

Phase II Site Investigation Report

Chicklade Service Station, Hindon, Salisbury SP3 5ST

On behalf of Instavolt

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EXECUTIVE SUMMARY	
PROPOSED DEVELOPMENT	At the time of reporting, November 2025, the proposed development was understood to comprise the demolition of the existing service station (comprising a petrol filling station, shop, cafe, outbuilding and associated infrastructure) and erection of a new service station (comprising electrical vehicle charging points, shop, restaurant / cafe, toilets and associated infrastructure) together with landscaping, revised vehicular access and formation of a new pedestrian link. The proposed development plan can be seen within Figure 3.
GEOLOGY AND HYDROGEOLOGY	The southern portion of the site was underlain by the Head Deposits (Secondary A Aquifer) and the entire area of the site was underlain by bedrock deposits of the Seaford Chalk Formation (Principal Aquifer). No areas of Made Ground or Reworked Ground were noted within a 250m radius. Examination of the Environment Agency records showed that the site was located within a Total Catchment (Zone III) Groundwater Source Protection Zone (SPZ) as classified in the Policy and Practice for the Protection of Groundwater. An Inner Zone (Zone I) Groundwater Source Protection Zone (SPZ) as classified in the Policy and Practice for the Protection of Groundwater was located ~3km to the east of the site. Groundwater anticipated to be encountered at depth within the Seaford Chalk Formation. Some amounts of groundwater however may be present at shallower depths within any Made ground and silty/sandy pockets of the Head Deposits. It was considered that groundwater was flowing in an easterly direction in line with local topography.
VOLUME CHANGE POTENTIAL	The Head Deposits were shown to have a medium to high volume change potential in accordance with both BRE240 and NHBC Standards Chapter 4.2.
CHALK DRY DENSITY	The geotechnical laboratory testing indicated the chalk clasts within the boreholes to be of medium to high density, with a dry density of between 1.55 – 1.71mg/m ³ . The Seaford Chalk Formation was anticipated to have no volume change potential in accordance with CIRIA C574.
FOUNDATION DESIGN	Foundations constructed on the Head Deposits can be designed based on a general bearing capacity of 80kN/m² for foundations within the Head Deposits. Foundations constructed on the Seaford Chalk Formation can be designed based on a general bearing capacity of 125kN/m² for foundations within the chalk. If the formation level proves to be competent Dc chalk, a higher bearing capacity reaching 225kN/m² might be achievable.
GROUND BEARING SLABS	Ground bearing slabs should be able to be adopted for the proposed structure. Where possible the any remaining Made Ground should be removed from below the slab and the formation level should be proof rolled and any soft spots removed and infilled with a suitably compacted granular material. Site levels should be brought up to underside of proposed slab level using with suitable granular soil (Type I or Type II) rolled in thin layers. The slabs must be reinforced and cast in small bays with dowels cast at the interface between each of the bays to reduce the risk of differential settlement affecting the slab.
SUB-SURFACE CONCRETE	According to BRE Special Digest 1, 2005, 'Concrete in Aggressive Ground' a Sulphate Design Class of DS-1 could be used for sub-surface concrete in contact with the soils beneath the site. Table C1 of the Digest indicated an ACEC

	(Aggressive Chemical Environment for Concrete) classification of AC-1.
CONTAMINATION AND REMEDIATION	Due to the nature of the contamination encountered at the site and the proposed end use, it is not considered that there is an unacceptable risk to future human health receptors and no remediation is required as part of any site development at the present time. Given the historical land-use of the site, the presence of tanks and other underground infrastructure of the re-fuelling station, gross contamination may be encountered during the removal of these features. A discovery strategy must be in place. Should contamination be encountered during and following removal of the USTs and the septic tank or should the proposed development change then these conclusions would need to be re-evaluated following additional testing. Elevated concentrations of zinc were noted in one sample of Made Ground tested above the phytotoxicity threshold triggers value. Consequently, specialist planting may be required and the advice of a suitably experienced horticulturalist should be obtained. No asbestos has been identified during the testing, however, given the age of the structures on-site, an Asbestos Management Strategy should be put in place so that any potentially asbestos containing materials are identified and removed from site in a suitable manner to prevent cross-contamination. An Asbestos Survey should be undertaken pre-demolition of any buildings/structures. This is subject to review following removal of the USTs.
GROUND GAS	Based on soil analysis, the site falls into the CS1 classification.

1. INTRODUCTION

1.1. General

Ground and Water Limited were instructed by Instavolt on the 26th September 2025 to conduct a Phase II Ground Investigation on the Chicklade Service Station, Hindon, Salisbury SP3 5ST. The scope of the investigation was detailed within the fee proposal QU-1868, dated 20th August 2025.

1.2. Aims of the Investigation

The aim of this report was to supply the client and their designers with information regarding the ground conditions underlying the site to assist them in preparing an appropriate scheme for development.

The investigation was to be undertaken to provide parameters for the design of foundations by means of in-situ and laboratory geotechnical testing undertaken on soil samples recovered from trial holes.

A contamination assessment was to be undertaken following chemical laboratory testing on soil samples recovered from the site to enable recommendations for the safe redevelopment of the site and the protection of site workers, end-users and the public from any potential contamination identified. The assessment comprises a Tier 2 Generic Quantitative Risk Assessment, under Land Contamination Risk Management (LCRM), with the intention of discharging relevant planning conditions.

This Site Investigation Report must be read in conjunction with the Desk Study Report referenced GWPR6751/DS/November 2025.

Reference has been made to Subadra Remediation Strategy Report referenced IN20485 CL 003, dated July 2022 which summarised the results of the previous desk study and ground investigation (Subadra Consulting Ltd. Environmental Investigation Report Reference IN20485 CL 001, dated December 2020). Ground and Water Limited cannot be held liable for any shortcomings.

The techniques adopted for the investigation were chosen considering the requirements of the client, anticipated ground conditions, and bearing in mind the nature of the site, limitations to site access and other logistical limitations.

1.3. Conditions and Limitations

This report has been prepared based on the terms, conditions and limitations outlined within Appendix A.

Reference has been made to Subadra Remediation Strategy Report referenced IN20485 CL 003, dated July 2022 which summarised the results of the previous desk study and ground investigation (Subadra Consulting Ltd. Environmental Investigation Report Reference IN20485 CL 001, dated December 2020). Ground and Water Limited cannot be held liable for any shortcomings.

Following comments made by the Consulting Engineers on bearing capacity of the Head Deposits and the potential adoption of a ground bearing slab, this report has been updated and supersedes the Phase II Ground Investigation Report produced by Ground and Water Limited reference GWPR6751/SIR/November 2025 v1.01. The Proposed Development Plan in Figure 2 has also been replaced.

1.4. Technical Glossary

Generic technical terms and their description can be viewed within the glossary provided within Appendix B.

2. SITE SETTING

2.1. Site Location

The site comprised a ~5,200m² rectangular-shaped plot of land, orientated in an east to west direction, along the northern side of the A303. The site was located to the west of the village of Chicklade, Wiltshire.

The Easting/Northing for the centre of the site was approximately 090470, 034459. A site location plan is given within Figure 1.

2.2. Site Description

A Site Walkover was undertaken on the 29th September 2025. A description of the site, as noted during the Site Walkover, is tabulated below.

Site Description Sheet	
Use of site	At the time of the Site Walkover, 29 th September 2025, the site was occupied by a closed petrol filling station.
Site topography	The site was sloping gently towards the south. The two car parking areas in the western portion of the site had been terraced into the existing slope.
Area topography	The area topography is a shallow sided valley where the site is located on the northern edge of the valley. The A303 runs along the base of the valley.
Structures on-site	The centre of the site was occupied by the buildings of the former filling station, café/bakery and shop. The canopy and former pump islands were located between the building and the southern boundary. A detached former toilet block was located on the eastern boundary with an adjacent partially submerged septic tank. It is understood that up to 6No. Underground fuel tanks were located in the south-eastern corner of the site.
Structures off-site	None in a close proximity.
Use of surrounding ground	Farmland to the north-east and west and the A303 to the immediate south with farmland beyond.
Boundary features	Northern Boundary: ~0.80m post and wire fence. Eastern Boundary: ~0.80m post and wire fence. Southern Boundary: open. Western Boundary: ~0.80m post and wire fence.
Site covering	The majority of the site was covered with tarmac and concrete hardstanding with areas soft landscaping.
Contamination sources on-site	Underground fuel tanks; Pump islands and associated infrastructure. Partially submerged septic tank. ACMs in existing buildings
Contamination sources off-site	None noted
Vegetation on-site	Small hedges along boundaries of the site.
Vegetation off-site	Semi-mature and mature ~2 – 12m high trees were noted on the southern side of the A303.
Services	Numerous services noted.

2.3. Proposed Development

At the time of reporting, November 2025, the proposed development was understood to comprise the demolition of the existing service station (comprising petrol filling station, shop, cafe, outbuilding and associated infrastructure) and erection of a new service station (comprising electrical vehicle charging points, shop, restaurant / cafe, toilets and associated infrastructure) together with soft

landscaping, revised vehicular access and formation of a new pedestrian link. The proposed development plan can be seen within Figure 2.

2.4. Geology

The British Geological Survey Solid and Drift Geology Map for the Salisbury area revealed that the site was underlain by superficial Head Deposits and bedrock deposits of the Seaford Chalk Formation. No areas of Made Ground or Reworked Ground were noted within a 250m radius.

There were no BGS borehole records within a 500m radius of the site.

2.5. Hydrogeology and Hydrology

A study of the aquifer maps on the DEFRA website revealed the site was underlain by a **Secondary A Aquifer** comprising the superficial Head Deposits, underlain by a **Principal Aquifer** comprising bedrock deposits of the Seaford Chalk Formation.

Examination of the Environment Agency records showed that the site was located within a Total Catchment (Zone III) Groundwater Source Protection Zone (SPZ) as classified in the Policy and Practice for the Protection of Groundwater. An Inner Zone (Zone I) Groundwater Source Protection Zone (SPZ) as classified in the Policy and Practice for the Protection of Groundwater was located ~3km to the east of the site.

The nearest surface water feature was an unnamed stream 37m to the south-west and flowing in an easterly direction.

From analysis of hydrogeological and topographical maps the actual groundwater table was anticipated to be encountered at depth within the Seaford Chalk Formation. Some amounts of groundwater however may be present at shallower depths within any Made Ground and silty/sandy pockets of the Head Deposits. It was considered that groundwater was flowing in an easterly direction in line with local topography.

Examination of the Environment Agency records showed that the site was located within a Flood Zone 1, i.e. an area with a very low probability of flooding.

The Groundsure Datasheets revealed the site was at no risk of flooding from rivers and the sea. The datasheets also revealed the southern portion of the site was at risk of a high risk of groundwater flooding, while the northern portion had a low risk. The southern portion of the site had a 1 in 30 year period of surface water flooding greater than 1.0m in depth.

2.6. Radon

A review of the freely available UK Health Security Agency radon database, UK Radon, indicated that the site was located within a 1km grid square, where the maximum radon potential of <1% was recorded for above ground structures. Basic radon protection measures are required in areas where more than 3% of houses are at or above the Action Level.

The site was in an area where a risk assessment was not required.

2.7. Internet Search (Site Setting)

2.7.1. Available Unexploded Ordnance (UXO) Map Review

A review of the data available on www.zeticauxo.com/ revealed the site was located within a low-risk area associated with unexploded ordnance (UXO), as indicated by having <15 bombs dropped per 1000 acres. No known Luftwaffe Bombing Target sites were located within a close proximity of the site.

2.7.2. Historical Landfill Tool Review

A review of the data available on www.groundsure.io/ revealed no areas of Historical Landfilling within a close proximity of the site.

2.8. Previous Ground Investigation

The results of the previous desk study and ground investigation (Subadra Consulting Ltd. Environmental Investigation Report Reference IN20485 CL 001, dated December 2020) were summarised in the Subadra Remediation Strategy Report referenced IN20485 CL 003, dated July 2022.

The main features of the site history were:

- The site had been a petrol filling station since at least the early 1980s (and most likely since the early 1960s). The below ground petroleum installation is the primary potential source of (hydrocarbon) contamination at the site. The current tanks were reported to have been installed in 1983 and were relined (with interstitial monitoring) in 2013. Plastic fuel lines were installed, also in 2013.

The key findings of the intrusive investigation were:

- No Made Ground was encountered.
- Soils described as Head Deposits comprising a brown slightly sandy clay with gravel was encountered overlying the Seaford Chalk Formation comprising a weak weathered putty chalk to a depth of 6.0m bgl.
- Groundwater was not encountered.

The key findings of the geo-environmental assessment were:

- During the intrusive investigation no olfactory or visual signs of contamination were noted in any of the soil samples collected. Very low concentrations of hydrocarbon vapours were recorded in a small number of samples, predominantly from depths <2.0m.
- The results of the chemical analysis carried out on selected soil samples revealed the presence of very low concentrations of xylenes in two samples (BH003 at 0.8 and 1.8m) located at the south-eastern corner of the central forecourt area. Very low concentrations of two PAH compounds were also recorded in a single sample (BH005 at 0.8m), located in the south-east corner of the site.

2.9. Preliminary Risk Assessment

The tabulated Conceptual Site Model developed as part of the Ground and Water Ltd Desk Study (GWPR6751/DS/November 2025 is outlined overleaf. For ease of reference and understanding, the

risks have been classified within this risk assessment against four possible levels / categories, summarised in the table below. Any risk deemed to be negligible within the Preliminary Risk Assessment have been excluded from this report.

Risk Categories used in the Tabulated CSM	
Low Risk	Regarding this potential SPR linkage, the site is considered suitable for the proposed end-use and there is not considered to be an unacceptable risk to receptors. However, it is considered that further investigation to confirm this is recommended.
Moderate Risk	Regarding this potential SPR linkage, the site may not be suitable for the proposed end-use in its current condition and there may be an unacceptable risk to receptors. Further investigation is required to confirm this.
High Risk	Regarding this potential SPR linkage, the site is probably or certainly not suitable for proposed end-use and there is likely to be an unacceptable risk to receptors. Contaminants probably or certainly present and urgent action required in the short term.

Tabulated Conceptual Site Model – Pollutant Linkage Summary			(On-Site Sources)
Potential Sources	Potential Absorption Pathways	Potential Receptors	Risk Classification
Contaminants introduced on-site by former use of the site as a petrol filling station with underground fuel tanks/oil interceptor. - Asbestos, - PAHs, - TPHs, - VOCs, - Sulphates, and - Metals.	- Direct ingestion of soil and soil derived dust - Dermal contact of soil and soil derived dust - Inhalation of dust (indoors and outdoors) with elevated concentration of determinands - Direct ingestion of groundwater - Inhalation of volatile vapour (indoors and outdoors)	Human Health - End Users (Site workers/Future site visitors) - Construction workers during development - Site operatives during maintenance works - Neighbours and public	Moderate
	- Direct uptake of groundwater - Direct uptake of determinands in the soil	Flora and Fauna Vegetation within soft landscaped areas	Moderate
	- Anthropogenic (man-made) pathways - Vertical and lateral migration in permeable strata - Surface water runoff	Controlled Waters - Secondary A Aquifer (Head Deposits) - Principal Aquifer (Seaford Chalk Formation) - Stream 37m to the south	Moderate
Underground fuel tank in south-east corners: TPHs,	- Direct ingestion of soil and soil derived dust - Dermal contact of soil and soil derived dust - Inhalation of dust (indoors and outdoors) with elevated concentration of determinands - Direct ingestion of groundwater - Inhalation of volatile vapour (indoors and outdoors)	Human Health - End Users (Site workers/Future site visitors) - Construction workers during development - Site operatives during maintenance works - Neighbours and public	Moderate
	- Direct uptake of groundwater - Direct uptake of determinands in the soil	Flora and Fauna Vegetation within soft landscaped areas	Moderate
	- Anthropogenic (man-made) pathways - Vertical and lateral migration in permeable strata - Surface water runoff	Controlled Waters - Secondary A Aquifer (Head Deposits) - Principal Aquifer (Seaford Chalk Formation) - Stream 37m to the south	Moderate
Septic tank close to eastern boundary:	- Direct ingestion of soil and soil derived dust - Dermal contact of soil and soil derived dust - Inhalation of dust (indoors and outdoors) with elevated concentration of determinands - Direct ingestion of groundwater	Human Health - End Users (Site workers/Future site visitors) - Construction workers during development - Site operatives during maintenance works - Neighbours and public	Low

- Ammonia; - bacterial compounds such as faecal coliforms and faecal streptococci	Inhalation of volatile vapour (indoors and outdoors)		
	- Direct uptake of groundwater - Direct uptake of determinands in the soil	Flora and Fauna Vegetation within soft landscaped areas	Low
Made Ground from construction activities: - Asbestos, - PAHs, - Sulphates, and - Metals.	- Anthropogenic (man-made) pathways - Vertical and lateral migration in permeable strata - Surface water runoff	Controlled Waters - Secondary A Aquifer (Head Deposits) - Principal Aquifer (Seaford Chalk Formation) - Stream 37m to the south	Low
	- Direct ingestion of soil and soil derived dust - Dermal contact of soil and soil derived dust - Inhalation of dust (indoors and outdoors) with elevated concentration of determinands - Direct ingestion of groundwater - Inhalation of volatile vapour (indoors and outdoors)	Human Health - End Users (Site workers/Future site visitors) - Construction workers during development - Site operatives during maintenance works - Neighbours and public	Moderate
	- Direct uptake of groundwater - Direct uptake of determinands in the soil	Flora and Fauna Vegetation within soft landscaped areas	Moderate
	- Anthropogenic (man-made) pathways - Vertical and lateral migration in permeable strata - Surface water runoff	Controlled Waters - Secondary A Aquifer (Head Deposits) - Principal Aquifer (Seaford Chalk Formation) - Stream 37m to the south	Low
Aggressive ground conditions with Made Ground and natural ground, including groundwater: - Sulphates, - PAH/TPH.	Direct contact with aggressive ground conditions	Building Materials and Services - Buried Concrete - Underground services (water pipes)	Low
Ground gases generated by generated by the anaerobic decomposition of any leaked hydrocarbons beneath site and Made Ground: - Methane, - Carbon Dioxide, - Hydrogen Sulphide, and	- Migration through anthropogenic & natural pathways - Inhalation of Asphyxiating gases - Explosion (methane only)	Human Health - End Users (Residents/Future site visitors) - Construction workers during development (especially in confined spaces) - Site operatives during maintenance works in confined spaces - Neighbours and public	Low
	- Migration through anthropogenic & natural pathways - Explosion (methane only)	Building Materials and Services - Buildings - Confined spaces	Low

• Carbon Monoxide.		• Underground services	
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3. SITE WORKS

3.1. Scope of Works

Site works were undertaken in two phases.

Phase I was undertaken between 29th September and 1st October 2025 and comprised the drilling of 3No. Cable Percussion Boreholes (BH01 – BH03) to a depth of between 8.20 - 10.00m bgl. BH01 was terminated at a depth of 8.20m bgl due to the density of the strata/possible flint obstruction.

Standard Penetration Tests were carried out at 1.00m intervals to a depth of 5m bgl and at 1.50m intervals for the remaining depth of the boreholes. A combined ground-gas/groundwater monitoring standpipe, with an internal diameter of 50mm, was installed in each of the boreholes. The installation details can be viewed within the table below.

Combined Ground-gas and Groundwater Monitoring Well Construction					
Trial Hole	Depth of Installation (m bgl)	Thickness of slotted piping with gravel filter pack (m)	Depth of plain piping with bentonite seal (m bgl)	Response Zone (m bgl)	Piping internal diameter (mm)
BH01	8.20	7.20	1.00	1.00 – 8.20	50
BH02	10.00	9.00	1.00	1.00 – 10.00	50
BH03	10.00	9.00	1.00	1.00 – 10.00	50

Additionally, 4No. Trial Pits (TP01 – TP04) were machine excavated to a depth of 1.00m bgl to undertake infiltration tests in accordance with BRE365. Due to mechanical issues and resulting time constraints, it was not possible to excavate the proposed TP05 – TP11.

Phase II was undertaken on 22nd October 2025 when 4No. Trial Pits (TP05 – TP08) were machine excavated to a depth of 1.00m bgl to undertake infiltration tests in accordance with BRE365. Three further trial pits (TP09 – TP11) were excavated to a depth of 3.00m bgl.

Additionally, in-situ California Bearing Ratio (CBR) testing by Dynamic Cone Penetrometer (DCP) was undertaken at 3No. locations (CBR01 – CBR03) to determine the CBR values of the soils underlying the site to shallow depth in accordance with BS1377 Part 9: 2016: 4.3. The concrete hardstanding and underlying Made Ground was broken out to a depth of 0.50m bgl where the tests were started from and a sample was taken for contamination analyses at each location. The results can be seen within Appendix C. The location of the trial hole locations can be seen within Figures 3 and 4.

Prior to commencing the ground investigation, a walkover survey was carried out to identify the presence of underground services and drainage. Where underground services/drainage were suspected and/or positively identified, the exploratory position was relocated away from these areas.

As a further precautionary measure, the borehole was hand excavated to 1.20m below the local ground level (bgl) and scanned with a Cable Avoidance Tool (CAT scanner) and signal generator (Genny) to minimise the risk to services.

Upon completion of the drilling works, the trial holes were backfilled and made good, in relation to the surrounding area.

3.2. Sampling Procedures

Small disturbed samples and environmental samples were recovered from the trial holes at the depths shown on the trial hole records. Soil samples were generally retrieved from each change of strata and/or at specific areas of concern. Samples were also taken at approximately 0.5m intervals during broad homogenous soil horizons.

A selection of samples were despatched to a suitably accredited laboratory for both geotechnical and chemical testing purposes.

4. ENCOUNTERED GROUND CONDITIONS

4.1. Soil Conditions

The trial holes were logged by a Ground and Water Limited representative, generally in accordance with BS EN 14688 'Geotechnical Investigation and Testing – Identification and Classification of Soil'. The chalk samples were logged in accordance with CIRIA 574.

The ground conditions encountered within the trial holes constructed on the site did generally conform to that anticipated from examination of the geology map. A capping of Topsoil/Made Ground was noted to overlie the superficial Head Deposits and the bedrock Seaford Chalk Formation.

The succession of conditions and description of soils encountered in the trial holes in descending order is tabulated below.

Summary of Strata Encountered			
Strata	Top Depth (m bgl)	Base Depth (m bgl)	Thickness (m)
MADE GROUND (BH01 – BH03): Tarmac.	GL	0.10	0.10
MADE GROUND (TP09 – TP10): Concrete	GL	0.10	0.10
MADE GROUND (BH01 – BH03, TP09 – TP10): Red/grey sandy GRAVEL. Sand is fine to medium. Gravel was fine to coarse, sub-angular to sub-rounded brick (60%) and concrete (40%).	0.10	0.50	0.40
MADE GROUND (TP09 and TP11): Grey gravelly CLAY. Gravel is fine to coarse, sub-angular to sub-rounded flint and chalk.	0.50 – 0.60	0.80 – 0.90	0.30
TOPSOIL (TP01 – TP08, TP11): Brown slightly sandy gravelly CLAY. The sand was fine to medium grained and the gravel was fine, sub-angular flint and chalk.	GL	0.25 – 0.60	0.25 – 0.60
HEAD DEPOSITS (TP01 – TP04, TP06): Brown gravelly CLAY. Gravel is fine to coarse, sub-angular to sub-rounded flint and chalk.	0.25 – 0.50	0.90 – 1.70	0.60 – 1.20
HEAD DEPOSITS (TP05 – TP08): Light brown slightly gravelly sandy gravelly CLAY. Sand is fine. Gravel is fine to coarse, sub-angular to sub-rounded flint and chalk.	0.30 – 0.90	>1.00	>0.10 – 0.70
HEAD DEPOSITS (TP09 – TP11): Orangish brown slightly clayey gravelly fine SAND. Gravel is fine to coarse, sub-angular to sub-rounded flint.	0.50 – 0.90	1.40 – 2.70	1.65 – 1.80
SEAFORD CHALK FORMATION (TP09 – TP10): Structureless CHALK composed of white and pale brown gravelly sandy SILT. The matrix was pale brown and soft. The gravel was weak, white and sub-angular. (CIRIA 574: Grade Dm).	1.40 – 2.70	>3.00	>0.30 – >1.60
SEAFORD CHALK FORMATION (BH01 – BH03): Recovered as a structureless CHALK composed of off white to white slightly sandy medium and coarse GRAVEL with many sub-angular cobbles. Gravel and cobbles were medium dense. Matrix is uncompact and off white. (CIRIA C574: Grade Dc).	1.20 – 1.70	>8.20 – >10.00	>7.00 – >8.80

For details of the composition of the soils encountered at particular points, reference must be made to the individual trial hole logs within Appendix C of this report. A trial hole location plan can also be viewed within Figures 3 and 4.

4.2. Roots Encountered

Fresh roots were proven to 0.30m bgl within trial pits TP01 – TP07 and TP08 to 0.40m bgl in TP07 and to 0.60m bgl in TP11. No roots were noted in TP09 – TP10 and the boreholes (BH01 – BH03).

It must be noted that the chance of determining actual depth of root penetration through a narrow diameter borehole is low. Roots may be found to greater depths at other locations on the site, particularly close to trees and/or trees that have been removed both within the site and its close environs.

4.3. Groundwater Conditions

Groundwater was not encountered in the boreholes or the trial pits. It should be noted that groundwater strikes may be obscured by the drilling/excavation process.

Changes in groundwater level occur for a number of reasons including seasonal effects and variations in drainage. The investigation was undertaken in September – October 2025 when groundwater levels are likely to be rising their annual minimum (lowest elevation). Exact groundwater levels may only be determined through long term measurements from monitoring wells installed on-site.

4.4. Obstructions

BH01 was terminated at a depth of 8.20m bgl due to the density of the strata/possible flint obstruction.

No other artificial or natural sub-surface obstructions were noted during drilling/excavation of the trial holes.

5. IN-SITU AND LABORATORY TESTING

5.1. In-situ Strength Testing

Standard Penetration Tests (SPTs) were undertaken as part of the site investigation. The results of the SPT's have not been amended to consider hammer efficiency, rod lengths and overburden pressure in accordance with Eurocode 7. The test results are presented on the borehole logs within Appendix D. An interpretation of the in-situ geotechnical testing results is given in the table below.

Interpretation of In-situ Geotechnical Testing Results				
Strata	SPT "N" Blow Counts	Equivalent Undrained Shear Strength (Cu) (kPa) (Stroud (1974))	Soil Type	Trial Hole/s
			Cohesive (Cu)	
Head Deposits (Cohesive)	13 – 14	65 – 70	Medium	BH01/0.50 – 1.70m bgl BH02/0.50 – 1.70m bgl
Seaford Chalk Formation	20 – >50 22 – 48 11 – 40	-	-	BH01/1.70 – >8.20m bgl BH02/1.70 – >10.00m bgl BH03/1.20 – >10.00m bgl

It must be noted that field measurements of undrained shear strength (Cu) are dependent on a number of variables including disturbance of sample, method of investigation and also the size of specimen or test zone.

5.2. Geotechnical Laboratory Testing

A programme of geotechnical laboratory testing, scheduled by Ground and Water Limited and carried out by an accredited geotechnical testing laboratory was undertaken on samples recovered. Details of the specific tests used in each case are given below.

Standard Methodology for Laboratory Geotechnical Testing		
Test	Standard	Number of Tests
Atterberg Limit Tests	BS1377:2016:Part 2:Clauses 3.2, 4.3 & 5	3
Determination of Saturation Moisture Content of Chalk	BS1377:2016:Part 2:Clause 3.3	6
Water Soluble Sulphate and pH Test	BS1377:2018:Part 3:Clause 5	1
BRE Special Digest 1 Tests	BRE Special Digest 1 "Concrete in Aggressive Ground (BRE, 2005).	2

5.2.1. Atterberg Limit Testing

A précis of Atterberg limit testing undertaken can be seen tabulated below. The test results are presented within Appendix D.

Atterberg Limit Tests Results Summary							
Stratum	Moisture Content (%)	Passing 425 µm sieve (%)	Modified PI (%)	Soil Class	Consistency Index (Ic)	Volume Change Potential	
						BRE	NHBC
Head Deposits	23.3 – 33.5	66 – 74	16.5 – 22.4	CI - CH	Very Stiff	Low to Medium	Low to Medium
- NP – Non-plastic - BRE Volume Change Potential refers to BRE Digest 240 (based on Atterberg results) - Soil Classification based on British Soil Classification System. - Consistency Index (Ic) based on BS EN ISO 14688-2:2018.							

5.2.2. Moisture Deficit Assessment

The results of the Atterberg Limit tests were analysed to determine the Liquidity Index of the samples, to give an indication as to whether the samples recovered showed a moisture deficit as well as assessing their degree of consolidation. Liquid Limit analyses was undertaken to assess whether there were any potentially significant moisture deficits within the samples tested.

No potential moisture deficits were noted within the three samples tested.

5.2.3. Determination of Saturation Moisture Content of Chalk

The results of saturation moisture content testing undertaken are tabulated below. The results can be seen in Appendix E.

Summary of Saturation Moisture Content Test Results					
Stratum	Moisture Content (%)	Saturation Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	CIRIA Dry Density Classification
Seaford Chalk Formation	22 – 27	21 – 27	1.97 – 2.08	1.55 – 1.71	Medium to High Density
Density in accordance with CIRIA 574 Chapter 3.0, Table 3.7					

6. ENGINEERING CONSIDERATIONS

6.1.1. Chalk Dissolution Risk Assessment

The presence of dissolution features on-site can prove problematic, as they often provide inconsistency within the underlying geology. Often formed during glacial and periglacial conditions, the depth and width of these features can vary substantially, often providing inconsistency in geological strength data.

If a dissolution feature is suspected, a geotechnical engineer and structural engineer should be contacted for suitable engineering designs, based on further works identifying and classifying the area the feature occupies.

The Groundsure Geosight datasheets, presented Appendix C of this report, revealed the following information which may be pertinent to this risk assessment.

- Ground Dissolution of Soluble Rocks – The site was classified as a Very Low to Low risk of ground dissolution of soluble rocks.
 - *A very low risk was defined as “Soluble rocks are present within the ground. Few dissolution features may be present. Potential for difficult ground conditions or localised subsidence are at a level where they need not be considered”.*
 - *A Low Risk was described as “Soluble rocks are present within the ground. Some dissolution features may be present. Potential for difficult ground conditions are at a level where they may be considered, localised subsidence need not to be considered except in exceptional circumstances”.*
- An on-site Class A Historical Mining area was identified on-site. A Class A area was described as *“Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level, where they need not be considered”*. However, this is generally a precautionary statement attributed to all areas associated with chalk within the ground profile. Therefore, this does not identify any underground chalk features at the site location.
- No records of Brit Pits, surface ground workings were noted within 500m radius of the site;
- No records of Underground workings, Mining Cavities or JPB Mining Areas were noted within a 500m radius of the site.
- The Edmonds Procedure (Edmonds, C.N., 2001. Predicting natural cavities in chalk. Geological Society, London, Engineering Geology Special Publications, 18(1), pp.29-38.); highlighted no anticipated subsidence hazard classification.

This risk assessment indicates that there is a very low to low risk from the dissolution of soluble rocks at the site.

The intrusive investigation encountered Topsoil or Made Ground to a depth of between 0.60 – 0.90m bgl the Holywell Nodular Chalk Formation for the remaining depth of the trial holes at a maximum depth of 10.00m bgl in BH02 and BH03. As a result of sample disturbance during the drilling/excavation process the chalk was generally classified as Grade Dc, in accordance with CIRIA 574. The geotechnical laboratory testing indicated the chalk clasts within the boreholes to be of

medium to high density, with a dry density of between 1.55 – 1.71mg/m³. The Seaford Chalk Formation was anticipated to have no volume change potential in accordance with CIRIA C574.

The SPT “N” blow counts displayed within Section 5.1.2 the Seaford Chalk Formation had an SPT blow count of between 11 and >50 in the boreholes **which are considered moderate with regards to geotechnical assessment.**

No groundwater was encountered during the intrusive investigation.

6.2. Soil Characteristics and Foundation Considerations

A summary of the soil characteristics following the intrusive site investigation and laboratory testing and the relevant foundation considerations has been provided below. The following information from the ground investigation was considered pertinent to the design of foundations.

- Foundations should be taken through any Made Ground/Topsoil/Head Deposits and either into, or onto a suitable underlying Seaford Chalk Formation.
- For the chalk bedrock, no volume change potential can be considered.
- Given the presence of cohesive soils at shallow depth, special foundation precautions may be required to prevent possible future shrinkage/swelling of the soils affecting the integrity of the faces of foundations (underfloor void diameter/compressible material/void formers etc.).
- The loads of proposed foundations should not exceed the allowable bearing capacity of the soils they are founding upon.
- Foundations must not be placed within fresh root penetrated and/or desiccated soils with volume change potential. It is recommended that foundations are taken at least 300mm into non-fresh root penetrated strata if the soils have volume change potential, or into soils of no volume change potential.
- The influence of trees on or surrounding the site will need to be taken into account in final design (NHBC Standards Chapter 4. 2) (tree rings).
- Any water ingress must be prevented from entering foundation trenches and excavations must be kept dry and either concreted or blinded as soon after excavation as possible. If water were allowed to accumulate within the excavation for even a short period of time, an increase in heave occur. The shear strength will also be reduced, resulting in lower bearing capacities, resulting in increased settlements. Instability issues may arise within the foundation trenches, in case of perched water being present.

6.3. Shallow Foundations

Based on the previous section, it was considered that strip foundations could be adopted for the proposed redevelopment with foundations taken through any Topsoil, disturbed ground, below any roots if encountered and into or onto the Head Deposits and/or the underlying Seaford Chalk Formation.

Foundations constructed on the Head Deposits can be designed based on a general bearing capacity of **80kN/m²** for foundations within the Head Deposits.

Foundations constructed on the Seaford Chalk Formation can be designed based on a general bearing capacity of **125kN/m²** for foundations within the chalk. If the formation level proves to be competent Dc chalk, a higher bearing capacity reaching 225kN/m² might be achievable.

This is based on the trial holes logs, in-situ testing, reference to CIRIA 574, a 5m long by 1m wide foundation and a maximum settlement of 25mm. Differential settlement may occur where foundations cross between the more clast dominated chalk to more structured chalk and this should be taken into account in final design.

Additional Comments

A number of comments and recommendations has been provided below.

- It is prudent to avoid having a foundation spanning across materials of different consistency, like clay and gravel, in order to avoid potential differential settlements. If unavoidable, foundations must be reinforced to allow for such potential differential movement. It should be noted that differential settlement may also occur between strip and isolated pad foundations.
- Foundation excavations must be carefully bottomed out and any loose soil or soft spots removed prior to the foundation concrete or blinding being placed. Failure to ensure that foundation excavations are suitably bottomed out could result in additional settlements.
- Inspection of foundation excavations, prior to concreting, must be made by a competent and suitably qualified person to check for soft spots and to check for the presence of roots.
- Foundations must not be cast over foundations of former structures and/or other hard spots.
- Isolated Pad Foundations must be at least 1.5 times the width of the widest pad apart to keep to the anticipated settlements.
- Final designs for the foundations should be carried out by a suitably qualified Engineer based on the findings of this investigation and with reference to the anticipated loadings, serviceability requirements for the structure and the developments proximity to former, present, and proposed trees. Where trees are mentioned in the text this means existing trees, recently removed trees (approximately 15 years to full recovery on cohesive soils) and those planned as part of the site landscaping.

6.4. Piled Foundation

Based on the results of the intrusive investigation, a piled foundation scheme was unlikely to be required.

6.5. Ground Bearing Slabs

During the site investigation, Made Ground was encountered to a maximum depth of 0.90m bgl, overlying gravelly clay and slightly clayey gravelly sand of the Head Deposits to a depth of between 1.20 – 2.70m bgl overlying chalk to the base of the boreholes at a maximum depth of 10.00m bgl. No groundwater was encountered.

We understand that site levels are to be reduced by approximately 1.40m in the area of the proposed structure.

Based upon this, ground bearing slabs should be able to be adopted for the proposed structure. Where possible any remaining Made Ground should be removed from below the slab and the formation level should be proof rolled and any soft spots removed and infilled with a suitably compacted granular material. Site levels should be brought up to underside of proposed slab level using with suitable granular soil (Type I or Type II) rolled in thin layers. The slabs must be reinforced and cast in small bays with dowels cast at the interface between each of the bays to reduce the risk of differential settlement affecting the slab.

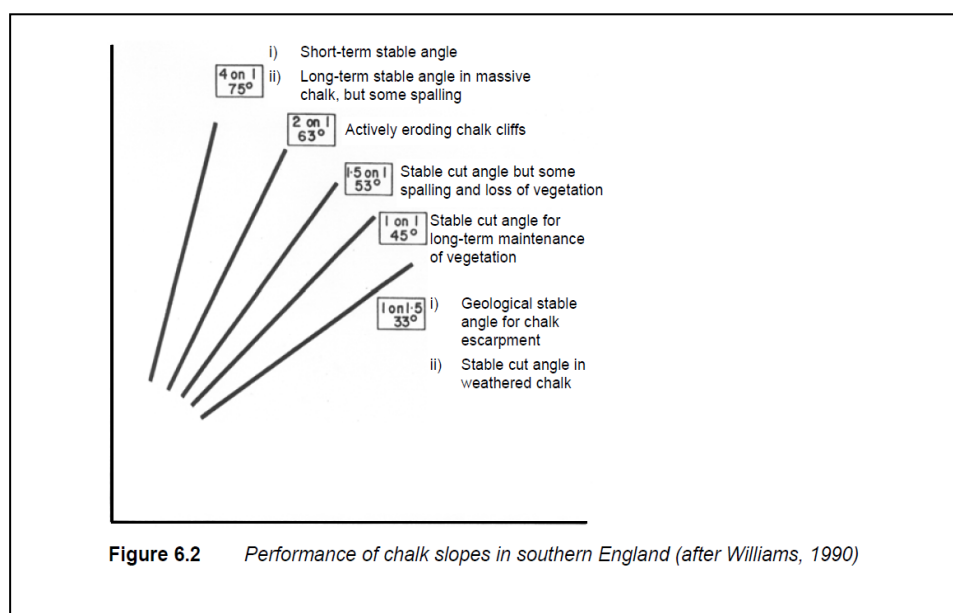
6.6. Excavations and Stability

Shallow excavations in the Topsoil/Made Ground and Head Deposits are likely to be marginally stable at best. Long, deep excavations, through these strata and into the underlying Seaford Chalk Formation are likely to become unstable.

For excavations in the chalk, in the **short term only** an angle of 75° can be adopted for both the unstructured and the structured chalk provided that appropriate risk assessments and method statements (RAMS) allow for some spalling to occur.

A definitive duration cannot be given to the length of time to which “Short Term” applies. No definition is given in CIRIA574 but it is likely the term refers to the construction stage. The fact that the slopes have been cut for a short period of time is unlikely to adversely affect the performance of the slopes during the construction phase.

Please find below a copy of Fig 6.2 form CIRIA C574.



As you will see 75° angle in the long term is for massive chalks with some spalling.

During the construction phase, regular inspections of the overall stability of the slope should be undertaken to maintain the safe working conditions below the cut slopes and this should be included within the RAMS.

Unsupported earth faces formed during excavation may be liable to collapse without warning and suitable safety precautions should therefore be taken to ensure that such earth faces are adequately supported before excavations are entered by personnel.

Retaining walls within the unstructured matrix and clast supported chalk should be designed based on an effective cohesion of 0kpa and an angle of friction of 33° (CIRIA 574).

Retaining wall design will need to be in accordance with Section 6 of CIRIA 574.

6.7. Sub-Surface Concrete Design

Concrete to be placed in contact with soil or groundwater must be designed in accordance with the recommendations of Building Research Establishment Special Digest 1, 2005, '*Concrete in Aggressive Ground*' considering the pH of the soils. For the classification given below, the "mobile" and "brownfield" land use case was adopted given the geology encountered and the residential use of the site. This assessment was based on the results of laboratory testing summarised within Section 5, specifically relating to sulphates, pH and other water soluble chemicals.

Made Ground

The water-soluble sulphates in the Made Ground were noted to be 20.2 - 109mg/l, with a pH of 8.2 – 8.5, from chemical laboratory testing.

Head Deposits

According to Box C6 of BRE Special Digest 1, 2005, '*Concrete in Aggressive Ground*', the Head Deposits did not within a list of UK geological formations known to contain pyrite. Consequently, it was not required to consider the levels of total potential sulphate in the classification process.

The water-soluble sulphates in the Head Deposits were noted to be 43.5mg/l, with a pH of 8.0, from geotechnical laboratory testing.

According to BRE Special Digest 1, 2005, '*Concrete in Aggressive Ground*' a Sulphate Design Class of DS-1 should be used for sub-surface concrete in contact with the Head Deposits. Table C1 of the Digest indicated an ACEC (Aggressive Chemical Environment for Concrete) classification of AC-1.

Seaford Chalk Formation

According to Box C6 of BRE Special Digest 1, 2005, '*Concrete in Aggressive Ground*', the Seaford Chalk Formation did not within a list of UK geological formations known to contain pyrite. Consequently, it was not required to consider the levels of total potential sulphate in the classification process.

The water-soluble sulphates in the Seaford Chalk Formation were noted to be 53.7 - 301mg/l, with a pH of 78.2 – 8.5, from geotechnical laboratory testing.

According to BRE Special Digest 1, 2005, '*Concrete in Aggressive Ground*' a Sulphate Design Class of DS-1 should be used for sub-surface concrete in contact with the Seaford Chalk Formation. Table C1 of the Digest indicated an ACEC (Aggressive Chemical Environment for Concrete) classification of AC-1.

6.8. Roads and Hardstanding Design

This section provides information relating to the construction of roads and hardstanding, for each strata encountered.

6.8.1. Anticipated CBR Values and Frost Susceptibility

Topsoil

Roads and hardstanding should bypass Topsoil given the likely low strength, high compressibility and general variability.

Made Ground

Where roads and hardstanding are to be founded on Made Ground, a CBR value of 1% should be adopted, as a result of the variable nature of Made Ground in terms of consistency, strength and compressibility.

Head Deposits

Roads and hardstanding constructed on the cohesive Head Deposits should be designed based on a CBR value of 4.0%. This is based on reference to Table C1 of TRL1132 and average construction conditions. Based on wet conditions a CBR of 2.5% should be adopted, with dry conditions a CBR of 4.5% being applicable.

These clay-based soils (poorly drained) with plasticity indexes generally greater 20% are likely to be non-frost susceptible. Due to their granular content however, they should be treated as frost susceptible in design.

Seaford Chalk Formation

In accordance with CIRIA 574, Part 4.7 *The Action of Frost on Chalk*, all chalk deposits can be seen to be frost susceptible. The magnitude of frost heave increases linearly with the saturation moisture content of the chalk aggregate. The weak chalk of south-east England is particularly prone to frost heave in the climatic conditions of the area. Therefore a minimum construction thickness of 450mm should be maintained.

All formation levels for roads and hardstanding should be proof rolled to highlight any soft areas which should then be dug out and replaced with selected granular material compacted in thin layers to a suitable specification.

6.8.2. In-Situ California Bearing Ratio Tests by Dynamic Cone Penetrometer

In-situ California Bearing Ratio (CBR) testing by dynamic cone penetrometer (DCP) was undertaken to determine the CBR values of the soils underlying the site to shallow depth in accordance with BS1377 Part 9: 2016: 4.3 and a summary of the results is tabulated below. The full test results are presented in Appendix C.

In-situ CBR Test Results Summary					
Test Location	Layer 1 (Head Deposits)	Layer 2 (Head Deposits)	Layer 3 (Head Deposits)	Layer 4 (Head Deposits)	Layer 5 (Head Deposits)

	Thickness (mm)	In-situ CBR (%)	Thickness (mm)	In-situ CBR (%)	Thickness (mm)	In-situ CBR (%)	Thickness (mm)	In-situ CBR (%)	Thickness (mm)	In-situ CBR (%)
DCP01	375mm	22%	430mm	8%	-	-	-	-	-	-
DCP02	40mm	6%	125mm	25%	5mm	239%	505mm	12%	80mm	16%
DCP03	110mm	16%	50mm	32%	260mm	21%	90mm	36%	335mm	16%

6.9. Surface Water Disposal

Soakaway testing in accordance with BRE365 was undertaken within TP01 – TP08 within the Head Deposits and the results are tabulated below.

Soakage Testing Results						
Trial Hole	Test Number	Depth (m bgl)	Start Depth (m bgl)	Finish Depth (m bgl)	Time Taken (mins)	Infiltration Rate (m/sec)
TP01	1	1.00	0.60	1.00	60	4.22×10^{-5}
	2	1.00	0.18	0.88	94	3.76×10^{-5}
	3	1.00	0.40	0.93	90	4.14×10^{-5}
TP02	1	1.00	0.54	1.00	20	1.85×10^{-4}
	2	1.00	0.45	1.00	69	8.42×10^{-5}
	3	1.00	0.39	0.97	60	7.18×10^{-5}
TP03	1	1.00	0.10	1.00	50	9.90×10^{-5}
	2	1.00	0.39	0.91	70	6.02×10^{-5}
	3	1.00	0.45	0.93	90	4.36×10^{-5}
TP04	1	1.00	0.53	1.00	30	2.02×10^{-4}
	2	1.00	0.30	0.90	70	5.94×10^{-5}
	3	1.00	0.37	0.95	95	3.88×10^{-5}
TP05	1*	1.00	0.17	0.62	240	7.52×10^{-6}
	2	-	-	-	-	-
	3	-	-	-	-	-
TP06	1*	1.00	0.17	0.61	240	7.06×10^{-6}
	2	-	-	-	-	-
	3	-	-	-	-	-
TP07	1*	1.00	0.14	0.69	240	9.75×10^{-6}
	2	-	-	-	-	-
	3	-	-	-	-	-
TP08	1	1.00	0.20	1.00	39	7.56×10^{-5}
	2	1.00	0.26	1.00	53	5.87×10^{-5}
	3	1.00	0.24	0.81	85	2.38×10^{-5}
*Given the relatively slow infiltration rate encountered, only one test could be undertaken and it did not reach 75% mark.						

Any soakaways should be located sufficiently away from buildings and infrastructure, in order to prevent undermining of foundations.

The submission of a Sustainable Urban Drainage Scheme (SUDS) is likely to be required for this site due to the proposed development increasing the amounts of hardstanding.

Consultation with the Environment Agency must be sought regarding any use that may have an impact on groundwater resources, abstractions and surface water features/watercourses.

It should be noted that water discharge into the chalk may worsen / create dissolution features. Therefore, soakaways should be remote from structures and undertaken in accordance with available guidance.

A number of published information sources make reference to an appropriate distance at which a soakaway should be sited in relation to any building foundations in the vicinity:

- The British Standard BS8301 :1985 “Code of practice for building drainage” (1985), suggests that: “A soakaway is not desirable nearer to a building than about 5 metres nor in such a position that the ground below foundations is likely to be adversely affected.”
- The Building Research Establishment Digest 365 “Soakaway design” (1991), suggests that “Soakaways should not normally be constructed closer than 5m to building foundations. In chalk or other soil and fill material subject to modification or instability, the advice of a specialist geotechnologist should be sought as to the advisability and siting of a soakaway”.

In addition, the distance a soakaway is located from any foundations can be informed by both the soakaway type and chalk density present at the site.

- The Kent County Council Soakaway Design Guide (July 2000) states that “Highway soakaways shall be situated the following minimum distances from dwellings (measured from the outside edge of the soakaway): (1) 5 metres for conventional perforated soakaway; (2) 10 metres for deep bored soakaway. In addition, adjacent soakaways of a similar type shall also be spaced a minimum of 10 metres apart.
- CIRIA 574 states that soakaways should be sited at least 5-10m away from any structure, depending on the chalk density. Where the chalk present is of low or unknown density, soakaways should be sited at least 10m from any foundations, and where the chalk is of medium density or higher, any foundations should be sited at least 5m from any foundations.

7. CONTAMINATION RISK ASSESSMENT

7.1. Results of the Preliminary Risk Assessment

The tabulated Conceptual Site Model (CSM) developed by the Ground and Water Desk Study (ref. GWPR6751/DS/November 2025) is reproduced in section 2.8. For the complete information please see the Desk Study report.

No additional source of contamination, pathway or receptor was identified between the desk study and the ground investigation and as such, it was not necessary to modify the CSM.

In the UK, the assessment of risk from contamination follows the source-pathway-receptor (SPR) approach. For a risk to be present there must be a source of contamination, a receptor or receptors, and a pathway for contaminants to migrate or be absorbed. If there is a linkage between any given source and receptor, then a quantitative risk assessment is used to assess the significance or impact of the pollutant linkage.

7.2. Sampling Locations

The synopsis for the trial hole locations and their final depth can be seen tabulated below. A trial hole location plan is provided within Figures 3 and 4. The table also indicates whether any locations targeted a source of contamination as well as the proposed end-use. The proposed development can be seen in Figure 2.

Trial Hole Location Synopsis		
Trial Hole/Final Depth	Sampling Strategy	Proposed End-Use
BH01/8.20m	Random	Hardstanding
BH02/10.00m	Random	Footprint of Proposed Building
BH03/10.00m	Random	Footprint of Proposed Building
TP01/1.00m	Random	Soft Landscaping
TP02/1.00m	Random	Soft Landscaping
TP03/1.00m	Random	Soft Landscaping
TP04/1.00m	Random	Soft Landscaping
TP05/1.00m	Random	Soft Landscaping
TP06/1.00m	Random	Soft Landscaping
TP07/1.00m	Random	Soft Landscaping
TP08/1.00m	Random	Soft Landscaping
TP09/3.00m	Random	Hardstanding
TP10/3.00m	Random	Hardstanding
TP11/3.00m	Random	Hardstanding
CBR01/0.50m	Random	Hardstanding
CBR02/0.50m	Random	Hardstanding
CBR03/0.50m	Random	Hardstanding

The investigation area totals approximately 5,200m² and with seventeen sampling locations, given an unknown hotspot shape, the sampling density means that a hotspot with an area of approximately 460m² and a radius of approximately 12.1m would be encountered (CLR 4).

7.3. Soil Risk Assessment

Sampling depths were chosen to reflect the receptor of concern (e.g. human health, controlled waters and vegetation). The samples were scheduled under a random strategy. The receptors relevant to the sampling depths are tabulated below.

Summary of Receptors per Sample Depth	
Depth	Receptors
Shallow Samples (< 0.75m bgl)	• End Users (Residents/Future site visitors) • Construction workers during development • Site operatives during maintenance works • Neighbours and public • Vegetation within soft landscaped areas (shallow rooted) • Secondary A Aquifer (Head Deposits) • Principal Aquifer (Seaford Chalk Formation) • Buried Concrete • Receiving landfill

Chemical laboratory testing, scheduled by Ground and Water Limited, and carried out by i2 Analytical Limited, was undertaken on six samples of Made Ground (TP09/0.50m, TP10/0.20m, TP11/0.50m, CBR01/0.50m, CBR02/0.50m and CBR03/0.50m bgl). The samples were subjected to a combination of analysis that comprised:

- Asbestos screen;
- Semi-metals and heavy metals incl. Arsenic, Cadmium, Chromium (incl. Hexavalent Chromium), Copper, Lead, Mercury, Nickel, Selenium, Vanadium, Zinc;
- Polycyclic Aromatic Hydrocarbons (PAH's) incl. Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(ghi)perylene;
- Speciated TPH including full aliphatic/aromatic split; and
- BTEX compounds (Benzene, Toluene, Ethylbenzene, Xylene) and MTBE – used as marker compounds for Volatile Organic Compounds (VOCs).

A breakdown of the number of tests undertaken for each determinand is discussed in further sections. The chemical laboratory results are presented in Appendix E.

7.3.1. Soil Assessment Criteria and Results

At the time of reporting, November 2025, the proposed development was understood to comprise the demolition of the existing service station (comprising petrol filling station, shop, cafe, outbuilding and associated infrastructure) and erection of a new service station (comprising electrical vehicle charging points, shop, restaurant / cafe, toilets and associated infrastructure) together with soft landscaping, revised vehicular access and formation of a new pedestrian link. The proposed development plan can be seen within Figure 2.

Based on the proposed development, the results of the chemical laboratory testing were compared to the Generic Assessment Criteria (GAC) for a '**Commercial**' land-use scenario, as this was considered the most appropriate land-use scenario.

Where a contaminant of concern's GAC varies according to the Soil's Organic Matter (SOM), the SOM recorded for each uncontaminated soil type was used to derive the appropriate GAC for each soil type. A SOM value of 1%, the most conservative value, was utilised.

A summary of the analytical results and the comparison to the determinands adopted screening value are presented in the table below and overleaf.

Soil Contamination Test Results and Screening Values					
Determinand	Number of Samples	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	Adopted Screening Value (mg/kg)	Was the adopted screening value exceeded for relevant land-use scenario?
INORGANICS					
Asbestos	6	ND	ND	ND	No
Cyanide (total)	6	< 1.0	< 1.0	1400	No
Phenols	6	< 1.0	< 1.0	280	No
METALS					
Arsenic	6	8.8	14	640	No
Boron	6	0.3	15	240,000	No
Cadmium	6	0.8	1.3	190	No
Chromium (III)	6	11	18	8,600	No
Chromium (Hexavalent)	6	< 1.8	< 1.8	33	No
Copper	6	6.5	19	6,800	No
Lead	6	50	82	2,300	No
Mercury	6	< 0.3	< 0.3	58	No
Nickel	6	8.6	17	980	No
Selenium	6	< 1.0	1.1	12,000	No
Vanadium	6	14	20	9,000	No
Zinc	6	160	310	730,000	No
TOTAL PETROLEUM HYDROCARBONS (TPHs)					
Aliphatic >C5 - C6	3	< 0.01	< 0.01	3,700	No
Aliphatic >C6 - C8	3	< 0.01	< 0.05	7,800	No
Aliphatic >C8 - C10	3	< 0.01	< 0.01	2,00	No
Aliphatic >C10 - C12	3	1.4	6.0	9,700	No
Aliphatic >C12 - C16	3	3.8	20	59,000	No
Aliphatic >C16 - C21	3	< 8.0	41	1,600,000	No
Aliphatic >C21 - C35	3	23	130	1,600,00	No
Aliphatic >C35 - C40	3	< 10	44	1,600,000	No
Aromatic >C5 - C7	3	< 0.01	< 0.01	26,000	No
Aromatic >C7 - C8	3	< 0.01	< 0.01	56,00	No
Aromatic >C8 - C10	3	< 0.02	< 0.02	3,500	No
Aromatic >C10 - C12	3	< 1.0	< 1.0	16,000	No
Aromatic >C12 - C16	3	3.6	18	36,000	No
Aromatic >C16 - C21	3	54	240	28,000	No
Aromatic >C21 - C35	3	190	670	28,000	No
Aromatic >C35 - C40	3	24	140	28,000	No
Benzene	3	< 0.005	< 0.005	27	No
Toluene	3	< 0.005	< 0.005	5,600	No
Ethylbenzene	3	< 0.005	< 0.005	5,700	No
m,p-Xylene	3	< 0.008	< 0.008	6,600	No
o-Xylene	3	< 0.005	< 0.005	6,600	No

POLYCYCLIC-AROMATIC HYDROCARBONS					
Acenaphthene	6	< 0.05	1.70	84,000	No
Acenaphthylene	6	< 0.05	0.48	83,000	No
Anthracene	6	< 0.05	4.1	520,000	No
Benzo(a)anthracene	6	0.10	19	170	No
Benzo(a)pyrene	6	0.11	31	35	No
Benzo(b)fluoranthene	6	0.16	43	44	No
Benzo(ghi)perylene	6	0.06	27	3,900	No
Benzo(k)fluoranthene	6	< 0.05	13	1,200	No
Chrysene	6	0.09	19	350	No
Dibenzo(a,h)anthracene	6	< 0.05	5.1	3.50	Yes TP10/0.20m bgl
Fluoranthene	6	0.16	31	23,000	No
Fluorene	6	< 0.05	1.1	63,000	No
Indeno(1,2,3-cd)pyrene	6	< 0.05	24	500	No
Naphthalene	6	< 0.05	< 0.05	1,600	No
Phenanthrene	6	< 0.05	11	22,000	No
Pyrene	6	0.16	29	54,000	No
MARKER FOR VOLATILE ORGANIC COMPOUND					
Methyl tert-butyl ether (MTBE)	3	< 0.05	< 0.05	7,900	No
The derivation of the Soil Assessment Criteria used within this report can be seen within Appendix E. The soil concentrations were typically compared to the LQM/CIEH Suitable for Use Levels (S4UL) (2014), based upon the assumption of 1% soil organic matter. A screening value for Lead is based on the Category 4 Screening Levels (C4SLs). Where no S4UL or C4SL is available for Cyanide, a SoBRA acute GAC is assigned. Where no S4UL or C4SL is available for MTBE, a CL:AIRE 2010 GAC is assigned. Where exceedances are noted, the trial hole and depth of sample is recorded.					

The proposed development includes areas of soft-landscaping, where shallow rooted vegetation may be exposed to aggressive ground conditions. The previous table compares the results of the laboratory analysis to GAC that is protective of Human Health and therefore different GAC is required for vegetation.

Soil Contamination Test Results and Screening Value					
Determinand	Number of Samples	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	Adopted Screening Value (mg/kg)	Was the adopted screening value exceeded for relevant land-use scenario?
Copper	6	6.5	19	200	No
Nickel	6	8.6	17	110	No
Zinc	6	160	310	300	Yes TP11/0.50m
The derivation of the Soil Assessment Criteria used within this report can be seen within Appendix E. The soil concentrations were compared to BS3882:2015 <i>Specification for Topsoil</i> and based on differing pH. For the purpose of conservatism, the pH of the soils have been assumed to be below 6 within this table. Where exceedances are noted, the trial hole and depth of sample is recorded.					

An elevated concentration of zinc was noted marginally over the threshold in the sample of Made Ground within TP11 tested above the phytotoxicity threshold trigger value. Consequently, specialist planting may be required in this area and the advice of a suitably experienced horticulturalist should be obtained.

7.3.2. Soil Assessment

The comparison between the laboratory analysis and the assessment criteria indicates that there is an unacceptable risk to future receptors caused by an exceedance of Dibenzo(a,h)anthracene in the sample from TP10/0.20m bgl (5.1mg/kg). **The location of TP10 falls under a proposed area of hardstanding and therefore does not present an unacceptable risk to future receptors. However, construction workers should wear appropriate PPE**

The remaining determinands were identified at below the adopted screening value and are not considered to represent an unacceptable risk to future receptors. Where an unacceptable risk to future receptors remains, mitigation is required.

Due to the nature of the contamination encountered at the site and the proposed end use, it is not considered that there is an unacceptable risk to future human health receptors and no remediation is required as part of any site development at the present time. Given the historical land-use of the site, the presence of tanks and other underground infrastructure of the re-fuelling station, gross contamination may be encountered during the removal of these features. A discovery strategy must be in place. Should contamination be encountered during and following removal of the USTs and the septic tank or should the proposed development change then these conclusions would need to be re-evaluated following additional testing.

Asbestos

No asbestos has been identified during the testing, however, given the age of the structures on-site, an **Asbestos Management Strategy** should be put in place so that any potentially asbestos containing materials are identified and removed from site in a suitable manner to prevent cross-contamination. An Asbestos Survey should be undertaken pre-demolition of any buildings/structures.

7.3.3. Water Supply Pipe Risk Assessment

As part of the proposed development it is expected that new water supply pipes will be installed at the site. Water supply pipes have the potential to be exposed to contaminants in the ground that can lead to unacceptable concentrations within the drinking water. If a risk is identified, specialist pipes that are protective of the drinking water are required.

A pipe selection risk assessment should be submitted to the water supply company as part of the development based on the supplier's assessment criteria. An indication of whether there is likely to be a risk can be seen tabulated below, where the PE pipe thresholds are based on *UKWIR Contaminated Land Assessment Guidance, 2014*.

Pipe Selection Risk Assessment			
Determinand	PE Pipe Threshold (mg/kg)	Laboratory Analysis Range (mg/kg)	Was the Threshold Exceeded?
Total BTEX and MTBE	0.1	LOD	No
Total VOCs	0.5	Markers at BTEX	No
Total SVOCs	2	Markers at BTEX	No
Phenols	2	LOD	No
TPH EC5 – EC10 (aliphatics and aromatics)	2	LOD	No

TPH EC10 – EC16 (aliphatics and aromatics)	10	9.0 – 40	Yes TP11/0.50m CBR02/0.50m
TPH EC16 – EC40 (aliphatics and aromatics)	500	291 – 1,256	Yes TP11/0.50m CBR02/0.50m
Naphthalene	5	LOD	No

Due to elevated levels of the hydrocarbons (TPH EC10 – EC16 and EC16 – EC40 (aliphatics and aromatics)) identified in chemical laboratory testing above the threshold for PE Pipe, barrier or metal pipes must be used. Additional testing and sampling of the soils at the exact depth and location of pipes should be undertaken to confirm.

7.4. Groundwater Risk Assessment

In the UK, the water environment is protected under a number of regulatory regimes, mainly governed by the Environment Agency. The Environment Agency is consulted when there may be a risk to Controlled Waters, or where a pollution incident has occurred historically. The Water Framework Directive is implemented in various guises covering groundwater, surface water and drinking water supply.

A study of the aquifer maps on the DEFRA website revealed the site was underlain by a **Secondary A Aquifer** comprising the superficial Head Deposits, underlain by a **Principal Aquifer** comprising bedrock deposits of the Seaford Chalk Formation.

Examination of the Environment Agency records showed that the site was located within a Total Catchment (Zone III) Groundwater Source Protection Zone (SPZ) as classified in the Policy and Practice for the Protection of Groundwater.

The nearest surface water feature was an unnamed stream 37m to the south-west and flowing in a easterly direction.

From analysis of hydrogeological and topographical maps the actual groundwater table was anticipated to be encountered at depth within the Seaford Chalk Formation. Some amounts of groundwater however may be present at shallower depths within any Made ground and silty/sandy pockets of the Head Deposits. It was considered that groundwater was flowing in an easterly direction in line with local topography.

During the site investigation, Made Ground was encountered to a maximum depth of 0.90m bgl, overlying gravelly clay and slightly clayey gravelly sand of the Head Deposits to a depth of between 1.20 – 2.70m bgl overlying chalk to the base of the boreholes at a maximum depth of 10.00m bgl. No groundwater was encountered.

Low levels of hydrocarbons were detected in the shallow Made Ground that were below the threshold for the human health receptor for the proposed development. No groundwater was encountered in the deep boreholes that were drilled to a depth of 10m bgl. The presence of cohesive Head Deposits will likely mitigate any migration from the shallow soils into the underlying groundwater that will be encountered below 10m bgl. Based on the information to date, it is unlikely that the groundwater

would rise and come into contact with the impacted soils, therefore reducing the pathway to the underlying deep aquifer. The presence of hardstanding across the majority of the site with help to reduce any eluate/leachate production.

Should contamination be encountered during and following removal of the existing concrete slab, USTs and the septic tank then further risk assessment should be undertaken to confirm any impact and remedial measures that may be required to protect the underlying Principal Aquifer within the Seaford Chalk Formation.

7.5. Ground Gas Risk Assessment

A review of Phase I Desk Study did not identify any source of ground gas on-site or within influencing distance of the site that warranted investigation through ground gas monitoring. The only source of ground gases was anticipated to be limited Made Ground and therefore classified as 'Low risk', where the pragmatic approach to ground gas risk assessment presented within the CL:AIRE research bulletin RB17 and included within Annex D of BS8485:2015+A1:2019 can be considered.

7.5.1. Pragmatic Approach

The alternative approach to ground gas risk assessment considers the uncertainty from the measurement of ground gas concentrations and flow rates in monitoring wells for low-risk sites and removes the need for monitoring. Low risk sites typically comprise:

- Natural soils with high carbonate content (e.g. chalk);
- Natural soils that can produce gases (e.g. alluvium, peat etc.);
- Made Ground between 1.00m to 5.00m, with low organic content; and
- Areas of flooded mine workings, unless a building is to be within 20m of shaft or adit.

The method considers the gas generation potential of the soils from data that is not subject to external influences, for example atmospheric pressure can change the recorded flow and concentrations of ground gas during spot monitoring, or a rising groundwater level can displace ground gases in pore spaces. Determination of the characteristic situation is based on the total organic carbon (TOC) of the soils, coupled with any organic-rich material identified within the borehole logs, such as wood gravels. TOC is easily analysed by the laboratory and can also be calculated by the equation outlined below.

$$\text{Total Organic Carbon (TOC)} = 0.58 \times \text{Soil Organic Matter (SOM)} = 1.33 \times \text{Degradable Organic Carbon (DOC)}$$

As part of the ground investigation works, six samples of Made Ground were submitted to the laboratory for analysis, which identified TOC to vary between 1.1% and 1.9% in the Made Ground. The trial hole logs identified the gravels within the Made Ground to comprise brick (60%) and concrete (40%). Made Ground was identified to a maximum depth of 0.90m bgl.

7.5.2. Data Quality

A review was made of the quality of the available data for the site, which can be viewed in the table below. CIRIA Report C665 (2007), BS 8485:2015+A1:2019 and BS 8576:2013 stress the need for risk assessments to be based on good quality data and give guidance as to best practice in this respect.

Review of Data Quality			
Data Type	Current Understanding	UK Practice	Recommendation

Geological and hydro-geological conditions	The CSM identified the site to be located on limited Made Ground (<0.90m), overlying both permeable and impermeable strata of the Head Deposits over permeable Seaford Chalk Formation. No groundwater has been encountered.	CIRA C665 & C659, Wilson and Card (1999) and BS 8485 recommend that geology and hydrogeology be fully understood.	The geological and hydrogeological model is understood to a standard that will not comprise the findings of the risk assessment. No further action required.
Soil Laboratory Analysis	A dataset of soil analysis from 6No. samples of Made Ground have identified a range of TOC concentrations between 1.1% and 1.9%.	CL:AIRE RB17 outlines an approach to ground gas risk assessment away from the influences that directly affect ground gas monitoring. It should typically be used on sites with limited sources identified in the CSM and Made Ground with average thickness <3m and maximum thickness <5m. TOC should be < 4/6%.	The TOC concentrations are below the limit of 6% in order to use the soil derived approach for the risk assessment. No further action required.

7.5.3. Risk Assessment

The intrusive investigation has revealed a maximum thickness of Made Ground of 0.90m overlying Head Deposits comprising cohesive and granular soils which in turn rest upon the Seaford Chalk Formation to the base of the boreholes. Site has undergone a previous phase of construction and limited degradable material has been identified. The introduction of oxygen to the Made Ground through redevelopment may lead to an initial increase of ground gas generation as degradable material within the soils present on-site may act as source of ground gas. The soils at the site are considered to be of variable permeability (low to high) in nature and pathways for ground gas migration will be present.

Using the soil derived method, it is considered that a TOC value of <1% within soil is unlikely to pose an unacceptable risk from ground gases and the site can be characterised as Characteristic Situation CS1. Any value between 3% and 6% warrants classification as a Characteristic Situation CS3. Any value over 4% requires investigation through ground gas monitoring. Any site with Made Ground <1.00m bgl will have a limited gas generation potential from the organic carbon present and consideration should be given to this thickness within the risk assessment.

An alternative approach for ground gas risk assessment (CL:AIRE RB17) can be considered utilising measured concentrations from soil parameters that are independent of influencing factors such as atmospheric pressure and groundwater level. Total Organic Carbon (TOC) was tested on 8No. samples with the analytical results ranging between 1.1 and 1.9%. Furthermore, it is considered that a thickness of <0.80m would not generate sufficient ground gas to pose an unacceptable risk.

Based on the soil derived method outlined and the maximum TOC concentration encountered, the soils from site would warrant classification as **Characteristic Situation CS1**. It should be noted that this only represents the assessment from an on-site source.

7.6. Vapour Risk Assessment

The CSM identified sources of contamination in the form of USTs that may pose an unacceptable risk to receptors through vapours. During both the previous and current investigation no olfactory or visual signs of contamination were noted in any of the soil samples collected. However, very low concentrations of hydrocarbon vapours were recorded in a small number of samples, predominantly from depths <2.00m bgl during the previous investigation.

During the removal of tanks should any olfactory or visual signs of contamination be noted then samples should be taken and tested for contaminants that may be present in the vapour phase (Mercury, Napthalene, TPHs and Volatile Organic Compounds (VOCs)) which would enable a vapour risk assessment to be undertaken. PID readings should also be taken during logging of the samples.

7.7. Updated Conceptual Site Model

Following completion of the Phase 2 Site Investigation, the CSM, inclusive of associated risk, within Section 2.8 of this report was re-evaluated.

For ease of reference and understanding, the risks have been re-assigned within this risk assessment against three possible levels / categories, summarised in the table below.

Risk Categories used in the Tabulated CSM	
Low Risk	Regarding this potential SPR linkage, the site is considered suitable for the proposed end-use and there is not considered to be an unacceptable risk to receptors.
Moderate Risk	Regarding this potential SPR linkage, the site is suitable for the proposed end-use however remediation and/or further investigation is required.
High Risk	Regarding this potential SPR linkage, the site is not suitable for proposed end-use and there is an unacceptable risk to receptors. Urgent action required in the short term.

Tabulated Conceptual Site Model – Pollutant Linkage Summary			(On-Site Sources)
Potential Sources	Potential Absorption Pathways	Potential Receptors	Risk Classification
Contaminants introduced on-site by former use of the site as a petrol filling station with underground fuel tanks/oil interceptor. - Asbestos, - PAHs, - TPHs, - VOCs, - Sulphates, and - Metals. Elevated concentrations of Dibenzo(a,h)anthracene were identified in the sample from TP10/0.20m bgl (5.1mg/kg). The location of TP10 falls under a proposed area of hardstanding and therefore does not present an unacceptable risk to future receptors and no remediation with respect to end users is required. Construction workers should wear appropriate PPE. Elevated concentrations of zinc were noted in one sample of Made Ground tested above the phytotoxicity threshold trigger value. Consequently, specialist planting may be required and the	- Direct ingestion of soil and soil derived dust - Dermal contact of soil and soil derived dust - Inhalation of dust (indoors and outdoors) with elevated concentration of determinands - Direct ingestion of groundwater - Inhalation of volatile vapour (indoors and outdoors)	Human Health - End Users (Site workers/Future site visitors) - Construction workers during development - Site operatives during maintenance works - Neighbours and public	Low
	- Direct uptake of groundwater - Direct uptake of determinands in the soil	Flora and Fauna Vegetation within soft landscaped areas	Moderate
	- Anthropogenic (man-made) pathways - Vertical and lateral migration in permeable strata - Surface water runoff	Controlled Waters - Secondary A Aquifer (Head Deposits) - Principal Aquifer (Seaford Chalk Formation) - Stream 37m to the south	Low subject to findings after removal of USTs and associated infrastructure

advice of a suitably experienced horticulturalist should be obtained.			
No other elevated levels noted during investigation.			
Underground fuel tank in south-east corners:	• Direct ingestion of soil and soil derived dust • Dermal contact of soil and soil derived dust • Inhalation of dust (indoors and outdoors) with elevated concentration of determinands • Direct ingestion of groundwater • Inhalation of volatile vapour (indoors and outdoors)	Human Health • End Users (Site workers/Future site visitors) • Construction workers during development • Site operatives during maintenance works	Moderate
• TPHs,	• Direct uptake of groundwater • Direct uptake of determinands in the soil	Flora and Fauna • Vegetation within soft landscaped areas	Moderate
The presence of tanks and other underground infrastructure of the re-fuelling station, gross contamination may be encountered during the removal of these features. A discovery strategy must be in place.	• Anthropogenic (man-made) pathways • Vertical and lateral migration in permeable strata • Surface water runoff	Controlled Waters • Secondary A Aquifer (Head Deposits) • Principal Aquifer (Seaford Chalk Formation) • Stream 37m to the south	Moderate
Septic tank close to eastern boundary:	• Direct ingestion of soil and soil derived dust • Dermal contact of soil and soil derived dust • Inhalation of dust (indoors and outdoors) with elevated concentration of determinands • Direct ingestion of groundwater • Inhalation of volatile vapour (indoors and outdoors)	Human Health • End Users (Site workers/Future site visitors) • Construction workers during development • Site operatives during maintenance works • Neighbours and public	Low
• Ammonia;	• Direct uptake of groundwater • Direct uptake of determinands in the soil	Flora and Fauna • Vegetation within soft landscaped areas	Low
• bacterial compounds such as faecal coliforms and faecal streptococci	• Anthropogenic (man-made) pathways • Vertical and lateral migration in permeable strata • Surface water runoff	Controlled Waters • Secondary A Aquifer (Head Deposits) • Principal Aquifer (Seaford Chalk Formation) • Stream 37m to the south	Low
The void created following tank removal should be investigated.			
Made Ground from construction activities:	• Direct ingestion of soil and soil derived dust • Dermal contact of soil and soil derived dust • Inhalation of dust (indoors and outdoors) with elevated concentration of determinands • Direct ingestion of groundwater	Human Health • End Users (Site workers/Future site visitors) • Construction workers during development • Site operatives during maintenance works	Low
• Asbestos,			

• PAHs, • Sulphates, and • Metals. Elevated concentrations of Dibenzo(a,h)anthracene were identified in the sample from TP10/0.20m bgl (5.1mg/kg). The location of TP10 falls under a proposed area of hardstanding and therefore does not present an unacceptable risk to future receptors and no remediation with respect to end users is required. Construction workers should wear appropriate PPE Elevated concentrations of zinc were noted in one sample of Made Ground tested above the phytotoxicity threshold trigger value. Consequently, specialist planting may be required and the advice of a suitably experienced horticulturalist should be obtained. No other elevated levels noted during investigation.	• Inhalation of volatile vapour (indoors and outdoors) • Direct uptake of groundwater • Direct uptake of determinands in the soil	• Neighbours and public Flora and Fauna • Vegetation within soft landscaped areas	Moderate
	• Anthropogenic (man-made) pathways • Vertical and lateral migration in permeable strata • Surface water runoff	Controlled Waters • Secondary A Aquifer (Head Deposits) • Principal Aquifer (Seaford Chalk Formation) • Stream 37m to the south •	Low
Aggressive ground conditions with Made Ground and natural ground, including groundwater:	• Direct contact with aggressive ground conditions	Building Materials and Services • Buried Concrete • Underground services (water pipes)	Low (concrete) Moderate (water pipes)

- Sulphates, - PAH/TPH. The sulphates fell into Class DS-1 and AC-1 Due to elevated levels of the hydrocarbons (TPH EC10–EC16 and EC16 – EC40 (aliphatics and aromatics)) identified in chemical laboratory testing above the threshold for PE Pipe, barrier or metal pipes must be used. Additional testing and sampling of the soils at the exact depth and location of pipes should be undertaken to confirm.			
Ground gases generated by generated by the anaerobic decomposition of any leaked hydrocarbons beneath site and Made Ground: - Methane, - Carbon Dioxide, - Hydrogen Sulphide, and - Carbon Monoxide Based on soil analysis, the site falls into the CS1 classification.	- Migration through anthropogenic & natural pathways - Inhalation of Asphyxiating gases - Explosion (methane only)	Human Health - End Users (Residents/Future site visitors) - Construction workers during development (especially in confined spaces) - Site operatives during maintenance works in confined spaces - Neighbours and public	Low
	- Migration through anthropogenic & natural pathways - Explosion (methane only)	Building Materials and Services - Buildings - Confined spaces - Underground services	Low

8. CONTAMINATION RECOMMENDATIONS AND REMEDIATION STRATEGY

Based on the results of the intrusive works, chemical analyses and risk assessments undertaken, no contamination requiring remediation has been identified. Elevated concentrations of Dibenzo(a,h)anthracene were identified in the sample from TP10/0.20m bgl (5.1mg/kg). **The location of TP10 falls under a proposed area of hardstanding and therefore does not present an unacceptable risk to future receptors and no remediation with respect to end users is required** The presence of cohesive Head Deposits underlying the location of TP10 will likely mitigate any migration from the shallow soils into the underlying groundwater that will be encountered below 10m bgl.

Elevated concentrations of zinc were noted in one sample of Made Ground tested above the phytotoxicity threshold trigger value. Consequently, specialist planting may be required and the advice of a suitably experienced horticulturalist should be obtained.

Given the age of the structures on-site, an **Asbestos Management Strategy** should be put in place so that any potentially asbestos containing materials are identified and removed from site in a suitable manner to prevent cross-contamination. An Asbestos Survey should be undertaken pre-demolition of any buildings/structures.

Prior to any construction on-site, a degree of site preparation is required. This should include the decommissioning of any boreholes, demolition of existing structures, and the removal of below ground infrastructure (tanks, oil-water interceptor, pipes etc.).

Given the historical land-use of the site, the presence of tanks and other underground infrastructure of the re-fuelling station, gross contamination may be encountered during the removal of these features. A discovery strategy must be in place. Should contamination be encountered during and following removal of the USTs and the septic tank or should the proposed development change then these conclusions would need to be re-evaluated following additional testing.

8.1.1. Removal of Infrastructure and Gross Contamination

During the works, the contractor must remove all below ground tanks, chambers and pipework under the supervision of a Ground and Water Limited engineer. This process should include the off-site removal of any potentially contaminated liquids, sludges or oil product, as well as any visual or olfactorily contaminated soils that surround the infrastructure. This process is to remove any gross contamination and its source to ensure groundwater conditions do not deteriorate over time.

The metalwork and soils shall be removed and stockpiled on an impermeable liner with raised edges and covered at all times. This contamination stockpile destined for removal from site shall be stored away from imported soils to avoid cross-contamination. Materials to be removed off-site must be classified by carrying out Waste Acceptance Produce (WAP) testing. A registered contractor must undertake the removal of waste. Consignment notes for the removal of waste must be obtained and kept for inclusion within the final Validation Report.

Following removal, the void shall be inspected and samples must be taken from the base and walls of the excavation and tested for TPHs and VOCs/SVOCs to enable validation that the no associated contamination remains. Should these samples indicate unacceptable concentrations, a Petrofix

solution should be sprayed into the excavations in order to further reduce the contamination risk of the groundwater.

The PetroFix method removes hydrocarbons from the dissolved phase by adsorbing it onto activated carbon particles and then stimulates biodegradation by adding electron acceptors. This method will take around 2 weeks to remediate the site. The design and quantity of the solution should be agreed with a specialist remediation contractor.

The method adopted allows for the targeted remediation of the known location of contaminants, prior to the backfilling of the voids with clean inert validated soils.

The void shall be re-inspected with samples must be taken from the base and walls of the excavation and tested for TPHs and VOCs/SVOCs to enable validation that the no associated contamination remains.

All stages must be photographed for inclusion within the validation report.

8.2. Groundwater

Low levels of hydrocarbons were detected in the shallow Made Ground that were below the threshold for the human health receptor for the proposed development. No groundwater was encountered in the deep boreholes that were drilled to a depth of 10m bgl. The presence of cohesive Head Deposits will likely mitigate any migration from the shallow soils into the underlying groundwater that will be encountered below 10m bgl.

Should contamination be encountered during and following removal of the existing concrete slab, USTs and the septic tank then it will be possible to assess the risk to the underlying Principal Aquifer within the Seaford Chalk Formation.

8.3. Ground Gas

Based on risk assessment undertaken, the site warrants classification as **Characteristic Situation CS1**, where no precautions to prevent the ingress of ground-gas are needed.

8.4. Vapours

With regards to the risk from vapours, BTEX-MTBE analysis did not show elevated levels. Should impacted soils be discovered during the removal of the USTs and associated infrastructure, then additional sampling and testing should be undertaken. PID readings should also be taken. A vapour risk assessment should then be undertaken.

8.5. Radon

The site was in an area where a radon risk assessment and radon remedial measures were not required.

8.6. Discovery Strategy

There may be areas of contamination that have not been identified during the course of the intrusive investigation. Such occurrences may be discovered during the demolition and construction phases for the redevelopment of the site.

Groundworkers should be instructed to report to the Site Manager any evidence for such contamination; this may comprise visual indicators, such as fibrous materials within the soil, discolouration, or odours and emission. Upon discovery advice must be taken from a suitably qualified person before proceeding, such that appropriate remedial measures and health and safety protection may be applied.

Should a new source of contamination be suspected or identified then the Local Authority will need to be informed.

8.7. Imported Material

It is not envisaged that soils will be brought onto site as part of the development works, however, any soil which is to be imported onto the site must undergo chemical analysis to prove that it is suitable for the purpose for which it is intended.

The soil must be fit for purpose and must either be supplied with traceable chemical laboratory test certificates or be tested, prior to placing (ideally) and after placing, to ensure that the future receptors (human health and vegetation) cannot come into contact with compounds that could be detrimental to their health. The compounds that are to be tested for are those given in the Generic Assessment Criteria, which can be viewed in Appendix E of this report.

8.8. Waste Disposal

The excavation of foundations and other soils is likely to produce waste which will require classification and then recycling or removal from site.

Under the Landfill (England and Wales) Regulations 2002 (as amended), prior to disposal, all waste must be classified as either: Inert; Non-hazardous; or Hazardous.

The Environment Agency's Hazardous Waste Technical Guidance (WM3) document outlines the methodology for classifying wastes. Once classified the waste can be removed to the appropriately licensed facilities, with some waste requiring pre-treatments prior to disposal.

Following the investigation, 6No. samples of Made Ground (TP09/0.50m, TP10/0.20m, TP11/0.50m, CBR01/0.50m, CBR02/0.50m and CBR03/0.50m bgl) were submitted to the analytical laboratory to undergo a suite of testing for contamination testing, as discussed in the previous sections. Sampling depths were chosen to reflect the receptor of concern, human health, and typically comprised a surface or near surface sample and periodically to 1.00m bgl. Any horizon where olfactory or visual evidence of contamination was present was also sampled.

Based on a risk phase analysis of the chemical laboratory test results, in accordance with EC Hazardous Waste Directive and undertaken by Ground and Water Limited, 1No sample of Made Ground (TP11/0.50m bgl) encountered on-site were HAZARDOUS 1No sample of Made Ground (TP11/0.50m bgl) encountered on-site was HAZARDOUS due to the carcinogenic and mutagenic effects of the levels of TPHs (C6 – C40) within the sample. The remaining 5No samples of Made Ground encountered on-site were NON-HAZARDOUS. The results of the assessment are given within Appendix H.

It is important to note that whilst we consider our in-house assessment tool to be an accurate interpretation of the requirements of WM3, therefore producing an initial classification in accordance

with the guidance, this method classifies soils as either non-hazardous or hazardous and landfill operators have their own assessment tools and can often come to different conclusions. As a result, some landfill operators could refuse to take apparently suitable waste. It is recommended that the receiving landfill views the results of this assessment and the chemical laboratory results to determine their own classification.

Where contaminated soils are to be removed from the vicinity of TP10 and TP11, they should be placed on an impermeable membrane (visqueen or similar) to ensure that no cross-contamination of soils occurs.

WAC testing should be undertaken on any materials that are to be taken off site.

8.9. Duty of Care

Groundworkers must maintain a good standard of personal hygiene including the wearing of overalls, boots, gloves and eye protectors and the use of dust masks during periods of dry weather.

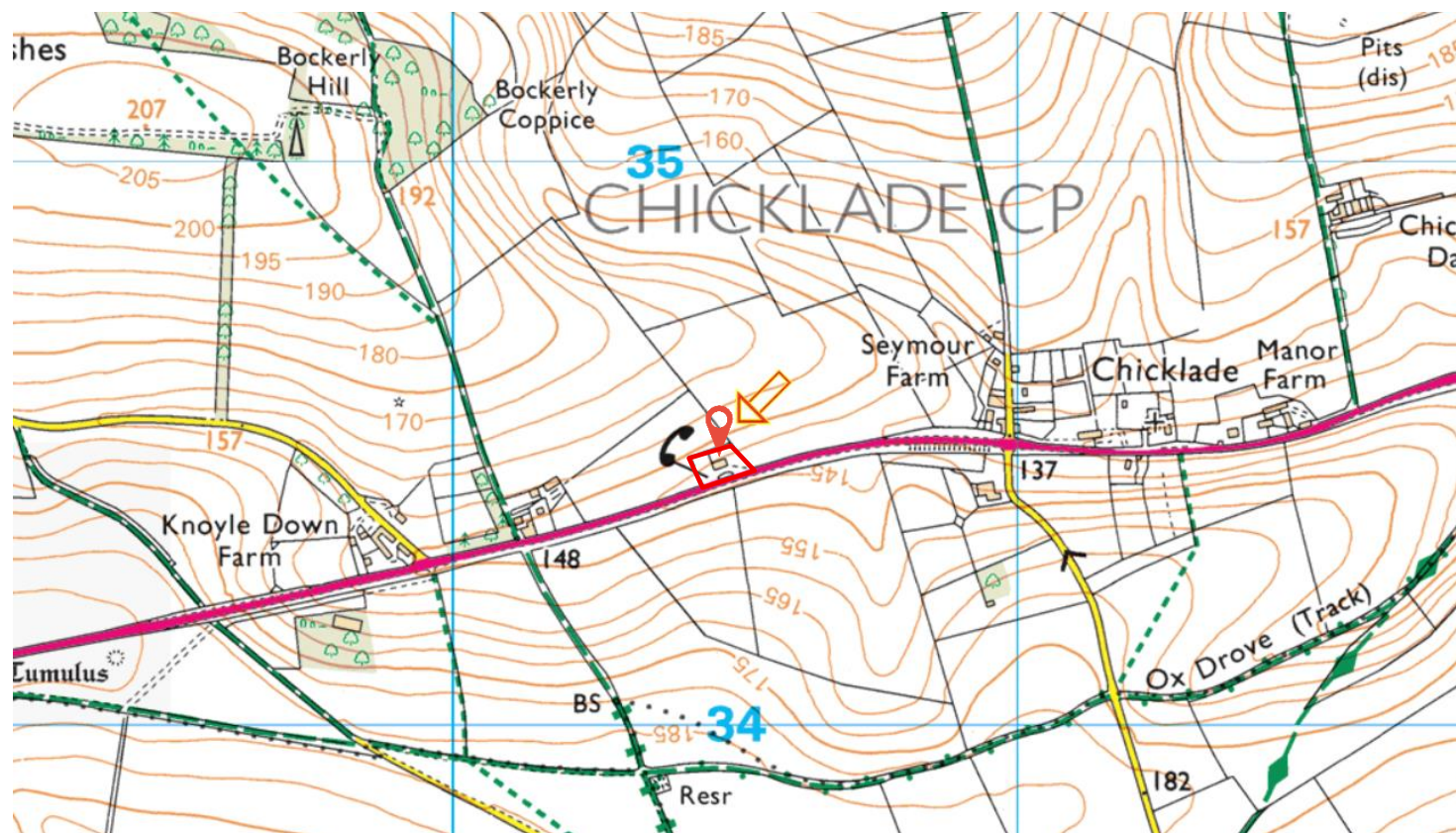
To prevent exposure to airborne dust by both the general public and construction personnel the site should be kept damp during dry weather and at other times when dust would be generated as a result of construction activities.

The site should be securely fenced at all times to prevent unauthorised access. Washing facilities should be provided and eating restricted to mess huts.

FIGURES



 Site Location



Not to Scale

Chicklade Service Station Hindon Salisbury SP3 5ST

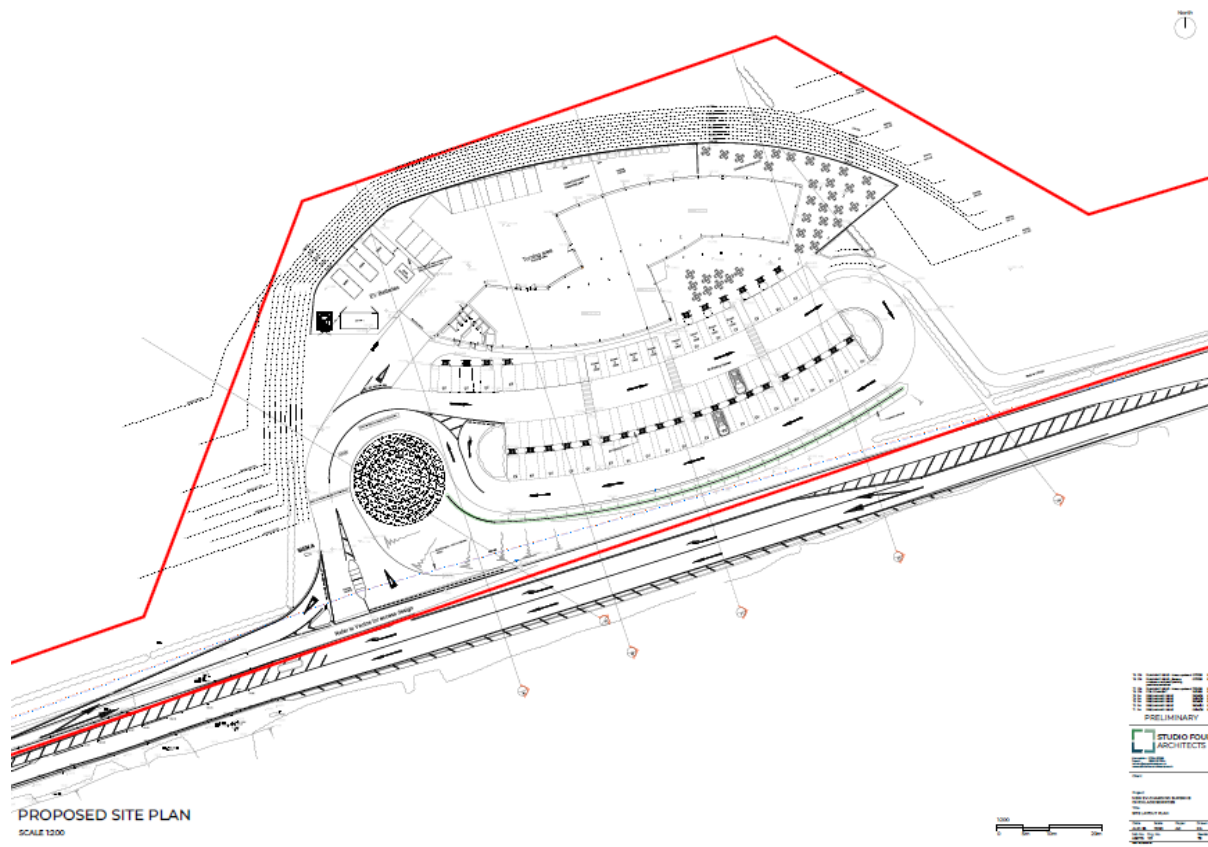
Instavolt

November 2025

Figure 1: Site Location Plan

GWPR6751





Not to Scale

Chicklade Service Station Hindon Salisbury SP3 5ST

Instavolt

November 2025

Figure 2: Proposed Development Plan

GWPR6751





⊕ Cable Percussion Borehole

⊕ Trial Pit

⊕ DCPs

Not to Scale

Chicklade Service Station Hindon Salisbury SP3 5ST

Instavolt

November 2025

Figure 3: Trial Hole Location Plan – boreholes, trial pits and DCPs

GWPR6751





Not to Scale

Chicklade Service Station Hindon Salisbury SP3 5ST

Instavolt

November 2025

Figure 4: Trial Hole Location Plan soakage tests

GWPR6751



APPENDIX A: Conditions and Limitations

The ground is a product of continuing natural and artificial processes. As a result, the ground will exhibit a variety of characteristics that vary from place to place across a site, and also with time. Whilst a ground investigation will mitigate to a greater or lesser degree against the resulting risk from variation, the risks cannot be eliminated.

The report has been prepared on the basis of information, data and materials which were available at the time of writing. Accordingly, any conclusions, opinions or judgements made in the report should not be regarded as definitive or relied upon to the exclusion of other information, opinions and judgements.

The investigation, interpretations, and recommendations given in this report were prepared for the sole benefit of the client in accordance with their brief; as such these do not necessarily address all aspects of ground behaviour at the site. No liability is accepted for any reliance placed on it by others unless specifically agreed in writing.

Any decisions made by you, or by any organisation, agency or person who has read, received or been provided with information contained in the report ("you" or "the Recipient") are decisions of the Recipient and we will not make, or be deemed to make, any decisions on behalf of any Recipient. We will not be liable for the consequences of any such decisions.

Current regulations and good practice were used in the preparation of this report. An appropriately qualified person must review the recommendations given in this report at the time of preparation of the scheme design to ensure that any recommendations given remain valid in light of changes in regulation and practice, or additional information obtained regarding the site.

Any Recipient must take into account any other factors apart from the Report of which they and their experts and advisers are or should be aware. The information, data, conclusions, opinions and judgements set out in the report may relate to certain contexts and may not be suitable in other contexts. It is your responsibility to ensure that you do not use the information we provide in the wrong context.

This report is based on readily available geological records, the recorded physical investigation, the strata observed in the works, together with the results of completed site and laboratory tests. Whilst skill and care has been taken to interpret these conditions likely between or below investigation points, the possibility of other characteristics not revealed cannot be discounted, for which no liability can be accepted. The impact of our assessment on other aspects of the development required evaluation by other involved parties.

The opinions expressed cannot be absolute due to the limitations of time and resources within the context of the agreed brief and the possibility of unrecorded previous in ground activities. The ground conditions have been sampled or monitored in recorded locations and tests for some of the more common chemicals generally expected. Other concentrations of types of chemicals may exist.

The conclusions and recommendations relate to Chicklade Service Station, Hindon, Salisbury SP3 5ST

Trial hole is a generic term used to describe a method of direct investigation. The term trial pit, borehole or window sampler borehole implies the specific technique used to produce a trial hole.

The depth to roots and/or of desiccation may vary from that found during the investigation. The client is responsible for establishing the depth to roots and/or of desiccation on a plot-by-plot basis prior to the construction of foundations. Where trees are mentioned in the text this means existing trees, recently removed trees (approximately 15 years to full recovery on cohesive soils) and those planned as part of the site landscaping.

Ownership of copyright of all printed material including reports, laboratory test results, trial pit and borehole log sheets, including drillers log sheets, remain with Ground and Water Limited. Licence is for the sole use of the client and may not be assigned, transferred or given to a third party.

Only our client may rely on this report and should this report or any information contained in it be provided to any third party we accept no responsibility to the third party for the contents of this report save to the extent expressly outlined by us in writing in a reliance letter addressed from us to the third party.

Recipients are not permitted to publish this report outside of their organisation without our express written consent.

APPENDIX B:

Technical Glossary

TECHNICAL GLOSSARY

The list of possible definitions within the report may be seen below. Please note that some definitions may not be relevant to this report.

HYDROGEOLOGY:

A **Principal Aquifer** is a layer of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.

Secondary aquifers include a wide range of drift deposits with an equally wide range of water permeability and storage capacities.

Secondary (A) Aquifers consist of deposits with 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.

Secondary (B) Aquifers consist of deposits with predominantly lower permeability layers with may stoke and yield limited amounts of groundwater due to localised features such as fissures, think permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

Secondary Aquifers (Undifferentiated) are assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both a minor aquifer and non-aquifer in different locations due to the variable characteristics of the rock type.

Unproductive Strata are rock layers with low permeability that have negligible significance for water supply or river base flow. These were formerly classified as non-aquifers.

FLOOD ZONES:

Environment Agency Flood Zone 2, defined as; land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding.

Environment Agency Flood Zone 3 shows the extent of a river flood with a 1 in 100 (1% or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year.

Environment Agency Flood Zone 3 area that benefits from flood defences, defined as; land and property in this flood zone would have a high probability of flooding without the local flood defences. These protect the area against a river flood with a 1% chance of happening each year, or a flood from the sea with a 0.5% chance of happening each year.

GROUNDWATER SOURCE PROTECTION ZONES (SPZS):

Inner zone (SPZ1): This zone is 50 day travel time of pollutant to source with a 50 metres default minimum radius.

Outer zone (SPZ2): This zone is 400 day travel time of pollutant to source. This has a 250 or 500 metres minimum radius around the source depending on the amount of water taken.

Total catchment (SPZ3): This is the area around a supply source within which all the groundwater ends up at the abstraction point. This is the point from where the water is taken. This could extend some distance from the source point.

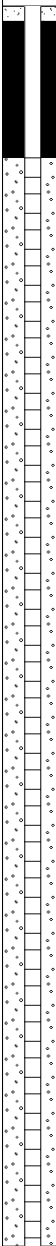
Zone of special interest (SPZ4): This zone is where local conditions require additional protection.

IN-SITU STRENGTH GEOTECHNICAL TESTING:

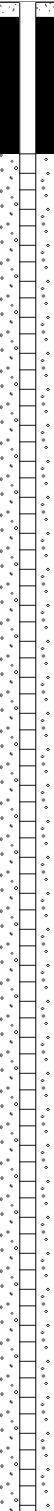
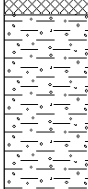
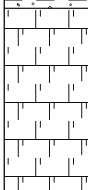
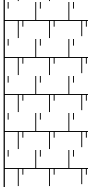
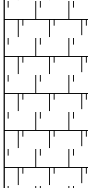
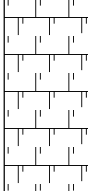
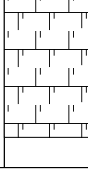
Windowless Sample and/or Cable Percussion and/or Rotary Boreholes provide samples of the ground for assessment but they do not give any engineering data. The standard penetration test (SPT) is an in-situ dynamic penetration test designed to provide information on the geotechnical engineering properties of soil. The test uses a thick-walled sample tube, with an outside diameter of 50mm and an inside diameter of 35mm, and a length of around 650mm. This is driven into the ground at the bottom of a borehole by blows from a slide hammer with a weight of 63.5kg falling through a distance of 760mm. The sample tube is driven 150mm into the ground and then the number of blows needed for the tube to penetrate each 75mm up to a depth of 450mm is recorded. The sum of the number of blows is termed the "standard penetration resistance" or the "N-value".

Dynamic Probing involves the driving of a metal cone into the ground via a series of steel rods. These rods are driven from the surface by a hammer system that lifts and drops a 63.5kg (SHDP) hammer onto the top of the rods through a set height, thus ensuring a consistent energy input. The number of hammer blows that are required to drive the cone down by each 100mm increment are recorded. These blow counts then provide a comparative assessment from which correlations have been published, based on dynamic energy, which permits engineering parameters to be generated. (The Dynamic Probe 'Super Heavy' (SHDP) Tests were conducted in accordance with BS 1377; 1990; Part 9, Clause 3.2).

APPENDIX C: Trial Hole Logs and In-situ DCPs

		Percussion Drilling Log									
Project Name: Chicklade Service Station				Client: Instavolt				Date: 29/09/2025 - 30/09/2025			
Location: Hindon, Salisbury SP3 5ST				Contractor: CJ Associates							
Project No. : GWPR6751				Crew Name:				Drilling Equipment:			
Borehole Number BH01		Hole Type CP		Level		Logged By		Scale 1:50		Page Number Sheet 1 of 1	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.20	D		0.10			Tarmac. (MADE GROUND).		1	
		0.50	D		0.50			Red/grey sandy GRAVEL. Sand is fine to medium. Gravel was fine to coarse, sub-angular to sub-rounded brick (60%) and concrete (40%). (MADE GROUND).			
		1.00	D					Brown gravelly CLAY. Gravel is fine to coarse, sub-angular to sub-rounded flint and chalk. (HEAD DEPOSITS).			
		1.20 - 1.70	B								
		1.20	SPT	N=14 (3,2/4,4,3,3)							
					1.70				Recovered as a structureless CHALK composed of off white to white slightly sandy medium and coarse GRAVEL with many sub-angular cobbles. Gravel and cobbles were medium dense. Matrix is uncompact and off white. (CIRIA C574: Grade Dc). (SEAFORD CHALK FORMATION)		2
		2.00	SPT	N=20 (2,3/4,4,6,6)							
		2.50	B								
		3.00	SPT	N=27 (3,4/6,6,7,8)							3
		3.60	D								
		4.00	SPT	N=28 (4,5/5,6,8,9)							4
		4.50	D								
		5.00	SPT	N=28 (5,5/5,6,7,10)							5
		5.50	D								
		6.00	SPT	N=50 (6,7/50 for 295mm)							6
		7.00	D								7
		7.50	SPT	N=45 (6,6/8,11,14,12)							
	8.20	SPT	N=50 (12,13/50 for 245mm)	8.20				End of Borehole at 8.200m		8	
										9	
										10	
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
8.20	150	1.70	150								
Remarks											
Groundwater was not encountered. No roots were noted.											
											



Project Name: Chicklade Service Station				Client: Instavolt				Date: 01/10/2025			
Location: Hindon, Salisbury SP3 5ST				Contractor: CJ Associates							
Project No. : GWPR6751				Crew Name:				Drilling Equipment:			
Borehole Number BH02		Hole Type CP		Level		Logged By		Scale 1:50		Page Number Sheet 1 of 2	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.20	D	N=13 (3,2/2,3,4,4)	0.10	1.70		Tarmac. (MADE GROUND). Red/grey sandy GRAVEL. Sand is fine to medium. Gravel was fine to coarse, sub-angular to sub-rounded brick (60%) and concrete (40%). (MADE GROUND). Brown gravelly CLAY. Gravel is fine to coarse, sub-angular to sub-rounded flint and chalk. (HEAD DEPOSITS).		1	
		0.50	D								
		1.00	D								
		1.20 - 1.70	B	N=22 (3,4/5,5,6,6)	1.70			Recovered as a structureless CHALK composed of off white to white slightly sandy medium and coarse GRAVEL with many sub-angular cobbles. Gravel and cobbles were medium dense. Matrix is uncompact and off white. (CIRIA C574: Grade Dc). (SEAFORD CHALK FORMATION)		2	
		1.20	SPT								
		2.00	SPT								
		2.50	D	N=25 (4,4/6,5,5,9)	1.70					3	
		3.00	SPT								
		3.60	D								
		4.00	SPT	N=28 (3,4/5,7,7,9)	1.70					4	
		4.50	D								
		5.00	SPT								
		5.50	D	N=34 (5,5/5,6,9,14)	1.70					5	
		6.00	SPT								
		6.50	D								
		7.00	D	N=44 (5,7/8,12,12,12)	1.70					6	
		7.50	SPT								
		8.00	D								
		8.50	D	N=36 (5,6/6,9,10,11)	1.70					7	
9.00	SPT										
9.50	D										
10.00	D	N=48 (7,7/9,12,13,14)	1.70				8				
10.50	SPT										
11.00	D										
11.50	D	N=48 (7,7/9,12,13,14)	1.70				9				
12.00	SPT										
12.50	D										
13.00	D	N=48 (7,7/9,12,13,14)	1.70				10				
13.50	SPT										
14.00	D										

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
10.00	150	1.20	150								

Remarks

Groundwater was not encountered. No roots were noted.



		Percussion Drilling Log									
Project Name: Chicklade Service Station				Client: Instavolt				Date: 01/10/2025			
Location: Hindon, Salisbury SP3 5ST				Contractor: CJ Associates							
Project No. : GWPR6751				Crew Name:				Drilling Equipment:			
Borehole Number BH02		Hole Type CP		Level		Logged By		Scale 1:50		Page Number Sheet 2 of 2	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		10.00	SPT	N=48 (6,8/10,11,12,15)				End of Borehole at 10.000m			
											11
											12
											13
											14
											15
											16
											17
											18
											19
											20
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
10.00	150	1.20	150								
Remarks											
Groundwater was not encountered. No roots were noted.											





Trial Pit Log

Project Name: Chicklade Service Station		Client: Instavolt		Date: 30/09/2025	
Location: Hindon, Salisbury SP3 5ST		Contractor: CJ Associates			
Project No. : GWPR6751		Crew Name:		Equipment:	
Location Number TP01	Location Type TP	Level	Logged By AP	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	D		0.25			Brown slightly sandy gravelly CLAY. The sand was fine to medium grained and the gravel was fine, sub-angular flint and chalk (TOPSOIL).	1
		0.50	D					Brown gravelly CLAY. Gravel is fine to coarse, sub-angular to sub-rounded flint and chalk. (HEAD DEPOSITS).	
		1.00	D		1.00			End of Borehole at 1.000m	
									2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.65	0.62						

Remarks	
Groundwater was not encountered. Roots were noted. to a depth of 0.30m bgl	



Trial Pit Log

Project Name: Chicklade Service Station		Client: Instavolt		Date: 30/09/2025	
Location: Hindon, Salisbury SP3 5ST		Contractor: CJ Associates			
Project No. : GWPR6751		Crew Name:		Equipment:	
Location Number TP02	Location Type TP	Level	Logged By	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	D		0.30			Brown slightly sandy gravelly CLAY. The sand was fine to medium grained and the gravel was fine, sub-angular flint and chalk (TOPSOIL).	1
		0.50	D					Brown gravelly CLAY. Gravel is fine to coarse, sub-angular to sub-rounded flint and chalk. (HEAD DEPOSITS).	
		1.00	D		1.00			End of Borehole at 1.000m	
									2
									3
									4
									5

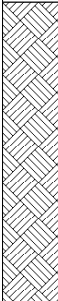
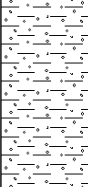
Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

Groundwater was not encountered. Roots were noted. to a depth of 0.30m bgl





Project Name: Chicklade Service Station					Client: Instavolt					Date: 30/09/2025				
Location: Hindon, Salisbury SP3 5ST					Contractor: CJ Associates									
Project No. : GWPR6751					Crew Name:					Equipment:				
Location Number TP03			Location Type TP		Level		Logged By			Scale 1:25		Page Number Sheet 1 of 1		
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description						
		Depth (m)	Type	Results										
		0.20	D		0.35			Brown slightly sandy gravelly CLAY. The sand was fine to medium grained and the gravel was fine, sub-angular flint and chalk (TOPSOIL).				1		
		0.50	D					Brown gravelly CLAY. Gravel is fine to coarse, sub-angular to sub-rounded flint and chalk. (HEAD DEPOSITS).						
		1.00	D		1.00			End of Borehole at 1.000m					5	
Dimensions				Trench Support and Comment						Pumping Data				
Pit Length		Pit Width		Pit Stability	Shoring Used		Remarks			Date	Rate	Remarks		
Remarks														
Groundwater was not encountered. Roots were noted. to a depth of 0.30m bgl														



Trial Pit Log

Project Name: Chicklade Service Station		Client: Instavolt		Date: 30/09/2025	
Location: Hindon, Salisbury SP3 5ST		Contractor: CJ Associates			
Project No. : GWPR6751		Crew Name:		Equipment:	
Location Number TP04	Location Type TP	Level	Logged By	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	D		0.25			Brown slightly sandy gravelly CLAY. The sand was fine to medium grained and the gravel was fine, sub-angular flint and chalk (TOPSOIL).	1
		0.50	D					Brown gravelly CLAY. Gravel is fine to coarse, sub-angular to sub-rounded flint and chalk. (HEAD DEPOSITS).	
		1.00	D		1.00			End of Borehole at 1.000m	
									2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks	
Groundwater was not encountered. Roots were noted. to a depth of 0.30m bgl	



Trial Pit Log

Project Name: Chicklade Service Station		Client: Instavolt		Date: 22/10/2025	
Location: Hindon, Salisbury SP3 5ST		Contractor: CJ Associates			
Project No. : GWPR6751		Crew Name:		Equipment:	
Location Number TP05	Location Type TP	Level	Logged By	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	D		0.30			Brown slightly sandy gravelly CLAY. The sand was fine to medium grained and the gravel was fine, sub-angular flint and chalk (TOPSOIL).	1
		0.50	D					Light brown slightly gravelly sandy gravelly CLAY. Sand is fine. Gravel is fine to coarse, sub-angular to sub-rounded flint and chalk. (HEAD DEPOSITS).	
		1.00	D		1.00			End of Borehole at 1.000m	
									2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks
Groundwater was not encountered. Roots were noted. to a depth of 0.30m bgl





Trial Pit Log

Project Name: Chicklade Service Station		Client: Instavolt		Date: 22/10/2025	
Location: Hindon, Salisbury SP3 5ST		Contractor: CJ Associates			
Project No. : GWPR6751		Crew Name:		Equipment:	
Location Number TP06	Location Type TP	Level	Logged By	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	D		0.30			Brown slightly sandy gravelly CLAY. The sand was fine to medium grained and the gravel was fine, sub-angular flint and chalk (TOPSOIL).	1
		0.50	D					Brown gravelly CLAY. Gravel is fine to coarse, sub-angular to sub-rounded flint and chalk. (HEAD DEPOSITS).	
		1.00	D		0.90 1.00			Light brown slightly gravelly sandy gravelly CLAY. Sand is fine. Gravel is fine to coarse, sub-angular to sub-rounded flint and chalk. (HEAD DEPOSITS). End of Borehole at 1.000m	
									2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks
Groundwater was not encountered. Roots were noted. to a depth of 0.30m bgl



Trial Pit Log

Project Name: Chicklade Service Station		Client: Instavolt		Date: 22/10/2025	
Location: Hindon, Salisbury SP3 5ST		Contractor: CJ Associates			
Project No. : GWPR6751		Crew Name:		Equipment:	
Location Number TP07	Location Type TP	Level	Logged By	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	D		0.60			Brown slightly sandy gravelly CLAY. The sand was fine to medium grained and the gravel was fine, sub-angular flint and chalk (TOPSOIL).	1
		0.50	D					Light brown slightly gravelly sandy gravelly CLAY. Sand is fine. Gravel is fine to coarse, sub-angular to sub-rounded flint and chalk. (HEAD DEPOSITS).	
		1.00	D		1.00			End of Borehole at 1.000m	
									2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks	
Groundwater was not encountered. Roots were noted. to a depth of 0.40m bgl	



Trial Pit Log

Project Name: Chicklade Service Station		Client: Instavolt		Date: 22/10/2025	
Location: Hindon, Salisbury SP3 5ST		Contractor: CJ Associates			
Project No. : GWPR6751		Crew Name:		Equipment:	
Location Number TP08	Location Type TP	Level	Logged By	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	D		0.30			Brown slightly sandy gravelly CLAY. The sand was fine to medium grained and the gravel was fine, sub-angular flint and chalk (TOPSOIL).	1
		0.50	D					Light brown slightly gravelly sandy gravelly CLAY. Sand is fine. Gravel is fine to coarse, sub-angular to sub-rounded flint and chalk. (HEAD DEPOSITS).	
		1.00	D		1.00			End of Borehole at 1.000m	
									2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks
Groundwater was not encountered. Roots were noted. to a depth of 0.30m bgl









Trial Pit Log

Project Name: Chicklade Service Station		Client: Instavolt		Date: 22/10/2025	
Location: Hindon, Salisbury SP3 5ST		Contractor: CJ Associates			
Project No. : GWPR6751		Crew Name:		Equipment:	
Location Number TP11	Location Type TP	Level	Logged By	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	D		0.60			Brown slightly sandy gravelly CLAY. The sand was fine to medium grained and the gravel was fine, sub-angular flint and chalk (TOPSOIL).	1
		0.50	D						
		1.00	D		2.70			Grey gravelly CLAY. Gravel is fine to coarse, sub-angular to sub-rounded flint and chalk. (MADE GROUND).	2
		1.50	D						
		2.00	D						
		2.50	D						
		3.00	D						
					3.00			Structureless CHALK composed of white and pale brown gravelly sandy SILT. The matrix was pale brown and soft. The gravel was weak, white and sub-angular. (CIRIA 574: Grade Dm). (SEAFORD CHALK FORMATION).	3
								End of Borehole at 3.000m	
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks	
Groundwater was not encountered. Roots were noted. to a depth of 0.60m bgl	

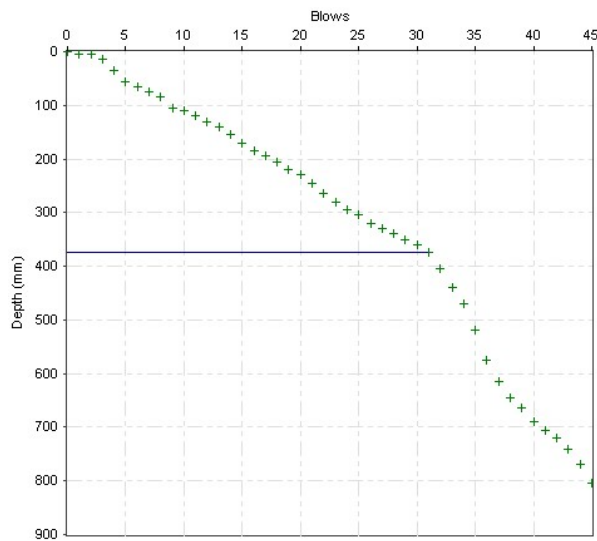
DCP Layer Strength Analysis Report

Project Name: GWPR6751 DCP1

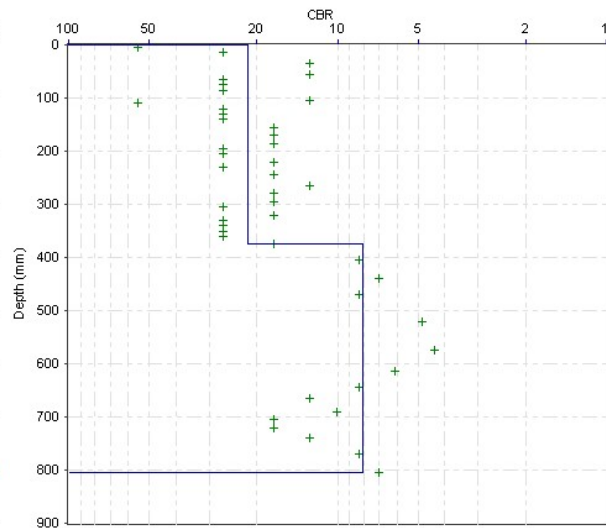
Chainage (km): 1.000
 Direction:
 Location/Offset: Lay-by / other/1.00m
 Cone Angle: 60 degrees
 Zero Error (mm): 135
 Test Date: 22/10/2025

Surface Type: Unpaved
 Thickness (mm): 0
 Base Type:
 Thickness (mm):
 Surface Moisture: Unknown
 Moisture adjustment factor: Not adjusted

Layer Boundaries: Chainage 1.000



Layer Boundaries Chart



CBR Chart

Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)
1	12.10	22	375	375
2	30.71	8	430	805

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

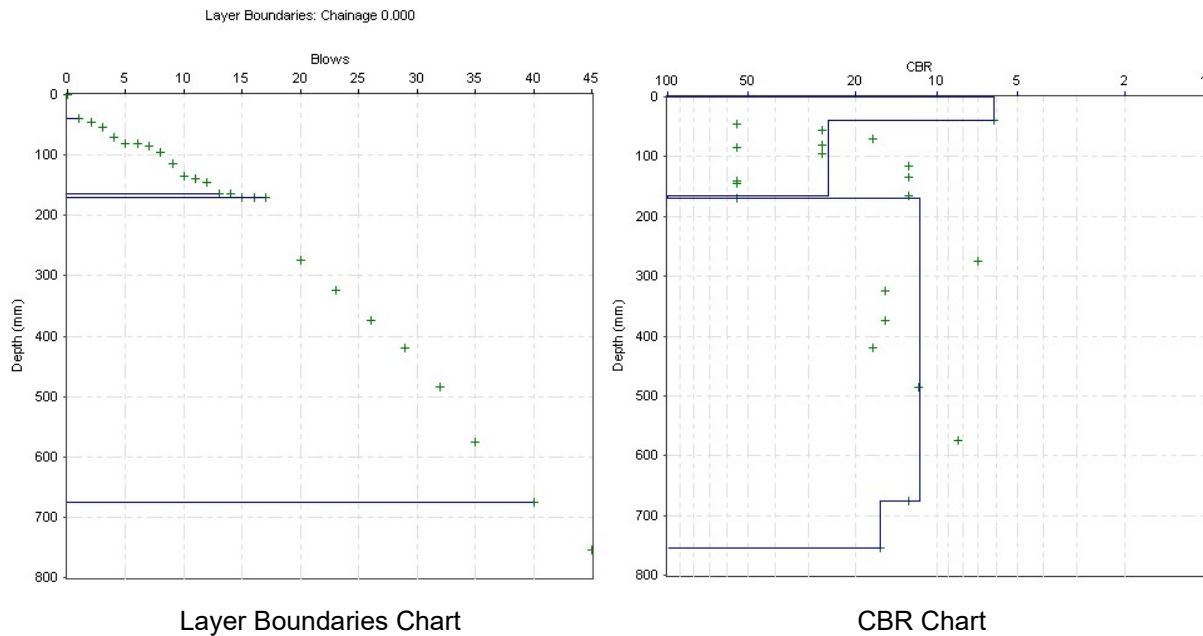
Report produced by

DCP Layer Strength Analysis Report

Project Name: GWPR6751 DCP2

Chainage (km): 0.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 175
 Test Date: 01/10/2025

Surface Type: Unpaved
 Thickness (mm): 0
 Base Type:
 Thickness (mm):
 Surface Moisture: Unknown
 Moisture adjustment factor: Not adjusted



Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)
1	40.00	6	40	40
2	10.42	25	125	165
3	1.25	239	5	170
4	21.96	12	505	675
5	16.00	16	80	755

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

Report produced by

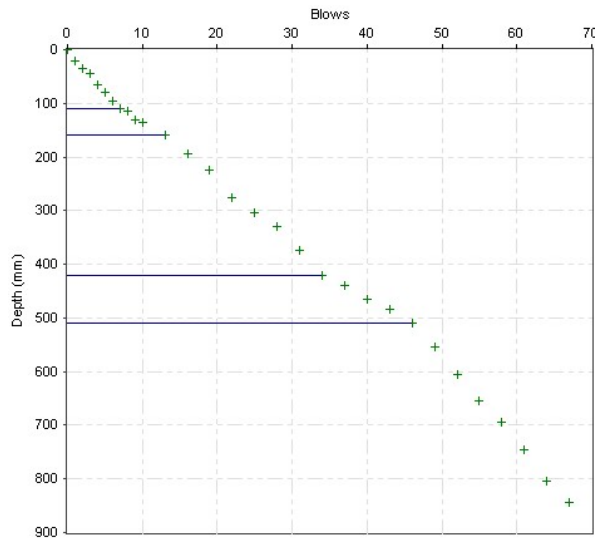
DCP Layer Strength Analysis Report

Project Name: GWPR6751 DCP3

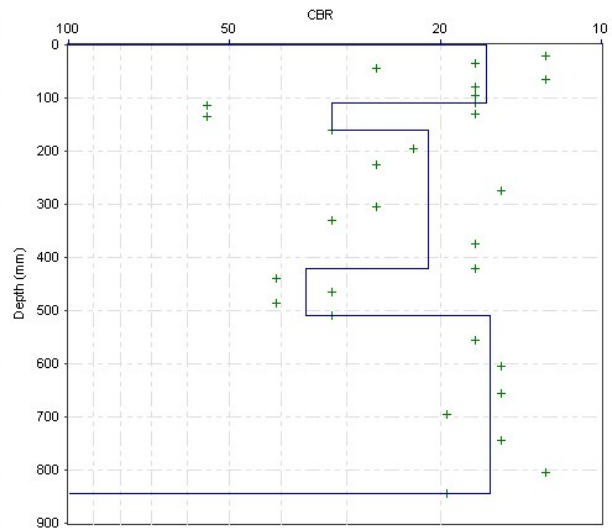
Chainage (km): 1.000
 Direction:
 Location/Offset: Lay-by / other/1.00m
 Cone Angle: 60 degrees
 Zero Error (mm): 105
 Test Date: 22/10/2025

Surface Type: Unpaved
 Thickness (mm): 0
 Base Type:
 Thickness (mm):
 Surface Moisture: Unknown
 Moisture adjustment factor: Not adjusted

Layer Boundaries: Chainage 1.000



Layer Boundaries Chart



CBR Chart

Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)
1	15.71	16	110	110
2	8.33	32	50	160
3	12.38	21	260	420
4	7.50	36	90	510
5	15.95	16	335	845

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

Report produced by

APPENDIX D: Geotechnical Laboratory Testing



Laboratory Report



Contract Number: 81755

Client Ref: **GWPR6751**

Date Received: **17-10-2025**

Client PO: **GWPR6751**

Date Completed: **31-10-2025**

Report Date: **31-10-2025**

Client: **Ground and Water Limited**

This report has been checked and approved by:

Contract Title: **Chicklade Service Station, Hindon, Salisbury, SP3 5ST**

For the attention of: **Roger Foord**

Shaun Jones
Laboratory manager

Description	Qty
Determination of water content BS EN ISO 17892-1:2014 - * UKAS	3
1 point Liquid & Plastic Limit.. BS EN ISO 17892-12 - * UKAS	3
Saturated Moisture Content of chalk (SMC) BS 1377:1990 - Part 2 : 3.3 - * UKAS	6

Notes: Observations and Interpretations are outside the UKAS Accreditation

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

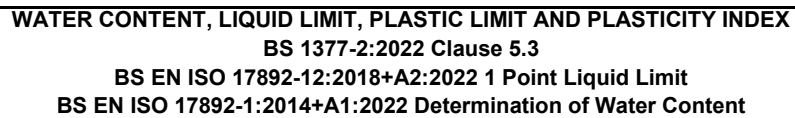
This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

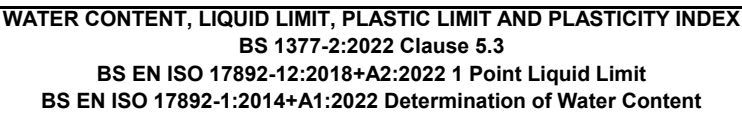
Approved Signatories:

Brendan Evans (Business Support Co-ordinator) - Darren Bourne (Quality Senior Technician) - Luke Williams (Senior Laboratory Technician)

Paul Evans (Director) - Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager)

Shaun Thomas (Site Manager) - Wayne Honey (HR & HSE Manager)

[illegible]



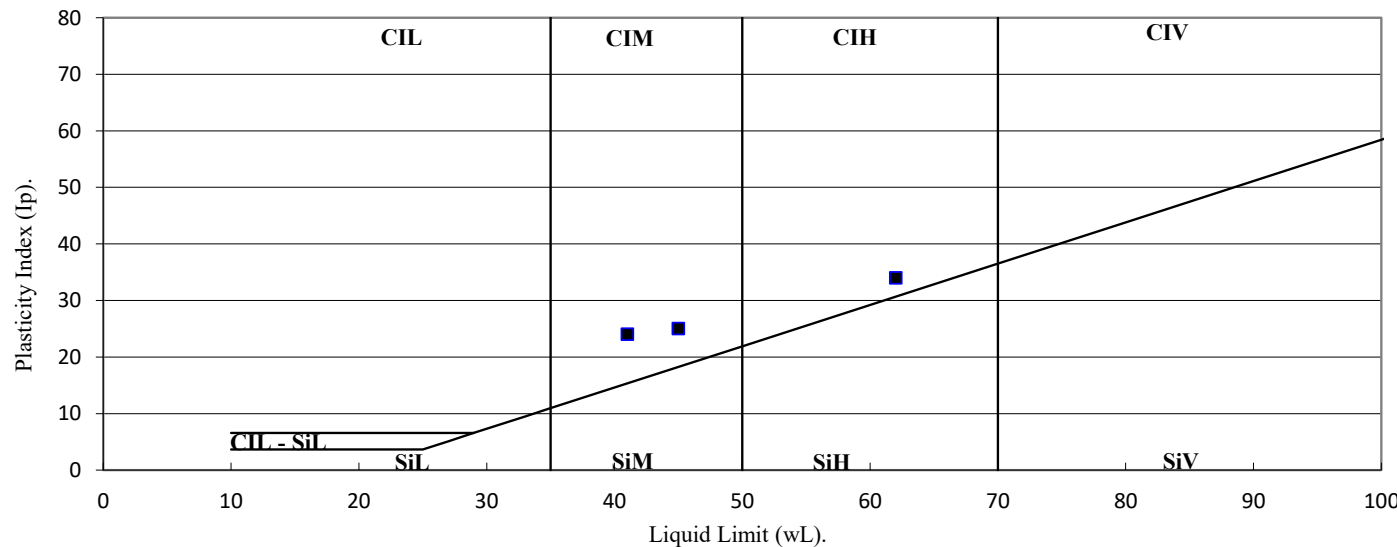
Contract Number	81755	
Project Name	Chicklade Service Station, Hindon, Salisbury, SP3 5ST	
Date Tested	31/10/2025	
Test Comments	80g/30° Fall cone used	

[illegible]

SYMBOLS : NP = Non Plastic

PLASTICITY CHART

BS EN ISO 14688-2:2018 Clause 4.4



***For sample descriptions please see sample descriptions sheet**

Operator
Aaron. H

Saturation Moisture Content of Chalk
BS 1377 : Part 2 : 1990 Section 3.3

Contract Number	81755	
Project Name	Chicklade Service Station, Hindon, Salisbury, SP3 5ST	
Date Tested	30/10/2025	

[illegible]

<u>Key</u>	<u>Reported As</u>	<u>Clause</u>
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Moisture Content	%	3.2
Bulk Density	Mg/m ³	7.2
Dry Density	Mg/m ³	7.2
SMC	%	3.3.6

If there is a NON-STANDARD in the remarks next to the reported SMC result this means there was no lump of chalk of sufficient volume (300mL-500mL) present in the samples received to meet the testing requirements of the stated standard.

Operator
Julian Jones

APPENDIX E:

Chemical Laboratory Testing

Ground and Water Ltd
2 The Long Barn
Norton Farm
Selbourne Road
Alton
Hampshire
GU34 3NB

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t:

e:

t: 01923 225404
f: 01923 237404
e: info-i2analytical@normecgroup.com

Analytical Report Number : 25-057486

Project / Site name:	Chickland Service Station Hindon Salisbury	Samples received on:	23/10/2025
Your job number:	GWPR6751	Samples instructed on/ Analysis started on:	23/10/2025
Your order number:	GWPR6751	Analysis completed by:	31/10/2025
Report Issue Number:	1	Report issued on:	31/10/2025
Samples Analysed:	6 soil samples		

Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 25-057486

Project / Site name: Chickland Service Station Hindon Salisbury

Your Order No: GWPR6751

Lab Sample Number	725824	725825	725826	725827	725828
Sample Reference	TP09	TP10	TP11	CBR01	CBR02
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.50	0.20	0.50	0.50	0.50
Date Sampled	22/10/2025	22/10/2025	22/10/2025	22/10/2025	22/10/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	64.6	81.6	64	49.7	76.2
Moisture Content	%	0.01	NONE	9.3	4.3	9	3.8	6
Total mass of sample received	kg	0.1	NONE	1.5	2	1.3	1.6	1.2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KWB	KWB	KWB	KWB	KWB
Analysis completed	N/A	N/A	N/A	29/10/2025	29/10/2025	29/10/2025	29/10/2025	29/10/2025

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.4	8.4	8.2	8.5	8.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	120	73	40	140	100
Water Soluble SO ₄ 16hr extraction (2:1)	mg/l	1.25	MCERTS	60.8	36.5	20.2	68	51.7
Organic Matter (automated)	%	0.1	MCERTS	2.1	2.5	4.8	2	3.3
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.2	1.4	2.8	1.1	1.9

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.33	0.48	0.32	0.31	0.3
Acenaphthene	mg/kg	0.05	MCERTS	0.87	0.69	1.7	0.74	0.77
Fluorene	mg/kg	0.05	MCERTS	0.53	0.55	1.1	0.55	0.72
Phenanthrene	mg/kg	0.05	MCERTS	6.5	4	11	3	4.5
Anthracene	mg/kg	0.05	MCERTS	2.6	2	4.1	1.4	1.9
Fluoranthene	mg/kg	0.05	MCERTS	31	23	23	14	13
Pyrene	mg/kg	0.05	MCERTS	29	21	23	13	12
Benzo(a)anthracene	mg/kg	0.05	MCERTS	19	14	11	7.7	7.7
Chrysene	mg/kg	0.05	MCERTS	19	14	11	9.6	8.2
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	32	43	14	25	24
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	13	11	6.3	8.1	8.4
Benzo(a)pyrene	mg/kg	0.05	MCERTS	23	31	13	19	19
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	12	24	6.6	13	13
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	3.2	5.1	0.75	3.1	2.8
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	12	27	8	15	14

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	204	219	134	132	131
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Analytical Report Number: 25-057486

Project / Site name: Chickland Service Station Hindon Salisbury

Your Order No: GWPR6751

Lab Sample Number	725824	725825	725826	725827	725828
Sample Reference	TP09	TP10	TP11	CBR01	CBR02
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.50	0.20	0.50	0.50	0.50
Date Sampled	22/10/2025	22/10/2025	22/10/2025	22/10/2025	22/10/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.8	13	14	12	10
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	0.6	1.1	0.3	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1	1.3	1.1	1.1	0.8
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	11	14	16	18	15
Copper (aqua regia extractable)	mg/kg	1	MCERTS	7.9	9.3	19	11	6.5
Lead (aqua regia extractable)	mg/kg	1	MCERTS	70	82	53	50	60
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	8.6	13	11	17	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	1.1	< 1.0	1	1
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	14	16	20	17	19
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	160	250	310	210	170

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	1.6	-	6	-	1.4
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	3.8	-	16	-	20
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	-	32	-	41
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	23	-	130	-	74
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_1D_AL}	mg/kg	10	NONE	< 10	-	44	-	23
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	29	-	180	-	140
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	29	-	230	-	160

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	-	< 0.020	-	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	3.6	-	18	-	6.2
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	54	-	240	-	59
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	190	-	670	-	350
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	24	-	140	-	60
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	250	-	930	-	420
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	280	-	1100	-	480

TPH Total >EC5 - EC40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	300	-	1300	-	630
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VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	-	< 8.0	-	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 25-057486

Project / Site name: Chickland Service Station Hindon Salisbury

Your Order No: GWPR6751

Lab Sample Number	725829			
Sample Reference	CBR03			
Sample Number	None Supplied			
Water Matrix	N/A			
Depth (m)	0.50			
Date Sampled	22/10/2025			
Time Taken	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Stone Content	%	0.1	NONE	57.3
Moisture Content	%	0.01	NONE	3.1
Total mass of sample received	kg	0.1	NONE	1.7

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KWB
Analysis completed	N/A	N/A	N/A	29/10/2025

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	220
Water Soluble SO ₄ 16hr extraction (2:1)	mg/l	1.25	MCERTS	109
Organic Matter (automated)	%	0.1	MCERTS	2.3
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.3

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.16
Pyrene	mg/kg	0.05	MCERTS	0.16
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.1
Chrysene	mg/kg	0.05	MCERTS	0.09
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.16
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.11
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.06

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	0.84
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Analytical Report Number: 25-057486

Project / Site name: Chickland Service Station Hindon Salisbury

Your Order No: GWPR6751

Lab Sample Number	725829			
Sample Reference	CBR03			
Sample Number	None Supplied			
Water Matrix	N/A			
Depth (m)	0.50			
Date Sampled	22/10/2025			
Time Taken	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12
Boron (water soluble)	mg/kg	0.2	MCERTS	15
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	9.1
Lead (aqua regia extractable)	mg/kg	1	MCERTS	71
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	17
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	160

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	-
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	-
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_1D_AL}	mg/kg	10	NONE	-
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	-
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	-

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	-
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	-
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	-
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	-
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	-
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	-
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	-
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	-
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	-
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	-

TPH Total >EC5 - EC40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	-
--	-------	----	------	---

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	-
Benzene	µg/kg	5	MCERTS	-
Toluene	µg/kg	5	MCERTS	-
Ethylbenzene	µg/kg	5	MCERTS	-
p & m-Xylene	µg/kg	8	MCERTS	-
o-Xylene	µg/kg	5	MCERTS	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-057486

Project / Site name: Chickland Service Station Hindon Salisbury

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
725824	TP09	None Supplied	0.5	Brown clay and sand with gravel and stones
725825	TP10	None Supplied	0.2	Brown clay and sand with gravel and stones
725826	TP11	None Supplied	0.5	Brown loam and sand with vegetation and stones
725827	CBR01	None Supplied	0.5	Brown gravelly sand with stones
725828	CBR02	None Supplied	0.5	Brown clay and sand with gravel and stones
725829	CBR03	None Supplied	0.5	Brown rubble with stones ⁹

Analytical Report Number : 25-057486

Project / Site name: Chickland Service Station Hindon Salisbury

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID with carbon banding aliphatic and aromatic	In-house method	L076B	D	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil (Summed Bands)	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic (Summed Bands).	Calculation	L076B/L088-PL	D/W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC/MS with carbon banding aliphatic and aromatic	In-house method	L088-PL	W	MCERTS

Analytical Report Number : 25-057486

Project / Site name: Chickland Service Station Hindon Salisbury

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

*g - Unaccredited sample matrix.

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Analytical Report Number : 25-055739

Project / Site name:	Chicklade Service Station Hindon Salisbury SP3 5ST	Samples received on:	14/10/2025
Your job number:	GWPR6751	Samples instructed on/ Analysis started on:	14/10/2025
Your order number:	GWPR6751	Analysis completed by:	23/10/2025
Report Issue Number:	1	Report issued on:	23/10/2025
Samples Analysed:	3 soil samples		

Signed:

Joanna Biolik
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

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Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 25-055739

Project / Site name: Chicklade Service Station Hindon Salisbury SP3 5ST

Your Order No: GWPR6751

Lab Sample Number	716569	716570	716571
Sample Reference	BH1	BH2	BH3
Sample Number	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A
Depth (m)	4.50	5.50	1.20-1.70
Date Sampled	29/09/2025	30/09/2025	01/10/2025
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	17	19	26
Total mass of sample received	kg	0.1	NONE	2	2	2

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.5	8.2	8
Total Sulphate as SO ₄	%	0.005	MCERTS	-	-	0.107
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	110	600	87
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	53.7	301	43.5
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	43
Total Sulphur	mg/kg	50	MCERTS	-	-	400
Total Sulphur	%	0.005	MCERTS	-	-	0.04
Ammoniacal Nitrogen as NH ₄ ⁺	mg/kg	0.5	MCERTS	-	-	< 0.5
Ammonium as NH ₄ ⁺ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	-	< 0.05
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	-	-	33
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	-	-	16

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	2.9
Magnesium (water soluble)	mg/kg	5	NONE	-	-	5.8

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-055739

Project / Site name: Chicklade Service Station Hindon Salisbury SP3 SST

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
716569	BH1	None Supplied	4.5	Beige clay with chalk
716570	BH2	None Supplied	5.5	Beige clay with chalk
716571	BH3	None Supplied	1.20-1.70	Brown clay

Analytical Report Number : 25-055739

Project / Site name: Chicklade Service Station Hindon Salisbury SP3 5ST

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Water Soluble Nitrate (leachate equivalent)	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078-PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
Ammonium as NH ₄ in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution



Sample Deviation Report



Normec
i2 Analytical

Analytical Report Number : 25-055739

Project / Site name: Chicklade Service Station Hindon Salisbury SP3 5ST

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container/Insufficient material provided c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH1	N/A	S	716569	c	pH in soil (automated)	L099-PL	c
BH2	N/A	S	716570	c	pH in soil (automated)	L099-PL	c
BH3	N/A	S	716571	c	pH in soil (automated)	L099-PL	c

APPENDIX F:

Soil

Assessment

Criteria

Ground and Water Limited

Soil Guideline Values and Generic Assessment Criteria

The Contaminated Land Regime reflects the UK Government's stated objectives of achieving sustainable development through the 'suitable for use approach'. At preliminary risk assessment stage, risks are evaluated qualitatively. As the site investigation progresses to a generic or detailed quantitative risk assessment, data is collected and assessment criteria are utilised to evaluate whether the contaminants represent an unacceptable risk to the identified receptors.

1. Contaminated Land Exposure Assessment Model (CLEA)

Current United Kingdom risk assessment practice is based on the Contaminated Land Exposure Assessment Model (CLEA).

The CLEA Guidance comprises the following documents:

- 1) EA Science Report SC050021/SR2: Human health toxicological assessment of contaminants in soil.
- 2) EA Science Report SC050021/SR3: Updated technical background to the CLEA model.
- 3) EA CLEA Bulletin (2009).
- 4) CLEA software version 1.07 (2015)
- 5) Toxicological reports and SGV technical notes.

The CLEA guidance and tools:

- Do not cover other types of risk to humans, such as fire, suffocation or explosion, or short-term and acute exposures;
- Do not cover risks to the environment, such as groundwater, ecosystems or buildings;
- Do not provide a definitive test for telling when human health risks are significant; and
- Are not a legal requirement in assessing land contamination risks. They are not part of the legal regime for Part 2A of the Environmental Protection Act 1990.

The CLEA guidance derives soil concentrations of contaminants above which (in the opinion of the EA) there may be a concern that warrants further investigation. It does not provide a definitive test for establishing that the risk is significant.

1.1. Land-use Scenarios

The CLEA model uses a range of standard land-use scenarios to develop conceptual exposure models outlined in the following sections.

1.1.1. Residential (with home grown produce) (RwHP)

Generic scenario assumes a typical two-storey house built on a ground bearing slab with a private garden having a lawn, flowerbeds and a small fruit and vegetable patch.

- Critical receptor is a young female child (zero to six years old)
- Exposure duration is six years.
- Exposure pathways include direct soil and indoor dust ingestion, consumption of homegrown produce and any adhering soil, skin contact with soils and indoor dust and inhalation of indoor and outdoor dust and vapours.
- Building type is a two-storey small-terraced house.

A sub-set of this land-use is residential apartments with communal landscaped gardens where the consumption of home grown vegetables will not occur. (Residential without homegrown produce (RwoHP)).

1.1.2. Allotments

Provision of open space (about 250sq.m) commonly made available to tenants by the local authority to grow fruit and vegetable for their own consumption. Typically, there are a number of plots to a site which may have a total area of up to 1 hectare. The tenants are assumed to be adults and that young children make occasional accompanied visits.

Although some allotment holders may choose to keep animals including rabbits, hens, and ducks, potential exposure to contaminated meat and eggs is not considered.

- Critical receptor is a young female child (zero to six years old)
- Exposure duration is six years.
- Exposure pathways include direct soil ingestion, consumption of homegrown produce and any adhering soil, skin contact with soils and inhalation of outdoor dust and vapours.
- There is no building.

1.1.3. Commercial/Industrial

The generic scenario assumes a typical commercial or light industrial property comprising a three-storey building at which employees spend most time indoors and are involved in office-based or relatively light physical work.

- Critical receptor is a working female adult (aged 16 to 65 years old).
- Exposure duration is a working lifetime of 49 years.
- Exposure pathways include direct soil and indoor dust ingestion, skin contact with soils and dusts and inhalation of dust and vapours.
- Building type is a three-storey office (pre 1970).

2. LQM/CIEH Suitable 4 Use Levels (S4UL)

For derivation of these S4UL reference must be made to:

Nathanial, P., McCaffrey, C., Gillet, A., Ogden, R., Nathanial, J., *The LQM/CIEH S4UL's for Human Health Risk Assessment*. Land Quality Press. 2015

2.1. S4UL Background

The Land Quality Management/Chartered Institute of Environmental Health (LQM/CIEH) S4UL for a given land use is the concentration of the contaminant in soil at which the predicted daily exposure,

as calculated by the CLEA software, equals the Health Criteria Value. The S4ULs have been derived for substances based on various generic land use and soil organic matter contents.

The final output for each contaminant represents a synthesis of new toxicological (and fate and transport) reviews published since the preparation of the 2nd edition LQM/CIEH GAC's (Nathanial et al., 2009).

In the derivation of LQM/CIEH S4UL's the principles of 'minimal' or 'tolerable' risk enshrined in SR2, which has not been withdrawn, has been maintained.

2.2. S4UL Land-use

S4UL's have been derived for the basic CLEA land-uses, as described in section 1.2, and for two new land uses:

- Public Open Spaces near Residential Housing (POSresi).
- Public Park (POSpark).

2.2.1. Public Open Spaces near Residential Housing (POSresi)

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

2.2.2. Public Park (POSpark)

An area of open space, usually owned and maintained by the local authority, provided for recreational uses including family visits and picnics, children's play area, informal sporting activities (not a dedicated sports pitch), and dog walking. It is assumed that tracking back of soils into places of residence will be negligible.

The following LQM/CIEH S4ULs (Copyright Land Quality Management Limited) have been reproduced with permission, to the publication number S4UL3072.

3. Category 4 Screening Levels (C4SLs)

In the case of Lead, no SGV or GAC has been published to date. This is likely to be due to the toxicity review that is currently being undertaken by the Environment Agency. In the absence of updated toxicity information the SGV derived using CLEA 1.07 methodology and related toxicity will be used.

The overall objective of the C4SLs research project was to assist the provision of technical guidance in support of Defra's revised Statutory Guidance (SG) for Part 2A of the Environmental Protection Act 1990 (Part 2A) (Defra, 2012a). Specifically, the project aimed to deliver:

- A methodology for deriving C4SLs for four generic land-uses comprising residential, commercial, allotments and public open space; and
- A demonstration of the methodology, via the derivation of C4SLs for six substances – arsenic, benzene, benzo(a)pyrene, cadmium, chromium (VI) and lead.

To help achieve a more targeted approach to identifying and managing contaminated land in relation to the risk (or possibility) of harm to human health, the revised SG presented a new four category

system for considering land under Part 2A, ranging from Category 4, where there is no risk that land poses a significant possibility of significant harm (SPOSH), or the level of risk is low, to Category 1, where the risk that land poses a significant possibility of significant harm (SPOSH) is unacceptably high. More specific guidance on what type of land should be considered as Category 4 (Human Health) is provided in Paragraphs 4.21 and 4.22 of the revised SG, as follows:

“4.21 The local authority should consider that the following types of land should be placed into Category 4: Human Health:

(a) Land where no relevant contaminant linkage has been established.

(b) Land where there are only normal levels of contaminants in soil, as explained in Section 3 of this Guidance.

(c) Land that has been excluded from the need for further inspection and assessment because contaminant levels do not exceed relevant generic assessment criteria in accordance with Section 3 of this Guidance, or relevant technical tools or advice that may be developed in accordance with paragraph 3.30 of this Guidance.

(d) Land where estimated levels of exposure to contaminants in soil are likely to form only a small proportion of what a receptor might be exposed to anyway through other sources of environmental exposure (e.g. in relation to average estimated national levels of exposure to substances commonly found in the environment, to which receptors are likely to be exposed in the normal course of their lives).

4.22 The local authority may consider that land other than the types described in paragraph 4.21 should be placed into Category 4: Human Health if following a detailed quantitative risk assessment it is satisfied that the level of risk posed is sufficiently low.”

The C4SLs are intended as “relevant technical tools” (in relation to Paragraph 4.21(c)) to help local authorities and others when deciding to stop further assessment of a site, on the grounds that it falls within Category 4 (Human Health).

The Impact Assessment (IA), which accompanied the revised SG (Defra, 2012b) provides further information on the nature and potential role of the C4SLs. Paragraph 47(h) of the IA states that:

“The new statutory guidance will bring about a situation where the current SGVs/GACs are replaced with more pragmatic (but still strongly precautionary) Category 4 screening levels (C4SLs) which will provide a higher simple test for deciding that land is suitable for use and definitely not contaminated land.”

A key distinction between the Soil Guideline Values (SGVs) and the C4SLs is the level of risk that they describe. As described by the Environment Agency (2009a):

“SGVs are guidelines on the level of long-term human exposure to individual chemicals in soil that, unless stated otherwise, are tolerable or pose a minimal risk to human health.”

The implication of Paragraph 47(h) of the IA is that minimal risk is well within Category 4 and that the C4SLs should describe a higher level of risk which, whilst not minimal, can still be considered low enough to allow a judgement to be made that land containing substances at, or below, the C4SLs would typically fall within Category 4. This reflects Paragraph 4.20 of the revised SG, which states:

“4.20 The local authority should not assume that land poses a significant possibility of significant harm if it considers that there is no risk or that the level of risk posed is low. For the purposes of this Guidance, such land is referred to as a “Category 4: Human Health” case. The authority may decide that the land is a Category 4: Human Health case as soon as it considers it has evidence to this effect, and this may happen at any stage during risk assessment including the early stages.”

C4SLs, therefore, should not be viewed as “SPOSH levels” and they should not be used as a legal trigger for the determination of land under Part 2A.

The generic screening values referred to before usually take the form of risk-based Soil Guideline Values (SGVs) or other Generic Assessment Criteria (GACs) that are most typically derived using the Environment Agency’s Contaminated Land Exposure Assessment (CLEA) model, as described in the Environment Agency’s SR2, SR3 and SR7 reports (EA, 2009b & c; EA, 2008). It is anticipated that C4SLs will be used in a similar manner; as generic screening criteria that can be used within a GQRA, albeit describing a higher level of risk than the SGVs.

The suggested approach to the development of C4SLs consists of the retention and use of the CLEA framework, modified according to considerations of the underlying science within the context of Defra’s policy objectives relating to the revised SG. Within this context, it is suggested that the development of C4SLs may be achieved in one of three ways, namely:

- By modifying the toxicological parameters used within CLEA (while maintaining current exposure parameters);
- By modifying the exposure parameters embedded within CLEA (while maintaining current toxicological “minimal risk” interpretations); and
- By modifying both toxicological and exposure parameters.

There is also a suggested check on “other considerations” (e.g., background levels, epidemiological data, sources of uncertainty) within the approach, applicable to all three options.

It is suggested that a new term is defined for the toxicological guidance values associated with the derivation of C4SLs – a Low Level of Toxicological Concern (LLTC). A LLTC should represent an intake of low concern that remains suitably protective of health, and definitely does not approach an intake level that could be defined as SPOSH.

4. CL:AIRE Generic Assessment Criteria (GAC)

For derivation of the CL:AIRE Generic Assessment Criteria (GAC) reference should be made to the following report:

CL:AIRE, *The Soil Generic Assessment Criteria for Human Health Risk Assessment. Contaminated Land: Applications in the Real Environment*. 2009.

Within this report, Contaminated Land: Applications in Real Environments (CL:AIRE) provided Generic Assessment Criteria (GAC) in accordance with the CLEA software and the principles outlined previously for a further 35 contaminants sometimes encountered on land affected by contamination.

5. SoBRA Acute GAC

The Society of Brownfield Risk Assessment (SoBRA) identified that most human health risk assessments focus on the chronic risks arising from long-term exposure to specific substances. As chronic risks often occur at lower doses than acute risks, they are often the key drivers, however, in some instances the acute dose may also be an important consideration within risk assessments.

The methodology for deriving the acute GAC were related to two distinct receptor groups:

- Members of the public, where the 'critical' receptor for this group will typically be a female child, which is consistent with CLEA residential and Public Open Space/allotments land-uses;
- Workers involved with excavations. The critical receptor for this group is assumed to be a female working adult, without the use of PPE.

The acute GACs relate to short term exposure of high concentrations of a substance that lead to acute effects. They are not considered to be average exposures across a specific / defined area. As a result, the GACs should be normally be compared with the maximum likely concentration that the individual may be exposed to, and not the average concentration within a specific area.

The SoBRA acute GAC will primarily be used for contaminants that do not currently have any GAC, most notably Cyanide.

6. Detailed Quantitative Risk Assessments (DQRA)

Where the adoption of a GAC is not appropriate, for instance when the intended land-use is at variance the CLEA standard land-uses, then a DQRA may be undertaken to develop site specific values for relevant soil contaminants.

- | |
|---|
| <ul style="list-style-type: none">▪ Establishing the plausibility that generic exposure pathways exist in practice by measurement and observation.▪ Developing more accurate parameters using site data. |
|---|

7. Phytotoxicity

CLEA guidance only addresses human health toxicity; assessment of plant toxicity (phytotoxicity) is based on threshold trigger values obtained from the following source:

- BS3882:2015 – *Specification for Topsoil*

The trigger values are relevant only to those contaminants, where present in excess, have the potential to inhibit plant growth, or kill plants (Cu, Ni and Zn). The criteria have been based on a wide range of planting that are common within a multi-purpose topsoil.

8. Statistical Tests

DEFRA R&D Publication CLR 7 (DOE 1994) addressed the statistical treatment of test results and their comparison to Soil Guideline Values.

Consideration must be given to the appropriate area of land to be considered termed the critical averaging area.

For a communal open space or commercial land-use, the critical averaging area will depend on the proposed layout. For a residential use with private gardens the averaging area is the individual plot.

It may be appropriate to compare the upper 95th percentile concentration with the Soil Guideline Value, subject to applying a statistical test to establish that the range of concentrations are reasonably consistent and belonging to the same underlying distribution of data.

CL:AIRE published guidance in 2020, *Guidance in comparing soil contamination data with a critical concentration*, superseding the CL:AIRE/CIEH 2008 report of the same name. The guidance provides ways to assist land contamination stakeholders to apply statistical methods to their data to enable decisions under the legislative framework; either planning system or Part 2A of the Environmental Protection Act 1990.

The use of the statistical tests should only be applied if the following statements are valid for the datasets:

- Averaging areas, as well as the smallest area of concern have been identified on the basis of the CSM, including the desk study and/or the site walkover;
- The sample locations were chosen using a simple random, stratified random or stratified systematic (square, herringbone or triangular grid) sampling pattern, rather than being targeted to locations suspected of being contaminated;
- The sample locations are relatively evenly spread across the area and are not clustered, to avoid giving undue weight to some parts of the site over others in the calculated statistics;
- The analyses do not suggest a hotspot or outlier of contamination that should be treated as a separate zone. This has been established by a histogram and/or a names statistical test;
- The sample locations are all taken from one population (i.e. the same material);
- Where an averaging zone encompasses several averaging areas, analyses do not show a spatial trend or other spatial pattern across that zone; and
- The number of samples has been shown to be sufficient for a statistical analysis.

Any included statistical spreadsheet is based on an in-house method of statistical analysis, in line with those outlined within the CL:AIRE guidance (2020).

Treatment of Hot-Spots

- A statistical test is applied to establish whether the data is a part of a single set, or whether data outliers are present.
- Provided that the data is based on random sampling and no distinct contamination source was present at the sampling location, the hot-spot(s) may be excluded and the mean of the remaining data assessed.

9. Ground and Water Limited Soil Assessment Criteria

The Soil Assessment Criteria used in the preparation of the Generic Quantitative Risk Assessment are tabulated in the following pages, where the source of each has been outlined in the previous sections.

9.1. Inorganics

SoBRA – Acute Generic Assessment Criteria						
Determinand	RwHP (mg/kg)	RwoHP (mg/kg)	Allotment (mg/kg)	Commercial (mg/kg)	POSresi (mg/kg)	POSpark (mg/kg)
Cyanide	24	24	24	1400	24	24

9.2. Metals

C4SL Low Level of Toxicological Concern						
Determinand	RwHP (mg/kg)	RwoHP (mg/kg)	Allotment (mg/kg)	Commercial (mg/kg)	POSresi (mg/kg)	POSpark (mg/kg)
Lead	< 200	< 310	< 80	< 2300	< 630	< 1300

LQM/CIEH Suitable 4 Use Levels – Metals and Semi-metals						
Determinand	RwHP (mg/kg)	RwoHP (mg/kg)	Allotment (mg/kg)	Commercial (mg/kg)	POSresi (mg/kg)	POSpark (mg/kg)
Arsenic	37	40	43	640	79	170
Beryllium	1.7	1.7	35	12	2.2	63
Boron	290	11000	45	240000	21000	46000
Cadmium	11	85	1.9	190	120	532
Chromium (III)	910	910	18000	8600	1500	33000
Chromium (VI)	6	6	1.8	33	7.7	220
Copper	2400	7100	520	68000	12000	44000
Elemental Mercury	1.2	1.2	21	58	16	30
Inorganic Mercury	40	56	19	1100	120	240
Methylmercury	11	15	6	320	40	68
Nickel	130	180	53	980	230	800
Selenium	250	430	88	12000	1100	1800
Vanadium	410	1200	91	9000	2000	5000
Zinc	3700	40000	620	730000	81000	170000

Phytotoxicity (Harmful to Plants) Threshold Trigger Values			
Determinand	Soil pH < 6.0 (mg/kg)	Soil pH 6.0 – 7.0 (mg/kg)	Soil pH > 7.0 (mg/kg)
Copper	100	135	200
Nickel	60	75	110
Zinc	200	200	300
Notes: BS3882:2015 – <i>Specification for Topsoil</i> . Based on a wide range of common plants that will be exposed to multi-purpose topsoil. Toxicity of contaminant may also be impacted by pH of soils. Site observation of plant vitality may give additional guidance.			

CL:AIRE Soil Generic Assessment Criteria				
Determinand	Residential (mg/kg)	Residential without plant uptake (mg/kg)	Allotment (mg/kg)	Commercial (mg/kg)
Antimony	ND	550	ND	7500
Barium	ND	1300	ND	22000
Molybdenum	ND	670	ND	17000
ND – Not derived				

9.3. Total Petroleum Hydrocarbons (TPHs)

9.3.1. BTEX Compounds

LQM/CIEH Suitable 4 Use Levels – BTEX Compounds							
Determinand	Soil Organic Matter	RwHP (mg/kg)	RwoHP (mg/kg)	Allotment (mg/kg)	Commercial (mg/kg)	POSresi (mg/kg)	POSpark (mg/kg)
Benzene	1.0% SOM	0.087	0.38	0.017	27	72	90
	2.5% SOM	0.170	0.70	0.034	47	72	100
	6.0% SOM	0.370	1.40	0.075	90	73	110
Toluene	1.0% SOM	130	880	22	56000	56000	87000
	2.5% SOM	290	1900	51	110000	56000	95000
	6.0% SOM	660	3900	120	180000	56000	100000
Ethylbenzene	1.0% SOM	47	83	16	5700	24000	17000
	2.5% SOM	110	190	39	13000	24000	22000
	6.0% SOM	260	440	91	27000	25000	27000
o-Xylene	1.0% SOM	60	88	28	6600	41000	17000
	2.5% SOM	140	210	67	15000	42000	24000
	6.0% SOM	330	480	160	33000	43000	33000
m-Xylene	1.0% SOM	59	82	31	6200	41000	17000
	2.5% SOM	140	190	74	14000	42000	24000
	6.0% SOM	320	450	170	31000	43000	33000
p-Xylene	1.0% SOM	56	79	29	5900	41000	17000
	2.5% SOM	130	180	69	14000	42000	23000
	6.0% SOM	310	430	160	30000	43000	31000

SOM = Soil Organic Matter Content (%)

9.3.2. Total Petroleum Hydrocarbons – Aliphatic

LQM/CIEH Suitable 4 Use Levels For TPH							
Aliphatic		RwHP (mg/kg)	RwoHP (mg/kg)	Allotment (mg/kg)	Commercial (mg/kg)	POSresi (mg/kg)	POSpark (mg/kg)
EC 5-6	1.0% SOM	42	42	730	3,200 (304) sol	570,000 (304) sol	95,000 (304) sol
	2.5% SOM	78	78	1,700	5,900 (558) sol	590,000	130,000 (558) sol
	6.0% SOM	160	160	3,900	12,000 (1150) sol	600,000 (1150) sol	180,000 (1150) sol
EC >6-8	1.0% SOM	100	100	2,300	7,800 (144) sol	600,000	150,000 (144) sol
	2.5% SOM	230	230	5,600	17,000 (322) sol	610,000	220,000 (322) sol
	6.0% SOM	530	530	13,000	40,000 (736) sol	620,000	320,000 (736) sol
EC >8-10	1.0% SOM	27	27	320	2,000 (78) sol	13,000	14,000 (78) sol
	2.5% SOM	65	65	770	4,800 (118) vap	13,000	18,000 (118) vap
	6.0% SOM	150	150	1,700	11,000 (451) vap	13,000	21,000 (451) vap
EC >10-12	1.0% SOM	130 (48) vap	130 (48) vap	2,200	9,700 (48) sol	13,000	21,000 (48) sol
	2.5% SOM	330 (118) vap	330 (118) vap	4,400	23,000 (118) vap	13,000	23,000 (118) vap
	6.0% SOM	760 (283) vap	760 (283) vap	7,300	47,000 (283) vap	13,000	24,000 (283) vap
EC >12-16	1.0% SOM	1,100 (24) sol	1,100 (24) sol	11,000	59,000 (24) sol	13,000	25,000 (24) sol
	2.5% SOM	2,400 (59) sol	2,400 (59) sol	13,000	82,000 (59) sol	13,000	25,000 (59) sol
	6.0% SOM	4,300 (142) sol	4,400 (142) sol	13,000	90,000 (142) sol	13,000	26,000 (142) sol
EC >16-35	1.0% SOM	65,000 (8.48) sol	65,000 (8.48) sol	260,000	1,600,000	250,000	450,000
	2.5% SOM	92,000 (21) sol	92,000 (21) sol	270,000	1,700,000	250,000	480,000
	6.0% SOM	110,000	110,000	270,000	1,800,000	250,000	490,000
EC >35-44	1.0% SOM	65,000 (8.48) sol	65,000 (8.48) sol	260,000	1,600,000	250,000	450,000
	2.5% SOM	92,000 (21) sol	92,000 (21) sol	270,000	1,700,000	250,000	480,000
	6.0% SOM	110,000	110,000	270,000	1,800,000	250,000	490,000

SOM = Soil Organic Matter Content (%)

vap – GAC presented exceeds the vapour saturation limit, which is presented in brackets.

sol – GAC presented exceeds the soil saturation limit, which is presented in brackets.

9.3.3. Total Petroleum Hydrocarbons – Aromatic

LQM/CIEH Suitable 4 Use Levels For TPH							
Aromatic		RwHP (mg/kg)	RwoHP (mg/kg)	Allotment (mg/kg)	Commercial (mg/kg)	POSresi (mg/kg)	POSpark (mg/kg)
EC 5-7 (Benzene)	1.0% SOM	70	370	13	26,000 (1220) ^{sol}	56,000	76,000 (1220) ^{sol}
	2.5% SOM	140	690	27	46,000 (2260) ^{sol}	56,000	84,000 (2260) ^{sol}
	6.0% SOM	300	1,400	57	86,000 (4710) ^{sol}	56,000	92,000 (4710) ^{sol}
EC >7-8 (Toluene)	1.0% SOM	130	860	22	56,000 (869) ^{vap}	56,000	87,000 (869) ^{sol}
	2.5% SOM	290	1,800	51	110,000 (1920) ^{sol}	56,000	95,000 (1920) ^{sol}
	6.0% SOM	660	3,900	120	180,000 (4360) ^{vap}	56,000	100,000 (4360) ^{vap}
EC >8-10	1.0% SOM	34	47	8.6	3,500 (613) ^{vap}	5,000	7,200 (613) ^{vap}
	2.5% SOM	83	110	21	8,100 (1500) ^{vap}	5,000	8,500 (1500) ^{vap}
	6.0% SOM	190	270	51	17,000 (3850) ^{vap}	5,000	9,300 (3580) ^{vap}
EC >10-12	1.0% SOM	74	250	13	16,000 (364) ^{sol}	5,000	9,200 (364) ^{sol}
	2.5% SOM	180	590	31	28,000 (899) ^{sol}	5,000	9,700 (889) ^{sol}
	6.0% SOM	380	1,200	74	34,000 (2150) ^{sol}	5,000	10,000
EC >12-16	1.0% SOM	140	1,800	23	36,000 (169) ^{sol}	5,100	10,000
	2.5% SOM	330	2,300 (419) ^{sol}	57	37,000	5,100	10,000
	6.0% SOM	660	2,500	130	38,000	5,000	10,000
EC >16-21	1.0% SOM	260	1,900	46	28,000	3,800	7,600
	2.5% SOM	540	1,900	110	28,000	3,800	7,700
	6.0% SOM	930	1,900	260	28,000	3,800	7,800
EC >21-35	1.0% SOM	1,100	1,900	370	28,000	3,800	7,800
	2.5% SOM	1,500	1,900	820	28,000	3,800	7,800
	6.0% SOM	1,700	1,900	1,600	28,000	3,800	7,900
EC >35-44	1.0% SOM	1,100	1,900	370	28,000	3,800	7,800
	2.5% SOM	1,500	1,900	820	28,000	3,800	7,800
	6.0% SOM	1,700	1,900	1,600	28,000	3,800	7,900
EC >44-70	1.0% SOM	1,600	1,900	1,200	28,000	3,800	7,800
	2.5% SOM	1,800	1,900	2,100	28,000	3,800	7,800
	6.0% SOM	1,900	1,900	3,000	28,000	3,800	7,900
SOM = Soil Organic Matter Content (%)							
^{vap} – GAC presented exceeds the vapour saturation limit, which is presented in brackets.							
^{sol} – GAC presented exceeds the soil saturation limit, which is presented in brackets.							

9.4. Polycyclic Aromatic Hydrocarbons (PAHs)

LQM/CIEH Suitable 4 Use Levels For Polycyclic Aromatic Hydrocarbons (PAHs)							
Determinands		RwHP (mg/kg)	RwoHP (mg/kg)	Allotment (mg/kg)	Commercial (mg/kg)	POSresi (mg/kg)	POSpark (mg/kg)
Acenaphthene	1.0% SOM	210	3,000 (57.0) ^{sol}	34	84,000(57.0) ^{sol}	15,000	29,000
	2.5% SOM	510	4,700(141) ^{sol}	85	97,000(141) ^{sol}	15,000	30,000
	6.0% SOM	1100	6,000(336) ^{sol}	200	100,000	15,000	30,000
Acenaphthylene	1.0% SOM	170	2,900(86.1) ^{sol}	28	83,000(86.1) ^{sol}	15,000	29,000
	2.5% SOM	420	4,600(212) ^{sol}	69	97,000(212) ^{sol}	15,000	30,000
	6.0% SOM	920	6,000(506) ^{sol}	160	100,000	15,000	30,000
Anthracene	1.0% SOM	2,400	31,000(1.17) ^{vap}	380	520,000	74,000	150,000
	2.5% SOM	5,400	35,000	950	540,000	74,000	150,000
	6.0% SOM	11,000	37,000	2,200	540,000	74,000	150,000
Benzo(a)anthracene	1.0% SOM	7.20	11	2.90	170	29	49
	2.5% SOM	11	14	6.50	170	29	56
	6.0% SOM	13	15	13	180	29	62
Benzo(a)pyrene	1.0% SOM	2.20	3.20	0.97	35	5.70	11
	2.5% SOM	2.70	3.20	2.00	35	5.70	12
	6.0% SOM	3.00	3.20	3.50	36	5.70	13
Benzo(b)flouranthene	1.0% SOM	2.60	3.90	0.99	44	7.10	13
	2.5% SOM	3.30	4.00	2.10	44	7.20	15
	6.0% SOM	3.70	4.00	3.90	45	7.20	16
Benzo(ghi)perylene	1.0% SOM	320	360	290	3,900	640	1,400
	2.5% SOM	340	360	470	4,000	640	1,500
	6.0% SOM	350	360	640	4,000	640	1,600
Benzo(k)flouranthene	1.0% SOM	77	110	37	1,200	190	370
	2.5% SOM	93	110	75	1,200	190	410
	6.0% SOM	100	110	130	1,200	190	440
Chrysene	1.0% SOM	15	30	4.10	350	57	93
	2.5% SOM	22	31	9.40	350	57	110
	6.0% SOM	27	32	19	350	57	120
Dibenzo(ah)anthracene	1.0% SOM	0.24	0.31	0.14	3.50	0.57	1.10
	2.5% SOM	0.28	0.32	0.27	3.50	0.57	1.30
	6.0% SOM	0.30	0.32	0.43	3.60	0.58	1.40
Flouranthene	1.0% SOM	280	1,500	52	23,000	3,100	6,300
	2.5% SOM	560	1,600	130	23,000	3,100	6,300
	6.0% SOM	890	1,600	290	23,000	3,100	6,300
Flourene	1.0% SOM	170	2,800 (30.9) ^{sol}	27	63,000(30.9) ^{sol}	9,900	20,000
	2.5% SOM	400	3,800(76.5) ^{sol}	67	68,000	9,900	20,000
	6.0% SOM	860	4,500(183) ^{sol}	160	71,000	9,900	20,000
Indeno(123-cd)pyrene	1.0% SOM	27	45	9.50	500	82	150
	2.5% SOM	36	46	21	510	82	170
	6.0% SOM	41	46	39	510	82	180
Napthalene	1.0% SOM	15	36	65	1,600	11,000	800
	2.5% SOM	36	36	130	3,700	15,000	1,200
	6.0% SOM	85	85	200	8,400	17,000	1,900
Phenanthrene	1.0% SOM	95	1,300(183) ^{sol}	15	22,000	3,100	6,200
	2.5% SOM	220	1,500	38	22,000	3,100	6,200
	6.0% SOM	440	1,500	90	23,000	3,100	6,300
Pyrene	1.0% SOM	620	3,700	110	54,000	7,400	15,000
	2.5% SOM	1200	3,800	270	54,000	7,400	15,000
	6.0% SOM	2000	3,800	620	54,000	7,400	15,000
Coal Tar (Benzo(a)pyrene used as marker compound)	1.0% SOM	0.79	1.2	0.32	15	2.20	4.40
	2.5% SOM	0.98	1.2	0.67	15	2.20	4.70
	6.0% SOM	1.10	1.2	1.20	15	2.20	4.80
SOM = Soil Organic Matter Content (%) ^{vap} – GAC presented exceeds the vapour saturation limit, which is presented in brackets. ^{sol} – GAC presented exceeds the soil saturation limit, which is presented in brackets.							

9.5. Volatile and Semi-volatile Organic Compounds

LQM CIEH General Assessment Criteria: Volatile and Semi-Volatile Organic Compounds							
Determinands		RwHP (mg/kg)	RwoHP (mg/kg)	Allotment (mg/kg)	Commercial (mg/kg)	POSresi (mg/kg)	POSpark (mg/kg)
<i>Chloroalkanes & alkenes</i>							
1,2 Dichloroethane	1.0% SOM	0.0071	0.0092	0.0046	0.67	29	21
	2.5% SOM	0.011	0.013	0.0083	0.97	29	24
	6.0% SOM	0.019	0.023	0.016	1.70	29	28
1,1,2,2 Tetrachloroethane	1.0% SOM	1.60	3.90	0.41	270	1,400	1,800
	2.5% SOM	3.40	8.00	0.89	550	1,400	2,100
	6.0% SOM	7.50	17	2.00	1,100	1,400	2,300
1,1,1,2 Tetrachloroethane	1.0% SOM	1.20	1.50	0.79	110	1,400	1,500
	2.5% SOM	2.80	3.50	1.90	250	1,400	1,800
	6.0% SOM	6.40	8.20	4.40	560	1,400	2,100
Tetrachloroethene	1.0% SOM	0.18	0.18	0.65	19	1,400	810 ^{sol} (424)
	2.5% SOM	0.39	0.40	1.50	42	1,400	1,100 ^{sol} (951)
	6.0% SOM	0.90	0.92	3.60	95	1,400	1,500
1,1,1 Trichloroethane	1.0% SOM	8.80	9.00	48	660	140,000	57,000 ^{vap} (1425)
	2.5% SOM	18	18	110	1,300	140,000	76,000 ^{vap} (2915)
	6.0% SOM	39	40	240	3,000	140,000	100,000 ^{vap} (6392)
Tetrachloromethene	1.0% SOM	0.026	0.026	0.45	2.90	890	190
	2.5% SOM	0.056	0.056	1.00	6.30	920	270
	6.0% SOM	0.130	0.130	2.40	14	950	400
Trichloroethene	1.0% SOM	0.016	0.017	0.041	1.20	120	70
	2.5% SOM	0.034	0.036	0.091	2.60	120	91
	6.0% SOM	0.075	0.080	0.210	5.70	120	120
Trichloromethane	1.0% SOM	0.91	1.20	0.42	99	2,500	2,600
	2.5% SOM	1.70	2.10	0.83	170	2,500	2,800
	6.0% SOM	3.40	4.20	1.70	350	2,500	3,100
Vinyl Chloride	1.0% SOM	0.00064	0.00077	0.00055	0.059	3.50	4.80
	2.5% SOM	0.00087	0.00100	0.00100	0.077	3.50	5.00
	6.0% SOM	0.00014	0.00150	0.00180	0.120	3.50	5.40
<i>Explosives</i>							
2,4,6 Trinitrotoluene	1.0% SOM	1.60	65	0.24	1,000	130	260
	2.5% SOM	3.70	66	0.58	1,000	130	270
	6.0% SOM	8.10	66	1.40	1,000	130	270
RDX (Hexogen/Cyclonite/1,3,5-trinitro-1,3,5-triazacyclohexane)	1.0% SOM	120	13,000	17	210,000	26,000	49,000(18.7) ^{sol}
	2.5% SOM	250	13,000	38	210,000	26,000	51,000
	6.0% SOM	540	13,000	85	210,000	27,000	53,000
HMX (Octogen/1,3,5,7-tetrenitro-1,3,5,7-tetrazacyclo-octane)	1.0% SOM	5.70	67,00	0.86	110,000	13,000	23,000(0.35) ^{vap}
	2.5% SOM	13	67,00	1.90	110,000	13,000	23,000(0.39) ^{vap}
	6.0% SOM	26	67,00	3.90	110,000	13,000	24,000(0.48) ^{vap}
Atrazine	1.0% SOM	3.30	610	0.50	9,300	1,200	2,300
	2.5% SOM	7.60	620	1.20	9,400	1,200	2,400
	6.0% SOM	17.40	620	2.70	9,400	1,200	2,400

^{vap} – GAC presented exceeds the vapour saturation limit, which is presented in brackets.
^{sol} – GAC presented exceeds the soil saturation limit, which is presented in brackets.

VOC and SVOC table continued overleaf

VOC and SVOC table continued from previous page

LQM CIEH General Assessment Criteria: Volatile and Semi-Volatile Organic Compounds							
Determinands		RwHP (mg/kg)	RwoHP (mg/kg)	Allotment (mg/kg)	Commercial (mg/kg)	POSresi (mg/kg)	POSpark (mg/kg)
Pesticides							
Aldrin	1.0% SOM	5.70	7.30	3.20	170	18	30
	2.5% SOM	6.60	7.40	6.10	170	18	31
	6.0% SOM	7.10	7.50	9.60	170	18	31
Dieldrin	1.0% SOM	0.97	7.00	0.17	170	18	30
	2.5% SOM	2.00	7.30	0.41	170	18	30
	6.0% SOM	3.50	7.40	0.96	170	18	31
Dichlorvos	1.0% SOM	0.032	6.40	0.0049	140	16	26
	2.5% SOM	0.066	6.50	0.0100	140	16	26
	6.0% SOM	0.140	6.60	0.0220	140	16	27
Alpha - Endosulfan	1.0% SOM	7.40	160(0.003) ^{vap}	1.20	5,600(0.003) ^{vap}	1,200	2,400
	2.5% SOM	18	280(0.007) ^{vap}	2.90	7,400(0.007) ^{vap}	1,200	2,400
	6.0% SOM	41	410(0.016) ^{vap}	6.80	8,400(0.016) ^{vap}	1,200	2,400
Beta - Endosulfan	1.0% SOM	7.00	190(0.00007) ^{vap}	1.10	6,300(0.00007) ^{vap}	1,200	2,400
	2.5% SOM	17	320(0.0002) ^{vap}	2.70	7,800(0.0002) ^{vap}	1,200	2,400
	6.0% SOM	39	440(0.0004) ^{vap}	6.40	8700	1,200	2,500
Alpha - Hexachlorocyclohexanes	1.0% SOM	0.23	6.90	0.035	170	24	47
	2.5% SOM	0.55	9.20	0.087	180	24	48
	6.0% SOM	1.20	11	0.210	180	24	48
Beta - Hexachlorocyclohexanes	1.0% SOM	0.085	3.70	0.013	65	8.10	15
	2.5% SOM	0.200	3.80	0.032	65	8.10	15
	6.0% SOM	0.460	3.80	0.077	65	8.10	16
Gamma - Hexachlorocyclohexanes	1.0% SOM	0.06	2.90	0.0092	67	8.2	14
	2.5% SOM	0.14	3.30	0.0230	69	8.2	15
	6.0% SOM	0.33	3.50	0.0540	70	8.2	15
Chlorobenzenes							
Chlorobenzene	1.0% SOM	0.46	0.46	5.90	56	11,000	1,300(675) ^{sol}
	2.5% SOM	1.00	1.00	14	130	13,000	2,000(1520) ^{sol}
	6.0% SOM	2.40	2.40	32	290	14,000	2,900
1,2-Dichlorobenzene	1.0% SOM	23	24	94	2,000 (571) ^{sol}	90,000	24,000(571) ^{sol}
	2.5% SOM	55	57	230	4,800 (1370) ^{sol}	95,000	36,000(1370) ^{sol}
	6.0% SOM	130	130	540	11,000 (3240) ^{sol}	98,000	51,000(3240) ^{sol}
1,3-Dichlorobenzene	1.0% SOM	0.40	0.44	0.25	30	300	390
	2.5% SOM	1.00	1.10	0.60	73	300	440
	6.0% SOM	2.30	2.50	1.50	170	300	470
1,4-Dichlorobenzene	1.0% SOM	61	61	15	4,400 (224) ^{vap}	17,000 ^g	36,000 (224) ^{vap}
	2.5% SOM	150	150	37	10,000 (540) ^{vap}	17,000 ^g	36,000 (540) ^{vap}
	6.0% SOM	350	350	88 ^g	25,000 (1280) ^{vap}	17,000 ^g	36,000 (1280) ^{vap}
1,2,3,-Trichlorobenzene	1.0% SOM	1.50	1.50	4.70	102	1,800	770(134) ^{vap}
	2.5% SOM	3.60	3.70	12	250	1,800	1,100(330) ^{vap}
	6.0% SOM	8.60	8.80	28	590	1,800	1,600(789) ^{vap}
1,2,4,-Trichlorobenzene	1.0% SOM	2.60	2.60	55	220	15,000	1,700(318) ^{vap}
	2.5% SOM	6.40	6.40	140	530	17,000	2,600(786) ^{vap}
	6.0% SOM	15	15	320	1,300	19,000	4,000(1880) ^{vap}
1,3,5,-Trichlorobenzene	1.0% SOM	0.33	0.33	4.70	23	1,700	380(36.7) ^{vap}
	2.5% SOM	0.81	0.81	12	55	1,700	590(90.8) ^{vap}
	6.0% SOM	1.90	1.90	140	130	1,800	860(217) ^{vap}
^{vap} – GAC presented exceeds the vapour saturation limit, which is presented in brackets. ^{sol} – GAC presented exceeds the soil saturation limit, which is presented in brackets.							

VOC and SVOC table continued overleaf

VOC and SVOC table continued from previous page

LQM CIEH General Assessment Criteria: Volatile and Semi-Volatile Organic Compounds							
Determinands		RwHP (mg/kg)	RwoHP (mg/kg)	Allotment (mg/kg)	Commercial (mg/kg)	POSresi (mg/kg)	POSpark (mg/kg)
Chlorobenzenes (cont.)							
1,2,3,4,- Tetrachlorobenzene	1.0% SOM	15	24	4.40	1,700(122) ^{vap}	830	1,500(122) ^{vap}
	2.5% SOM	36	56	11	3,080(304) ^{vap}	830	1,600
	6.0% SOM	78	120	26	4,400(728) ^{vap}	830	1,600
1,2,3,5,- Tetrachlorobenzene	1.0% SOM	0.66	0.75	0.38	49(39.4) ^{vap}	78	110(39) ^{vap}
	2.5% SOM	1.60	1.90	0.90	120(98.1) ^{vap}	79	120
	6.0% SOM	3.70	4.30	2.20	240(235) ^{vap}	79	130
1,2,4, 5,- Tetrachlorobenzene	1.0% SOM	0.33	0.73	0.06	42(19.7) ^{sol}	13	25
	2.5% SOM	0.77	1.70	0.16	72(49.1) ^{sol}	13	26
	6.0% SOM	1.60	3.50	0.37	96	13	26
Pentachlorobenzene	1.0% SOM	5.80	19	1.20	640(43.0) ^{sol}	100	190
	2.5% SOM	12	30	3.10	770(107) ^{sol}	100	190
	6.0% SOM	22	38	7.00	830	100	190
Hexachlorobenzene	1.0% SOM	1.80(0.20) ^{vap}	4.10 (0.20) ^{vap}	0.47	110(0.20) ^{vap}	16	30
	2.5% SOM	3.30(0.50) ^{vap}	5.70 (0.50) ^{vap}	1.10	120	16	30
	6.0% SOM	4.90	6.70 (1.2) ^{vap}	2.50	120	16	30
Phenols & Chlorophenols							
BTEX	1.0% SOM	280	750	66	760 ^{dir} (31,000)	760 ^{dir} (11,000)	760 ^{dir} (8,600)
	2.5% SOM	550	1,300	140	1,500 ^{dir} (35,000)	1,500 ^{dir} (11,000)	1,500 ^{dir} (9,700)
	6.0% SOM	1100	2,300	280	3,200 ^{dir} (37,000)	3,200 ^{dir} (11,000)	3,200 ^{dir} (11,000)
	6.0% SOM	1100	2,300	280	3,200 ^{dir} (37,000)	3,200 ^{dir} (11,000)	3,200 ^{dir} (11,000)
Chlorophenols (4 Congeners)	1.0% SOM	0.87	94	0.13	3,500	620	1,100
	2.5% SOM	2.00	150	0.30	4,000	620	1,100
	6.0% SOM	4.50	210	0.70	4,300	620	1,100
Pentachlorophenols	1.0% SOM	0.22	27(16.4) ^{vap}	0.03	400	60	110
	2.5% SOM	0.52	29	0.08	400	60	120
	6.0% SOM	1.20	31	0.19	400	60	120
Others							
Carbon Disulphide	1.0% SOM	0.14	0.14	4.80	11	11,000	1,300
	2.5% SOM	0.29	0.29	10	22	11,000	1,900
	6.0% SOM	0.62	0.62	23	47	12,000	2,700
Hexachloro-1,3- Butadiene	1.0% SOM	0.29	0.32	0.25	31	25	48
	2.5% SOM	0.70	0.78	0.61	68	25	50
	6.0% SOM	1.60	1.80	1.40	120	25	51
^{vap} – GAC presented exceeds the vapour saturation limit, which is presented in brackets.							
^{sol} – GAC presented exceeds the soil saturation limit, which is presented in brackets.							

VOC and SVOC table continued overleaf

VOC and SVOC table continued from previous page

CL:AIRE General Assessment Criteria: Volatile and Semi-Volatile Organic Compounds					
Determinands		RwHP (mg/kg)	RwoHP (mg/kg)	Allotment (mg/kg)	Commercial (mg/kg)
1,1,2 Trichloroethane	1.0% SOM	0.60	0.88	0.28	94
	2.5% SOM	1.20	1.8	0.61	190
	6.0% SOM	2.70	3.9	1.40	400
1,1-Dichloroethane	1.0% SOM	2.40	2.50	9.20	280
	2.5% SOM	3.90	4.10	17	450
	6.0% SOM	7.40	7.70	35	850
1,1-Dichloroethene	1.0% SOM	0.23	0.23	2.80	26
	2.5% SOM	0.40	0.41	5.60	46
	6.0% SOM	0.82	0.82	12	92
1,2,4-Trimethylbenzene	1.0% SOM	0.35	0.41	0.38	42
	2.5% SOM	0.85	0.99	0.93	99
	6.0% SOM	2.00	2.30	2.20	220
1,2-Dichloropropane	1.0% SOM	0.024	0.024	0.62	3.3
	2.5% SOM	0.042	0.042	1.20	5.9
	6.0% SOM	0.084	0.085	2.60	12
2,4-Dimethylphenol	1.0% SOM	19	210	3.10	16000*
	2.5% SOM	43	410	7.20	24000*
	6.0% SOM	97	730	17	30000*
2,4-Dinitrotoluene	1.0% SOM	1.50	170*	0.22	3700*
	2.5% SOM	3.20	170	0.49	3700*
	6.0% SOM	7.20	170	1.10	3800*
2,6-Dinitrotoluene	1.0% SOM	0.78	78	0.12	1900*
	2.5% SOM	1.70	84	0.27	1900*
	6.0% SOM	3.90	87	0.61	1900*
2-Chloronaphthalene	1.0% SOM	3.70	3.80	40	390*
	2.5% SOM	9.20	9.30	98	960*
	6.0% SOM	22	22	230	2200*
Biphenyl	1.0% SOM	66*	220*	14	18000*
	2.5% SOM	160	500*	35	33000*
	6.0% SOM	360	980*	83	48000*
Bis (2-ethylhexyl) phthalate	1.0% SOM	280*	2700*	47*	85000*
	2.5% SOM	610*	2800*	120*	86000*
	6.0% SOM	1100*	2800*	280*	86000*
Bromobenzene	1.0% SOM	0.87	0.91	3.2	97
	2.5% SOM	2.0	2.1	7.6	220
	6.0% SOM	4.7	4.9	18	520
Bromodichloromethane	1.0% SOM	0.016	0.019	0.016	2.1
	2.5% SOM	0.030	0.034	0.032	3.7
	6.0% SOM	0.061	0.070	0.068	7.6
Bromoform	1.0% SOM	2.8	5.2	0.95	760
	2.5% SOM	5.9	11	2.1	1500
	6.0% SOM	13	23	4.6	3100
Butyl benzyl phthalate	1.0% SOM	1400*	42000*	220*	940000*
	2.5% SOM	3300*	44000*	550*	940000*
	6.0% SOM	7200*	44000*	1300*	950000*

*soil concentration above saturation limit

VOC and SVOC table continued from previous page

CL:AIRE General Assessment Criteria: Volatile and Semi-Volatile Organic Compounds					
Determinands		RwHP (mg/kg)	RwoHP (mg/kg)	Allotment (mg/kg)	Commercial (mg/kg)
Chloroethane	1.0% SOM	8.3	8.4	110	960
	2.5% SOM	11	11	200	1300
	6.0% SOM	18	18	380	2100
Chloromethane	1.0% SOM	0.0083	0.0085	0.066	1.0
	2.5% SOM	0.0098	0.0099	0.13	1.2
	6.0% SOM	0.013	0.013	0.23	1.6
<i>Cis</i> 1,2 Dichloroethene	1.0% SOM	0.11	0.12	0.26	14
	2.5% SOM	0.19	0.20	0.50	24
	6.0% SOM	0.37	0.39	1.0	47
Dichloromethane	1.0% SOM	0.58	2.10	0.10	270
	2.5% SOM	0.98	2.80	0.19	360
	6.0% SOM	1.70	4.50	0.34	560
Diethyl Phthalate	1.0% SOM	120*	1800*	19*	150000*
	2.5% SOM	260*	3500*	41*	220000*
	6.0% SOM	570*	6300*	94*	290000*
Di- <i>n</i> -butyl phthalate	1.0% SOM	13*	450*	2.00	15000*
	2.5% SOM	31*	450*	5.00	15000*
	6.0% SOM	67*	450*	12	15000*
Di- <i>n</i> -octyl phthalate	1.0% SOM	2300*	3400*	940*	89000*
	2.5% SOM	2800*	3400*	2100*	89000*
	6.0% SOM	3100*	3400*	3900*	89000*
Hexachloroethane	1.0% SOM	0.20	0.22	0.27	22*
	2.5% SOM	0.48	0.54	0.67	53*
	6.0% SOM	1.10	1.30	1.60	120*
Isopropylbenzene	1.0% SOM	11	12	32	1400*
	2.5% SOM	27	28	79	3300*
	6.0% SOM	64	67	190	7700*
Methyl <i>tert</i> -butyl ether (MTBE)	1.0% SOM	49	73	23	7900
	2.5% SOM	84	120	44	13000
	6.0% SOM	160	220	90	24000
Propylbenzene	1.0% SOM	34	40	34	4100*
	2.5% SOM	82	97	83	9700*
	6.0% SOM	190	230	200	21000*
Styrene	1.0% SOM	8.10	35	1.60	3300*
	2.5% SOM	19	78	3.70	6500*
	6.0% SOM	43	170	8.70	11000*
Total Cresols (2-, 3-, and 4-methylphenol)	1.0% SOM	80	3700	12	160000
	2.5% SOM	180	5400	27	180000*
	6.0% SOM	400	6900	63	180000*
<i>Trans</i> 1,2 Dichloroethene	1.0% SOM	0.19	0.19	0.93	22
	2.5% SOM	0.34	0.35	1.90	40
	6.0% SOM	0.70	0.71	0.24	81
Tributyl tin oxide	1.0% SOM	0.25	1.40	0.042	130*
	2.5% SOM	0.59	3.10	0.100	180*
	6.0% SOM	1.30	5.70	0.240	200*

*soil concentration above saturation limit

C4SL Low Level of Toxicological Concern							
Determinands		RwHP (mg/kg)	RwoHP (mg/kg)	Allotment (mg/kg)	Commercial (mg/kg)	POSresi (mg/kg)	POSpark (mg/kg)
1,2-Dichloroethane (Ethylene Dichloride)	1.0% SOM	0.11	0.16	0.054	12	300	300
	2.5% SOM	0.18	0.24	0.10	17	310	330
	6.0% SOM	0.31	0.41	0.19	29	310	380
Cis-1,2-Dichloroethene	1.0% SOM	0.46	0.50	0.89	38	3,800	2,000
	2.5% SOM	0.78	0.84	1.7	64	3,800	2,400
	6.0% SOM	1.5	1.6	3.6	120	3,900	3,100
Tetrachloroethene (PCE)	1.0% SOM	0.31	0.32	2	24	3,200	1,400
	2.5% SOM	0.70	0.71	4.8	55	3,300	1,900
	6.0% SOM	1.60	1.60	11	130	3,400	2,500
Trans-1,2-Dichloroethene	1.0% SOM	0.90	0.93	3.70	69	13,000	5,600
	2.5% SOM	1.60	1.70	7.50	120	13,000	7,000
	6.0% SOM	3.30	3.40	16	260	13,000	9,100
Trichloroethene (TCE)	1.0% SOM	0.0093	0.0097	0.032	0.73	76	41
	2.5% SOM	0.020	0.020	0.072	1.5	78	54
	6.0% SOM	0.043	0.045	0.16	3.4	79	69
Vinyl Chloride (Chloroethene)	1.0% SOM	0.0064	0.015	0.0017	1.1	7.8	18
	2.5% SOM	0.010	0.019	0.0031	1.4	7.8	19
	6.0% SOM	0.017	0.029	0.0058	2.2	7.8	19

9.6. Per- and Polyfluoroalkyl Substances (PFAS)

Interim C4SLs for PFOA, PFNA, PFHxS and PFOS						
Determinand	RwHP (mg/kg)	RwoHP (mg/kg)	Allotment (mg/kg)	Commercial (mg/kg)	POSresi (mg/kg)	POSpark (mg/kg)
PFOA	0.076	0.041	0.0014	0.60	0.079	0.17
PFOS	0.013	0.041	0.0027	0.60	0.079	0.17
PFHxS	0.0081	0.041	0.0015	0.60	0.079	0.17
PFNA	0.0073	0.041	0.0013	0.60	0.079	0.17

9.7. Asbestos

No asbestos or asbestos containing materials (ACM's) are considered acceptable on-site from a human health perspective. Therefore the GAC for asbestos & ACM's within any imported material should be none detected (ND).

APPENDIX G: Waste Hazard Assessment

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

- understand the origin of the waste
- select the correct List of Waste code(s)
- confirm that the list of determinands, results and sampling plan are fit for purpose
- select and justify the chosen metal species (Appendix B)
- correctly apply moisture correction and other available corrections
- add the meta data for their user-defined substances (Appendix A)
- check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)



27CSF-QS1H2-3WZVS

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

Report is invalid if pages are removed.

Job name

GWPR6571 the Chicklade Service Station, Hindon, Salisbury SP3 5ST

Description/Comments

Project

GWPR6571

Site

the Chicklade Service Station, Hindon, Salisbury SP3 5ST

Classified by

Name: Roger Foord
Date: 03 Nov 2025 17:08 GMT
Telephone: 0333 600 1221
Company: Ground and Water
2 The Long Barn, Norton Farm
Selborne Road
Alton
GU34 3NB

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification:

-

Course

Hazardous Waste Classification

Date

-

Purpose of classification

2 - Material Characterisation

Address of the waste

the Chicklade Service Station, Hindon, Salisbury SP3 5ST

Post Code SP 5ST

SIC for the process giving rise to the waste

41201 Construction of commercial buildings

Description of industry/producer giving rise to the waste

Redevelopment of former petrol station

Description of the specific process, sub-process and/or activity that created the waste

Waste created during foundation excavations

Description of the waste

Made Ground comprising red/grey sandy GRAVEL. Sand is fine to medium. Gravel was fine to coarse, sub-angular to sub-rounded brick (60%) and concrete (40%).

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	TP11--22102025-0.50		Hazardous	HP 7, HP 11	3
2	CBR01--22102025-0.50		Non Hazardous		6
3	CBR02--22102025-0.50		Non Hazardous		8
4	CBR03--22102025-0.50		Non Hazardous		11
5	TP09--22102025-0.50		Non Hazardous		13
6	TP10--22102025-0.20		Non Hazardous		16

Related documents

#	Name	Description
1	25-057486_HWOL[2].hwol	i2 Analytical .hwol file used to populate the Job

Report

Created by: Roger Foord

Created date: 03 Nov 2025 17:08 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	18
Appendix B: Rationale for selection of metal species	19
Appendix C: Version	20

Classification of sample: TP11--22102025-0.50

 **Hazardous Waste**
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:	LoW Code:
TP11--22102025-0.50	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
9% (wet weight correction)	Entry:
	17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.118%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.118%)

Determinands

Moisture content: 9% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	benzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
2	ethylbenzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
3	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
4	xylene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
5	toluene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
6	chromium in Cr(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
7	monohydric phenols				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
			P1186							
8	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides,				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
	ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }									
	006-007-00-5									
9	pH				8.2 pH		8.2 pH	8.2 pH		
			PH							
10	boron { boron tribromide }				1.1 mg/kg	23.173	23.196 mg/kg	0.00232 %	✓	
	005-003-00-0	233-657-9	10294-33-4							
11	arsenic { arsenic }				14 mg/kg		12.74 mg/kg	0.00127 %	✓	
	033-001-00-X	231-148-6	7440-38-2							
12	cadmium { cadmium sulfide }			1	1.1 mg/kg	1.285	1.287 mg/kg	0.0001 %	✓	
	048-010-00-4	215-147-8	1306-23-6							
13	copper { dicopper oxide; copper (I) oxide }				19 mg/kg	1.126	19.467 mg/kg	0.00195 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
14	mercury { mercury }				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
	080-001-00-0	231-106-7	7439-97-6							
15	nickel { nickel dihydroxide }				11 mg/kg	1.579	15.811 mg/kg	0.00158 %	✓	
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
16	lead { lead chromate }			1	53 mg/kg	1.56	75.23 mg/kg	0.00482 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
17	selenium { selenium }				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	034-001-00-2	231-957-4	7782-49-2							
18	vanadium { divanadium pentaoxide; vanadium pentoxide }				20 mg/kg	1.785	32.49 mg/kg	0.00325 %	✓	
	023-001-00-8	215-239-8	1314-62-1							
19	zinc { zinc sulphate }				310 mg/kg	2.469	696.589 mg/kg	0.0697 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]							
20	acenaphthylene				0.32 mg/kg		0.291 mg/kg	0.0000291 %	✓	
		205-917-1	208-96-8							
21	acenaphthene				1.7 mg/kg		1.547 mg/kg	0.000155 %	✓	
		201-469-6	83-32-9							
22	anthracene				4.1 mg/kg		3.731 mg/kg	0.000373 %	✓	
		204-371-1	120-12-7							
23	benzo[a]anthracene				11 mg/kg		10.01 mg/kg	0.001 %	✓	
	601-033-00-9	200-280-6	56-55-3							
24	benzo[a]pyrene; benzo[def]chrysene				13 mg/kg		11.83 mg/kg	0.00118 %	✓	
	601-032-00-3	200-028-5	50-32-8							
25	benzo[b]fluoranthene				14 mg/kg		12.74 mg/kg	0.00127 %	✓	
	601-034-00-4	205-911-9	205-99-2							
26	benzo[k]fluoranthene				6.3 mg/kg		5.733 mg/kg	0.000573 %	✓	
	601-036-00-5	205-916-6	207-08-9							
27	benzo[ghi]perylene				8 mg/kg		7.28 mg/kg	0.000728 %	✓	
		205-883-8	191-24-2							
28	chrysene				11 mg/kg		10.01 mg/kg	0.001 %	✓	
	601-048-00-0	205-923-4	218-01-9							
29	dibenz[a,h]anthracene				0.75 mg/kg		0.683 mg/kg	0.0000683 %	✓	
	601-041-00-2	200-181-8	53-70-3							
30	fluoranthene				23 mg/kg		20.93 mg/kg	0.00209 %	✓	
		205-912-4	206-44-0							
31	fluorene				1.1 mg/kg		1.001 mg/kg	0.0001 %	✓	
		201-695-5	86-73-7							
32	indeno[123-cd]pyrene				6.6 mg/kg		6.006 mg/kg	0.000601 %	✓	
		205-893-2	193-39-5							
33	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
34	phenanthrene				11 mg/kg		10.01 mg/kg	0.001 %	✓	
		201-581-5	85-01-8							
35	pyrene				23 mg/kg		20.93 mg/kg	0.00209 %	✓	
		204-927-3	129-00-0							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
36	TPH (C6 to C40) petroleum group				1300 mg/kg		1183 mg/kg		0.118 %	✓	
			TPH								
37	chromium in Cr(III) compounds { chromium(III) oxide }				16 mg/kg	1.462	21.28 mg/kg		0.00213 %	✓	
		215-160-9	1308-38-9								
Total:									0.218 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 100000 mg/kg (10%) because: heavy end hydrocarbons unlikely to be flammable at the concentrations noted

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.118%)

Classification of sample: CBR01--22102025-0.50

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
CBR01--22102025-0.50	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
3.8% (wet weight correction)	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 3.8% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	chromium in Cr(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg		<0.000346 %		<LOD
2	monohydric phenols		P1186			<1 mg/kg		<1 mg/kg		<0.0001 %		<LOD
3	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg		<0.000188 %		<LOD
4	pH		PH			8.5 pH		8.5 pH		8.5 pH		
5	boron { boron tribromide }	005-003-00-0	233-657-9	10294-33-4		0.3 mg/kg	23.173	6.688 mg/kg		0.000669 %	✓	
6	arsenic { arsenic }	033-001-00-X	231-148-6	7440-38-2		12 mg/kg		11.544 mg/kg		0.00115 %	✓	
7	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	1.1 mg/kg	1.285	1.36 mg/kg		0.000106 %	✓	
8	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		11 mg/kg	1.126	11.914 mg/kg		0.00119 %	✓	
9	mercury { mercury }	080-001-00-0	231-106-7	7439-97-6		<0.3 mg/kg		<0.3 mg/kg		<0.00003 %		<LOD
10	nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		17 mg/kg	1.579	25.831 mg/kg		0.00258 %	✓	
11	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	50 mg/kg	1.56	75.027 mg/kg		0.00481 %	✓	
12	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		1 mg/kg		0.962 mg/kg		0.0000962 %	✓	
13	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		17 mg/kg	1.785	29.195 mg/kg		0.00292 %	✓	
14	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		210 mg/kg	2.469	498.847 mg/kg		0.0499 %	✓	
15	acenaphthylene		205-917-1	208-96-8		0.31 mg/kg		0.298 mg/kg		0.0000298 %	✓	

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	acenaphthene	201-469-6	83-32-9		0.74 mg/kg		0.712 mg/kg	0.0000712 %	✓	
17	anthracene	204-371-1	120-12-7		1.4 mg/kg		1.347 mg/kg	0.000135 %	✓	
18	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	7.7 mg/kg		7.407 mg/kg	0.000741 %	✓	
19	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	19 mg/kg		18.278 mg/kg	0.00183 %	✓	
20	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	25 mg/kg		24.05 mg/kg	0.00241 %	✓	
21	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	8.1 mg/kg		7.792 mg/kg	0.000779 %	✓	
22	benzo[ghi]perylene	205-883-8	191-24-2		15 mg/kg		14.43 mg/kg	0.00144 %	✓	
23	chrysene	601-048-00-0	205-923-4	218-01-9	9.6 mg/kg		9.235 mg/kg	0.000924 %	✓	
24	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	3.1 mg/kg		2.982 mg/kg	0.000298 %	✓	
25	fluoranthene	205-912-4	206-44-0		14 mg/kg		13.468 mg/kg	0.00135 %	✓	
26	fluorene	201-695-5	86-73-7		0.55 mg/kg		0.529 mg/kg	0.0000529 %	✓	
27	indeno[123-cd]pyrene	205-893-2	193-39-5		13 mg/kg		12.506 mg/kg	0.00125 %	✓	
28	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
29	phenanthrene	201-581-5	85-01-8		3 mg/kg		2.886 mg/kg	0.000289 %	✓	
30	pyrene	204-927-3	129-00-0		13 mg/kg		12.506 mg/kg	0.00125 %	✓	
31	chromium in Cr(III) compounds { chromium(III) oxide }	215-160-9	1308-38-9		18 mg/kg	1.462	25.308 mg/kg	0.00253 %	✓	
Total:								0.0788 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
•	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: CBR02--22102025-0.50

✓ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
CBR02--22102025-0.50	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
6% (wet weight correction)	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 6% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	benzene				<5 µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2								
2	ethylbenzene				<5 µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4								
3	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5 µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4								
4	xylene				<5 µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
5	toluene				<5 µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3								
6	chromium in Cr(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462	mg/kg	<0.000346 %		<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	monohydric phenols				<1 mg/kg		<1	mg/kg	<0.0001 %		<LOD
			P1186								
8	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5										
9	pH				8.2 pH		8.2	pH	8.2 pH		
			PH								
10	boron { boron tribromide }				1.3 mg/kg	23.173	28.317	mg/kg	0.00283 %	✓	
	005-003-00-0	233-657-9	10294-33-4								
11	arsenic { arsenic }				10 mg/kg		9.4	mg/kg	0.00094 %	✓	
	033-001-00-X	231-148-6	7440-38-2								
12	cadmium { cadmium sulfide }			1	0.8 mg/kg	1.285	0.967	mg/kg	0.0000752 %	✓	
	048-010-00-4	215-147-8	1306-23-6								
13	copper { dicopper oxide; copper (I) oxide }				6.5 mg/kg	1.126	6.879	mg/kg	0.000688 %	✓	
	029-002-00-X	215-270-7	1317-39-1								
14	mercury { mercury }				<0.3 mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
	080-001-00-0	231-106-7	7439-97-6								

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
15	nickel { nickel dihydroxide }				14	mg/kg	1.579	20.786	mg/kg	0.00208 %	✓	
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
16	lead { lead chromate }			1	60	mg/kg	1.56	87.974	mg/kg	0.00564 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
17	selenium { selenium }				1	mg/kg		0.94	mg/kg	0.000094 %	✓	
	034-001-00-2	231-957-4	7782-49-2									
18	vanadium { divanadium pentaoxide; vanadium pentoxide }				19	mg/kg	1.785	31.883	mg/kg	0.00319 %	✓	
	023-001-00-8	215-239-8	1314-62-1									
19	zinc { zinc sulphate }				170	mg/kg	2.469	394.594	mg/kg	0.0395 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
20	acenaphthylene				0.3	mg/kg		0.282	mg/kg	0.0000282 %	✓	
		205-917-1	208-96-8									
21	acenaphthene				0.77	mg/kg		0.724	mg/kg	0.0000724 %	✓	
		201-469-6	83-32-9									
22	anthracene				1.9	mg/kg		1.786	mg/kg	0.000179 %	✓	
		204-371-1	120-12-7									
23	benzo[a]anthracene				7.7	mg/kg		7.238	mg/kg	0.000724 %	✓	
	601-033-00-9	200-280-6	56-55-3									
24	benzo[a]pyrene; benzo[def]chrysene				19	mg/kg		17.86	mg/kg	0.00179 %	✓	
	601-032-00-3	200-028-5	50-32-8									
25	benzo[b]fluoranthene				24	mg/kg		22.56	mg/kg	0.00226 %	✓	
	601-034-00-4	205-911-9	205-99-2									
26	benzo[k]fluoranthene				8.4	mg/kg		7.896	mg/kg	0.00079 %	✓	
	601-036-00-5	205-916-6	207-08-9									
27	benzo[ghi]perylene				14	mg/kg		13.16	mg/kg	0.00132 %	✓	
		205-883-8	191-24-2									
28	chrysene				8.2	mg/kg		7.708	mg/kg	0.000771 %	✓	
	601-048-00-0	205-923-4	218-01-9									
29	dibenz[a,h]anthracene				2.8	mg/kg		2.632	mg/kg	0.000263 %	✓	
	601-041-00-2	200-181-8	53-70-3									
30	fluoranthene				13	mg/kg		12.22	mg/kg	0.00122 %	✓	
		205-912-4	206-44-0									
31	fluorene				0.72	mg/kg		0.677	mg/kg	0.0000677 %	✓	
		201-695-5	86-73-7									
32	indeno[123-cd]pyrene				13	mg/kg		12.22	mg/kg	0.00122 %	✓	
		205-893-2	193-39-5									
33	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
34	phenanthrene				4.5	mg/kg		4.23	mg/kg	0.000423 %	✓	
		201-581-5	85-01-8									
35	pyrene				12	mg/kg		11.28	mg/kg	0.00113 %	✓	
		204-927-3	129-00-0									
36	TPH (C6 to C40) petroleum group				630	mg/kg		592.2	mg/kg	0.0592 %	✓	
			TPH									
37	chromium in Cr(III) compounds { chromium(III) oxide }				15	mg/kg	1.462	20.608	mg/kg	0.00206 %	✓	
		215-160-9	1308-38-9									
Total:										0.129 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 100000 mg/kg (10%)
because: heavy end hydrocarbons unlikely to be flammable at the concentrations noted

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0592%)

Classification of sample: CBR03--22102025-0.50

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
CBR03--22102025-0.50	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
3.1% (wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 3.1% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	chromium in Cr(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
2	monohydric phenols				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
			P1186								
3	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
4	pH				8.2 pH		8.2 pH	8.2 pH			
			PH								
5	boron { boron tribromide }				15 mg/kg	23.173	336.819 mg/kg	0.0337 %		✓	
	005-003-00-0	233-657-9	10294-33-4								
6	arsenic { arsenic }				12 mg/kg		11.628 mg/kg	0.00116 %		✓	
	033-001-00-X	231-148-6	7440-38-2								
7	cadmium { cadmium sulfide }			1	1 mg/kg	1.285	1.245 mg/kg	0.0000969 %		✓	
	048-010-00-4	215-147-8	1306-23-6								
8	copper { dicopper oxide; copper (I) oxide }				9.1 mg/kg	1.126	9.928 mg/kg	0.000993 %		✓	
	029-002-00-X	215-270-7	1317-39-1								
9	mercury { mercury }				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
	080-001-00-0	231-106-7	7439-97-6								
10	nickel { nickel dihydroxide }				13 mg/kg	1.579	19.897 mg/kg	0.00199 %		✓	
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
11	lead { lead chromate }			1	71 mg/kg	1.56	107.314 mg/kg	0.00688 %		✓	
	082-004-00-2	231-846-0	7758-97-6								
12	selenium { selenium }				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	034-001-00-2	231-957-4	7782-49-2								
13	vanadium { divanadium pentaoxide; vanadium pentoxide }				17 mg/kg	1.785	29.407 mg/kg	0.00294 %		✓	
	023-001-00-8	215-239-8	1314-62-1								
14	zinc { zinc sulphate }				160 mg/kg	2.469	382.84 mg/kg	0.0383 %		✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								
15	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-917-1	208-96-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
17	anthracene	204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
18	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.1 mg/kg		0.0969 mg/kg	0.00000969 %	✓	
19	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.11 mg/kg		0.107 mg/kg	0.0000107 %	✓	
20	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.16 mg/kg		0.155 mg/kg	0.0000155 %	✓	
21	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
22	benzo[ghi]perylene	205-883-8	191-24-2		0.06 mg/kg		0.0581 mg/kg	0.00000581 %	✓	
23	chrysene	601-048-00-0	205-923-4	218-01-9	0.09 mg/kg		0.0872 mg/kg	0.00000872 %	✓	
24	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
25	fluoranthene	205-912-4	206-44-0		0.16 mg/kg		0.155 mg/kg	0.0000155 %	✓	
26	fluorene	201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
27	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
28	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
29	phenanthrene	201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
30	pyrene	204-927-3	129-00-0		0.16 mg/kg		0.155 mg/kg	0.0000155 %	✓	
31	chromium in Cr(III) compounds { chromium(III) oxide }	215-160-9	1308-38-9		16 mg/kg	1.462	22.66 mg/kg	0.00227 %	✓	
Total:								0.0884 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
■	Determinand defined or amended by HazWasteOnline (see Appendix A)
🧪	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP09--22102025-0.50

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
TP09--22102025-0.50	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
9.3% (wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 9.3% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	benzene				<5 µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2								
2	ethylbenzene				<5 µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4								
3	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5 µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4								
4	xylene				<5 µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
5	toluene				<5 µg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3								
6	chromium in Cr(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462	mg/kg	<0.000346 %		<LOD
	024-001-00-0	215-607-8	1333-82-0								
7	monohydric phenols				<1 mg/kg		<1	mg/kg	<0.0001 %		<LOD
			P1186								
8	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5										
9	pH				8.4 pH		8.4	pH	8.4 pH		
			PH								
10	boron { boron tribromide }				0.8 mg/kg	23.173	16.814	mg/kg	0.00168 %	✓	
	005-003-00-0	233-657-9	10294-33-4								
11	arsenic { arsenic }				8.8 mg/kg		7.982	mg/kg	0.000798 %	✓	
	033-001-00-X	231-148-6	7440-38-2								
12	cadmium { cadmium sulfide }			1	1 mg/kg	1.285	1.166	mg/kg	0.0000907 %	✓	
	048-010-00-4	215-147-8	1306-23-6								
13	copper { dicopper oxide; copper (I) oxide }				7.9 mg/kg	1.126	8.067	mg/kg	0.000807 %	✓	
	029-002-00-X	215-270-7	1317-39-1								
14	mercury { mercury }				<0.3 mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
	080-001-00-0	231-106-7	7439-97-6								

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
15		nickel { nickel dihydroxide }				8.6	mg/kg	1.579	12.32	mg/kg	0.00123 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
16		lead { lead chromate }			1	70	mg/kg	1.56	99.033	mg/kg	0.00635 %	✓	
		082-004-00-2	231-846-0	7758-97-6									
17		selenium { selenium }				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		034-001-00-2	231-957-4	7782-49-2									
18		vanadium { divanadium pentaoxide; vanadium pentoxide }				14	mg/kg	1.785	22.668	mg/kg	0.00227 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
19		zinc { zinc sulphate }				160	mg/kg	2.469	358.344	mg/kg	0.0358 %	✓	
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
20		acenaphthylene				0.33	mg/kg		0.299	mg/kg	0.0000299 %	✓	
			205-917-1	208-96-8									
21		acenaphthene				0.87	mg/kg		0.789	mg/kg	0.0000789 %	✓	
			201-469-6	83-32-9									
22		anthracene				2.6	mg/kg		2.358	mg/kg	0.000236 %	✓	
			204-371-1	120-12-7									
23		benzo[a]anthracene				19	mg/kg		17.233	mg/kg	0.00172 %	✓	
		601-033-00-9	200-280-6	56-55-3									
24		benzo[a]pyrene; benzo[def]chrysene				23	mg/kg		20.861	mg/kg	0.00209 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		benzo[b]fluoranthene				32	mg/kg		29.024	mg/kg	0.0029 %	✓	
		601-034-00-4	205-911-9	205-99-2									
26		benzo[k]fluoranthene				13	mg/kg		11.791	mg/kg	0.00118 %	✓	
		601-036-00-5	205-916-6	207-08-9									
27		benzo[ghi]perylene				12	mg/kg		10.884	mg/kg	0.00109 %	✓	
			205-883-8	191-24-2									
28		chrysene				19	mg/kg		17.233	mg/kg	0.00172 %	✓	
		601-048-00-0	205-923-4	218-01-9									
29		dibenz[a,h]anthracene				3.2	mg/kg		2.902	mg/kg	0.00029 %	✓	
		601-041-00-2	200-181-8	53-70-3									
30		fluoranthene				31	mg/kg		28.117	mg/kg	0.00281 %	✓	
			205-912-4	206-44-0									
31		fluorene				0.53	mg/kg		0.481	mg/kg	0.0000481 %	✓	
			201-695-5	86-73-7									
32		indeno[123-cd]pyrene				12	mg/kg		10.884	mg/kg	0.00109 %	✓	
			205-893-2	193-39-5									
33		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
34		phenanthrene				6.5	mg/kg		5.896	mg/kg	0.00059 %	✓	
			201-581-5	85-01-8									
35		pyrene				29	mg/kg		26.303	mg/kg	0.00263 %	✓	
			204-927-3	129-00-0									
36		TPH (C6 to C40) petroleum group				300	mg/kg		272.1	mg/kg	0.0272 %	✓	
				TPH									
37		chromium in Cr(III) compounds {  chromium(III) oxide }				11	mg/kg	1.462	14.582	mg/kg	0.00146 %	✓	
			215-160-9	1308-38-9									
Total:											0.0962 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 100000 mg/kg (10%)
because: heavy end hydrocarbons unlikely to be flammable at the concentrations noted

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0272%)

Classification of sample: TP10--22102025-0.20

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
TP10--22102025-0.20	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
4.3% (wet weight correction)	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 4.3% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	chromium in Cr(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %			<LOD
2	monohydric phenols		P1186			<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
3	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
4	pH		PH			8.4 pH		8.4 pH	8.4 pH			
5	boron { boron tribromide }	005-003-00-0	233-657-9	10294-33-4		0.6 mg/kg	23.173	13.306 mg/kg	0.00133 %		✓	
6	arsenic { arsenic }	033-001-00-X	231-148-6	7440-38-2		13 mg/kg		12.441 mg/kg	0.00124 %		✓	
7	cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	1.3 mg/kg	1.285	1.599 mg/kg	0.000124 %		✓	
8	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		9.3 mg/kg	1.126	10.021 mg/kg	0.001 %		✓	
9	mercury { mercury }	080-001-00-0	231-106-7	7439-97-6		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
10	nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		13 mg/kg	1.579	19.651 mg/kg	0.00197 %		✓	
11	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	82 mg/kg	1.56	122.405 mg/kg	0.00785 %		✓	
12	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		1.1 mg/kg		1.053 mg/kg	0.000105 %		✓	
13	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		16 mg/kg	1.785	27.335 mg/kg	0.00273 %		✓	
14	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		250 mg/kg	2.469	590.779 mg/kg	0.0591 %		✓	
15	acenaphthylene		205-917-1	208-96-8		0.48 mg/kg		0.459 mg/kg	0.0000459 %		✓	

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	acenaphthene	201-469-6	83-32-9		0.69 mg/kg		0.66 mg/kg	0.000066 %	✓	
17	anthracene	204-371-1	120-12-7		2 mg/kg		1.914 mg/kg	0.000191 %	✓	
18	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	14 mg/kg		13.398 mg/kg	0.00134 %	✓	
19	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	31 mg/kg		29.667 mg/kg	0.00297 %	✓	
20	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	43 mg/kg		41.151 mg/kg	0.00412 %	✓	
21	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	11 mg/kg		10.527 mg/kg	0.00105 %	✓	
22	benzo[ghi]perylene	205-883-8	191-24-2		27 mg/kg		25.839 mg/kg	0.00258 %	✓	
23	chrysene	601-048-00-0	205-923-4	218-01-9	14 mg/kg		13.398 mg/kg	0.00134 %	✓	
24	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	5.1 mg/kg		4.881 mg/kg	0.000488 %	✓	
25	fluoranthene	205-912-4	206-44-0		23 mg/kg		22.011 mg/kg	0.0022 %	✓	
26	fluorene	201-695-5	86-73-7		0.55 mg/kg		0.526 mg/kg	0.0000526 %	✓	
27	indeno[123-cd]pyrene	205-893-2	193-39-5		24 mg/kg		22.968 mg/kg	0.0023 %	✓	
28	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
29	phenanthrene	201-581-5	85-01-8		4 mg/kg		3.828 mg/kg	0.000383 %	✓	
30	pyrene	204-927-3	129-00-0		21 mg/kg		20.097 mg/kg	0.00201 %	✓	
31	chromium in Cr(III) compounds { chromium(III) oxide }	215-160-9	1308-38-9		14 mg/kg	1.462	19.582 mg/kg	0.00196 %	✓	
Total:								0.0985 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
•	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Appendix A: Classifier defined and non GB MCL determinands

■ ethylbenzene (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4

Description/Comments:

Additional Hazard Statement(s): Carc. 2; H351

Reason for additional Hazards Statement(s):

20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

■ monohydric phenols (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)

Data source: CLP combined data

Data source date: 26 Mar 2019

Hazard Statements: Muta. 2; H341, Acute Tox. 3; H331, Acute Tox. 3; H311, Acute Tox. 3; H301, STOT RE 2; H373, Skin Corr. 1B; H314, Skin Corr. 1B; H314 >= 3 %, Skin Irrit. 2; H315 1 <= conc. < 3 %, Eye Irrit. 2; H319 1 <= conc. < 3 %, Aquatic Chronic 2; H411

■ salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

GB MCL index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s):

20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

■ pH (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

■ arsenic (EC Number: 231-148-6, CAS Number: 7440-38-2)

GB MCL index number: 033-001-00-X

Description/Comments: Worst Case: IARC considers arsenic Group 1; Carcinogenic to humans

Additional Hazard Statement(s): Carc. 1A; H350

Reason for additional Hazards Statement(s):

20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

■ acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4; H302, Acute Tox. 1; H330, Acute Tox. 1; H310, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315

■ acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Aquatic Chronic 2; H411

■ anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

■ benzo[ghi]perylene (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 23 Jul 2015

Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

■ fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Acute Tox. 4; H302, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

▪ **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

▪ **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

▪ **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

▪ **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

▪ **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Unknown Oil

Hazard statements taken from WM3 1st Edition 2015
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

▪ **chromium(III) oxide** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from ECHA's C&L inventory database
Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806>
Data source date: 30 Apr 2020
Hazard Statements: Acute Tox. 4; H302 , Skin Sens. 1; H317 , Eye Irrit. 2; H319

Appendix B: Rationale for selection of metal species

chromium in Cr(VI) compounds {chromium(VI) oxide}

Most likely worst case.

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Most likely worst case.

boron {boron tribromide}

Most likely worst case.

arsenic {arsenic}

Most likely worst case.

cadmium {cadmium sulfide}

Most likely worst case.

copper {dicopper oxide; copper (I) oxide}

Most likely worst case.

mercury {mercury}

Most likely worst case.

nickel {nickel dihydroxide}

Most likely worst case.

lead {lead chromate}

Most likely worst case.

selenium {selenium}

Most likely worst case.

vanadium {divanadium pentaoxide; vanadium pentoxide}

Most likely worst case.

zinc {zinc sulphate}

Most likely worst case.

chromium in Cr(III) compounds {chromium(III) oxide}

Most likely worst case.

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.2.GB - Oct 2021**

HazWasteOnline Classification Engine Version: 2025.303.6844.12384 (30 Oct 2025)

HazWasteOnline Database: 2025.303.6844.12384 (30 Oct 2025)

This classification utilises the following guidance and legislation:

WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

14th ATP - Regulation (EU) 2020/217 of 4 October 2019

15th ATP - Regulation (EU) 2020/1182 of 19 May 2020

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK:

2020 No. 1540 of 16th December 2020

GB MCL List - version 1.1 of 09 June 2021

GB MCL List v2.0 - version 2.0 of 20th October 2023

GB MCL List v3.0 - version 3.0 of 11th January 2024

GB MCL List v4.0 - version 4.0 of 2nd March 2024

GB MCL List v5.0 - version 5.0 of 26th June 2024

GB MCL List v6.0 - version 6.0 of 15th February 2025