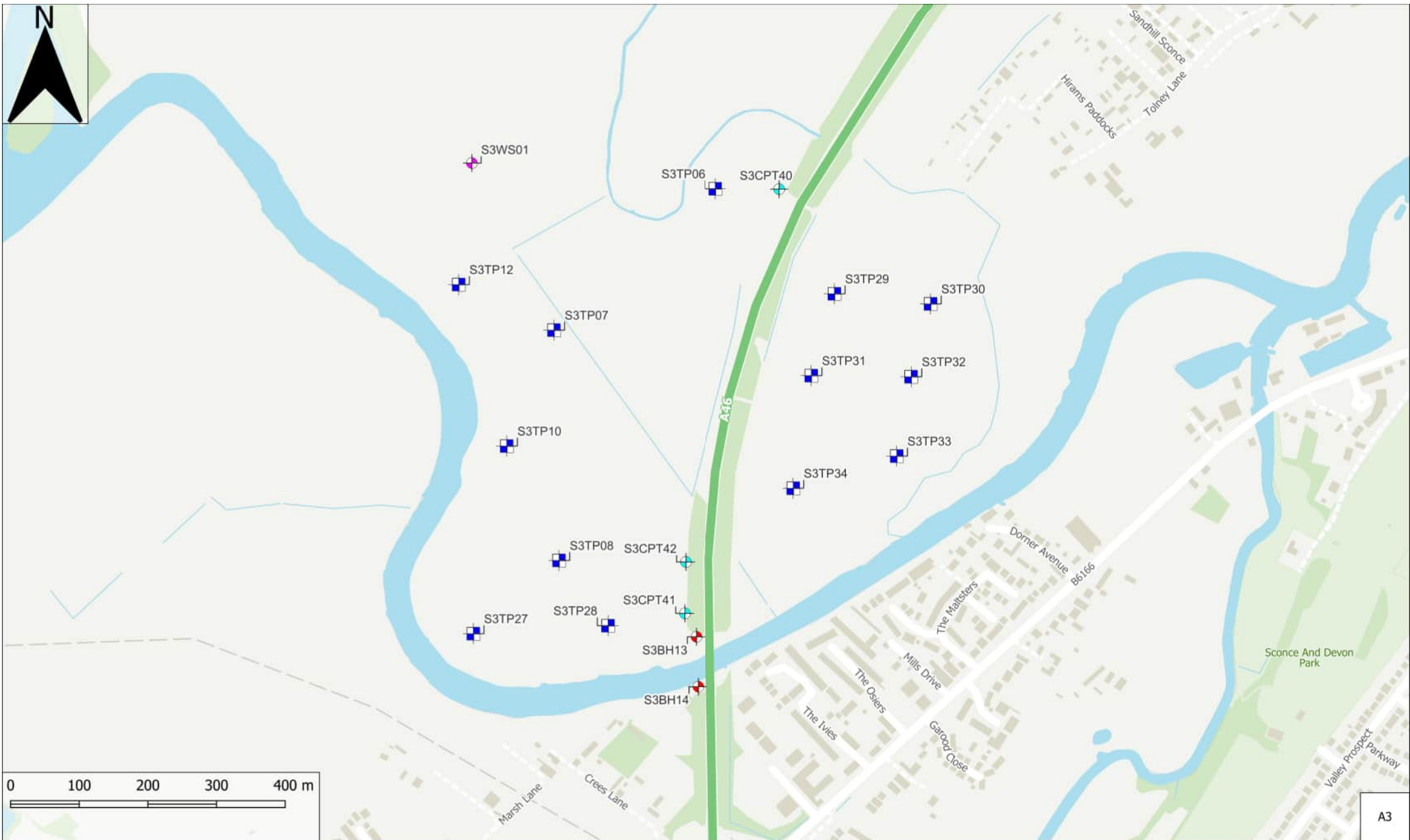
Legend

- CP
- CPT
- CP+RC
- RC

Drawn By:

Checked By:

Approved By:

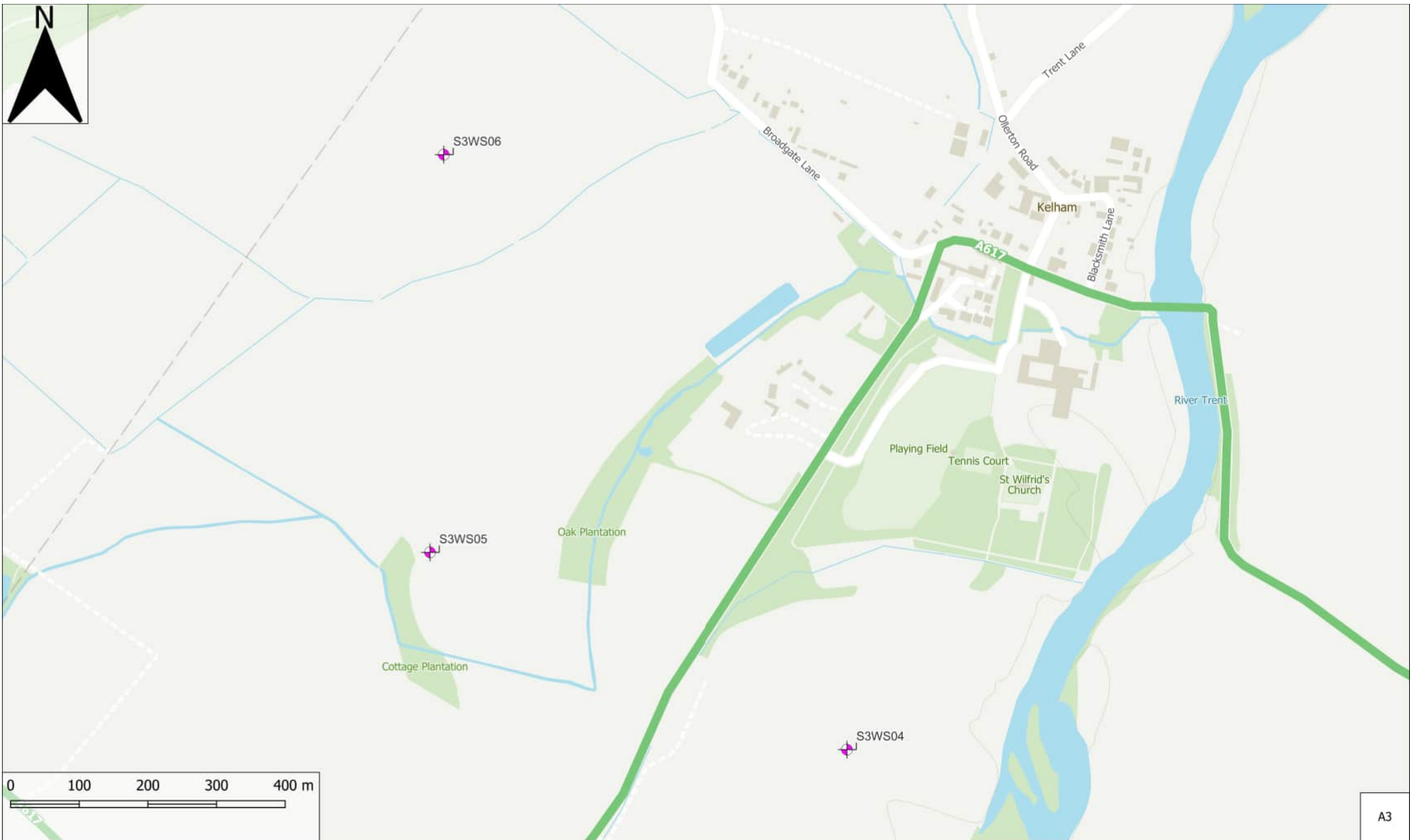


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G221209	A46 - Newark	Exploratory Hole Location Plan - Inset 3

Client.	Scale	Drawing Ref.
Skanska	1:5,000	G221209/A46-Newark/Inset3/Rev.0/TK/2023-04-20


Legend	
	CP+RC
	TP
	CPT
	WLS

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A3



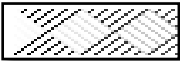
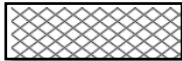









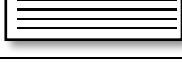
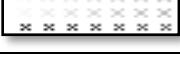



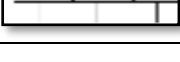
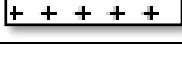
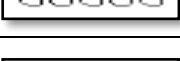
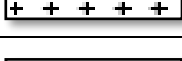





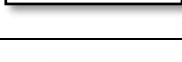
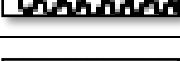
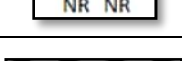




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Client. Skanska	Drawing Ref. G221209/A46-Newark/Inset4/Rev.0/TK/2023-04-20			Checked By: <input type="text" value="IL"/> Approved By: <input type="text" value="JW"/>

Appendix B: Exploratory Hole Records


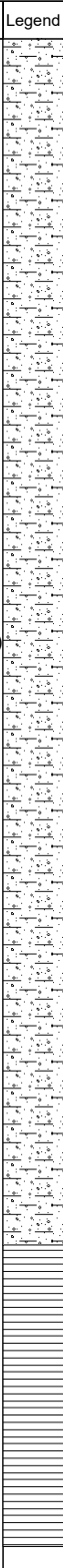
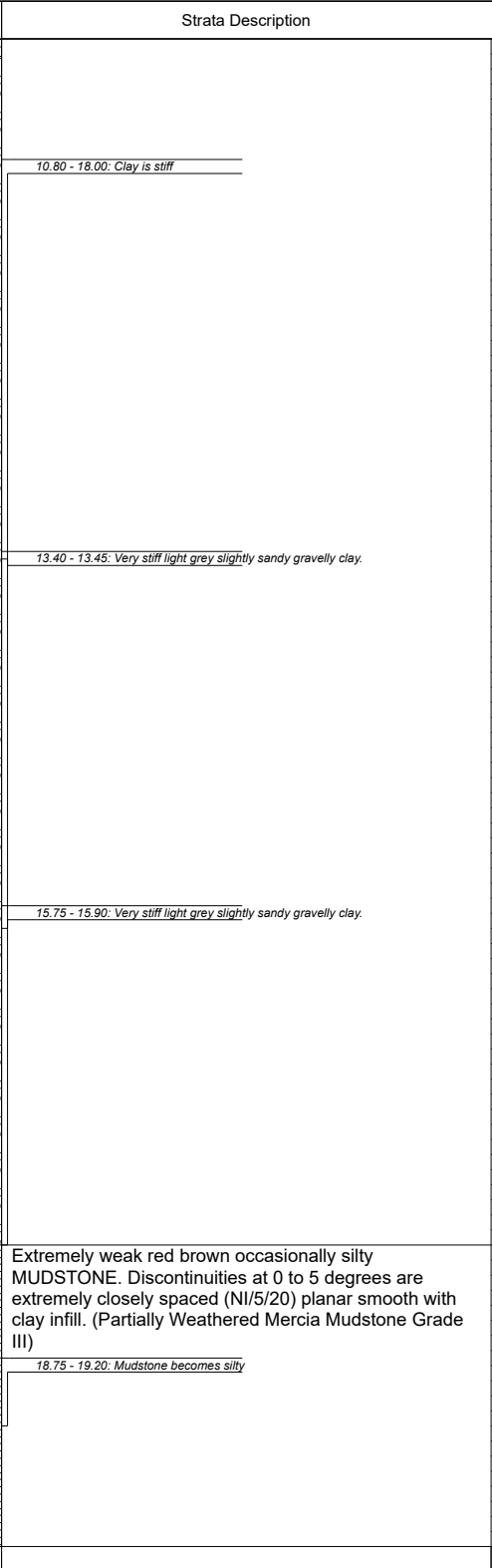
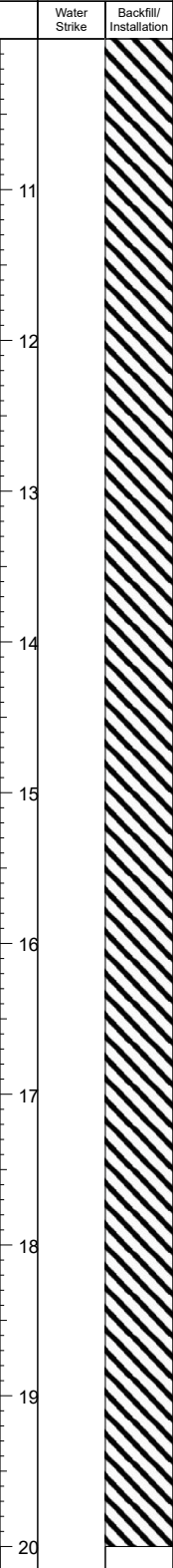
Legends:

U	Undisturbed driven tube sample, 100mm nominal diameter unless noted
UT	Undisturbed thin wall tube sample, 100mm nominal diameter unless noted
P	Undisturbed pushed piston sample, 100mm nominal diameter unless noted
CBR	CBR mould sample
BLK	Block sample
D	Small disturbed sample
B	Disturbed bulk sample
SD	Standard Penetration Test liner sample
ES	Soil sample for environmental testing
W	Water sample
L	Liner, dynamic/windowless sample
C	Core sample
CSS	Core sub sample
	Test results
N (S)	Standard penetration test, split spoon sampler (uncorrected)
N (C)	Standard penetration test, solid cone (uncorrected)
K	Field permeability test, kFH indicates falling head, kPI indicates packer injection
HV	Hand vane test [peak/residual], kPa, Undrained Shear Strength
I _a or I _d	Point load strength quoted for axial (a) and diameter (d), MPa Point Load Index
PP	Pocket Penetrometer, kPa, Unconfined Compressive Strength
LMP	Lump sample for laboratory testing
Non-Intact	Core recovered in sections less than one full diameter without signs of weathering



Soil, Rock and Backfill Legends:


















Topsoil		MADE GROUND	
Concrete		Bituminous Material	
Clay		Silt	
Sand		Gravel	
Cobbles		Peat	
Sandstone		Mudstone	
Siltstone		Coal	
Breccia		Fine grained Igneous	
Limestone		Medium grained Igneous	
Conglomerate		Coarse grained Igneous	
Clean Ballast		Fine grained Metamorphic	
Slightly dirty Ballast		Medium grained Metamorphic	
Dirty Ballast		Coarse grained Metamorphic	
Broken Ground		No Recovery	
Cement Bentonite		Bentonite	
Arisings		Grout	

Contract Name: A46 Newark Bypass		Client: Skanska					Borehole ID: S3BH01						
Contract Number: G221209		Date Started: 07/11/2022		Date Completed: 14/11/2022		Logged: AH	Checked: IL	Status: FINAL					
Rotary Core Drilling Log		Easting: 481285.9		Northing: 356017.9		Ground Level: 9.88m (OD)		Plant Used: Comacchio 405	Print Date: 19/05/2023	Scale: 1:50			
Weather: Fine		Rig Crew: Garry Naylor			Termination: Target depth.			SPT Hammer: AR2833 Energy Ratio: 67%					
Samples & In Situ Testing						Strata Details					Groundwater		
Depth	Sample	Test Result	TCR	SCR	RQD	FI/ff	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation	
0.20	D1							(0.40)		MADE GROUND: Firm brown slightly sandy gravelly CLAY with fragments of glass. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartz.			
0.50	ESES						9.48	0.40		Firm grayish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular, rounded, fine to coarse of quartz.			
1.00	D3						9.08	0.80		Medium dense greyish brown rarely reddish brown silty slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium sandstone and flint.			
1.20 - 1.65	D4												
1.40	ESES	SPT(S) 1.20m, N=15 (2,3/3,3,4,5)						(1.20)		1.85 - 2.00: Band of medium dense dark brown mottled reddish brown silty slightly gravelly fine to coarse SAND with frequent lenses of reddish brown silty CLAY. Gravel is fine to coarse of angular flint and medium sandstone, mudstone and siltstone.			
1.20 - 2.00	L5		100										
1.90	ES7						7.88	2.00		2.52 - 2.87: Clay is light greenish grey mottled dark reddish brown.			
2.00	D10												
2.00	D4												
2.00 - 2.45	D8												
2.20	D11	SPT(S) 2.00m, N=10 (1,2/2,3,2,3)						(0.87)		Stiff light greenish grey sandy gravelly CLAY. Sand is fine. Gravel is angular fine of mudstone.			
2.40	ES12												
2.00 - 3.00	L9												
2.80	D						7.01	2.87		3.90: Occasional red bands			
2.80	D13						6.88	3.00		Stiff reddish brown with frequent grey patches silty slightly sandy slightly gravelly CLAY with frequent pockets of fine to coarse sand. Gravel is angular to subangular fine to medium of sandstone. (Fully Weathered Mercia Mudstone Grade IVb)			
2.90	ES14												
3.00 - 3.45	D15						6.59	3.29		Firm red brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is angular, fine to coarse of mudstone. (Fully Weathered Mercia Mudstone Grade IVb)			
3.10	ES17	SPT(S) 3.00m, N=18 (15,8/4,5,4,5)						(0.81)		Firm to stiff reddish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is angular, fine to coarse of mudstone. (Fully Weathered Mercia Mudstone Grade IVb)			
3.65	D18												
3.00 - 4.50	L16		100				5.78	4.10		7.50 - 9.00: Clay is stiff			
3.90	ES19												
4.50	D20												
4.50 - 4.95	D11												
4.50 - 4.95	D22												
4.70	ES23	SPT(S) 4.50m, N=28 (3,5/6,6,8,8)						(1.70)		9.00 - 10.80: Clay is firm			
5.10 - 5.50	D24												
5.10 - 5.50	ES25		100										
4.50 - 6.00	L21												
5.60	D26						4.08	5.80					
6.00	D30												
6.00	ES27												
6.00 - 6.45	D15												
6.00 - 6.45	D29												
6.00 - 7.50	L28	SPT(S) 6.00m, N=14 (3,3/3,3,4,4)						(1.70)					
7.50 - 7.95	D31	SPT(S) 7.50m, N=40 (5,7/9,10,10,11)						2.38	7.50				
8.00	D33												
8.10	D34												
7.50 - 9.00	L32		100										
9.00 - 9.42	D												
9.00 - 9.42	D36	SPT(S) 9.00m, 50 (5,13/50 for 265mm)											
9.50	D37												
9.00 - 10.50	L35		100										
Start & End of Shift Observations			Flush Return Information				Remarks:						
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour	Hand dug inspection pit to 1.2m bgl. No ground water was encountered during drilling. Backfilled with bentonite upon completion.		
07-11-22	07:30	0.00	0.00	0.00	18.00	19.50	100	100	Air/Mist	brown			
07-11-22	17:30	1.20	0.00										
08-11-22	07:30	1.20	0.00		19.50	21.00	100	100	Air/Mist	brown			
08-11-22	17:00	6.00	6.00	3.00									
09-11-22	07:30	6.00	6.00	3.00	21.00	22.50	100	100	Air/Mist	brown			
09-11-22	17:00	16.95	16.50	5.00									
Borehole Diameter		Casing Diameter		Coring Information				Water Strike					
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
30.25	140	18.00	150	18.00	19.50	102	Geobore S (146)						
				19.50	21.00	102							
				21.00	22.50	102							
Fracture Index (FI) - Fractures per meter; Fracture Spacing (ff) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)													

	Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH01						
	Contract Number: G221209	Date Started: 07/11/2022	Date Completed: 14/11/2022	Logged: AH	Checked: IL	Status: FINAL	Sheet 2 of 4						
Rotary Core Drilling Log	Easting: 481285.9	Northing: 356017.9	Ground Level: 9.88m (OD)	Plant Used: Comacchio 405	Print Date: 19/05/2023	Scale: 1:50							
	Weather: Fine		Rig Crew: Garry Naylor	Termination: Target depth.		SPT Hammer: AR2833 Energy Ratio: 67%							
Samples & In Situ Testing							Strata Details				Groundwater		
Depth	Sample	Test Result	TCR	SCR	RQD	FI/If	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation	
10.40 - 10.50 10.50 - 10.91	D38 D40	SPT(S) 10.50m, 50 (6,9/50 for 260mm)											
11.00 - 11.10 11.00 - 11.10 10.50 - 12.00	D D41 L39		100										
11.90 - 12.00 12.00 - 12.43 12.00 - 12.43	D42 D25 D43	SPT(S) 12.00m, 50 (3,5/50 for 275mm)											
12.00 - 13.50	L44		100										
13.40 - 13.50 13.50 - 13.95	D45 D46	SPT(S) 13.50m, N=38 (5,8/9,9,8,12)											
13.90 - 14.00 13.50 - 15.00	D48 L47		100				(10.50)						
14.90 - 15.00 15.00 - 15.45 15.00 - 15.45	D49 D D50	SPT(S) 15.00m, N=21 (3,3/5,6,5,5)											
15.40 - 15.50 15.00 - 16.50 15.80 - 15.90	D52 L51 D53		100										
16.40 - 16.50 16.50 - 16.95 16.50 - 16.95	D54 D34 D55	SPT(S) 16.50m, 50 (5,7/50 for 295mm)											
16.90 - 17.00 16.50 - 18.00	D57 L56		100										
17.90 - 18.00 18.00 - 18.23	D58 D59	SPT(S) 18.00m, 50 (25 for 140mm/50 for 85mm)					-8.12	18.00					
18.50 - 18.60 18.00 - 19.50	D61 C60 D62		67	43	0								
19.00 - 19.10 19.40 - 19.50	D63	SPT(S) 19.50m, 50 (10,13/50 for 180mm)											
19.40 - 19.50 20.00 - 20.10	D65												
Start & End of Shift Observations			Flush Return Information				Remarks:						
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour			
10-11-22	07:30	16.95	16.50	5.00	22.50	24.00	100	100	Air/ Mist	brown			
10-11-22	17:15	28.00	18.00	16.00	24.00	25.00	100	100	Air/ Mist	brown			
11-11-22	07:30	28.00	18.00	16.00	25.00	26.50	100	100	Air/ Mist	brown			
11-11-22	18:00	30.25	18.00	16.00									
											Water Strike		
Borehole Diameter		Casing Diameter		Coring Information				Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type						
				18.00	19.50	102	Geobore S						
				19.50	21.00	102	(146)						
				21.00	22.50	102							
<small>Fracture Index (FI) - Fractures per meter; Fracture Spacing (If) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)</small>													

STRATA GEOTECHNICS		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH01						
Contract Number: G221209		Date Started: 07/11/2022		Date Completed: 14/11/2022		Logged: AH	Checked: IL	Status: FINAL		Sheet 3 of 4				
Rotary Core Drilling Log		Easting: 481285.9		Northing: 356017.9		Ground Level: 9.88m (OD)		Plant Used: Comacchio 405		Print Date: 19/05/2023	Scale: 1:50			
Weather: Fine		Rig Crew: Garry Naylor			Termination: Target depth.			SPT Hammer: AR2833 Energy Ratio: 67%						
Samples & In Situ Testing						Strata Details					Groundwater			
Depth	Sample	Test Result	TCR	SCR	RQD	FI/IF	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation		
19.50 - 21.00	C64 D66		93	80	10									
20.50 - 20.60	D66													
20.65	CSS43									20.65 - 20.80: Very weak grey mudstone.				
20.65 - 20.80	CSS67													
20.90 - 21.00	D68	Is50 - 20.65m 0.27MPa Is50 - 20.65m 0.37MPa												
21.60 - 21.70	D70		63	47	0			(5.55)						
21.00 - 22.50	D70													
22.00 - 22.10	C69 D71									22.10 - 23.55: Mudstone becomes silty				
22.40 - 22.50	D72													
22.90 - 23.00	D74	SPT(S) 22.50m, 50 (25 for 140mm/50 for 200mm)												
22.50 - 24.00	D74		73	53	60									
23.45	C73													
23.45 - 23.54	CSS49						-13.67	23.55		Extremely weak to weak reddish brown MUDSTONE with occasional gypsum bands (<10mm unless stated). Discontinuities at 0 to 5 degrees are very closely spaced to closely spaced (NI/120/230) planar smooth with no infill. (Partially Weathered Mercia Mudstone Grade II)				
23.60	D76	Is50 - 23.45m 0.25MPa								23.55 - 23.80: Mudstone becomes silty				
23.90 - 24.00	D77	Is50 - 23.45m 0.4MPa								23.80 - 25.40: No Gypsum veins are present				
24.00 - 25.00	D77	SPT(S) 24.00m, 50 (25 for 130mm/50 for 195mm)	85	54	40					23.80 - 26.40: Mudstone becomes weak				
24.70 - 24.80	C78 CSS79													
25.30 - 25.53	CSS81							(3.05)						
25.00 - 26.50	CSS81		100	97	67					25.40 - 26.40: Mudstone becomes silty				
25.95	C80									25.85 - 25.87: 30mm gypsum vein 30-40°				
25.95 - 26.07	CSS54 CSS82									26.00 - 26.05: 30mm gypsum vein 30-40°				
26.70 - 27.05	CSS84	Is50 - 25.95m 0.27MPa Is50 - 25.95m 0.59MPa								26.40 - 26.60: Mudstone becomes very weak.				
26.50 - 28.00	CSS84		100	93	73					Very weak becoming medium strong grey MUDSTONE with very closely spaced gypsum bands (<10mm unless stated otherwise) orientated at 30 to 40 degrees. Discontinuities at 0 to 5 degrees are closely to widely spaced (NI/120/400) planar smooth with no infill. (Partially Weathered Mercia Mudstone Grade II)				
27.63 - 27.73	C83 CSS85									26.66 - 26.69: 30mm gypsum vein 30-40°				
27.63 - 27.73	C83									27.22 - 27.28: 30mm gypsum vein 30-40°				
27.63 - 27.73	CSS85									27.55 - 27.58: 30mm gypsum vein 30-40°				
28.40 - 28.50	CSS87							(3.65)						
28.00 - 29.50	CSS87		100	100	82					28.70 - 30.27: Mudstone becomes medium strong				
29.20	C86													
29.20 - 29.50	CSS58 CSS88													
29.80 - 30.00	CSS90	UCS - 29.20m 3.4MPa	100	100	93									
29.50 - 30.25	C89													
Start & End of Shift Observations			Flush Return Information						Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour				
					26.50	28.00	100	100	Air/ Mist	brown				
					28.00	29.50	100	100		brown				
					29.50	30.25	100	100		brown				
									Water Strike					
									Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
Borehole Diameter		Casing Diameter		Coring Information										
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type							
				18.00	19.50	102	Geobore S							
				19.50	21.00	102	(146)							
				21.00	22.50	102								
Fracture Index (FI) - Fractures per meter; Fracture Spacing (IF) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)														

	Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH01												
	Contract Number: G221209	Date Started: 07/11/2022	Date Completed: 14/11/2022	Logged: AH	Checked: IL	Status: FINAL	Sheet 4 of 4												
Rotary Core Drilling Log	Easting: 481285.9	Northing: 356017.9	Ground Level: 9.88m (OD)	Plant Used: Comacchio 405		Print Date: 19/05/2023	Scale: 1:50												
	Weather: Fine		Rig Crew: Garry Naylor	Termination: Target depth.			SPT Hammer: AR2833 Energy Ratio: 67%												
Samples & In Situ Testing							Strata Details			Groundwater									
Depth	Sample	Test Result	TCR	SCR	RQD	FI/IF	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation							
							-20.37	30.25		End of Borehole at 30.25m									
											31								
											32								
											33								
											34								
											35								
											36								
											37								
											38								
											39								
											40								
Start & End of Shift Observations			Flush Return Information						Remarks:										
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour									
Water Strike																			
Borehole Diameter		Casing Diameter		Coring Information				Strike (m)		Casing (m)		Sealed (m)		Time (mins)		Rose to (m)		Remarks	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type												
				18.00	19.50	102	Geobore S												
				19.50	21.00	102	(146)												
				21.00	22.50	102													
<small>Fracture Index (FI) - Fractures per meter; Fracture Spacing (IF) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)</small>																			

		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH02				
		Contract Number: G221209	Date Started: 31/10/2022	Date Completed: 04/11/2022	Logged: MW	Checked: IL	Status: FINAL	Sheet 1 of 3				
Rotary Core Drilling Log		Easting: 481187.7	Northing: 356035.1	Ground Level: 9.98m (OD)	Plant Used: Comacchio 405	Print Date: 19/05/2023	Scale: 1:50					
Weather: Fine		Rig Crew: Garry Naylor		Termination: Target depth.			SPT Hammer: AR2833 Energy Ratio: 63%					
Samples & In Situ Testing					Strata Details					Groundwater		
Depth	Sample	Test Result	TCR	SCR	RQD	FI/IF	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation
0.00 - 0.40	ES1							(0.40)		TOPSOIL: Dark greyish brown slightly clayey slightly gravelly fine to coarse SAND with frequent root material (<5mm). Sand is fine. Gravel is subangular to subrounded fine to medium of sandstone and mudstone.		
0.50 - 0.70	ESES						9.58	(0.40)		Reddish brown slightly gravelly silty fine to coarse SAND. Gravel is angular to subangular fine to coarse of sandstone and mudstone.		
0.90 - 1.10	ES3						9.18	0.80		Firm light grey and dark grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of sandstone and mudstone. (Fully Weathered Mercia Mudstone Grade IVb)		
1.20 - 1.30	ES4	SPT(S) 1.20m, N=17 (3,6/4,5,3,5)	100				6.98	(2.20)			1	
1.20 - 1.65	D6											
1.50 - 1.60	D7											
1.50 - 2.00	D8											
1.50 - 2.00	D9											
2.00 - 2.45	ES11	SPT(S) 2.00m, N=17 (5,8/2,3,5,7)	100				6.98	(2.20)			2	
2.25 - 2.30	ES12											
2.00 - 3.00	L10											
2.00 - 3.00	ES13											
3.00 - 3.10	D14	SPT(S) 3.00m, N=15 (5,3/3,4,4,4)	87				6.98	3.00			3	
3.00 - 3.45	D											
3.00 - 3.45	D15											
3.50	ES18											
3.50 - 3.60	D17											
3.00 - 4.50	L16											
4.00 - 4.10	D19											
4.50 - 4.95	D21	SPT(S) 4.50m, N=24 (9,6/5,6,8,5)	57				6.98	(4.00)			4	
4.70	ES22											
5.00 - 5.10	D23											
4.50 - 6.00	L20											
6.00	ES26	SPT(S) 6.00m, N=18 (3,2/6,4,4,4)	100				6.98	7.00			5	
6.00 - 6.45	D25											
6.20 - 6.30	D27											
6.50 - 7.00	D28											
6.00 - 7.00	L24											
6.80	ES29											
7.00 - 7.37	D31	SPT(S) 7.00m, 50 (12,13/50 for 222mm)					2.98	7.00			6	
7.70 - 7.90	D											
7.70 - 7.90	D32							(1.33)				
7.00 - 8.50	C30	SPT(S) 8.50m, 50 (12,12/50 for 220mm)	0	0	0		2.98	8.33			7	
7.90 - 8.00	D33											
8.20 - 8.30	D34											
8.33 - 8.43	CSS35											
8.43 - 8.50	D36											
8.50 - 8.87	D37							1.65				
8.50 - 10.00								1.55				
								1.48				
								(1.50)				
-10.00 - 10.45	D38						-0.02	10.00				
Start & End of Shift Observations			Flush Return Information				Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour	Hand dug inspection pit to 1.2m bgl. No waterstrike was encountered during the drilling. Backfilled with bentonite upon completion.	
31-10-22	07:30	0.00	0.00	0.00	7.00	10.00	100	100	Air/ Mist	Brown		
31-10-22	17:55	4.95	4.50	0.00								
01-11-22	07:30	4.95	4.50	0.00	10.00	13.00	100	100	Air/ Mist	Brown		
01-11-22	18:00	10.50	7.50	3.00								
02-11-22	07:30	10.50	7.50	3.00	13.00	16.00	100	100	Air/ Mist	Brown		
02-11-22	18:00	17.00	10.50	10.00							Water Strike	
Borehole Diameter		Casing Diameter		Coring Information				Strike (m) Casing (m) Sealed (m) Time (mins) Rose to (m) Remarks				
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type					
25.00	146	7.50	178	7.00	8.50	102						
		25.00	146	8.50	10.00	102						
				11.00	12.00							

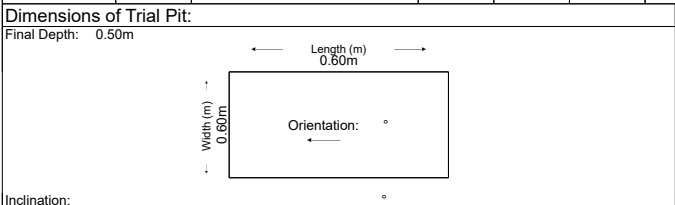
Fracture Index (FI) - Fractures per meter; Fracture Spacing (IF) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)

STRATA GEOTECHNICS		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH02					
Contract Number: G221209		Date Started: 31/10/2022		Date Completed: 04/11/2022		Logged: MW	Checked: IL	Status: FINAL		Sheet 2 of 3			
Rotary Core Drilling Log		Easting: 481187.7		Northing: 356035.1		Ground Level: 9.98m (OD)		Plant Used: Comacchio 405		Print Date: 19/05/2023	Scale: 1:50		
Weather: Fine		Rig Crew: Garry Naylor			Termination: Target depth.			SPT Hammer: AR2833 Energy Ratio: 63%					
Samples & In Situ Testing						Strata Details						Groundwater	
Depth	Sample	Test Result	TCR	SCR	RQD	FI/ff	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation	
10.50 - 10.95	D39	SPT(S) 10.00m, N=29 (7,10/7,7,7,8)						(1.00)	NR NR N NR NR N NR NR N NR NR N NR NR N NR NR N NR NR N NR NR N	No Core Recovery - 100% brown flush return. Driller notes mudstone with harder bands			
11.00 - 11.27	D41	SPT(S) 10.50m, N=35 (8,11/9,9,8,9)					-1.02	11.00		Extremely weak reddish brown MUDSTONE with rare gypsum crystals. Discontinuities at 5 degrees are closely spaced (80/80/100) planar rough and clean.	11		
11.20 - 11.30	D42	SPT(S) 11.00m, 50 (25 for 120mm/50 for 148mm)	100	70	10					Discontinuities at 40 to 60 degrees are very closely to medium spaced (40/300/300) planar smooth and clean. (Partially Weathered Mercia Mudstone Grade II)			
11.00 - 12.00	C40							(2.20)		12.00 - 12.20: Recovered as angular medium to coarse gravel	12		
11.75 - 11.87	CSS43									12.41 - 12.46: Fracture at 80 degrees is stepped rough with clay infill.			
12.00 - 12.20	D44												
12.40 - 12.55	CSS46		100	70	45								
12.00 - 13.00	C45												
12.90 - 13.00	D47												
13.20 - 13.35	D49						-3.22	13.20		Extremely weak reddish brown MUDSTONE with rare gypsum crystals. Discontinuities at 5 degrees are closely spaced (60/80/80) planar rough and clean. (Partially Weathered Mercia Mudstone Grade II)	13		
13.00 - 14.00	C48		85	60	0			(0.80)		13.20 - 13.35: Recovered as angular medium to coarse gravel			
13.51 - 13.56	CSS50									13.44 - 13.52: Fracture at 60 degrees is stepped rough with clay infill			
13.95 - 14.00	D51						-4.02	14.00		13.74 - 13.78: Fracture at 60 degrees is stepped rough with no infill.	14		
14.00 - 15.00			0	0	0				NR NR N NR NR N NR NR N NR NR N NR NR N NR NR N NR NR N NR NR N	No Core Recovery - 100% brown flush return. Driller notes mudstone with harder bands			
15.00 - 15.45	D52	SPT(S) 15.00m, N=33 (2,5/7,9,8,9)											
15.50 - 15.95	D53	SPT(S) 15.50m, N=39 (3,7/9,10,9,11)											
16.00 - 16.41	D54	SPT(S) 16.00m, 50 (2,7/50 for 260mm)	0	0	0			(4.15)					
16.00 - 17.00													
17.00 - 17.30	D55	SPT(S) 17.00m, 50 (25 for 145mm/50 for 152mm)	0	0	0								
17.00 - 18.00													
18.00 - 18.27	D56	SPT(S) 18.00m, 50 (25 for 130mm/50 for 140mm)	85	55	36		-8.17	18.15		Very weak reddish brown MUDSTONE with occasional randomly oriented gypsum veins (<12mm). Discontinuities at 5 degrees very closely to closely spaced (50/80/130) planar rough and clean (Partially Weathered Mercia Mudstone Grade II)	18		
18.15 - 18.30	D58									18.66 - 18.72: Randomly oriented gypsum veins (<5mm)			
18.00 - 19.00	C57							(1.00)		18.77 - 18.85: Fracture at 80 to 90 degree is planar smooth and clean	19		
18.60 - 18.77	CSS59												
18.90 - 19.00	D60												
19.18 - 19.37	CSS62		100	100	93		-9.17	19.15		Very weak reddish brown MUDSTONE with closely spaced gypsum veins (<12mm) at 5 degrees. Discontinuities at 10 degrees are closely to medium spaced (70/120/270) planar smooth and clean (Partially Weathered Mercia Mudstone Grade II)			
19.00 - 20.50								(0.85)		19.46 - 19.58: Weak grey SILTSTONE band			
19.85 - 19.95	C61						-10.02	20.00			20		
Start & End of Shift Observations			Flush Return Information						Remarks:				
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour			
04-11-22	07:30	17.00	10.50	10.00	16.00	19.00	100	100	Air/ Mist	Brown			
04-11-22	18:00	25.00	10.50	15.00									
					19.00	22.00	100	100	Air/ Mist	Brown			
					22.00	25.00	100	100	Air/ Mist	Brown			
Borehole Diameter			Casing Diameter		Coring Information				Water Strike				
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
				7.00	8.50	102							
				8.50	10.00	102							
				11.00	12.00								
Fracture Index (FI) - Fractures per meter; Fracture Spacing (ff) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)													



Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3BH02R	
Contract Number: G221209	Date Started: 31/01/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1	
Easting: 481187.0		Northing: 356037.0		Ground Level:	Plant Used: Hand tools	Date Printed: 19/05/2023
Weather: Cloudy		Stability: Stable		Services Encountered: None		Hole Termination: Scheduled depth















Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.50	ES			(0.50)		MADE GROUND: Soft dark brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz and brick.		
				0.50		End of Trial Pit at 0.500m		
							1	
							2	
							3	
							4	
							5	






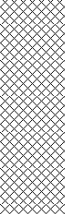




Remarks:

Hand dug inspection pit. No waterstrike was encountered during the hand pit. Backfilled with arisings upon completion. Location undertaken within close proximity to S3BH02. Coordinates inferred from OS mapping

Water Strike			
Depth Strike	Time (min)	Rose (m)	Remarks

	Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH05						
	Contract Number: G221209	Date Started: 05/01/2023	Date Completed: 05/01/2023	Logged: WG	Checked: IL	Status: FINAL	Sheet 1 of 1						
Dynamic Sample Drilling Log	Easting: 480218.7	Northing: 355621.6	Ground Level: 10.36m (OD)	Plant Used: Dart 351	Print Date: 19/05/2023	Scale: 1:25							
	Weather: Clear		Rig Crew: GN	Termination: Scheduled Depth		SPT Hammer: Dart351 Energy Ratio: 69%							
Samples & In Situ Testing							Strata Details			Groundwater			
Depth	Sample	Test Result	TCR	SCR	RQD	FI/If	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation	
0.00 - 0.50	B						10.16	0.20		MADE GROUND: Yellowish brown clayey SAND & GRAVEL. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone and siltstone			
0.50 - 1.20	B ES									MADE GROUND: Very loose to loose dark brown very gravelly SAND with rare pockets of orange clay. Sand is fine to coarse. Gravel is angular to subangular, fine to coarse of brick, coal sandstone, and slag.			
1.00	ES												
1.20 - 1.65 1.20 - 2.00	B SD	SPT(S) 1.20m, N=4 (0,1/2,1,0,1)								1.20 - 2.80: Soft white contaminant noted with a chemical odour.			
1.50	ES							(2.60)					
1.65	ES												
2.00 - 2.45 2.00 - 3.00	B SD	SPT(S) 2.00m, N=5 (1,1/1,2,1,1)											
2.50	ES												
2.90	ES						7.56	2.80		Dark grey clayey slightly gravelly fine to coarse SAND with strong chemical odour. Gravel is rounded, fine to coarse of chert.			
3.00 - 3.45 3.00 - 3.45 3.00 - 4.00 3.20	B S11 SD ES	SPT(S) 3.00m, N=3 (0,1/1,1,0,1)					7.36	3.00		Soft dark grey sandy SILT. Sand is fine to coarse.			
4.00 - 4.45 4.00 - 5.00	B SD	SPT(S) 4.00m, N=42 (5,5/6,8,13,15)											
4.90	ES												
							5.36	5.00		End of Borehole at 5.00m			
Start & End of Shift Observations			Flush Return Information				Remarks:						
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour	Hand dug inspection pit to 1.2m bgl. No waterstrikes encountered during the drilling. Backfilled with bentonite upon completion.		
05-01-23	08:00	0.00	0.00										
05-01-23	17:00	5.00	4.00										
							Water Strike						
							Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks	
Borehole Diameter		Casing Diameter		Coring Information									
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type						
4.00	100	4.00	100										
5.00	87												
<small>Fracture Index (FI) - Fractures per meter; Fracture Spacing (If) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)</small>													

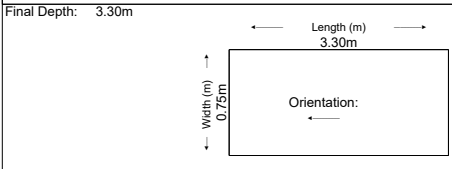
	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3BH05R
	Contract Number: G221209	Date Started: 02/02/2023	Logged By: PO	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 480218.0	Northing: 355621.0	Ground Level:	Plant Used: 3CX Excavator	Date Printed: 19/05/2023	Scale: 1:50
Weather: Clear		Stability: Stable		Services Encountered: None		Hole Termination: Scheduled Depth

Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.50	ES			(0.30) 0.30		MADE GROUND: Soft dark brown sandy slightly gravelly CLAY with frequent roots and rootlets (<20x210mm). Sand is fine to coarse. Gravel is angular to rounded, fine to coarse of brick, quartz and quartzite and sandstone.			
1.00	ES			(1.50)		MADE GROUND: Black and brown SAND & GRAVEL with ash content noted. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of clinker brick, coal, concrete and quartz.	1		
1.50	ES			1.80		MADE GROUND: Orange sandy angular to subangular fine to coarse GRAVEL of brick fragments. Sand is fine to coarse.	2		
1.65	ES								
2.50	ES			(1.10)					
3.20	ES			2.90 (0.40) 3.30		Soft greyish brown mottled brown sandy slightly gravelly CLAY with frequent pockets and lenses of grey and brown sand. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of quartz and sandstone.	3		
						End of Trial Pit at 3.30m	4		
							5		

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:



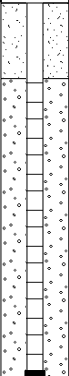





Inclination: 90°






Remarks:

Machine excavated trial pit. No groundwater was encountered during the drilling. Backfilled upon completion using arisings. Location undertaken in close proximity to S3BH05. Coordinates inferred from OS mapping

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks

		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH06					
		Contract Number: G221209	Date Started: 17/11/2022	Date Completed: 17/11/2022	Logged: PB	Checked: IL	Status: FINAL	Sheet 1 of 1					
Dynamic Sample Drilling Log		Easting: 480213.6	Northing: 355609.0	Ground Level: 6.96m (OD)	Plant Used: Archway Rig	Print Date: 19/05/2023	Scale: 1:50						
Weather: Clear		Rig Crew: ES		Termination: Scheduled Depth			SPT Hammer: Dart351 Energy Ratio: 69%						
Samples & In Situ Testing					Strata Details					Groundwater			
Depth	Sample	Test Result	TCR	SCR	RQD	FI/IF	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation	
0.00 - 0.50 0.20	B1 ESES						6.76	0.20		MADE GROUND: Soft brown gravelly CLAY. Gravel is subangular fine to coarse of brick, clinker and ash.			
0.50 0.50 - 1.20	B4 ES3									MADE GROUND: Very loose to loose black sandy subangular fine to coarse GRAVEL of ash and clinker			
1.20 1.20 - 1.65 1.20 - 2.00	B7 ESES SD5	SPT(S) 1.20m, N=1 (1,0/0,1,0,0)						(2.50)			1		
2.00 2.00 - 2.45 2.00 - 3.00	B10 ES9 SD8	SPT(S) 2.00m, N=10 (1,2/2,2,3,3)										2	
3.00 3.00 - 3.45 3.00 - 4.00	B13 ES12 SD11	SPT(S) 3.00m, N=37 (3,5/5,8,12,12)					4.26 3.76	2.70 3.20			Dense black fine to medium SAND with organic odour		3
4.00 - 4.45 4.00 - 5.00	B15 SD14	SPT(S) 4.00m, N=39 (4,6/6,7,13,13)						(1.80)		Medium dense to dense orangish brown SAND & GRAVEL. Sand is fine to coarse. Gravel is subrounded to rounded fine to medium of siltstone and mudstone.		4	
							1.96	5.00			End of Borehole at 5.00m		5
												6	
												7	
												8	
												9	
												10	
Start & End of Shift Observations			Flush Return Information					Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour	Hand dug inspection pit to 1.2m bgl. No waterstrikes encountered during the drilling. Backfilled with bentonite upon completion.		
17-11-22	08:00	0.00	0.00										
17-11-22	17:00	5.00	2.00										
								Water Strike					
Borehole Diameter		Casing Diameter		Coring Information				Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type						
3.00	87	2.00	100										
5.00	37												
<small>Fracture Index (FI) - Fractures per meter; Fracture Spacing (IF) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)</small>													

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3BH06R
	Contract Number: G221209	Date Started: 02/02/2023	Logged By: PO	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 480213.0	Northing: 355608.0	Ground Level:	Plant Used: 3CX Excavator	Date Printed: 19/05/2023	Scale: 1:50
Weather: Clear		Stability: Stable		Services Encountered: None		Hole Termination: Scheduled Depth

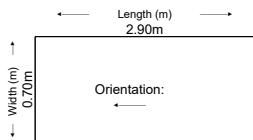
Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.20	ES					MADE GROUND: Black and brown clayey very gravelly fine to coarse SAND with ash content, low cobble and boulder content, frequent roots and rootlets (<15 x 420mm), occasional glass fragments (<15x20x30mm). Gravel is angular to rounded fine to coarse of clinker, brick fragments, sandstone and quartz. Cobble and boulder content is of angular to subangular of coal up to (<180x210x230mm). Slight hydrocarbon odour noted.	1		
1.20	ES			(2.30)			2		
				2.30		MADE GROUND. Orange sandy angular to subangular fine to coarse GRAVEL of brick fragments,. Sand is fine to coarse.			
				(0.60)			3		
3.00	ES			2.90 3.00		Brown silty gravelly fine to coarse SAND with frequent pockets and lenses of soft greyish brown mottled reddish brown sandy clay (70x200x280mm). Sand is fine to medium. Gravel is subangular to rounded fine to coarse of sandstone, quartz and quartzite. End of Trial Pit at 3.00m	4		
							5		

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 3.00m




Inclination: 90°

Remarks:

Machine excavated trial pit. No groundwater was encountered during the drilling. Backfilled upon completion using arisings. Undertaken in close proximity to S3BH06. Coordinates inferred from OS mapping

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks

		Contract Name: A46 Newark Bypass				Client: Skanska			Borehole ID: S3BH07				
		Contract Number: G221209	Date Started: 17/11/2022	Date Completed: 27/11/2022	Logged: PB	Checked: IL	Status: FINAL	Sheet 1 of 2					
Dynamic Sample Drilling Log		Easting: 480225.5	Northing: 355610.6	Ground Level: 9.85m (OD)	Plant Used: Archway Rig		Print Date: 19/05/2023	Scale: 1:25					
Weather: Showers		Rig Crew: ES		Termination: Target depth			SPT Hammer: Dart351 Energy Ratio: 69%						
Samples & In Situ Testing					Strata Details					Groundwater			
Depth	Sample	Test Result	TCR	SCR	RQD	FI/If	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation	
0.00 - 0.50	B1									MADE GROUND: Soft black sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular, fine to coarse of ash and concrete.			
0.20	ES2						9.65	0.20					
0.50	B4									MADE GROUND: Light brown clayey SAND & GRAVEL. Sand is fine to coarse. Gravel is subangular, fine to coarse of brick siltstone and mudstone.			
0.50 - 1.20	ES3							(1.00)					
1.20	B7	SPT(S) 1.20m, N=13 (2,3/3,3,3,4)					8.65	1.20		Firm reddish brown very sandy CLAY. Sand is fine to coarse.			
1.20 - 1.65	ES5												
1.20 - 2.00	SD6												
2.00	B10	SPT(S) 2.00m, N=19 (2,3/4,4,5,6)								Dense orange brown fine to medium SAND and subrounded to rounded fine to medium gravel of siltstone and mudstone.			
2.00 - 2.45	ES8							(1.60)					
2.00 - 3.00	SD9												
3.00 - 3.45	SD11	SPT(S) 3.00m, N=30 (5,5/6,6,8,10)					7.05	2.80					
3.00 - 4.00	SD12												
3.30	ES13												
4.00 - 4.45	B15	SPT(S) 4.00m, N=37 (5,6/8,9,9,11)											
4.00 - 5.00	SD14							(2.20)					
							4.85	5.00					
Start & End of Shift Observations			Flush Return Information				Remarks:						
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour			
17-11-22	08:00	0.00	0.00										
17-11-22	17:00	5.00	2.00										
											Water Strike		
Borehole Diameter		Casing Diameter		Coring Information				Remarks					
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
2.00	87	2.00	100										
3.00	77												
4.00	67												
<small>Fracture Index (FI) - Fractures per meter; Fracture Spacing (If) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)</small>													




Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH07		
Contract Number: G221209	Date Started: 17/11/2022	Date Completed: 27/11/2022	Logged: PB	Checked: IL	Status: FINAL	Sheet 2 of 2		
Dynamic Sample Drilling Log	Easting: 480225.5	Northing: 355610.6	Ground Level: 9.85m (OD)	Plant Used: Archway Rig	Print Date: 19/05/2023	Scale: 1:25		







Weather: Showers	Rig Crew: ES	Termination: Target depth	SPT Hammer: Dart351 Energy Ratio: 69%
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Samples & In Situ Testing							Strata Details					Groundwater	
Depth	Sample	Test Result	TCR	SCR	RQD	FI/If	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/Installation
										End of Borehole at 5.00m			
												6	
												7	
												8	
												9	
												10	

Start & End of Shift Observations				Flush Return Information						Remarks:				
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour				
											Water Strike			
Borehole Diameter		Casing Diameter		Coring Information				Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type							
5.00	57													

Fracture Index (FI) - Fractures per meter; Fracture Spacing (If) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3BH07R
	Contract Number: G221209	Date Started: 02/02/2023	Logged By: PO	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 480225.0	Northing: 355610.0	Ground Level:	Plant Used: 3CX Excavtor	Date Printed: 19/05/2023	Scale: 1:50
Weather: Clear		Stability: Stable		Services Encountered: None		Hole Termination: Excavator Limit

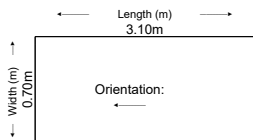
Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.80	ES			(0.50)		TOPSOIL: Soft dark brown sandy slightly gravelly CLAY with frequent roots and rootlets (<35x470mm). Sand is fine to coarse. Gravel is angular to rounded fine to coarse of quartz, sandstone, quartzite.	1	
1.20	ES			0.50		Soft brown mottled greyish brown slightly gravelly sandy CLAY with occasional roots and rootlets (<20x310mm), Occasional pockets and lenses of soft grey mottled brown slightly sandy clay and brown and dark reddish brown sand (<120x270x410). Gravel is angular to rounded fine to coarse of sandstone and quartz. Sand is fine to coarse.		
2.00	ES			(2.30)			2	
3.30	ES			2.80		Brown very sandy angular to rounded fine to coarse GRAVEL of quartz quartzite and sandstone. Sand is fine to coarse.	3	
				(0.60)				
				3.40		End of Trial Pit at 3.40m	4	
							5	

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 3.40m







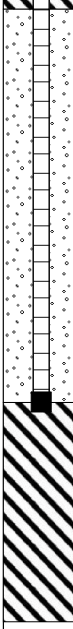








Inclination: 90°


Remarks:



Machine excavated trial pit. No waterstrike was encountered during the drilling. Backfilled upon completion using arisings. Undertaken in close proximity to S3BH07. Coordinates inferred from OS mapping

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks
3.30	0	0.00	

		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3CPWS07						
		Contract Number: G221209	Date Started: 19/01/2023	Date Completed: 23/01/2023	Logged: KA	Checked: IL	Status: FINAL	Sheet 1 of 1						
Cable Percussion Borehole Log		Easting: 480700.4	Northing: 356312.1	Ground Level: 9.26m (OD)	Plant Used: Dando 2000	Print Date: 19/05/2023	Scale: 1:50							
Weather: Variable		Rig Crew: David Grey		Termination: Scheduled Depth.			SPT Hammer: AR3543 Energy Ratio: 67%							
Samples & In Situ Testing				Strata Details					Groundwater					
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description			Water Strike	Backfill/Installation				
0.00 - 0.50	B1			(0.50)		MADE GROUND: Soft to firm greyish brown slightly silty CLAY with occasional plastics, roots and vegetation.								
0.50 - 0.90	D11 ES10 B2 ES12		8.76	0.50 (0.40)		MADE GROUND: Soft to firm greyish brown gravelly CLAY with occasional roots and vegetation. Gravel is subangular to subrounded, fine to coarse of sandstone.								
0.90 - 1.20	B14			(0.30)		Reddish brown clayey, sandy subangular to subrounded fine to coarse GRAVEL of sandstone. Sand is fine to coarse.			1					
0.90 - 1.20	D3 ES13	SPT(C) 1.20m, N=21 (2,4/5,5,5,6)	8.06	1.20		Medium dense reddish brown clayey, sandy subangular to subrounded fine to coarse GRAVEL of sandstone. Sand is fine to coarse.								
1.20 - 2.00	B4													
2.00 - 3.00	D15 B5	SPT(C) 2.00m, N=19 (1,3/3,4,6,6)		(2.40)					2					
3.00 - 3.60	D16 B6	SPT(C) 3.00m, N=22 (3,3/5,5,6,6)							3					
3.60 - 4.05	D7 B8	SPT(S) 3.60m, N=16 (2,3/3,4,4,5)	5.66	3.60		Weak reddish brown and grey MUDSTONE. (Partially Weathered Mercia Mudstone Grade IVa)			4					
4.60 - 5.05	D9	SPT(S) 4.60m, N=23 (3,5/5,6,6,6)		(1.45)					5					
			4.21	5.05		End of Borehole at 5.05m			5					
									6					
									7					
									8					
									9					
									10					
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Hand dug inspection pit to 1.2m bgl. Waterstrike was encountered at 0.9m rising to 0.7m after 20 minutes. Upon completion 50mm standpipe was installed to 3.6m, 0 to 1m plain, 1 to 3.6m slotted, 3.6 to 5.05m bentonite seal, installed with upright flush cover. Undertaken in close proximity to S3WS07.					
19-01-2023	07:30	0.00	0.00		5.05	140	4.50	150						
19-01-2023	17:50	1.65	1.20	0.50										
20-01-2023	07:30	1.65	1.20	0.50										
20-01-2023	18:00	5.05	4.50	0.50										
Chiselling					Installation				Water Strikes					
From (m)	To (m)	Duration	Remarks		Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	1.00	PLAIN	50	0.90	0.00		20	0.70	Slow
					1.00	3.60	SLOTTED	50						

STRATA GEOTECHNICS		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH08B						
Contract Number: G221209		Date Started: 12/01/2023		Date Completed: 01/02/2023		Logged: ASH	Checked: IL	Status: FINAL	Sheet 1 of 3					
Cable Percussion Borehole Log		Easting: 480184.2		Northing: 355450.4		Ground Level: 9.99m (OD)		Plant Used: Dando 2000/Comacchio 405	Print Date: 19/05/2023	Scale: 1:50				
Weather: Variable		Rig Crew: David Grey		Termination: Scheduled Depth.			SPT Hammer: AR3543 Energy Ratio: 67%							
Samples & In Situ Testing				Strata Details					Groundwater					
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation						
0.20	D17		9.79	0.20		MADE GROUND: Very soft dark grey slightly sandy CLAY.. Sand is fine to medium.								
0.20	ES			(0.30)		Brown slightly gravelly fine to coarse SAND. Gravel is angular to subrounded, fine to medium of sandstone.								
0.50	D18		9.49	0.50		Soft reddish brown slightly sandy CLAY. Sand is fine to coarse.								
0.50	ES15													
1.40	D19	SPT(S) 1.50m, N=9		(2.10)										
1.40	ES	(1,2/2,2,3,2)												
1.40 - 2.40	B1													
1.40 - 2.60	B20													
1.50 - 1.95	D2													
2.60	D24	SPT(C) 2.70m, N=21	7.39	2.60		Medium dense reddish brown, sandy subangular to subrounded, fine to coarse GRAVEL of sandstone. Sand is fine to coarse.								
2.60 - 3.60	B21	(2,4/4,5,6,6)												
2.60 - 3.60	B3													
3.60	D25	SPT(C) 4.00m, N=18		(2.00)										
3.60 - 4.60	B22	(2,2/4,4,5,5)												
3.60 - 4.60	B4													
4.60	D26		5.39	4.60		Medium dense dark grey sandy subangular to subrounded fine to coarse GRAVEL of sandstone. Sand is fine to coarse.								
5.00 - 6.00	B23	SPT(C) 5.00m, N=23		(1.60)										
5.00 - 6.00	B5	(3,4/4,6,6,7)												
6.00	D27													
6.20 - 6.50	B31	SPT(S) 6.50m, N=24	3.79	6.20		Firm to stiff reddish grey slightly sandy CLAY with traces of mudstone. Sand is fine to coarse. (Fully Weathered Mercia Mudstone Grade IVb)								
6.20 - 6.50	B6	(3,5/6,6,6,6)												
6.50	D28													
6.50 - 6.95	D7													
7.00 - 8.00	B32													
7.00 - 8.00	B8													
8.00	D29	SPT(S) 8.00m, N=26		(3.30)										
8.00 - 8.45	D9	(3,6/6,7,6,7)												
8.50 - 9.50	B10													
8.50 - 9.50	B33													
9.50	D30	SPT(S) 9.50m, 50	0.49	9.50		Very weak reddish brown slightly sandy MUDSTONE with occasional off white gypsum bands (<15mm). Sand is fine to coarse. (Partially Weathered Mercia Mudstone Grade II)								
9.50 - 10.50	B12	(6,9/50 for 125mm)												
9.50 - 10.50	B34		0.22	9.77		Extremely weak reddish brown slightly sandy MUDSTONE with occasional off white gypsum bands (<10mm). Sand is fine to coarse. (Partially Weathered Mercia Mudstone Grade II)								
9.50 - 9.78	D11													
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)						
12-01-2023	07:30	0.00	0.00		25.00	120	10.50	141	Hand dug inspection pit to 1.2m bgl. Waterstrike encountered at 2.7m rising to 2m after 20 minutes. Backfilled with bentonite upon completion.					
12-01-2023	17:30	6.30	6.00	2.20										
13-01-2023	07:30	6.30	6.00	2.20										
13-01-2023	17:20	9.78	9.50	2.50										
16-01-2023	03:30	9.78	9.50	2.50										
16-01-2023	17:15	10.75	10.50	2.80										
Chiselling					Installation				Water Strikes					
From (m)	To (m)	Duration	Remarks		Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
9.50	10.50	02:00							2.70	2.50		20	2.00	Medium

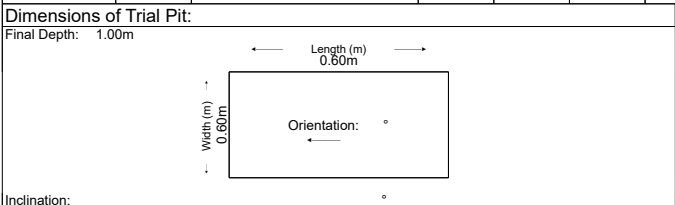
		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH08B					
		Contract Number: G221209	Date Started: 12/01/2023	Date Completed: 01/02/2023	Logged: ASH	Checked: IL	Status: FINAL	Sheet 3 of 3					
Rotary Core Drilling Log		Easting: 480184.2	Northing: 355450.4	Ground Level: 9.99m (OD)	Plant Used: Dando 2000/ Comacchio 405	Print Date: 19/05/2023	Scale: 1:50						
Weather: Variable		Rig Crew: David Grey		Termination: Scheduled Depth.		SPT Hammer: AR3543 Energy Ratio: 67%							
Samples & In Situ Testing					Strata Details					Groundwater			
Depth	Test Result / FI	TCR	SCR	RQD	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation			
								Very weak reddish brown partially weathered MUDSTONE with occasional randomly oriented gypsum veins (<10mm). Fracture are 0-5° extremely closely to medium spaced (NI/200/300) planar smooth and clean. (Partially Weathered Mercia Mudstone Grade II)	20				
20.50 - 22.00		100	100	53		(2.82)			21				
					-12.01	22.00		Moderately weak to medium strong reddish brown partially weathered MUDSTONE with occasional oriented gypsum veins (<10mm). Fracture are 0-5° extremely closely to medium spaced (NI/200/300) planar smooth with gypsum infill. (Partially Weathered Mercia Mudstone Grade II)	22				
22.00 - 23.50		100	100	79					23				
						(3.00)			24				
23.50 - 25.00		100	100	100					25				
					-15.01	25.00		End of Borehole at 25.000m	26				
									27				
									28				
									29				
Start & End of Shift Observations					Flush Information				Remarks:				
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Return %	Flush Type	Hand dug inspection pit to 1.2m bgl. Waterstrike encountered at 2.7m rising to 2m after 20 minutes. Backfilled with bentonite upon completion.				
					10.50	25.00	100	Air/Mist					
									Water Strike				
Borehole Diameter		Casing Diameter		Coring Information				Remarks					
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
25.00	120	10.50	141	10.50	11.50	102	Geobore S (146)						
				11.50	13.00	102							
				13.00	14.50	102							
Fracture Index (FI) - Fractures per meter, Fracture Spacing (IF) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %													

		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH09					
		Contract Number: G221209	Date Started: 03/11/2022	Date Completed: 11/11/2022	Logged: SA/ AS	Checked: IL	Status: FINAL	Sheet 3 of 3					
Rotary Core Drilling Log		Easting: 480058.0	Northing: 355179.6	Ground Level: 12.62m (OD)	Plant Used: Archway Dart/ Comacchio 602	Print Date: 19/05/2023	Scale: 1:50						
Weather: Overcast		Rig Crew: David Grey		Termination: Scheduled Depth.			SPT Hammer: AR3543 Energy Ratio: 67%						
Samples & In Situ Testing					Strata Details					Groundwater			
Depth	Test Result / FI	TCR	SCR	RQD	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation			
								Extremely weak becoming very weak with depth reddish brown MUDSTONE with 0 to 5 degrees and 40 to 60 degrees very closely to widely spaced (30/300/730) gypsum veins (<15mm). Discontinuities at 0 to 10 degrees are (60/200/250) planar smooth and clean (Partially Weathered Mercia Mudstone Grade II)	20				
20.50 - 22.00		83	63	53		(4.00)			21				
22.00 - 23.50		100	97	60	-9.98	22.60		Weak reddish brown MUDSTONE with very closely spaced (15/30/600) gypsum veins (<10mm). Discontinuities are (300/500/500) 5 to 10 degrees planar smooth and clean. (Unweathered Mercia Mudstone Grade I)	23				
23.50 - 25.00		100	100	93		(2.40)			24				
					-12.38	25.00		End of Borehole at 25.000m	25				
									26				
									27				
									28				
									29				
Start & End of Shift Observations					Flush Information				Remarks:				
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Return %	Flush Type	Hand dug inspection pit to 1.2m bgl. Waterstrike encountered at 3.1m rising to 2.3m after 20 minutes. Backfilled with bentonite upon completion.				
					11.10	16.00	100	Air/Mist					
					16.00	22.00	100	Air/Mist					
					22.00	25.00	100	Air/Mist					
Borehole Diameter					Casing Diameter		Water Strike						
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
25.00	115	20.00	127	11.10	11.50	102	Geobore S (146)						
				11.50	13.00	102							
				13.00	14.50								
Fracture Index (FI) - Fractures per meter, Fracture Spacing (IF) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %													



Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3BH09R	
Contract Number: G221209	Date Started: 31/01/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1	
Easting: 480058.0		Northing: 355179.0		Ground Level:	Plant Used: Hand tools	Date Printed: 19/05/2023
Weather: Cloudy		Stability: Stable		Services Encountered: None		Hole Termination: Scheduled Depth.

Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
1.00	ES			(0.30)		Soft dark brown sandy gravelly CLAY with occasional rootlets. Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz and sandstone.			
				0.30		Soft dark brown sandy CLAY. Sand is fine to medium.			
				(0.70)					
				1.00		End of Trial Pit at 1.000m	1		
							2		
							3		
							4		
							5		



Remarks:
Hand dug inspection pit. No waterstrike was encountered during the handpit. Backfilled with arisings upon completion. Coordinates inferred from OS mapping

Water Strike			
Depth Strike	Time (min)	Rose (m)	Remarks

STRATA GEOTECHNICS		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH10					
Contract Number: G221209		Date Started: 17/01/2023		Date Completed: 26/01/2023		Logged: ASH	Checked: IL	Status: FINAL					
Cable Percussion Borehole Log		Easting: 479786.0		Northing: 354776.6		Ground Level: 9.07m (OD)		Plant Used: Dando 2000/Comacchio 405	Print Date: 19/05/2023				
Weather: Variable		Rig Crew: David Grey		Termination: Scheduled Depth.			SPT Hammer: AR3543 Energy Ratio: 67%						
Samples & In Situ Testing				Strata Details				Groundwater					
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation					
0.00 - 0.30	B1			(0.30)		MADE GROUND: Soft to firm dark grey sandy CLAY with occasional roots & plastics. Sand is fine to coarse.							
0.30	D26		8.77	0.30		MADE GROUND: Concrete.							
0.30	ES25		8.72										
0.35 - 1.20	B2			(0.85)		MADE GROUND: Stiff reddish brown gravelly fine to coarse SAND with occasional plastics and concrete. Gravel is subangular to subrounded, fine to coarse of sandstone.							
1.20	D28	SPT(C) 1.20m, N=17	7.87	1.20									
1.20	ES27	(3,3/4,4,4,5)											
1.20 - 2.00	B3			(0.80)		Medium dense reddish brown slightly clayey very sandy subangular to subrounded, fine to coarse GRAVEL of mudstone. Sand is fine to coarse.							
2.00 - 3.00	B4	SPT(C) 2.00m, N=11	7.07	2.00		Medium dense to dense reddish brown very sandy subangular to subrounded fine to coarse GRAVEL of mudstone. Sand is fine to coarse.							
		(1,3/2,3,3,3)											
3.00 - 4.00	B5	SPT(C) 3.00m, N=13		(2.00)									
		(2,4/3,4,3,3)											
4.00 - 5.00	B6	SPT(C) 4.00m, N=15	5.07	4.00		Medium dense reddish brown very sandy subangular to subrounded fine to coarse GRAVEL of mudstone. Sand is fine to coarse.							
		(2,3/3,4,4,4)											
5.00 - 6.00	B7	SPT(C) 5.00m, N=24		(2.00)									
		(3,5/5,6,6,7)											
6.00 - 6.50	B8		3.07	6.00		Reddish brown gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of mudstone and sandstone.							
6.50 - 6.95	D9	SPT(S) 6.50m, N=15	2.57	6.50									
6.50 - 8.00	B10	(5,7/5,4,3,3)		(1.50)		Weak reddish brown mottled light grey sandy gravelly MUDSTONE. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of mudstone and sandstone. (Partially Weathered Mercia Mudstone Grade III)							
8.00 - 8.30	UT11	Ublows = 100	1.07	8.00		No Recovery - Driller notes normal drilling							
		Recovery = 0%		(0.50)									
8.50 - 8.95	D12	SPT(S) 8.50m, N=31	0.57	8.50		Weak reddish brown mottled light grey sandy gravelly MUDSTONE. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of mudstone and sandstone. (Partially Weathered Mercia Mudstone Grade III)							
8.50 - 9.50	B13	(6,6/7,7,8,9)		(1.00)		Weak reddish brown light grey gravelly MUDSTONE with occasional off white gypsum bands (<10mm). Gravel is angular to subangular, fine to coarse of mudstone. (Partially Weathered Mercia Mudstone Grade III)							
9.50 - 9.70	B14		-0.43	9.50									
9.70 - 10.00	B16	SPT(S) 9.70m, 50 (50	-0.63	9.70		Moderately weak reddish brown slightly sandy MUDSTONE. Sand is fine to coarse. (Partially Weathered Mercia Mudstone Grade III)							
9.70 - 9.76	D15	for 50mm/50 for 10mm)		(0.30)									
Start & End of Shift Observations			Borehole Diameter		Casing Diameter		Remarks:						
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)					
17-01-2023	07:30	0.00	0.00		20.50	120	9.20	141	Hand dug inspection pit to 1.2m bgl. Waterstrike encountered at 1.9m rising to 1.3m after 20 minutes. Backfilled with bentonite upon completion.				
17-01-2023	17:30	1.65	1.20										
18-01-2023	07:30	1.65	1.20										
18-01-2023	18:00	9.76	9.20	2.00									
19-01-2023	07:30	9.76	9.20	2.40									
19-01-2023	12:30	10.07	9.20	2.50									
Chiselling			Installation				Water Strikes						
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
9.70	10.00	01:00						1.90	1.80		20	1.30	Medium

STRATA GEOTECHNICS		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH11				
Contract Number: G221209		Date Started: 20/10/2022		Date Completed: 25/10/2022		Logged: SA	Checked: IL	Status: FINAL				
Rotary Core Drilling Log		Easting: 479348.3		Northing: 354664.5		Ground Level: 13.19m (OD)		Plant Used: Comacchio 405	Print Date: 19/05/2023			
Weather: Fine		Rig Crew: Garry Naylor		Termination: Scheduled Depth.			SPT Hammer: AR2833 Energy Ratio: 63%					
Samples & In Situ Testing					Strata Details					Groundwater		
Depth	Sample	Test Result	TCR	SCR	RQD	FI/IF	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation
0.20	ES1							(0.40)		MADE GROUND: Brownish grey silty fine to medium SAND.		
0.30 - 0.40	B2						12.79	0.40		MADE GROUND: Yellowish brown fine to medium SAND.		
0.40 - 0.50	B3											
0.50	ES											
1.00	ES5						12.29	0.90		MADE GROUND: Yellowish brown very sandy angular to rounded, fine to coarse GRAVEL of sandstone brick and mudstone. Sand is fine to medium.		
1.00 - 1.20	B6						11.99	1.20		Dense to very dense brown slightly clayey SAND & GRAVEL. Sand is fine to coarse. Gravel is subangular, fine to coarse of chert and quartzite.		
1.20 - 1.65	D7	SPT(S) 1.20m, N=38 (5,8/9,10,10,9)										
		SPT(C) 2.00m, 50 (10,15/50 for 120mm)						(1.80)				
2.30 - 2.70	B8									2.80 - 3.00: Sand and gravel becomes very clayey		
2.50	D9											
2.50	ES											
		SPT(C) 3.00m, 50 (8,17/50 for 135mm)					10.19	3.00		Very dense multicolored subrounded fine to coarse GRAVEL of chert and quartzite.		
3.50	D11											
3.75	D13											
3.75	ES12											
4.00	D14									3.90 - 4.15: Sand and gravel becomes clayey		
4.20 - 4.50	B15						9.64	3.55		Brown SAND & GRAVEL. Sand is fine to coarse. Gravel is subrounded, fine to coarse of chert and quartzite.		
4.25	D16											
4.50 - 4.80	B18						9.04	4.15		Firm dark brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine to medium of chert and coal.		
4.50 - 4.95	D17											
4.80	D19	SPT(S) 4.50m, N=38 (2,4/6,8,11,13)					8.69	4.50		Dense dark brown clayey SAND & GRAVEL. Sand is fine to coarse. Gravel is subrounded, fine to medium of chert and quartzite.		
5.10	D20									4.50 - 4.70: Sand and gravel becomes very clayey		
5.20 - 5.80	B21						8.09	5.10		Yellowish brown gravelly fine to coarse SAND. Gravel is subrounded, fine to medium of quartzite and chert		
5.61	D22											
		SPT(S) 6.00m, N=37 (3,5/7,8,10,12)					7.19	6.00		Dense yellowish brown SAND & GRAVEL. Sand is fine to coarse. Gravel is subrounded, fine to coarse of quartzite and chert		
6.00 - 6.45	D23											
6.50 - 7.00	B24											
6.75	D25											
		SPT(C) 7.50m, 50 (10,14/50 for 180mm)					5.69	7.50		7.30 - 8.00: Sand and gravel becomes very clayey		
7.50 - 8.00	B26									Very dense brown speckled black and light brown slightly silty slightly gravelly fine to medium SAND. Gravel is subrounded to rounded, fine to coarse of quartzite, basalt, granite and chert.		
7.60	D27											
		SPT(C) 9.00m, 50 (9,12/50 for 200mm)					5.13	8.06		Brown speckled light brown white and grey slightly silty SAND & GRAVEL. Sand is fine to coarse. Gravel is angular to rounded, fine to medium of quartzite, basalt, granite, chert, sandstone		
8.20	D29											
8.20 - 8.30	B28						4.70	8.49		Light brown to light grey, occasionally white, slightly sandy angular to rounded, fine to coarse GRAVEL of basalt, quartzite, sandstone and chert. Sand is fine to coarse		
8.80	D30											
8.80	D31											
		SPT(C) 9.00m, 50 (9,12/50 for 200mm)					3.89	9.30		Brown speckled light brown and light grey slightly silty slightly gravelly fine to coarse SAND. Gravel is angular to subangular, fine to of quartzite, basalt and granite.		
9.50	D32											
		SPT(C) 9.00m, 50 (9,12/50 for 200mm)					3.49	9.70		Greyish brown occasionally grey, slightly silty SAND & GRAVEL thinly interbedded with clayey sand and gravel. Sand is fine to coarse. Gravel is angular to rounded, fine to coarse of basalt, quartzite, sandstone.		
-10.00 - 10.50	B33											


Start & End of Shift Observations					Flush Return Information					Remarks:		
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour		
20-10-22	19:00	0.00	0.00	0.00	13.50	25.30	100	100	Air/ Mist	Brown	Hand dug inspection pit to 1.2m bgl. No waterstrike encountered during the drilling. Backfilled with bentonite upon completion.	
20-10-22	23:55	10.50	10.50									
21-10-22	20:00	10.50	10.50	3.75								
21-10-22	23:55	23.80	23.80	10.00								
24-10-22	19:30	23.80	23.80	5.20								
24-10-22	23:55	25.30	25.30	7.00								



Borehole Diameter		Casing Diameter		Coring Information			
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type
25.30	115	23.80	127	13.50	14.80	102	
				14.80	16.30	102	
				16.30	17.80	102	

Water Strike					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks


Fracture Index (FI) - Fractures per meter; Fracture Spacing (IF) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)

STRATA GEOTECHNICS		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH11						
Contract Number: G221209		Date Started: 20/10/2022		Date Completed: 25/10/2022		Logged: SA	Checked: IL	Status: FINAL						
Rotary Core Drilling Log		Easting: 479348.3		Northing: 354664.5		Ground Level: 13.19m (OD)		Plant Used: Comacchio 405						
Weather: Fine		Rig Crew: Garry Naylor		Termination: Scheduled Depth.			SPT Hammer: AR2833 Energy Ratio: 63%							
Samples & In Situ Testing					Strata Details					Groundwater				
Depth	Sample	Test Result	TCR	SCR	RQD	FI/If	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation		
10.50	D34	SPT(C) 10.50m, 50 (7,17/50 for 140mm)					2.69	(0.80)		Very dense brown to light brown occasionally black and white slightly silty slightly gravelly fine to coarse SAND thinly interbedded (100-150mm) greyish brown to brown occasionally white and grey silty slightly gravelly fine to coarse SAND. Gravel is angular to rounded, fine to medium.				
11.00 - 11.50	B35													
11.50	D36							(1.70)						
12.00 - 12.50	B37	SPT(C) 12.00m, 50 (8,17/50 for 152mm)					0.99	12.20		Brown occasionally white and grey slightly silty SAND & GRAVEL. Sand is fine to coarse. Gravel is subangular to rounded, fine to coarse of basalt, quartzite, sandstone and chert.				
12.50	D38						0.53	12.66						
13.00 - 13.50	B39	SPT(C) 13.00m, 50 (6,18/50 for 140mm)					0.09	13.10		Reddish brown occasionally greenish grey slightly sandy CLAY. Sand is fine to coarse. <i>12.80 - 13.10: Occasional pockets (<5mm) of greenish grey fine sand. (Reduction zone)</i>				
13.50	D40						(0.40)	13.50						
13.50 - 14.80	C41		92	55	0		-0.31	13.50		Extremely weak reddish brown MUDSTONE recovered non intact as clayey fine to medium gravel of mudstone. (Partially Weathered Mercia Mudstone - Grade III) <i>13.50 - 13.70: AZCL</i>				
							-0.68	13.87						
15.13 - 15.34	CSS43	UCS - 15.13m 4.4MPa					-1.84	15.03		Very weak reddish brown MUDSTONE with frequent thin laminations to very thin beds (2 to 60mm) of gypsum orientated from 0 to 90 degrees. Fracture sets could not be determined due to induced fractures. Recovery is indicative of closely to very closely spaced fractures. (Partially Weathered Mercia Mudstone - Grade III) <i>14.74 - 14.80: Gypsum Band</i> <i>14.80 - 15.03: Recovered non intact as clayey fine to medium gravel of mudstone.</i>				
14.80 - 16.30	C42			83	54	23		(1.27)						
16.30 - 17.80	C44		100	87	57		-3.11	16.30		Weak reddish brown MUDSTONE with occasional thin laminations to very thin beds (4 to 40mm) of gypsum orientated 0 to 90 degrees. Fractures at 0 to 15 degrees are very closely to closely spaced (30/70/120) undulating rough with no infill. (Partially Weathered Mercia Mudstone - Grade II) <i>15.80 - 15.75: Fracture at 75 degrees is undulating smooth.</i> <i>15.82 - 15.97: Fracture at 75 degrees is undulating smooth</i> <i>15.91: Reduction spot</i>				
17.47 - 17.61	CSS45													
17.80 - 19.30	C46		93	75	26		(4.50)			Medium strong reddish brown MUDSTONE with frequent thin laminations to very thin beds (1 to 55mm) of gypsum predominately at 0 degrees. Fractures at 0 to 10 degrees are very closely to medium spaced (40/110/220) undulating rough with no infill and rare reduction spots. Fractures at 25 to 35 degrees are closely to widely spaced (90/300/700) undulating rough with occasional clayey infill. (Partially Weathered Mercia Mudstone - Grade II) <i>16.30 - 19.30: Occasional reduction spots (1-5mm)</i>				
19.11 - 19.30	CSS47	Is50 - 19.11m 0.41MPa Is50 - 19.11m 0.71MPa												
Start & End of Shift Observations			Flush Return Information				Remarks:							
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour				
											Water Strike			
Borehole Diameter			Casing Diameter		Coring Information				Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
Depth (m)	Dia (mm)		Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)		Barrel Type					
					13.50	14.80	102							
					14.80	16.30	102							
					16.30	17.80	102							
Fracture Index (FI) - Fractures per meter; Fracture Spacing (If) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)														

		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH11					
		Contract Number: G221209	Date Started: 20/10/2022	Date Completed: 25/10/2022	Logged: SA	Checked: IL	Status: FINAL	Sheet 3 of 3					
Rotary Core Drilling Log		Easting: 479348.3	Northing: 354664.5	Ground Level: 13.19m (OD)	Plant Used: Comacchio 405	Print Date: 19/05/2023	Scale: 1:50						
Weather: Fine		Rig Crew: Garry Naylor		Termination: Scheduled Depth.			SPT Hammer: AR2833 Energy Ratio: 63%						
Samples & In Situ Testing					Strata Details					Groundwater			
Depth	Sample	Test Result	TCR	SCR	RQD	FI/IF	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation	
19.30 - 20.80	C48												
20.45 - 20.67	CSS49		93	88	72								
20.80 - 21.00	CSS41						-7.61	20.80		Very strong reddish brown frequently reduced to bluish grey MUDSOTNE with frequent thin laminations and very thin beds (1 to 30mm) of gypsum at 0 to 80 degrees. Fractures at 0 to 15 degrees are closely to medium spaced (50/150/340) undulating rough with no infill. (Partially Weathered Mercia Mudstone - Grade II) <i>21.74 - 21.84: Fracture at 45 degrees is planar smooth with no infill.</i>	21		
20.80 - 22.30	C50		100	91	72								
21.95 - 22.25	CSS42										22		
22.30 - 23.80	C43		91	91	67			(4.50)			23		
23.15 - 23.32	CSS44	Is50 - 23.15m 0.34MPa Is50 - 23.15m 0.59MPa									24		
23.80 - 25.30	C45		100	100	70						25		
24.80 - 25.30	CSS46						-12.11	25.30		End of Borehole at 25.30m	26		
											27		
											28		
											29		
											30		
Start & End of Shift Observations			Flush Return Information				Remarks:						
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour			
											Water Strike		
Borehole Diameter		Casing Diameter		Coring Information				Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type						
				13.50	14.80	102							
				14.80	16.30	102							
				16.30	17.80	102							
<small>Fracture Index (FI) - Fractures per meter; Fracture Spacing (IF) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)</small>													

		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH13						
		Contract Number: G221209	Date Started: 09/11/2022	Date Completed: 17/11/2022	Logged: PB/AH	Checked: IL	Status: FINAL	Sheet 3 of 3						
Rotary Core Drilling Log		Easting: 478082.4	Northing: 352887.0	Ground Level: 11.04m (OD)	Plant Used: Dando 2000/ Comacchio 602	Print Date: 19/05/2023	Scale: 1:50							
Weather: Showers		Rig Crew: David Grey		Termination: Scheduled Depth.		SPT Hammer: AR3543/AR2501			Energy Ratio: 67/56%					
Samples & In Situ Testing					Strata Details					Groundwater				
Depth	Test Result / FI	TCR	SCR	RQD	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation				
19.50 - 21.00		90	90	83		(6.50)		Very weak becoming weak reddish brown MUDSTONE with occasional randomly oriented gypsum veins (5 to 30mm). Discontinuities are closely spaced 0-5 degrees (80/200/100) planar smooth and clean (Partially Weathered Mercia Mudstone Grade II)	20					
21.00 - 22.50		97	93	90					21					
22.50 - 24.00		97	93	70					22					
24.00 - 25.00		100	100	70					23					
					-13.96	25.00		End of Borehole at 25.000m	24					
									25					
									26					
									27					
									28					
									29					
Start & End of Shift Observations					Flush Information				Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Return %	Flush Type	Hand dug inspection pit to 1.2m bgl. Waterstrike encountered at 2.3m rising to 1.9m after 20 minutes. Backfilled upon completion using bentonite. AR3543 used on CP SPT, AR2501 used on RO SPT.					
17-11-22	07:30	25.00	13.00	12.00	13.90	15.00	80	Air/Mist						
17-11-22	16:30	0.00	0.00		15.00	16.50	80	Air/Mist						
					16.50	17.00	80	Air/Mist						
					17.00	18.00	100	Air/Mist						
					18.00	19.50	100	Air/Mist	Water Strike					
					19.50	21.00	100	Air/Mist	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
Borehole Diameter		Casing Diameter		Coring Information										
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type							
13.83	200	13.50	200	13.90	15.00		Geobore S							
25.00	146	25.00	146	15.00	16.50		151							
				16.50	17.00			Fracture Index (FI) - Fractures per meter, Fracture Spacing (IF) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %						

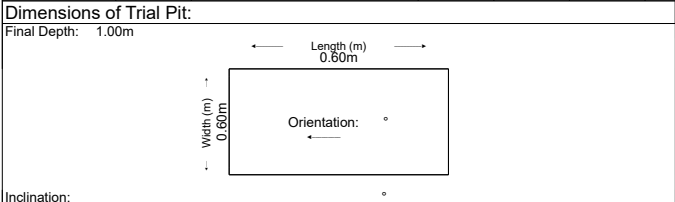
STRATA GEOTECHNICS		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH14					
Contract Number: G221209		Date Started: 27/10/2022		Date Completed: 07/11/2022		Logged: PB/ AH	Checked: IL	Status: FINAL	Sheet 1 of 3				
Cable Percussion Borehole Log		Easting: 478085.1		Northing: 352814.3		Ground Level: 11.54m (OD)		Plant Used: Dando 2000/ Comacchio 602	Print Date: 19/05/2023	Scale: 1:50			
Weather: Showers		Rig Crew: David Grey		Termination: Scheduled Depth.			SPT Hammer: AR3543/AR2501 Energy Ratio: 67/62%						
Samples & In Situ Testing				Strata Details					Groundwater				
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation					
0.00 - 0.30	B1			(0.30)		MADE GROUND. Dark brown very silty slightly gravelly fine to medium SAND. Gravel is subangular to subrounded, fine to medium of sandstone and mudstone with rare brick fragments.							
0.20	ES2		11.24	0.30									
0.30 - 0.60	B3												
0.50	ES4												
0.60 - 1.00	B5												
1.00	ES6			(0.90)		MADE GROUND: Orangish brown sandy subangular to subrounded, fine to coarse GRAVEL of sandstone and siltstone with rare brick fragments. Sand is fine to medium. <i>0.60 - 0.75: Coal fragments.</i>	1						
1.20 - 1.65	D8	SPT(S) 1.20m, N=16	10.34	1.20		Medium dense brown silty slightly gravelly fine to coarse SAND. Gravel is rounded, fine to medium of sandstone and mudstone.							
1.20 - 2.00	B7	(2,3/3,4,4,5)		(0.50)									
2.00 - 3.00	B9	SPT(C) 2.00m, N=19	9.84	1.70		Medium dense brown sandy subangular to rounded, fine to coarse GRAVEL of sandstone and mudstone. Sand is fine to coarse.	2						
		(2,4/4,6,4,5)											
3.00 - 4.00	B10	SPT(C) 3.00m, N=27				<i>2.80 - 4.20: Gravel becomes slightly sandy</i>	3						
		(3,5/7,6,7,7)											
4.00 - 5.00	B11	SPT(C) 4.00m, N=32				<i>4.00 - 4.45: Gravel is dense</i>	4						
		(4,4/8,8,7,9)		(5.20)									
5.00 - 5.40	B12	SPT(C) 5.00m, N=27					5						
5.40 - 5.50	D13												
5.50 - 6.00	B14												
6.00 - 6.45	D15	SPT(S) 6.00m, N=59				<i>6.00 - 6.90: Gravel is very dense</i>	6						
6.00 - 7.00	B16	(4,7/11,14,16,18)											
7.00 - 7.45	D17	SPT(S) 7.00m, N=28	4.64	6.90		Stiff red gravelly friable CLAY. Gravel is fine to coarse, subangular of mudstone (Fully Weathered Mercia Mudstone Grade III)	7						
7.00 - 8.00	B18	(3,4/6,7,7,8)											
8.00 - 8.34	D	SPT(S) 8.00m, 50					8						
8.00 - 8.34	D19	(6,6/50 for 190mm)											
8.00 - 9.00	B20			(5.60)									
9.00 - 9.40	D21	SPT(S) 9.00m, 50					9						
		(6,8/50 for 245mm)											
9.50	D22												
Start & End of Shift Observations			Borehole Diameter		Casing Diameter		Remarks:						
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)					
28-10-2022	07:30	0.00	0.00	0.00	15.60	140	15.00	150	Hand dug inspection pit to 1.2m bgl. Two waterstrikes were encountered during the drilling, first at 1.3m rising to 1.25m after 20 minutes and the second at 4.3m rising to 3.7m after 20 minutes. Backfilled with bentonite upon completion. AR3543 used on CP SPT, AR2501 used on RO SPT.				
28-10-2022	14:00	5.50	5.30	4.00	25.00	115							
31-10-2022	03:30	5.50	5.00	1.30									
31-10-2022	18:00	12.45	10.00	4.50									
01-11-2022	07:30	12.45	10.00	1.70									
01-11-2022	17:00	15.64	15.00	3.20									
Chiselling			Installation			Water Strikes							
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
15.00	15.30	01:00						1.30	0.00		20	1.25	Seepage Slow
								4.30	4.20		20	3.70	

		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH14						
		Contract Number: G221209	Date Started: 27/10/2022	Date Completed: 07/11/2022	Logged: PB/AH	Checked: IL	Status: FINAL	Sheet 3 of 3						
Rotary Core Drilling Log		Easting: 478085.1	Northing: 352814.3	Ground Level: 11.54m (OD)	Plant Used: Dando 2000/ Comacchio 602	Print Date: 19/05/2023	Scale: 1:50							
Weather: Showers		Rig Crew: David Grey		Termination: Scheduled Depth.		SPT Hammer: AR3543/AR2501		Energy Ratio: 67/62%						
Samples & In Situ Testing					Strata Details					Groundwater				
Depth	Test Result / FI	TCR	SCR	RQD	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation				
						(0.80)		Very weak grey MUDSTONE with occasional randomly oriented veins (<10mm) of gypsum. Discontinuities are 5 to 10° closely spaced (80/200/200) planar smooth and clean. (Partially Weathered Mercia Mudstone Grade II)	20					
20.50 - 22.00		100	100	67	-9.06	20.60		Extremely weak reddish brown mottled grey MUDSTONE. Discontinuities are 5 to 10° closely spaced (60/100/200), planar smooth and clean. (Partially Weathered Mercia Mudstone Grade II)	21					
22.00 - 23.50		100	100	64		(4.40)		22.60 - 25.00: Mudstone becomes very weak	22					
23.50 - 25.00		100	100	87					23					
					-13.46	25.00		End of Borehole at 25.00m	24					
									25					
									26					
									27					
									28					
									29					
Start & End of Shift Observations					Flush Information				Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Return %	Flush Type	Hand dug inspection pit to 1.2m bgl. Two waterstrikes were encountered during the drilling, first at 1.3m rising to 1.25m after 20 minutes and the second at 4.3m rising to 3.7m after 20 minutes. Backfilled with bentonite upon completion. AR3543 used on CP SPT, AR2501 used on RO SPT.					
					15.60	18.00	100	Water						
					18.00	21.00	100	Water						
					21.00	24.00	100	Water						
					24.00	25.00	100	Water						
									Water Strike					
Borehole Diameter		Casing Diameter		Coring Information				Strike (m)		Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type							
15.60	140	15.00	150	15.60	16.00		Geobore S							
25.00	115			16.00	17.50		151							
				17.50	19.00									
Fracture Index (FI) - Fractures per meter, Fracture Spacing (IF) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %														



Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3BH14R	
Contract Number: G221209	Date Started: 31/01/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1	
Easting: 478085.0		Northing: 352813.0		Ground Level:	Plant Used: Hand tools	Date Printed: 19/05/2023
Weather: Cloudy		Stability: Unstable		Services Encountered: None		Hole Termination: Scheduled Depth.


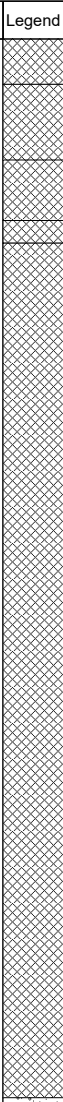

Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.20	ES			(0.30)		MADE GROUND: Soft dark brown sandy slightly gravelly CLAY with occasional rootlets. Sand is fine to medium. Gravel is angular to subrounded, fine to coarse of quartz and brick.			
0.50	ES			(0.40)		Soft brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subrounded to rounded, fine to coarse of quartz and sandstone.			
0.70				(0.30)		Brown sandy clayey subrounded to rounded, fine to coarse GRAVEL of quartz, sandstone and siltstone.			
1.00	ES			1.00		End of Trial Pit at 1.000m	1		
							2		
							3		
							4		
							5		



Remarks:


No waterstrike was encountered during the hand pit. Backfilled with arisings upon completion. Undertaken in close proximity to S3BH14. Coordinates inferred from OS mapping


Water Strike			
Depth Strike	Time (min)	Rose (m)	Remarks


		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH15				
		Contract Number: G221209	Date Started: 09/01/2023	Date Completed: 18/01/2023	Logged: ASH	Checked: IL	Status: FINAL	Sheet 1 of 4				
Rotary Core Drilling Log		Easting: 479829.9	Northing: 354764.0	Ground Level: 19.37m (OD)	Plant Used: Comacchio 405	Print Date: 19/05/2023	Scale: 1:50					
Weather: Freezing		Rig Crew: Garry Naylor		Termination: Scheduled Depth.			SPT Hammer: AR2833 Energy Ratio: 63%					
Samples & In Situ Testing					Strata Details					Groundwater		
Depth	Sample	Test Result	TCR	SCR	RQD	FI/IF	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation
0.00 - 0.30	B94							(0.30)		MADE GROUND: Soft dark brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to rounded, fine to coarse of sandstone, quartz and quartzite.		
0.20	ES92					19.07	0.30					
0.25	D93						(0.50)					
0.30 - 0.80	B97						0.80					
0.50	ES						(0.40)					
0.60	D96					18.57	0.80					
0.80 - 1.20	B99						(0.40)					
0.90	D98						1.20					
1.20	ES18					18.17	1.20					
1.35	D17		100				1.35					
1.20 - 1.50	L1								MADE GROUND: Dark brown sandy subangular to rounded fine to coarse GRAVEL of sandstone, quartz, limestone and quartzite. Sand is fine to coarse.	1		
1.50	D19											
1.50	ES20											
2.20	ES21		100							MADE GROUND: Dark brown silty sandy subrounded to rounded, fine to coarse GRAVEL of quartz and sandstone. Sand is fine to coarse.	2	
1.50 - 3.00	L2											
2.30	D22											
2.50 - 3.00	B23									MADE GROUND: Firm black sandy slightly gravelly CLAY. Gravel is angular to rounded, fine to coarse of quartz and brick. Sand is fine to coarse.	3	
3.00	D24											
3.00 - 3.30	B43											
3.40	D44									4		
3.50	ES45											
3.50 - 4.00	B25		100									
3.00 - 4.50	L3									5		
4.10	D26											
4.20	ES27						(5.65)					
5.00 - 5.40	B28									6		
4.50 - 6.00	L4		100									
5.50	D29											
5.60	ES30									7		
6.50 - 6.80	B31											
6.00 - 7.50	L5		100									
6.90	D32									8		
6.90 - 7.40	ES											
7.00	ES33					12.37	7.00					
7.00 - 7.30	B34									Dense orangish brown silty sandy subrounded to rounded, fine to coarse GRAVEL of quartz. Sand is fine to coarse.	7	
7.40	D35											
7.50	ES36											
7.50 - 7.95	D6									8		
8.00 - 8.30	B37	SPT(S) 7.50m, N=36 (7,6/7,9,10,10)										
7.50 - 9.00	L7		100									
8.40	D38									9		
8.50	ES39											
9.00 - 9.45	D8											
9.50 - 9.80	B40	SPT(S) 9.00m, N=46 (13,11/10,10,12,14)								10		
9.00 - 10.50	L9		100									
9.90	D41											
10.00	ES42											






Start & End of Shift Observations				Flush Return Information						Remarks:			
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour			
09-01-23	19:00	0.00	0.00								Hand dug inspection pit to 1.2m bgl. No waterstrike were encountered during the drilling. Backfilled with bentonite upon completion.		
09-01-23	23:55	3.00	3.00										
10-01-23	19:00	3.00	3.00										
10-01-23	23:55	10.50	10.50										
11-01-23	19:30	10.50	10.50										
11-01-23	23:55	15.45	15.00										
Borehole Diameter		Casing Diameter		Coring Information				Water Strike					
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
33.00	107	19.50	127	21.00	22.50								
				22.50	24.00								
				24.00	25.50								

Fracture Index (FI) - Fractures per meter; Fracture Spacing (IF) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)

	Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH15						
	Contract Number: G221209	Date Started: 09/01/2023	Date Completed: 18/01/2023	Logged: ASH	Checked: IL	Status: FINAL	Sheet 2 of 4						
Rotary Core Drilling Log	Easting: 479829.9	Northing: 354764.0	Ground Level: 19.37m (OD)	Plant Used: Comacchio 405	Print Date: 19/05/2023	Scale: 1:50							
	Weather: Freezing		Rig Crew: Garry Naylor	Termination: Scheduled Depth.			SPT Hammer: AR2833 Energy Ratio: 63%						
Samples & In Situ Testing							Strata Details				Groundwater		
Depth	Sample	Test Result	TCR	SCR	RQD	FI/IF	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation	
10.50 - 10.95	D10	SPT(S) 10.50m, N=48 (10,13/12,10,14,12)	100				8.57	10.80 (0.40)		Dark brown silty slightly gravelly fine to coarse SAND. Gravel is angular to subangular, fine to coarse of quartz and flint.	11		
10.80 - 11.00	B46												
11.20	D47												
11.20 - 11.80	B48												
10.50 - 12.00	L11	SPT(S) 12.00m, N=11 (4,4/4,3,2,2)	83				6.97	12.40 (1.10)		Medium dense orangish brown subrounded to rounded, fine to coarse GRAVEL of quartz.	12		
12.00	D49												
12.00 - 12.30	B50												
12.00 - 12.45	D12												
12.40	D51	SPT(S) 13.50m, N=13 (1,1/1,2,4,6)	97				5.67	13.70 (1.30)		Medium dense orangish brown subrounded to rounded, fine to coarse GRAVEL of quartz. Orangish brown silty very sandy subrounded to rounded, fine to coarse GRAVEL of quartz. Sand is fine to coarse.	14		
12.40 - 13.40	B52												
12.00 - 13.50	L13												
13.50	D53												
13.50 - 13.95	D14	SPT(S) 15.00m, N=40 (3,8/8,10,10,12)	100				4.37	15.00 (3.00)		Very stiff thinly laminated reddish brown slightly sandy CLAY. Sand is fine to coarse. (Fully Weathered Mercia Mudstone Grade Ivb)	15		
14.00 - 14.40	B54												
13.50 - 15.00	L15												
14.50	D55												
15.00 - 15.45	D16	SPT(S) 16.50m, N=26 (6,3/6,6,6,8)	100				1.37	18.00 (1.00)		Firm reddish brown thinly laminated slightly sandy CLAY. Sand is fine to coarse. (Fully Weathered Mercia Mudstone Grade Ivb)	18		
15.00 - 16.50	L												
16.00 - 16.40	B56												
16.50	D57												
17.00 - 17.40	B58	SPT(S) 18.00m, N=29 (3,7/7,8,7,7)	100				0.37	19.00 (1.50)		Very stiff thinly laminated reddish brown slightly sandy slightly gravelly CLAY. Gravel is angular, fine to coarse of mudstone and gypsum. Sand is fine to coarse. (Partially Weathered Mercia Mudstone Grade IvA)	19		
16.50 - 18.00	L												
17.50	D59												
18.00 - 18.40	B60												
18.00 - 19.50	L	SPT(S) 19.50m, N=50 (13,12/34,16,0,0)											
19.00 - 19.40	B62												
19.50	D63												
20.00 - 20.40	B64												
Start & End of Shift Observations				Flush Return Information				Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour			
12-01-23	08:00	15.45	15.00										
12-01-23	17:00	21.00	19.50	8.00									
13-01-23	08:00	21.00	19.50	8.00									
13-01-23	17:00	24.00	19.50	10.00									
16-01-23	08:00	24.00	19.50	10.00									
16-01-23	17:00	30.00	19.50	10.00									
Borehole Diameter		Casing Diameter		Coring Information				Water Strike					
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
				21.00	22.50								
				22.50	24.00								
				24.00	25.50								
<small>Fracture Index (FI) - Fractures per meter; Fracture Spacing (IF) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)</small>													

	Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3BH15						
	Contract Number: G221209	Date Started: 09/01/2023	Date Completed: 18/01/2023	Logged: ASH	Checked: IL	Status: FINAL	Sheet 3 of 4						
Rotary Core Drilling Log	Easting: 479829.9	Northing: 354764.0	Ground Level: 19.37m (OD)	Plant Used: Comacchio 405	Print Date: 19/05/2023	Scale: 1:50							
	Weather: Freezing		Rig Crew: Garry Naylor	Termination: Scheduled Depth.		SPT Hammer: AR2833 Energy Ratio: 63%							
Samples & In Situ Testing							Strata Details				Groundwater		
Depth	Sample	Test Result	TCR	SCR	RQD	FI/IF	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation	
19.50 - 21.00	L		100										
20.50	D65						-1.13	20.50		Extremely weak reddish brown MUDSTONE with occasional gypsum bands (<80mm). (Partially Weathered Mercia Mudstone Grade III)			
20.50 - 20.90	B66							(0.50)					
21.00	D67						-1.63	21.00		Moderately weak reddish brown MUDSTONE with extremely closely to very closely spaced gypsum veins 20-30°. Fractures are 0-5° closely spaced (100/100/200) planar smooth and clean. (Partially Weathered Mercia Mudstone Grade II)	21		
21.20 - 21.40	CSS68												
21.00 - 22.50	C84		87	83	60						22		
22.20 - 22.32	CSS69												
23.10 - 23.30	CSS70							(3.90)			23		
22.50 - 24.00			93	93	73								
23.80 - 24.00	CSS71									24.00 - 24.20: Moderately weak dark green greyish MUDSTONE.	24		
24.70 - 24.80	CSS72		100	95	80								
24.00 - 25.50	C86						-5.53	24.90		Medium strong reddish brown MUDSTONE with extremely to very closely spaced gypsum veins 20-30°. Fracture are 0-5° closely spaced to medium spaced (100/100/300) planar smooth and clean. (Partially Weathered Mercia Mudstone Grade II)	25		
25.20 - 25.48	CSS73							(0.75)					
26.10 - 26.20	CSS74						-6.28	25.65		25.55 - 25.65: Moderately weak dark green greyish MUDSTONE.	26		
25.50 - 27.00	C87		97	90	61			(0.75)		Very weak reddish brown partially weathered MUDSTONE with extremely closely to very closely spaced gypsum veins 20-30°. Fracture are 0-5° very closely to closely spaced (30/30/120) planar smooth and clean. (Partially Weathered Mercia Mudstone Grade II)			
26.80 - 27.00	CSS75							(0.70)					
27.20 - 27.50	CSS76						-7.03	26.40		Medium strong reddish brown partially weathered MUDSTONE with extremely to very closely spaced gypsum veins 20-30°. Fracture are 0-5° closely spaced to medium spaced (250/250/350) planar smooth and clean. (Partially Weathered Mercia Mudstone Grade II)	27		
27.00 - 28.50	C88		93	90	73			(1.30)		26.68 - 26.75: Extremely weak reddish brown mudstone.			
28.20 - 28.40	CSS77									Medium strong grey partially weathered MUDSTONE with extremely to very closely spaced gypsum veins 20-30°. Fracture are 0-5° medium to widely spaced (250/700/700) planar smooth and clean. (Partially Weathered Mercia Mudstone Grade II)	28		
28.60 - 28.90	CSS78												
28.50 - 30.00	C89		97	97	83			(1.70)			29		
29.40 - 29.65	CSS79										30		
Start & End of Shift Observations			Flush Return Information				Remarks:						
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour			
17-01-23	08:00	30.00	19.50	10.00									
17-01-23	17:00	33.00	19.50	10.00									
Borehole Diameter			Casing Diameter		Coring Information				Water Strike				
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
				21.00	22.50								
				22.50	24.00								
				24.00	25.50								
Fracture Index (FI) - Fractures per meter; Fracture Spacing (IF) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)													

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP06
	Contract Number: G221209	Date Started: 01/02/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 478110.8	Northing: 353539.5	Ground Level: 10.43mOD	Plant Used: Excavator 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Cloudy		Stability: Unstable		Services Encountered: None		Hole Termination: Excavation instability.

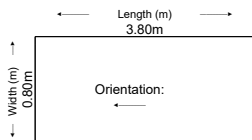
Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.00 - 0.20 0.20	B1 ES2			(0.40)		TOPSOIL: Soft dark brown sandy CLAY with occasional rootlets. Sand is fine to medium.			
0.50 0.50	D3 ES4		10.03	0.40		Soft brown sandy CLAY. Sand is fine to medium.			
1.00 1.00 1.00	B5 D7 ES6		9.23	1.20 (0.40)		Multicoloured silty fine to coarse SAND.	1		
1.60 1.60	B8 D9		8.83	1.60		End of Trial Pit at 1.60m	2		
							3		
							4		
							5		

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 1.60m




Inclination: °

Remarks:

Machine excavated trial pit. Waterstrike encountered at 1.6m rising to 1.5m after 20 minutes. Backfilled with arisings upon completion.

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks
1.60	20	1.50	

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP07
	Contract Number: G221209	Date Started: 01/02/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 477874.6	Northing: 353333.7	Ground Level: 11.31mOD	Plant Used: Excavator 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Cloudy		Stability: Unstable		Services Encountered: None		Hole Termination: Excavation instability.

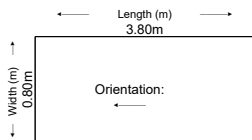
Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.00 - 0.20	B1					TOPSOIL: Soft dark brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded, fine to medium of quartz and sandstone.			
0.20	ES2		11.01	(0.30)					
0.50	D3			0.30		Soft brown sandy CLAY. Sand is fine to medium.			
0.50	ES4								
1.00	B5			(1.30)			1		
1.00	D7								
1.00	ES6								
1.70	B8		9.71	1.60		Brown mottled grey slightly gravelly silty fine to medium SAND. Gravel is subrounded to rounded, fine to medium of quartz.			
1.70	D9		9.51	1.80					
2.00	B10		9.31	2.00		Soft grey mottled black sandy SILT. Sand is fine to medium.			
2.00	D11		9.21	2.10					
						Greyish brown SAND and GRAVEL. Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz and siltstone.	2		
						End of Trial Pit at 2.10m			
							3		
							4		
							5		

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 2.10m





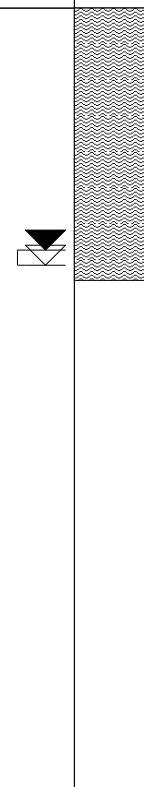



Inclination: °

Remarks:

Machine excavated trial pit. Waterstrike encountered at 2.1m rising to 2.05m after 20 minutes. Backfilled with arisings upon completion.

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks
2.10	20	2.05	

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP08
	Contract Number: G221209	Date Started: 01/02/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 477882.0	Northing: 352998.2	Ground Level: 11.11mOD	Plant Used: Excavator 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Cloudy		Stability: Unstable		Services Encountered: None		Hole Termination: Excavation instability.

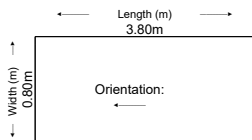
Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.00 - 0.20 0.20	B1 ES2			(0.40)		TOPSOIL: Soft dark brown sandy CLAY with occasional rootlets. Sand is fine to medium.			
0.50 0.50	D3 ES4		10.71	0.40 (0.60)		Soft brown mottled orange sandy CLAY. Sand is fine to medium.			
1.00 1.00 1.00	B5 D7 ES6		10.11	1.00 (0.60)		Brown mottled black and orange silty fine to coarse SAND.			
1.80 1.80	B8 D9		9.51 9.31	1.60 1.80		Greyish brown SAND and GRAVEL. Sand is fine to coarse. Gravel is subrounded to rounded, fine to coarse of quartz, sandstone and siltstone.			
						End of Trial Pit at 1.80m			

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 1.80m







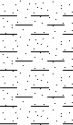


Inclination: °

Remarks:

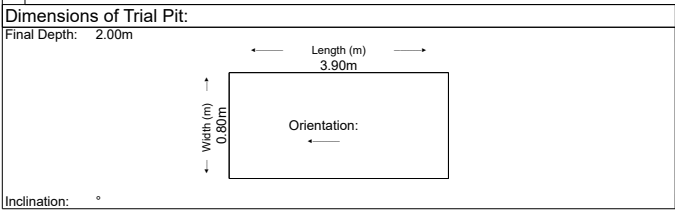
Machine excavated trial pit. Waterstrike encountered at 1.7m rising to 1.6m after 20 minutes. Backfilled with arisings upon completion.

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks
1.70	20	1.60	

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP10
	Contract Number: G221209	Date Started: 01/02/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 477805.8	Northing: 353164.8	Ground Level: 11.37mOD	Plant Used: Excavator 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Cloudy		Stability: Unstable		Services Encountered: None		Hole Termination: Excavation instability.


Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.00 - 0.20 0.20	B1 ES2			(0.40)		TOPSOIL: Soft dark brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz and sandstone.		
0.50 0.50	D3 ES4		10.97	0.40		Soft brown sandy CLAY. Sand is fine to medium.		
1.00 1.00 1.00	B5 D7 ES6			(1.40)			1	
2.00 2.00	B8 D9		9.57 9.37	1.80 2.00		Greyish brown SAND and GRAVEL. Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz, quartzite and sandstone. End of Trial Pit at 2.00m	2	
							3	
							4	
							5	





Trial Pit Photographs/Sketches



Remarks:
Machine excavated trial pit. Waterstrike encountered at 2m rising to 1.95m after 20 minutes. Backfilled with arisings upon completion.

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks
2.00	20	1.95	

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP12
	Contract Number: G221209	Date Started: 01/02/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 477735.9	Northing: 353400.0	Ground Level: 11.28mOD	Plant Used: Excavator 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Cloudy		Stability: Unstable		Services Encountered: None		Hole Termination: Excavation instability.

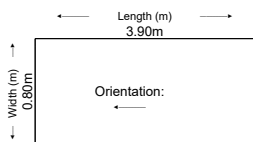
Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.00 - 0.20 0.20	B1 ES2		11.08	0.20		TOPSOIL: Soft dark brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded, fine to medium of quartz and sandstone.	1		
0.50 0.50	D3 ES4			(2.20)		Soft brown sandy CLAY with occasional rootlets. Sand is fine to medium.			2
1.00 1.00 1.00	B5 D6 ES7		8.88 8.78	2.40 2.50		Very soft greenish sandy CLAY. Sand is fine to coarse. End of Trial Pit at 2.50m	3		
2.40 2.40	B8 D9						4		
							5		

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 2.50m








Inclination: °

Remarks:

Machine excavated trial pit. Waterstrike encountered at 2.4m rising to 2.35m after 20 minutes. Backfilled with arisings upon completion.

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks
2.40	20	2.35	

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP17
	Contract Number: G221209	Date Started: 25/01/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 481931.0	Northing: 356478.5	Ground Level: 18.44mOD	Plant Used: Excavator 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Overcast		Stability: Unstable		Services Encountered: None		Hole Termination: Excavation instability.

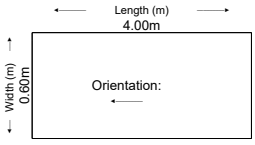
Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.00 - 0.10	B5			(0.40)		TOPSOIL: Dark brown slightly gravelly, silty fine to coarse SAND with occasional rootlets. Gravel is subrounded to rounded, fine to coarse of quartz and sandstone.		
0.10	D4		18.04	0.40			Yellowish brown gravelly fine to coarse SAND. Gravel is subrounded to rounded, fine to coarse of quartz and sandstone.	
0.20	ES1			(0.60)				
0.50	ES2							
1.00	B7		17.44	1.00		Orangish brown gravelly fine to coarse SAND. Gravel is subrounded to rounded, fine to coarse of quartz and sandstone.	1	
1.00	D6							
				(1.30)				
2.00	B9		16.14	2.30		End of Trial Pit at 2.30m	2	
2.00	D8							
2.00	ES3							
							3	
							4	
							5	

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 2.30m



Inclination: °

Remarks:

Machine excavated trial pit. No waterstrike was encountered during the drilling. Backfilled with arisings upon completion.

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP18
	Contract Number: G221209	Date Started: 03/02/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 481659.1	Northing: 356221.1	Ground Level: 17.27mOD	Plant Used: JCB 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Cloudy		Stability: Unstable		Services Encountered: None		Hole Termination: Excavation instability.

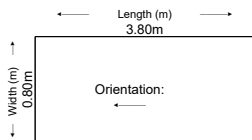
Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.00 - 0.20 0.20	B4 ES1			(0.50)		TOPSOIL: Soft dark brown sandy gravelly CLAY with occasional rootlets. Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz and sandstone.			
0.50 0.50	D5 ES2		16.77	0.50		Yellowish brown SAND and GRAVEL. Sand is fine to coarse. Gravel is subrounded to rounded, fine to coarse of quartz, quartzite, sandstone and siltstone.	1		
1.00 1.00 1.00	B6 D7 ES3			(2.00)					
2.00 2.00	B8 D9						2		
2.50 2.50	B10 D11		14.77	2.50		End of Trial Pit at 2.50m	3		
							4		
							5		

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 2.50m








Inclination: °

Remarks:

Machine excavated trial pit. No waterstrike was encountered during the drilling. Backfilled with gravel and installed with standpipes to allow infiltration tests to be undertaken.

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP19
	Contract Number: G221209	Date Started: 06/02/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 481775.6	Northing: 356316.4	Ground Level: 18.42mOD	Plant Used: JCB 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Cloudy		Stability: Stable		Services Encountered: None		Hole Termination: Scheduled Depth.

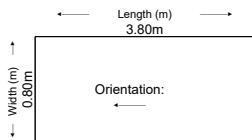
Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.00 - 0.20 0.20	B4 ES1			(0.50)		TOPSOIL: Soft dark brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz and sandstone.			
0.50 0.50	D5 ES2		17.92	0.50 (0.50)		Brown slightly gravelly fine to medium SAND. Gravel is subrounded to rounded, fine to coarse of quartz, sandstone and siltstone.			
1.00 1.00 1.00	B6 D7 ES3		17.42	1.00		Brown gravelly fine to coarse SAND. Gravel is subrounded to rounded, fine to coarse of quartz, sandstone and siltstone.	1		
2.00 2.00	B8 D9			(2.00)			2		
3.00 3.00	B10 D11		15.42	3.00		End of Trial Pit at 3.00m	3		
							4		
							5		

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 3.00m



Inclination: °

Remarks:

Machine excavated trial pit. No waterstrike was encountered during the drilling. Backfilled with gravel and installed with standpipes to allow infiltration tests to be undertaken.

Water Strike

Strike	Time (mins)	Rose to (m)	Remarks

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP21
	Contract Number: G221209	Date Started: 13/01/2023	Logged By: KA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 481374.0	Northing: 355934.6	Ground Level: 13.08mOD	Plant Used: Excavator 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Fine		Stability: Stable		Services Encountered: None		Hole Termination: Scheduled Depth.

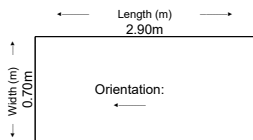
Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.00 - 0.10 0.20	B4 ES1		12.88	0.20		TOPSOIL: Soft dark brown sandy gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded, fine to medium of quartz, sandstone and siltstone.		
0.50 0.50	D5 ES					Soft to firm reddish brown mottled grey sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded, fine to medium of quartz and sandstone.		
1.00 1.00 1.00	B6 D7 ES3			(2.80)			1	
2.00 2.00	B8 D9						2	
3.00 3.00	B10 D11		10.08	3.00		End of Trial Pit at 3.00m	3	
							4	
							5	

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 3.00m




Inclination: °







Remarks:

Machine excavated trial pit. No waterstrike was encountered during the drilling. Backfilled with arisings upon completion.

Water Strike

Strike	Time (mins)	Rose to (m)	Remarks

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP22
	Contract Number: G221209	Date Started: 07/02/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 481077.5	Northing: 355921.8	Ground Level: 10.74mOD	Plant Used: JCB 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Cloudy		Stability: Stable		Services Encountered: None		Hole Termination: Scheduled Depth.

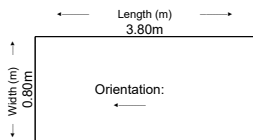
Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.00 - 0.20 0.20	B4 ES1			(0.40)		TOPSOIL: Soft dark brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz and sandstone.		
0.50 0.50	D5 ES2		10.34	0.40		Brown slightly gravelly fine to coarse SAND. Gravel is subrounded to rounded, fine to coarse of quartz, sandstone and siltstone.		
1.00 1.00 1.00	B6 D7 ES3			(2.10)			1	
2.00 2.00	B8 D9						2	
3.00 3.00	B10 D11		8.24	2.50		Soft brown sandy CLAY. Sand is fine to medium.		
			7.74	3.00		End of Trial Pit at 3.00m	3	
							4	
							5	

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 3.00m




Inclination: °


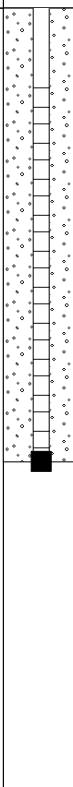




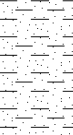


Remarks:

Machine excavated trial pit. No waterstrike was encountered during the drilling. Backfilled with arisings upon completion. Backfilled with gravel and installed with standpipes to allow infiltration tests to be undertaken.

Water Strike

Strike	Time (mins)	Rose to (m)	Remarks

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP23
	Contract Number: G221209	Date Started: 13/01/2023	Logged By: KA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 480926.4	Northing: 356032.6	Ground Level: 14.22mOD	Plant Used: Excavator 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Fine		Stability: Stable		Services Encountered: None		Hole Termination: Scheduled Depth.

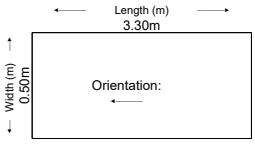
Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.00 - 0.10	B4			(0.35)		TOPSOIL: Soft dark brown sandy slightly gravelly CLAY with frequent roots and rootlets (>1mm). Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz and sandstone. Light brown gravelly fine to medium SAND. Gravel is subrounded to rounded, fine to medium of quartz, sandstone and siltstone.			
0.10	D8								
0.20	ES1		13.87	0.35					
0.30	D9								
0.50	ES								
1.00	B5			(1.15)		1			
1.00	D10								
1.00	ES3								
1.50	D11		12.72	1.50		Yellowish brown fine to medium SAND.			
2.00	B6		12.52	1.70		Soft to firm reddish brown slightly sandy CLAY. Sand is fine to medium.	2		
2.00	D12								
				(1.20)					
3.00	B7		11.32	2.90		Extremely weak to very weak reddish brown highly weathered MUDSTONE recovered as slightly sandy clayey gravel of mudstone. End of Trial Pit at 3.00m	3		
3.00	D13		11.22	3.00					
							4		
							5		

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 3.00m








Inclination: °

Remarks:

Machine excavated trial pit. Waterstrike encountered at 3.1m rising to 3.05m after 20 minutes. Backfilled with gravel and installed with standpipes to allow infiltration tests to be undertaken.

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks
3.10	20	3.05	

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP24
	Contract Number: G221209	Date Started: 13/01/2023	Logged By: KA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 480737.7	Northing: 356093.2	Ground Level: 11.06mOD	Plant Used: Excavator 3CX	Date Printed: 19/05/2023	Scale: 1:50
	Weather: Fine		Stability: Stable		Services Encountered: None	
				Hole Termination: Scheduled Depth.		

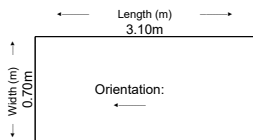
Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.10 0.20 0.30 0.50	B4 ES D8 ES2		10.76	(0.30) 0.30		TOPSOIL: Soft dark brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz and sandstone.			
1.00 1.00	B5 D9			(1.70)		Brown gravelly fine to medium SAND. Gravel is subrounded to rounded, fine to coarse of quartz and sandstone.	1		
2.00 2.00 2.00	B6 D10 ES		9.06	2.00 (0.80)		Soft to firm reddish brown sandy CLAY. Sand is fine to medium.	2		
3.00 3.00	B7 D11		8.26 8.06	2.80 3.00		Extremely weak to very weak reddish brown highly weathered MUDSTONE recovered as slightly sandy clayey, gravel of mudstone.	3		
						End of Trial Pit at 3.00m	4		
							5		

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 3.00m





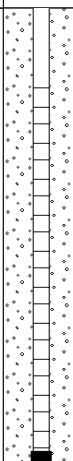




Inclination: °

Remarks:

Machine excavated trial pit. No waterstrike was encountered during the drilling. Backfilled with arisings upon completion.

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP25
	Contract Number: G221209	Date Started: 08/02/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 480519.5	Northing: 356074.1	Ground Level: 13.78mOD	Plant Used: JCB 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Cloudy		Stability: Stable		Services Encountered: None		Hole Termination: Scheduled Depth.

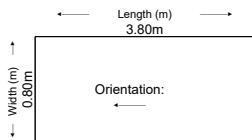
Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.20 0.20	B1 ES2		13.38	(0.40)		TOPSOIL: Soft dark brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz and sandstone.	1		
0.50 0.50	D3 ES4			(1.10)		Firm locally stiff brown sandy CLAY. Sand is fine to medium.			
1.00 1.00 1.00	B5 D7 ES6		12.28	1.50		Extremely weak to weak brown highly weathered MUDSTONE recovered as sandy subrounded to rounded, fine to coarse gravel of quartz and sandstone. Sand is fine to medium.	2		
2.00 2.00	B8 D9			(1.50)					
3.00 3.00	B10 D11		10.78	3.00		End of Trial Pit at 3.00m	3		
							4		
							5		

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 3.00m




Inclination: °







Remarks:

Machine excavated trial pit. No waterstrike was encountered during the drilling. Backfilled with gravel and installed with standpipes to allow infiltration tests to be undertaken.

Water Strike

Strike	Time (mins)	Rose to (m)	Remarks

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP26
	Contract Number: G221209	Date Started: 08/02/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 480702.4	Northing: 356453.8	Ground Level: 8.63mOD	Plant Used: JCB 3CX	Date Printed: 19/05/2023	Scale: 1:50
	Weather: Cloudy		Stability: Stable		Services Encountered: None	
						Hole Termination: Scheduled Depth.

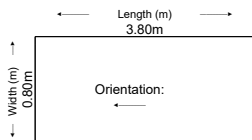
Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.00 - 0.20	B4			(0.30)		TOPSOIL: Soft dark brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz and sandstone.			
0.20	ES1		8.33	0.30					Soft brown slightly sandy CLAY. Sand is fine to medium.
0.50	D5			(2.20)			1		
0.50	ES2								
1.00	B6								
1.00	D7						2		
1.00	ES3								
2.00	B8								
2.00	D9					Soft grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subrounded to rounded, fine to coarse of quartz, sandstone and siltstone.	3		
2.80	B10		6.13	2.50					
2.80	D11		5.83	(0.30)					
3.00	B12					Greyish brown sandy subrounded to rounded, fine to coarse GRAVEL of quartz, sandstone and siltstone. Sand is fine to coarse.	4		
3.00	D13		5.63	2.80					
3.00	D13			3.00					
							End of Trial Pit at 3.00m	5	

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 3.00m







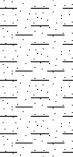


Inclination: °

Remarks:

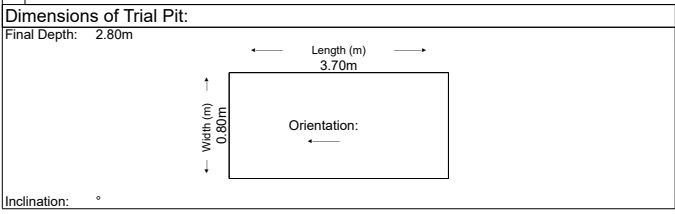
Machine excavated trial pit. Waterstrike encountered at 2.9m rising to 2.8m after 20 minutes. Backfilled with gravel and installed with standpipes to allow infiltration tests to be undertaken.

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks
2.90	20	2.80	

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP27
	Contract Number: G221209	Date Started: 01/02/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 477757.2	Northing: 352891.6	Ground Level: 11.36mOD	Plant Used: Excavator 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Cloudy		Stability: Unstable		Services Encountered: None		Hole Termination: Excavation instability.

Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.00 - 0.20 0.20	B1 ES2			(0.40)		TOPSOIL: Soft dark brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz, sandstone and siltstone.			
0.50 0.50	D3 ES4		10.96	0.40		Soft brown mottled orange sandy CLAY. Sand is fine to medium.			
1.00 1.00 1.00	B5 D7 ES6			(1.60)			1		
2.00 2.00	B8 D9		9.36	2.00		Grey silty fine to coarse SAND.	2		
2.80 2.80	B10 D11		8.76 8.56	2.60 2.80		Grey SAND and GRAVEL. Sand is fine to coarse. Gravel is subrounded to rounded, fine to coarse of quartz, sandstone and siltstone.	3		
						End of Trial Pit at 2.80m			
							4		
							5		


Trial Pit Photographs/Sketches







Remarks:

Machine excavated trial pit. Waterstrike encountered at 2.8m rising to 2.73m after 20 minutes. Backfilled with arisings upon completion.

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks
2.80	20	2.73	

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP28
	Contract Number: G221209	Date Started: 31/01/2023	Logged By: EL	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 477953.4	Northing: 352903.2	Ground Level: 11.20mOD	Plant Used: 3CX Excavator	Date Printed: 19/05/2023	Scale: 1:50
Weather: Clear		Stability: Unstable		Services Encountered: None		Hole Termination: Excavation instability

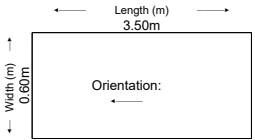
Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.00 - 0.20	B4			(0.30)		TOPSOIL: Soft dark brown sandy CLAY. Sand is fine to medium.			
0.20	ES1		10.90	0.30		Soft brown sandy CLAY. Sand is fine to medium.			
0.50	D5			(0.90)					
0.50	ES2								
1.00	B6			1.20		Soft brown mottled grey sandy silty CLAY. Sand is fine to coarse.	1		
1.00	D7		10.00	1.20					
1.00	ES3		9.80	1.40		End of Trial Pit at 1.40m			
							2		
							3		
							4		
							5		

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 1.40m








Inclination: °

Remarks:

Machine excavated trial pit. Waterstrike encountered at 1.4m rising to 1.3m after 20 minutes. Backfilled with arisings upon completion.

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks
1.40	20	1.30	

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP29
	Contract Number: G221209	Date Started: 30/01/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 478284.4	Northing: 353386.6	Ground Level: 10.41mOD	Plant Used: Excavator 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Overcast		Stability: Unstable		Services Encountered: None		Hole Termination: Excavation instability.

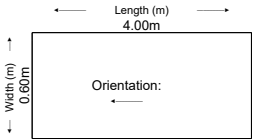
Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.00 - 0.20	B4			(0.35)		TOPSOIL: Soft dark brown sandy CLAY with occasional rootlets. Sand is fine to medium.		
0.20	ES1		10.06	0.35				
0.50	D5		10.01			Soft dark brown sandy CLAY. Sand is fine to medium. Orangish brown mottled black fine to medium SAND.		
1.00	B6			(1.00)			1	
1.00	D7							
1.00	ES3							
1.50	B8		9.01	1.40		Greyish brown SAND and GRAVEL. Sand is fine to coarse. Gravel is subrounded to rounded, fine to coarse of quartz, sandstone and siltstone.		
1.50	D9		8.91	1.50		End of Trial Pit at 1.50m	2	
							3	
							4	
							5	

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 1.50m











Inclination: °

Remarks:

Machine excavated trial pit. Waterstrike encountered at 1.4m rising to 1.3m after 20 minutes. Backfilled with arisings upon completion.

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks
1.40	20	1.30	

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP31
	Contract Number: G221209	Date Started: 30/01/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 478250.7	Northing: 353267.4	Ground Level: 10.47mOD	Plant Used: Excavator 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Overcast		Stability: Unstable		Services Encountered: None		Hole Termination: Excavation instability.

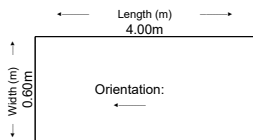
Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.00 - 0.20	B4			(0.30)		TOPSOIL: Dark brown sandy CLAY with frequent rootlets. Sand is fine to medium.			
0.20	ES1		10.17	0.30		Soft greyish brown sandy CLAY. Sand is fine to medium.			
0.50	D5			(0.70)					
0.50	ES2								
1.00	B6		9.47	1.00		Orangish brown mottled black fine to medium SAND.	1		
1.00	D7			(0.30)					
1.00	ES3		9.17	1.30		Greyish brown SAND and GRAVEL. Sand is fine to coarse. Gravel is subrounded to rounded, fine to coarse of quartz, sandstone and siltstone.			
1.50	B8		8.97	1.50		End of Trial Pit at 1.50m			
1.50	D9						2		
							3		
							4		
							5		

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 1.50m




Inclination: °










Remarks:

Machine excavated trial pit. Waterstrike encountered at 1.3m rising to 1.2m after 20 minutes. Backfilled with arisings upon completion.

Water Strike

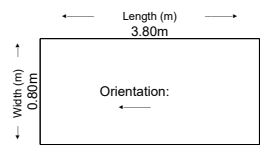
Strike	Time (mins)	Rose to (m)	Remarks
1.30	20	1.20	


	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP32
	Contract Number: G221209	Date Started: 31/01/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 478396.2	Northing: 353265.8	Ground Level: 10.92mOD	Plant Used: Excavator 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Cloudy		Stability: Unstable		Services Encountered: None		Hole Termination: Excavation instability.







Samples & In Situ Testing			Strata Details					Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description			
0.00 - 0.20	B4			(0.30)		TOPSOIL: Soft dark brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz and sandstone.			
0.20	ES1		10.62	0.30					
0.50	D5			(0.40)		Soft orangish brown sandy CLAY. Sand is fine to medium.			
0.50	ES2		10.22	0.70					
1.00	B6			(0.30)		Brown mottled black yellow slightly gravelly fine to coarse SAND. Gravel is subrounded to rounded, fine to coarse of quartz, sandstone and siltstone.	1		
1.00	D7		9.92	1.00					
1.00	ES3			(0.30)		Greyish brown SAND and GRAVEL. Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz, quartzite, sandstone and siltstone.	1		
1.00	D8		9.72	1.20					
1.20	B8					End of Trial Pit at 1.20m			
1.20	D9								

Trial Pit Photographs/Sketches



Dimensions of Trial Pit: Final Depth: 1.20m  Inclination: °	Remarks: Machine excavated trial pit. Waterstrike encountered at 1.2m rising to 1.15m after 20 minutes. Backfilled with arisings upon completion.		
Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks
1.20	20	1.15	

	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP33
	Contract Number: G221209	Date Started: 31/01/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 478375.3	Northing: 353150.2	Ground Level: 10.70mOD	Plant Used: Excavator 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Cloudy		Stability: Unstable		Services Encountered: None		Hole Termination: Excavation instability.

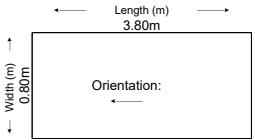
Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.00 - 0.20 0.20	B4 ES1			(0.40)		TOPSOIL: Soft dark brown sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz and sandstone.		
0.50 0.50	D5 ES2		10.30	0.40 (0.50)		Soft orange mottled brown and grey sandy CLAY. Sand is fine to medium.		
1.00 1.00 1.00	B6 D7 ES3		9.80	0.90 (0.50)		Brown mottled orange and grey silty fine to coarse SAND.	1	
1.50 1.50	B8 D9		9.30 9.20	1.40 1.50		Greyish brown SAND and GRAVEL. Sand is fine to medium. Gravel is subrounded to rounded, fine to coarse of quartz, quartzite, sandstone and siltstone. End of Trial Pit at 1.50m	2	
							3	
							4	
							5	

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:

Final Depth: 1.50m









Inclination: °

Remarks:

Machine excavated trial pit. Waterstrike encountered at 1.5m rising to 1.4m after 20 minutes. Backfilled with arisings upon completion.

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks
1.50	20	1.40	

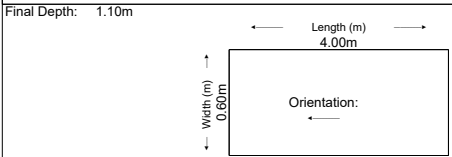
	Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3TP34
	Contract Number: G221209	Date Started: 30/01/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 478224.4	Northing: 353103.4	Ground Level: 10.81mOD	Plant Used: Excavator 3CX	Date Printed: 19/05/2023	Scale: 1:50
Weather: Overcast		Stability: Unstable		Services Encountered: None		Hole Termination: Excavation instability.

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.00 - 0.20 0.20	B4			(0.30)		TOPSOIL: Soft dark brown sandy CLAY with occasional rootlets. Sand is fine to medium.		
0.50 0.50	D5 ES2		10.51	0.30 (0.40)		Soft locally firm orangish brown mottled yellow sandy CLAY. Sand is fine to medium.		
1.00 1.00 1.00	B6 D7 ES3		9.71	0.70 (0.40)		Greyish brown SAND and GRAVEL. Sand is fine to coarse. Gravel is subrounded to rounded, fine to coarse of quartz, sandstone and siltstone.	1	
						End of Trial Pit at 1.10m		
							2	
							3	
							4	
							5	

Trial Pit Photographs/Sketches



Dimensions of Trial Pit:





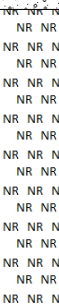




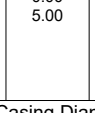

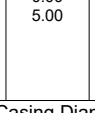













Inclination: °

Remarks:

Machine excavated trial pit. Waterstrike encountered at 1.1m rising to 1.05m after 20 minutes. Backfilled with arisings upon completion.

Water Strike			
Strike	Time (mins)	Rose to (m)	Remarks
1.10	20	1.05	

		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3RCWS01					
		Contract Number: G221209	Date Started: 06/01/2023	Date Completed: 06/01/2023	Logged: WG	Checked: IL	Status: FINAL	Sheet 1 of 1					
Dynamic Sample Drilling Log		Easting: 477755.2	Northing: 353576.9	Ground Level: 11.25m (OD)	Plant Used: Dart 351	Print Date: 19/05/2023	Scale: 1:25						
		Weather: Fine		Rig Crew: Garry Naylor	Termination: Scheduled Depth.		SPT Hammer: Dart351 Energy Ratio: 69%						
Samples & In Situ Testing				Strata Details					Groundwater				
Depth	Sample	Test Result	TCR	SCR	RQD	FI/If	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation	
0.20	B2							(0.40)		TOPSOIL: Soft to firm brown slightly sandy CLAY. Sand is fine to coarse.			
0.20	D1												
0.20	ES3						10.85	0.40					
0.50	B5									Soft to firm brown slightly sandy CLAY. Sand is fine to coarse.			
0.50	D4												
0.50	ES												
0.50	ES6												
1.00	ES13							(1.00)			1		
1.20 - 1.65	D7	SPT(S) 1.20m, N=8 (2,2/2,2,2,2)											
1.40 - 1.80	B11						9.85	1.40		Loose brown very sandy angular to rounded, fine to coarse GRAVEL of chert. Sand is fine to coarse.			
1.60	D14		100										
1.20 - 2.00	L8												
1.80 - 2.00	D12												
2.00	B15	SPT(S) 2.00m, N=7 (3,2/1,2,2,2)									2		
2.00 - 2.45	D9							(1.60)					
2.50 - 2.90	B16		40										
2.00 - 3.00	L11												
2.60	D16												
2.90 - 3.00	D17												
3.00 - 3.45	D10	SPT(S) 3.00m, N=22 (2,4/5,5,5,7)					8.25	3.00		No recovery.	3		
3.00 - 4.00	L12		0					(1.00)					
							7.25	4.00		End of Borehole at 4.00m	4		
											5		
Start & End of Shift Observations			Flush Return Information				Remarks:						
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour	Hand dug inspection pit to 1.2m bgl. Waterstrike was encountered at 2m which didn't rise after 20 minutes. Upon completion 50mm standpipe was installed to 3m, 0 to 1m plain, 1 to 3m slotted, 3 to 4m bentonite seal, installed with upright cover flush cover.		
06-01-23	07:30	0.00	0.00	0.00									
06-01-23	13:30	4.00	3.00	2.00									
Borehole Diameter			Casing Diameter		Coring Information				Water Strike				
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
4.00	87	3.00	127					2.00	2.00	2.00	20	2.00	Medium
<small>Fracture Index (FI) - Fractures per meter; Fracture Spacing (If) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)</small>													

		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3WS01R				
		Contract Number: G221209	Date Started: 27/01/2023	Date Completed: 27/01/2023	Logged: ASH	Checked: IL	Status: FINAL	Sheet 1 of 2				
Dynamic Sample Drilling Log		Easting: 477755.2	Northing: 353576.9	Ground Level: 11.25m (OD)	Plant Used: Comacchio 405	Print Date: 19/05/2023	Scale: 1:25					
		Weather: Cold	Rig Crew: Garry Naylor	Termination: Scheduled Depth.			SPT Hammer: AR2833 Energy Ratio: 63%					
Samples & In Situ Testing							Strata Details				Groundwater	
Depth	Sample	Test Result	TCR	SCR	RQD	FI/If	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation
0.20 0.20	B26 D27							(0.40)		TOPSOIL: Soft to firm brown slightly sandy CLAY. Sand is fine to coarse.		
0.50 0.50	B29 D28						10.85	0.40		Soft to firm brown slightly sandy CLAY. Sand is fine to coarse.		
								(0.80)			1	
1.20 - 1.40 1.20 - 1.65	D1 ES10	SPT(S) 1.20m, N=9 (1,2/3,2,2,2)					10.05	1.20		Loose orangish brown silty sandy subangular to rounded fine to coarse GRAVEL of quartz and mudstone. Sand is fine to coarse.		
1.40 - 1.80	B11							(0.80)				
1.20 - 2.00	L2		100									
1.80 - 2.00	D12											
2.00 - 2.40 2.00 - 2.45	B13 D3	SPT(S) 2.00m, N=15 (2,4/4,3,4,4)					9.25	2.00		Medium dense dark brown slightly sandy subrounded to rounded fine to coarse GRAVEL of quartz. Sand is fine to coarse.	2	
2.40 - 2.50 2.40 - 2.50 2.50 - 2.90 2.00 - 3.00	D14 ES15 B16 L4		100				8.75	2.50		Dense orangish brown silty sandy subangular to rounded fine to coarse GRAVEL of quartz and mudstone. Sand is fine to coarse.		
2.90 - 3.00 3.00 - 3.45 3.00 - 3.80	D17 B18 D5	SPT(S) 3.00m, N=31 (3,5/7,7,8,9)						(1.90)			3	
3.00 - 4.00	L6		100									
3.80 - 3.90 3.90 - 4.00 4.00 - 4.30 4.00 - 4.45	D19 ES20 B21 D7	SPT(S) 4.00m, N=34 (5,8/8,9,9,8)									4	
4.30 - 4.40 4.40 - 4.60 4.00 - 5.00	D22 D23 L8		90				6.85	4.40		Dark brown slightly sandy subrounded to rounded fine to coarse GRAVEL of quartz. Sand is fine to coarse.		
4.80 - 4.90 4.90 - 5.00 5.00 - 5.45	D24 ES25 D9						6.65	4.60		Medium dense orange brown silty slightly gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse of quartz and flint.		
											5	
Start & End of Shift Observations			Flush Return Information				Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour	Hand dug inspection pit to 1.2m bgl. No waterstrikes encountered during the drilling. Upon completion 50mm standpipe was installed to 4.7m, 0 to 1m plain, 1 to 4.7m slotted, 4.7 to 5.45m bentonite seal, installed with upright cover flush cover. Undertaken in close proximity to S3WS01	
27-01-23	07:30	0.00	0.00	0.00								
27-01-23	16:40	5.45	5.00									
							Water Strike					
Borehole Diameter		Casing Diameter		Coring Information				Remarks				
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)
5.45	87	5.00	127									
<small>Fracture Index (FI) - Fractures per meter; Fracture Spacing (If) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)</small>												




Contract Name: A46 Newark Bypass		Client: Skanska			Borehole ID: S3WS01R	
Contract Number: G221209	Date Started: 27/01/2023	Date Completed: 27/01/2023	Logged: ASH	Checked: IL	Status: FINAL	Sheet 2 of 2
Dynamic Sample Drilling Log	Easting: 477755.2	Northing: 353576.9	Ground Level: 11.25m (OD)	Plant Used: Comacchio 405	Print Date: 19/05/2023	Scale: 1:25


Weather: Cold Rig Crew: Garry Naylor Termination: Scheduled Depth. SPT Hammer: AR2833 Energy Ratio: 63%


Samples & In Situ Testing							Strata Details					Groundwater	
Depth	Sample	Test Result	TCR	SCR	RQD	FI/If	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation	
		SPT(S) 5.00m, N=32 (5,7/8,8,7,9)					5.80	5.45		Medium dense orange brown silty slightly gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse of quartz and flint.			
										End of Borehole at 5.45m			
											6		
											7		
											8		
											9		
											10		

Start & End of Shift Observations				Flush Return Information						Remarks:			
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour			
											Water Strike		
Borehole Diameter		Casing Diameter		Coring Information				Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type						

Fracture Index (FI) - Fractures per meter; Fracture Spacing (If) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)

		Contract Name: A46 Newark Bypass			Client: Skanska			Borehole ID: S3WS04					
		Contract Number: G221209	Date Started: 18/11/2022	Date Completed: 18/11/2022	Logged: PB	Checked: IL	Status: FINAL	Sheet 1 of 1					
Dynamic Sample Drilling Log		Easting: 477120.7	Northing: 355007.9	Ground Level: 11.80m (OD)	Plant Used: Dart351	Print Date: 19/05/2023	Scale: 1:25						
Weather: Clear		Rig Crew: ES		Termination: Scheduled Depth.			SPT Hammer: Dart351 Energy Ratio: 69%						
Samples & In Situ Testing					Strata Details					Groundwater			
Depth	Sample	Test Result	TCR	SCR	RQD	FI/If	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation	
0.00 - 0.50	B12									TOPSOIL: Grey gravelly fine to medium SAND. Gravel is subrounded to rounded fine to medium gravel of sandstone and mudstone.			
0.20	ES						11.40	0.40					
0.50 - 1.20	B13 ESES							(0.80)		Grey gravelly fine to medium SAND. Gravel is subrounded to rounded fine to medium gravel of sandstone and mudstone.			
1.20	ES15	SPT(S) 1.20m, N=13 (3,2/3,3,4,3)					10.60	1.20		Medium dense brown mottled orangish brown slightly silty fine to coarse SAND with rare subrounded fine gravel of quartzite			
1.40 - 1.50	ES1												
1.40 - 1.50	ES16												
1.50 - 1.60	D2												
1.60 - 2.00	B3							(1.10)					
		SPT(S) 2.00m, N=12 (2,2/1,1,4,6)											
2.40 - 2.50	D4						9.50	2.30		Brown clayey slightly gravelly fine to coarse SAND with frequent lenses (<10mm) of silty clay.			
2.60 - 2.70	B6												
2.60 - 3.00	D5						9.28	2.52		Medium dense brown mottled orangish brown slightly silty slightly gravelly fine to coarse SAND. Gravel is subrounded to rounded, fine to coarse of basalt and quartzite.			
3.00 - 3.50	B7	SPT(S) 3.00m, N=22 (4,6/6,6,5,5)											
3.50 - 3.60	D8												
4.00 - 4.50	B9	SPT(S) 4.00m, N=31 (4,5/7,8,7,9)											
4.50 - 4.60	D10												
4.80 - 4.90	D11						7.04	4.76		Loose to medium dense brown slightly silty SAND & GRAVEL. Sand is fine to coarse. Gravel is angular to rounded, fine to coarse of sandstone, basalt and quartzite.			
							6.80	5.00		End of Borehole at 5.00m			
Start & End of Shift Observations			Flush Return Information				Remarks:						
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour	Hand dug inspection pit to 1.2m bgl. No waterstrikes encountered during the drilling. Backfilled with bentonite upon completion.		
18-11-22	08:00	0.00	0.00										
18-11-22	17:00	5.00	2.00										
Borehole Diameter			Casing Diameter		Coring Information								
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
3.00	87	2.00	100										
5.00	77												
<small>Fracture Index (FI) - Fractures per meter; Fracture Spacing (If) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)</small>													

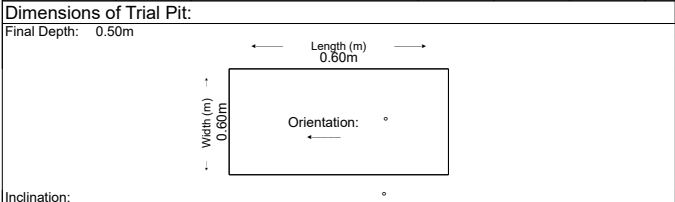
		Contract Name: A46 Newark Bypass				Client: Skanska			Borehole ID: S3WS05				
		Contract Number: G221209	Date Started: 16/11/2022	Date Completed: 16/11/2022	Logged: AH	Checked: IL	Status: FINAL		Sheet 1 of 1				
Dynamic Sample Drilling Log		Easting: 476512.1		Northing: 355295.2		Ground Level: 12.76m (OD)		Plant Used: Archway Dart		Print Date: 19/05/2023	Scale: 1:25		
		Weather: Showers		Rig Crew: ES		Termination: Scheduled Depth.				SPT Hammer: Dart351 Energy Ratio: 69%			
Samples & In Situ Testing						Strata Details					Groundwater		
Depth	Sample	Test Result	TCR	SCR	RQD	FI/If	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation	
0.00 - 0.50	B1									TOPSOIL: Very silty slightly gravelly fine to medium SAND. Gravel is subangular to subrounded, fine to medium of sandstone and mudstone.			
0.20	ES2							(0.40)					
0.50 - 1.00	B3 ES4						12.36	0.40		Brown gravelly fine to medium SAND. Gravel is subrounded to rounded fine to medium gravel of sandstone and mudstone.			
								(0.60)					
1.20	ES5	SPT(S) 1.20m, N=10 (2,2/2,3,3,2)					11.76	1.00		Dark brown to brown clayey slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse basalt and quartzite.	1		
1.40 - 1.50	ES7						11.56	1.20		Medium dense brown mottled orangish brown slightly silty slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded, fine to coarse basalt and quartzite and chert.			
1.50 - 1.60	D8												
1.60 - 2.00	B6							(1.44)			2		
		SPT(S) 2.00m, N=12 (3,2/2,4,3,3)											
2.40 - 2.50	D9												
2.80 - 3.00	B10						10.12	2.64		Medium dense greyish brown to brown with white light brown slightly silty slightly gravelly fine to coarse SAND with frequent lenses of very soft reddish brown silty clay. Gravel is angular to subrounded fine to coarse basalt and flint chert and quartzite.	3		
		SPT(S) 3.00m, N=23 (3,3/4,7,6,6)											
3.50 - 3.60	D11												
3.60 - 4.00	B12							(2.36)		3.60: Increase in gravel content	4		
		SPT(S) 4.00m, N=22 (2,2/4,7,5,6)											
4.80 - 5.00	D13						7.76	5.00			5		
End of Borehole at 5.00m													
Start & End of Shift Observations				Flush Return Information				Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour	Hand dug inspection pit to 1.2m bgl. No waterstrikes encountered during the drilling. Backfilled with bentonite upon completion.		
16-11-22	08:00	0.00	0.00										
16-11-22	17:00	5.00	2.00										
								Water Strike					
Borehole Diameter		Casing Diameter		Coring Information				Remarks					
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
3.00	87	2.00	100										
4.00	77												
5.00	67												
<small>Fracture Index (FI) - Fractures per meter; Fracture Spacing (If) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)</small>													

	Contract Name: A46 Newark Bypass				Client: Skanska			Borehole ID: S3WS06					
	Contract Number: G221209	Date Started: 16/11/2022	Date Completed: 16/11/2022	Logged: SA	Checked: IL	Status: FINAL		Sheet 1 of 1					
Dynamic Sample Drilling Log	Easting: 476532.2	Northing: 355874.4	Ground Level: 13.20m (OD)	Plant Used: Archway Rig		Print Date: 19/05/2023	Scale: 1:25						
	Weather: Dry		Rig Crew: ES	Termination: Scheduled Depth.			SPT Hammer: Dart351 Energy Ratio: 69%						
Samples & In Situ Testing				Strata Details					Groundwater				
Depth	Sample	Test Result	TCR	SCR	RQD	FI/If	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation	
0.00 - 0.50	B1									TOPSOIL: Very silty slightly gravelly fine to coarse SAND. Gravel is sub rounded to sub angular, fine to medium			
0.20	ES2							(0.40)					
0.50 - 1.00	B3 ES4						12.80	0.40		Medium dense brownish grey SAND & GRAVEL. Sand is fine to medium. Gravel is subrounded to rounded fine to medium of siltstone and mudstone.			
1.20 - 2.00	B6 ES5	SPT(S) 1.20m, N=23 (5,4/5,5,7,6)											
2.00 - 3.00	B7	SPT(S) 2.00m, N=25 (6,5/7,7,6)											
3.00 - 4.00	B8	SPT(S) 3.00m, N=12 (2,2/3,2,4,3)						(4.60)		2.80 - 5.00: Gravel content decreases to gravelly SAND.			
4.00 - 4.45 4.00 - 5.00	B10 SD9	SPT(S) 4.00m, N=20 (2,2/3,5,5,7)											
							8.20	5.00		End of Borehole at 5.00m			
Start & End of Shift Observations				Flush Return Information				Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Top	Base	Min %	Max %	Type	Colour	Hand dug inspection pit to 1.2m bgl. No waterstrikes encountered during the drilling. Backfilled with bentonite upon completion.		
16-11-22	08:00	0.00	0.00	2.80									
16-11-22	17:00	5.00	2.00										
								Water Strike					
Borehole Diameter		Casing Diameter		Coring Information				Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Top (m)	Base (m)	Dia (mm)	Barrel Type	3.00	2.00		20	2.80	Rose to 2.8m depth 20 mins after strike
3.00	87	2.00	100										
5.00	77												
<small>Fracture Index (FI) - Fractures per meter; Fracture Spacing (If) - reported in mm as Min, Average and Max values. TCR, SCR and RQD reported as %. Hand vane (HV) reports Undrained Shear Strength (Su). Pocket penetrometer (PP) reports Unconfined Compressive Strength (UCS)</small>													



Contract Name: A46 Newark Bypass		Client: Skanska			Trial Pit ID: S3WS07R	
Contract Number: G221209	Date Started: 31/01/2023	Logged By: LA	Checked By: IL	Status: FINAL	Sheet 1 of 1	
Easting: 470701.0		Northing: 356313.0		Ground Level:	Plant Used: Hand tools	Date Printed: 19/05/2023
Weather: Cloudy		Stability: Stable		Services Encountered: None		Hole Termination: Scheduled Depth

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.50 0.50	ES ES1			(0.50) 0.50		MADE GROUND: Soft brown sandy slightly gravelly CLAY with occasional rootlets. Sand is fine to medium. Gravel is angular to subrounded, fine to coarse of quartz, brick and sandstone.		
						End of Trial Pit at 0.500m	1 2 3 4 5	



Remarks:
Hand dug inspection pit to 0.5m bgl. No waterstrikes were encountered during excavation. Backfilled upon completion using arisings. Undertaken in close proximity to S3WS07. Coordinates inferred from OS mapping

Water Strike			
Depth Strike	Time (min)	Rose (m)	Remarks

Appendix C: SPT Hammer Energy Efficiency Certificates

Dynamic Sampling Uk Ltd
Unit 8 Victory Park
Victory Road
Derby
DE248ZF

SPT Hammer Ref: DART351
 Test Date: 21/12/2022
 Report Date: 21/12/2022
 File Name: DART351.spt
 Test Operator: B.HUNTER

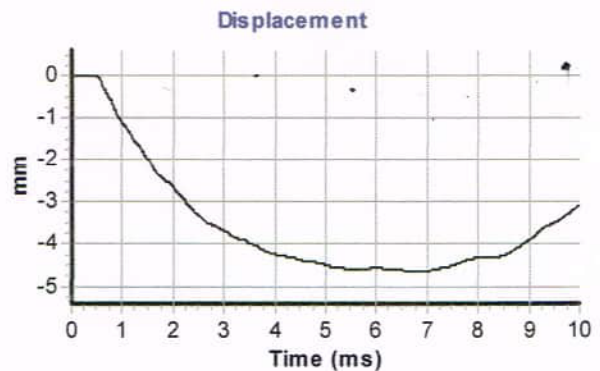
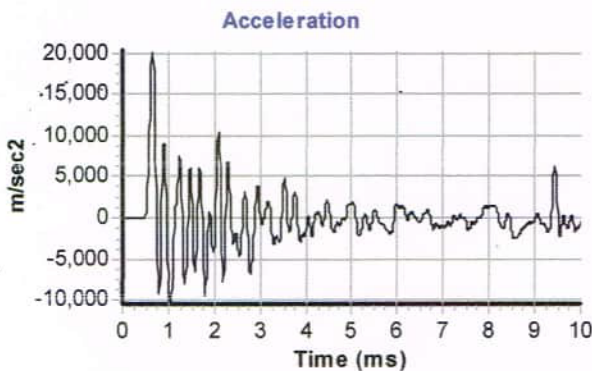
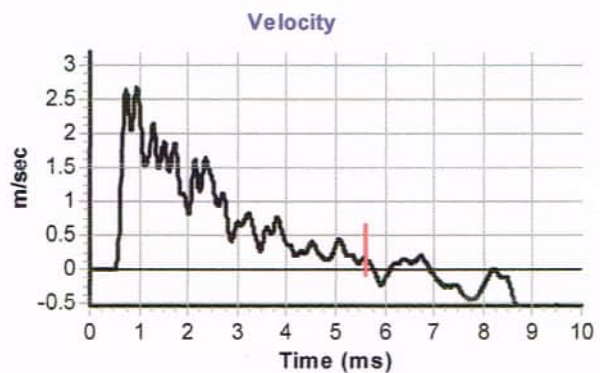
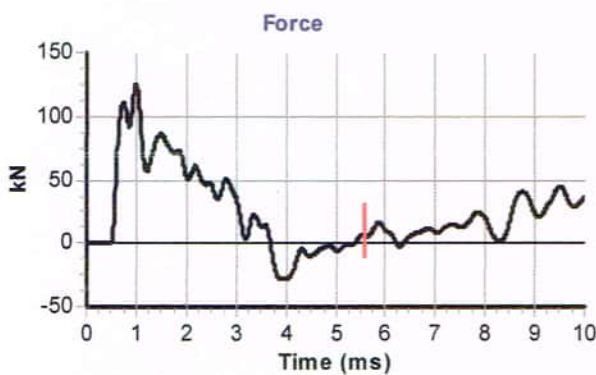
Instrumented Rod Data

Diameter d_r (mm): 54
 Wall Thickness t_r (mm): 6.5
 Assumed Modulus E_a (GPa): 208
 Accelerometer No.1: 62901
 Accelerometer No.2: 62902

SPT Hammer Information

Hammer Mass m (kg): 63.5
 Falling Height h (mm): 760
 SPT String Length L (m): 10.0

Comments / Location



Calculations

Area of Rod A (mm²): 970
 Theoretical Energy E_{theor} (J): 473
 Measured Energy E_{meas} (J): 292

Energy Ratio E_r (%): 62

Signed: B.Hunter
 Title: Operations Manager



Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Dynamic Sampling
Unit 8
Victory Park
Victory Road
Derby
DE248ZF

Hammer Ref: AR2501.
Test Date: 28/01/2022
Report Date: 28/01/2022
File Name: AR2501..spt
Test Operator: B HUNTER

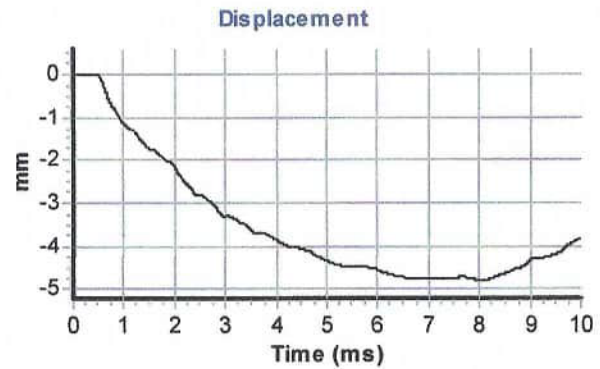
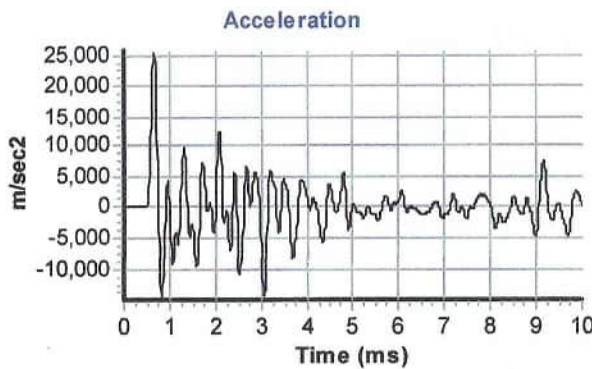
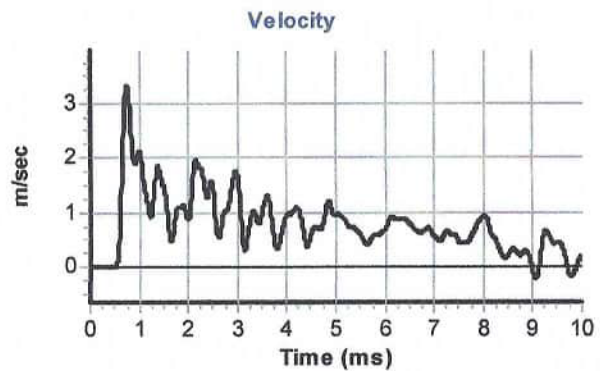
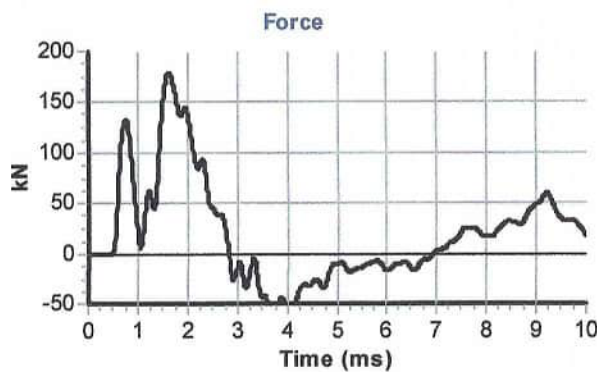
Instrumented Rod Data

Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.0
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 62901
Accelerometer No.2: 62902

Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
String Length L (m): 10.0

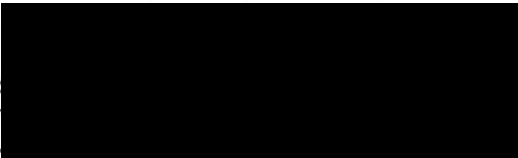
Comments / Location



Calculations

Area of Rod A (mm²): 905
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 293

Energy Ratio E_r (%): 62

Signed:  B Hunter
Title: Operations Manager

The recommended calibration interval is 12 months



Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Dynamic Sampling Uk Ltd
Unit 8 Victory Park
Victory Road
Derby
DE24 8ZF

Hammer Ref: AR2833
Test Date: 21/06/2022
Report Date: 22/06/2022
File Name: AR2833.spt
Test Operator: B.HUNTER

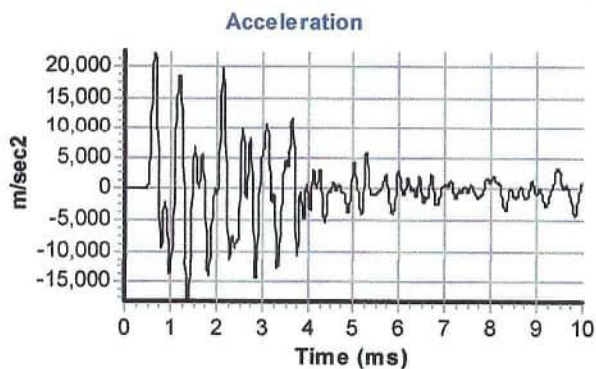
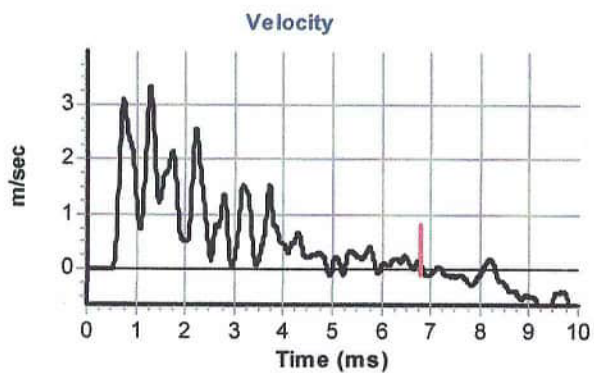
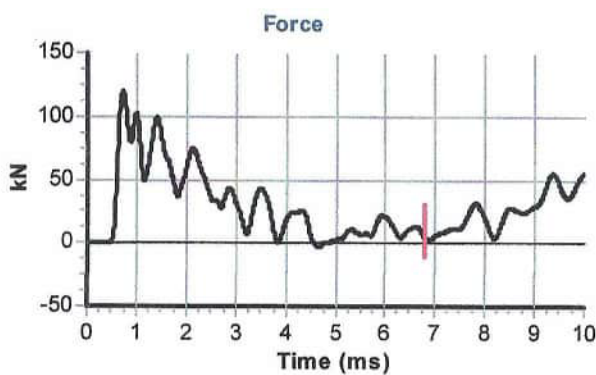
Instrumented Rod Data

Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.5
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 62901
Accelerometer No.2: 62902

Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
String Length L (m): 10.0

Comments / Location



Calculations

Area of Rod A (mm²): 970
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 300

Energy Ratio E_r (%): 63

Signed: B.Hunter
Title: Operations Manager

The recommended calibration interval is 12 months

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING UK LTD
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref: AR3543
Test Date: 05/09/2022
Report Date: 05/09/2022
File Name: AR3543.spt
Test Operator: JL

Instrumented Rod Data

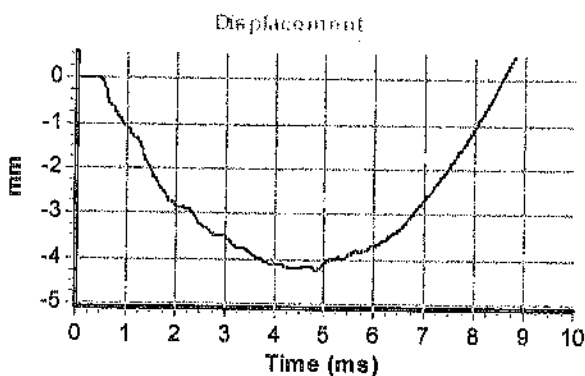
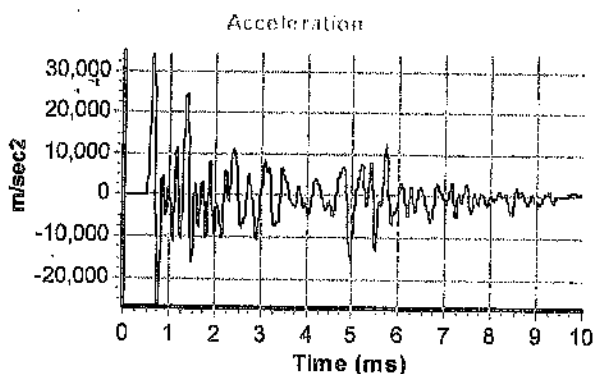
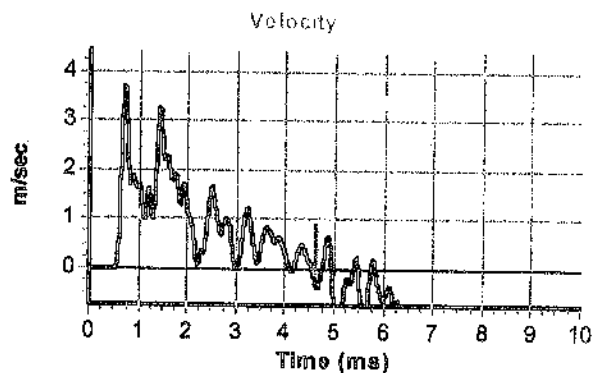
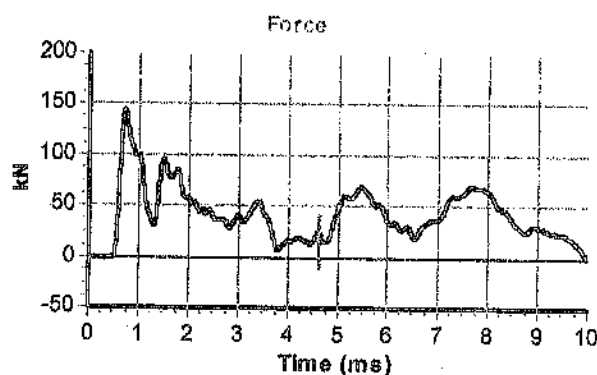
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.5
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 72572
Accelerometer No.2: 72757

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 10.0

Comments / Location

STRATA GEOTECHNICS - 81724



Calculations

Area of Rod A (mm^2): 970
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 315

Energy Ratio E_r (%): 67

Signed: J.LOCK
Title: FITTER

Appendix D: Core & Dynamic Sample Photographs



Project Name: A4C

Project No: 221209



Date: 15/11/22

Box No:

Borehole No: SB401

Depth (M)
From: 5.0 To: 7.50

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A4C

Project No: 221209



Date: 15/11/22

Box No:

Borehole No: SB401

Depth (M)
From: 7.50 To: 9.0

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A4C

Project No: 221209



Date: 15/11/22

Box No:

Borehole No: SB401

Depth (M)
From 9.0 To 10.50

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A4C

Project No: 221209



Date: 15/11/22

Box No:

Borehole No: SB401

Depth (M)
From 10.5 To 12.0

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A4C

Project No: 221209



Date: 15/11/22

Box No:

Borehole No: SB401

Depth (M)
From: 120 To: 1350

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm



15/11/22



Project Name: A4C

Project No: 221209



Date: 15/11/22

Box No:

Borehole No: SB401

Depth (M) From: 13.50 to 15.00

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A4C

Project No: 221209



Date: 16/11/22

Box No:

Borehole No: SB401

Depth (M)
From: 15.0 To: 16.50

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A4C

Project No: 221209



Date: 16/11/22

Box No:

Borehole No: SB401

Depth (M)
From: 16.50 To: 18.00

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A4C

Project No: 221209



Date: 14/1/22

Box No:

Borehole No: S3B401

Depth (M)
From: 18.0 To: 19.50





Project Name: A46

Project No: 221209



Date: 14/11/22

Box No:

Borehole No: S3BH01

Depth (M)
From: 19.50 To: 21.00





Project Name: A46

Project No: 221209



Date: 14/1/22

Box No:

Borehole No: S3BH01

Depth (M)
From 21.00 To 22.50





Project Name: A46

Project No: 221209



Date: 14/4/22

Box No:

Borehole No: S3BH01

Depth (M)
From: 22.50 To 24.00





Project Name: A46

Project No: 221209



Date: 14/4/22

Box No:

Borehole No: S3BH01

Depth (M)
From 24.0 To 25.0





Project Name: A46

Project No: 221209



Date: 14/4/22

Box No:

Borehole No: S3BH01

Depth (M)
From 25.0 To 26.50





Project Name:

MG

Project No: 221209



Date: 15/11/22

Box No:

Borehole No: SBH01

Depth (M)
From: 26.50 To: 28.00





Project Name: *M6*

Project No: 221209



Date: 15/11/22

Box No:

Borehole No: SBH01

Depth (M)
From: 28.0 To: 29.50





Project Name: *MG*

Project No: 221209



Date: 15/11/22

Box No:

Borehole No: SBH01

Depth (M)
From: 29.5 To 30.25





Project Name: A46 NEWARK BYPASS

Project No: 2212.09



Date: 7/11/22.

Box No: 1

Borehole No: S3BH02

Depth (M)
From: 7.00 to 8.50





Project Name: *Alt6 Newark Bypass*

Project No: *221209*

BH: *S3BH02*

Depth (M) *11-12*

Date: *02/11/2022*





Project Name: A46 NEWARK BYPASS

Project No: 2212.09



Date: 7/11/22.

Box No: 3

Borehole No: S3BH02

Depth (M) From: 12.0 To: 13.0





Project Name: *Alb Newark Bypass*

Project No: *221209*

BH: *S3BH02*

Depth (M) *13-14*

Date: *02/11/2022*





Project Name: *Alt6 Newark Bypass*

Project No: *221209*

BH: *S3BH02*

Depth (M) *18-19*

Date: *04/11/2022*





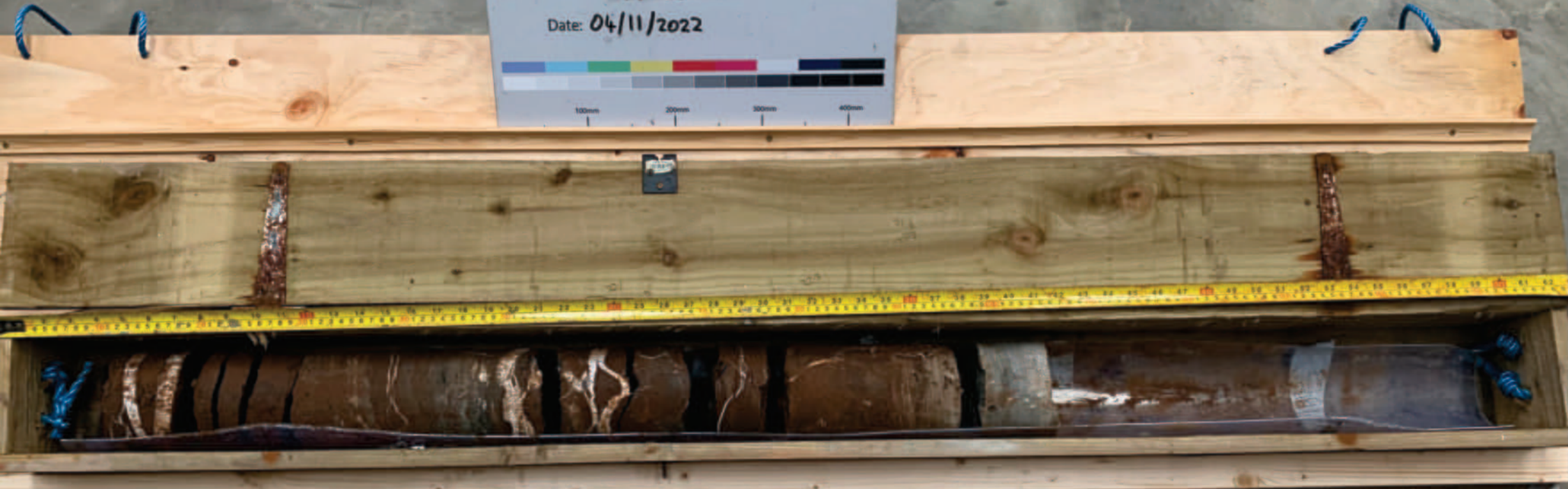
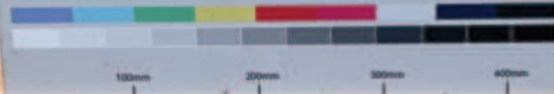
Project Name: A46 Newark Bypass

Project No: 221209

BH: S3BH02

Depth (M) 19-20.5

Date: 04/11/2022





Project Name: *Alt6 Newark Bypass*

Project No: *221209*

BH: *S3BH02*

Depth (M) *20.5-22*

Date: *04/11/2022*



STRATA
ROTECHNICS

Project Name: **ALG NEWARK BYPASS**

Project No: **2212.09**

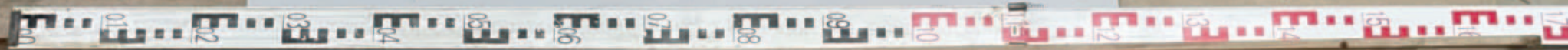


Date: **7/11/22**

Box No: **6**

Borehole No: **SBH02**

Depth (M)
From: **22.0** To: **23.50**





Project Name: A14 NEWARK BYPASS

Project No: 221209



Date: 7/11/22

Box No: 6

Borehole No: SBH02

Depth (M)
From: 23.50 To: 25.0





Project Name: A46

Project No: 221209



Date: 5/1/23

Box No: 1

Borehole No: S3 BHSB

Depth (M)
From: 1.2 To: 2.0

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm

01 02 03 04 05 06 07 08 09 10



Project Name: A46

Project No: G22-1204



Date: 05/01/23

Box No:

Borehole No: S3 BM 05/B

Depth (M)

From: 2.0 To: 3.0

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A46

Project No: G22-1204



Date: 05/01/23

Box No:

Borehole No: S3BH05/B

Depth (M)

From: 3.0 To: 4.0

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm



01 02 03 04 05 06 07 08 09 10



Project Name: A46

Project No: G22-1204



Date: 05/01/23

Box No:

Borehole No: S3BM05/B

Depth (M)

From: 4.0 To: 5.0

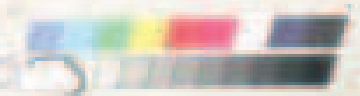
100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: *ANG BY PASS*

Project No: *221205*



Date: *16/11/22*

S3BH06

Depth (M): *2.0*





Project Name: *ANG BY TRIS*

Project No: *221203*



Date: *16/11/22*

Box No:

Borehole No:

S3BH06

Depth (M)

From: To: *3.0*





17/11/22

Project Name:

A46 BYPASS 22T209



Box No:

Subhole No:

S3BH06

Depth No:

03



STRATA
RESEARCH

Date: 17/11/22

Project Name: A46 By Pass

Project No: 22/209



Box No:

Substrate No:

S3BH06

Depth (M)

From 27 To 30



Project Name: *AM6 BY PASS*

Project No: *221203*



15/11/22

Box No:

Borehole No:

S3BH07

Depth (M)

From To

2.0



Project Name: *ANG BY PASS*

Project No: *221203*



Date: *16/11/22*

Box No:

Borehole No: *BH 07*

Depth (M)

From: To: *30*

12





Project Name:

ANG BY IRIS

Project No.:

221203



16/11/22

Box No.:

Booth No.:

BH 07

Depth (ft):

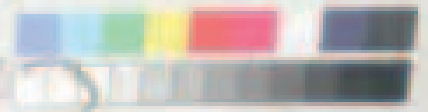
Feet:

20



Project Name: **AH6 BY PASS**

Project No: **22120**



16/11/22

Box No:

Borehole No: **BH 07**

Depth (M)

From:

To:

40



Project Name: A46

Project No: 221209



Date: 31/1/23

Box No:

Borehole No: S3B408

Depth (M)
From: 10.5 To: 11.50

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A46

Project No: 221209



Date: 31/11/23

Box No:

Borehole No: S3B108

Depth (M)
From: 11.5m To: 13.0m





Project Name: A46

Project No: 221209



Date: 31/1/22

Box No:

Borehole No: S3BH08

Depth (M)

From: 13m To: 14.5m

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A46

Project No: 221209



Date: 31/11/23

Box No:

Borehole No: S3BH08

Depth (M)

From: 14.5m To: 16.1m





Project Name: A46

Project No: 221209



Date: 31/1/23

Box No:

Borehole No: S3BH08

Depth (M)
From: 16.0 To: 17.50

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A46

Project No: 221209



Date: 1/2/23

Box No:

Borehole No: S3BH08

Depth (M)
From: 17.50 To: 19.0





Project Name: A46

Project No: 221209



Date: 1/2/23

Box No:

Borehole No: S3B108

Depth (M)
From: 19.0 To: 20.5





Project Name: A46

Project No: 221209



Date: 1/2/23

Box No:

Borehole No: S3B108

Depth (M)
From: 20.5 To: 22.0





Project Name: A4G

Project No: 221209



Date: 1/2/23

Box No:

Borehole No: S3BM08

Depth (M)
From: 22.0 To: 23.5





Project Name: A46

Project No: 221209



Date: 1/2/23

Box No:

Borehole No: S3B108

Depth (M)
From: 23.50 To: 25.00





Project Name: A46 NEWARK

Project No: 221209



Date: 11/1/22

Box No:

Borehole No: S3BH09

Depth (M)

From: 11.1 To: 11.5





Project Name: A46 NEWARK

Project No: 221209



Date: 11/12

Box No: 2

Borehole No: S3B409

Depth (M)
From: 11.5 To: 13.0





Project Name: A46 NEWARK

Project No: 221209



Date: 11/1/22

Box No: 3

Borehole No: S3BH09

Depth (M)
From 13.0 To 14.50





Project Name: A46 NEWARK

Project No: 221209



Date: 11/1/22

Box No:

Borehole No: S3B409

Depth (M)
From: 14.50 To: 16.00





Project Name: *A46 NEWBARK JUNCTION*

Project No: *221209*



Date: *11/1/22*

Box No:

Borehole No: *S3 5109*

Depth (M)
From: *160* To: *17.50*





Project Name: A46 Newcastle Jan. 2017

Project No. 221209



Date: 11/1/17

Box No.

Borehole No. SBH09

Depth (M)
From: 17.5 To: 19.0





Project Name: A46 NEMSK JAW LON

Project No: 221209



Date: 11/1/22

Box No:

Borehole No: SBH09

Depth (M)
From: 19.0 To: 20.9





Project Name: 221209

Project No: 221209

Date: 14/1/22

Box No:

Borehole No: S3B409

Depth (M)
From: 20.5 To: 22.00





Project Name: 221209

Project No: 221209



Date: 14/11/22

Box No:

Corehole No: S3B109

Depth (M)
From 22.0 To 23.50





Project Name: 221209

Project No: 221209



Date: 14/1/22

Box No:

Borehole No: S3B109

Depth (M)
From 23.50 to 25.0





Project Name: A46

Project No: 221203

Date: 25/1/23

Box No:

Borehole No: S3B410



Depth (M)
From: 10.0 To: 11.50





Project Name: A46

Project No: 221203



Date: 25/1/23

Box No:

Borehole No: S3B410

Depth (M)
From: 11.50 To: 12.00





Project Name: A46

Project No: 221209



Date: 25/1/23

Box No:

Borehole No: S3BH10

Depth (M)
From: 13.0 To: 14.50





Project Name: A46

Project No: 221209



Date: 25/1/23

Box No:

Borehole ID: S3B410

Depth (M)
From: 14.50 To: 16.01





Project Name: A46

Project No: 221209



Date: 25/1/23

Box No:

Borehole No: S3BH10

Depth (M)
From: 16.0 To: 17.50

800mm 900mm





Project Name: A46

Project No: 221209



Date: 25/1/23

Box No:

Borehole No: S3B410

Depth (M)
From: 17.50 To: 19.0





Project Name: A46

Project No: 221209



Date: 25/1/23

Box No:

Borehole No: S3B410

Depth (M)
From: 19.00 To: 20.50m





Project Name: A46

Project No: G221209



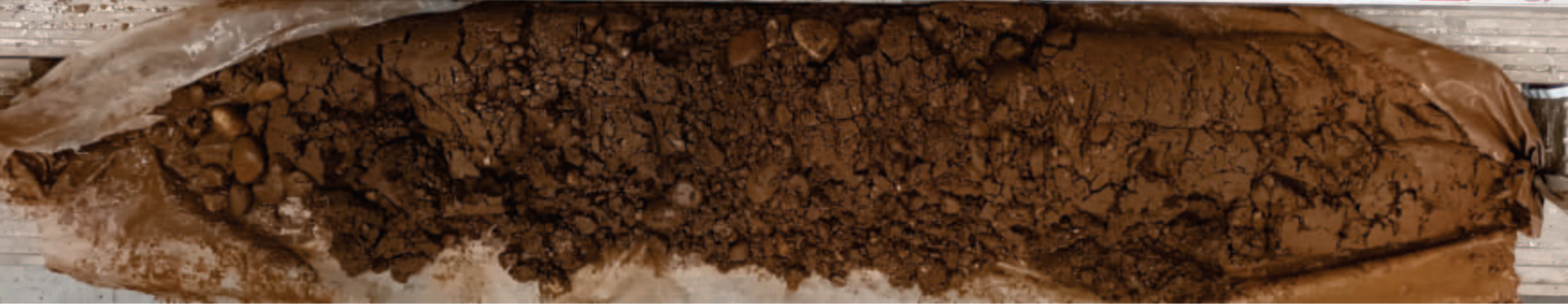
Date: 21/10/22

Box No: 1

Borehole No: BH 11

Depth (M)
From: 2.00 To: 3.00

100mm 200mm 300mm 400mm 500mm





Project Name: A46

Project No: G221209



Date: 21/10/22

Box No: 1

Borehole No: BH 11

Depth (M)
From: 3.00 To: 4.50





Project Name: A46

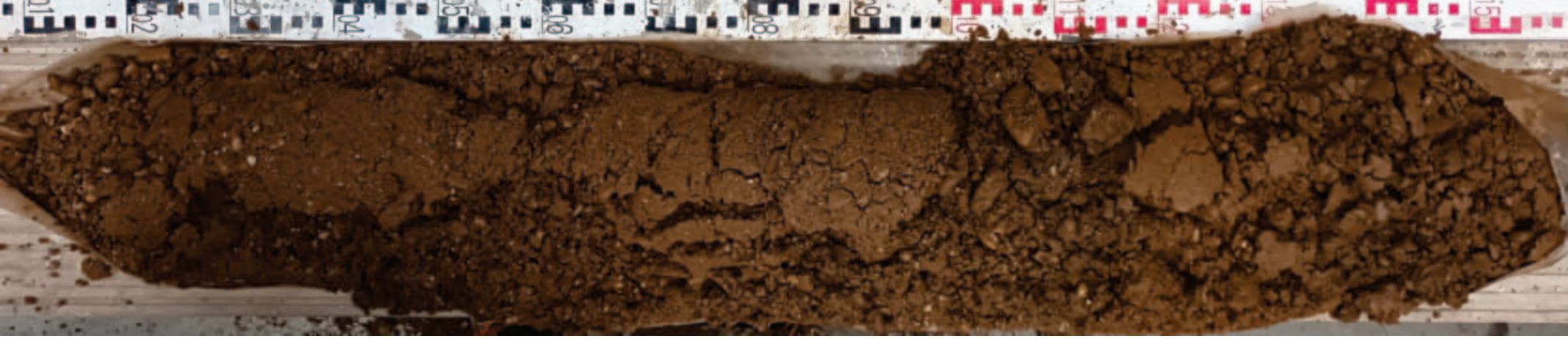
Project No: G221209

Date: 21/10/22

Box No: 1

Borehole No: BH 11

Depth (M)
From: 6.00 To: 7.50





Project Name: A46

Project No: G221209



Date: 21/10/22

Box No: 1

Borehole No: BH 11

Depth (M)
From: 7.50 To: 9.00





Project Name: A46

Project No: G221209



Date: 21/10/22

Box No:

Borehole No: BH 11

Depth (M)
From 9.00 To 10.50





Project Name: A46

Project No: G221209



Date: 21/10/22

Box No:

Borehole No: BH11

Depth (m)
From: 10.50 To: 11.00





Project Name: A46

Project No: G221209



Date: 21/10/22

Box No:

Borehole No: BH 11

Depth (M)

From 12:00 To 13:00





Date: 22.10.22

Project Name: A46

Box No:

Borehole No: BH11

Project No: 6221209



Depth (M)
From: 13.50 To: 14.8



STRATA
221-209
A46 - B4 First
6221209



STRATA
LABORATORY

22.10.23

A46

2

622109



800

143 143

STRATA
LABORATORY
622109





Date: 22.10.22

Project Name: A46

Box No: 4

Borehole No: BH11

Project No: 6221209



Depth (M)
From: 1780m to 1930m

STRATA
22.10.22
BH No: BH11
1780m to 1930m





Project Name: A46

Project No: 6221209



Date: 22.10.22

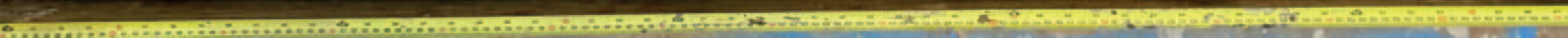
Box No: 5

Borehole No: BH11

Depth (M)
From: 19.30 To: 20.80



STRATA	221209
A46	BH11
53877	22/10/22
19.3	20.8





Project Name: A46

Project No: 6221209



Date: 22.10.22

Box No: 6

Borehole No: BH11

Depth (M)
From: 20.80 To: 22.50

STRATA
6221209
BH 11 - Box 1105
53 BH
20.9 22.5





Project Name: A46

Project No: 6221209



Date: 22.10.22

Box No: 7

Borehole No: BH11

Depth (M)
From: 22.30 To: 23.10

STRATA	6221209
A46	BH11
22.10.22	7
22.30	23.10





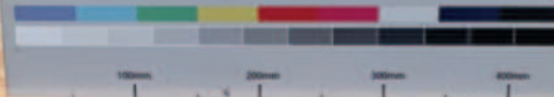
Project Name: A46 Newark Bypass

Project No: 221209

BH: S3BH11

Depth (M) 23.8-25.3

Date: 24/10/2022



STRATA	221209
A46 Bypass	
S3BH11	24/10/22
23.8m	25.3m

STRATA	221209
A46	
11 P	31/10/22
24.80	25.05



Project Name: A46

Project No: 221209



Date: 17/11/22

Box No: 1

Borehole No: SB413

Depth (M)
From: 13.90 To: 15.00





Project Name: A46

Project No: 221209



Date: 17/11/22

Box No: 1

Borehole No: SBH13

Depth (M)
From: K.O To: 16.50





Project Name: A46

Project No: 221209



Date: 17/11/22

Box No: 3

Borehole No: SBH13

Depth (M)
From: 16.5 To: 17.0





Project Name: A46

Project No: 221209



Date: 17/11/22

Box No: 3

Borehole No: SBH13

Depth (M)
From: 17.0 To: 18.0





Project Name: A46

Project No: 221209



Date: 17/11/22

Box No: 3

Borehole No: SBH13

Depth (M) From: 18.0 To: 19.5





Project Name: A46

Project No: 221209



Date: 17/11/22

Box No: 3

Borehole No: SBH13

Depth (M)
From: 19.5 To: 21.0





Project Name: A46

Project No: 221209



Date: 17/11/22

Box No:

Borehole No: SBH13

Depth (M)
From: 21.0 To: 22.5





Project Name: A46

Project No: 221209



Date: 17/11/22

Box No:

Borehole No: SBH13

Depth (M)
From: 22.50 To: 24.0





Project Name: A46

Project No: 221209



Date: 17/11/22

Box No:

Borehole No: SB413

Depth (M)
From: 24.0 To: 25.0





Project Name: A14 NEWARK BYPASS

Project No: 2212.09



Date: 7/11/22.

Box No: 6

Borehole No: S3BH14

Depth (M)
From 15.60 To 16.0





Date: 7/11/22.

Project Name: A16 NEWARK BYPASS

Box No: 2

Project No: 221209

Borehole No:

S3BH14



Depth (M)

From: 16.0 To: 17.5





Project Name: A16 NEWARK BYPASS

Project No: 2212.09



Date: 7/11/22.

Box No: 3

Borehole No: S3BH14

Depth: 17.5 To: 19.0





Project Name: A46 NEWARK BYPASS

Project No: 221209



Date: 7/11/22.

Box No: 4

Borehole No: S3BH14

Depth (M): From: 19.0 To: 20.5





Project Name: A46 NEWARK BYPASS

Project No: 2212.09



Date: 7/11/22.

Box No: 4

Borehole No: S3BH14

Depth (M)
From: 20.5 To: 22.0





Project Name: A46 NEWARK BYPASS

Project No: 2212.09



22.5m to 23.5m

Date: 7/11/22.

Box No: 5

Borehole No: S3BH14

Depth From:





Project Name: A46 NEWARK BYPAS

Project No: 221209



Date: 7/11/22

Box No: 5

Borehole No: S3BH14

23.50m to 25.00m

Depth From:





Project Name: A46

Project No: 221209



Date: 11/1/23

Box No:

Borehole No: S3B415

Depth (M)
From: 1.20 To: 1.50

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm



STRATA
Soil Sample by
11/1/23



Project Name:

A46 102-28

Project No:

221209



Date: 11/1/23

Box No:

Borehole No:

S3B415

Depth (M)

From: 1.50 To: 3.00

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A46

Project No: 221209



Date: 11/1/23

Box No:

Borehole No: S38415

Depth (M)
From: 3.0 To: 4.50

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A46

Project No: 221209



Date: 12/1/23

Box No:

Borehole No: S3B415

Depth (M)
From: 3.0 To: 4.0



STRATA
GEOTECHNICS
Project: A46
Borehole: S3B415
Date: 12/1/23



Project Name: A46

Project No: 221209



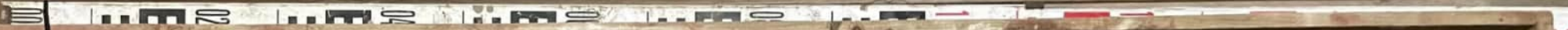
Date: 11/1/23

Box No:

Borehole No: S38415

Depth(M)
From: 4.50 To: 6.0

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A46 30-35m

Project No: 221209



Date: 11/1/23

Box No:

Borehole No: S3B415

Depth(M)
From: 6.0 To: 7.5

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A46

Project No: 221209



Date: 11/1/23

Box No:

Borehole No: S3B415

Depth (M)
From: 7.5 To: 9.0

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A46

Project No: 221209



Date: 12/1/23

Box No:

Borehole No: S3B415

Depth (M) From: 9.0 To: 10.5

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A46

Project No: 221209



Date: 12/1/23

Box No:

Borehole No: S3BH15

Depth (M)
From: 10.5 To: 12.0

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A46

Project No: 221209



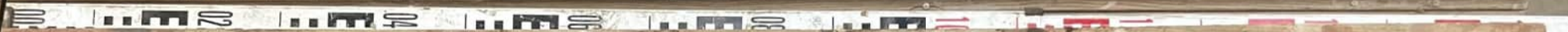
Date: 12/1/23

Box No:

Borehole No: S3BH15

Depth (M)
From: 12.0 To: 13.0

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A46

Project No: 221209



Date: 12/1/23

Box No:

Borehole No: S3BH15

Depth (M)
From: 13.5 To: 15.00

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm





Project Name: A46

Project No: 221209



Date: 16/1/23

Box No:

Borehole No: S3BH15

Depth (M): From: 15.0 To: 16.50

100mm 200mm 300mm 400mm 500mm 600mm 700mm 800mm 900mm

