



Phase 2 Site Investigation Report New Car Park, Carpenter, Glossop

Prepared
Carpenter Limited

for

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10/1576.1/001 Rev. 00

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Document Origin

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Executive Summary

Client	Carpenter Limited
Location	Land at Carpenter Limited, Dinting Lodge Industrial Estate, Shaw Lane, Glossop SK13 9LE. OS Grid Reference 401590, 394850
Description	The site forms an irregular shaped parcel of land covering an area of roughly 2.72 hectares. The site currently comprises two warehouses with tarmac surfaced areas used for HGV loading and site access. The current development proposals are for the partial demolition of one of the warehouses and complete demolition of the second to create a new car parking area and access road. In addition, an area currently utilised for HGV parking in the southeast of the site is proposed to be extended northwards. The area surrounding the site generally comprises commercial and industrial land with areas of open, undeveloped land beyond. The site is bound to the north by the wider Carpenter Limited site, to the west and south by Glossop Brook and beyond that, industrial buildings. Open undeveloped land is present to the east.
Development	The current development proposals are for the partial demolition of one of the warehouses and complete demolition of the second to create a new car parking area and access road. In addition, an area currently utilised for HGV parking in the southeast of the site is proposed to be extended northwards.
Site Investigations	Site investigation works were carried out on 5th, 6th and 18th January and comprised: • Eight window sample boreholes (WS01 to WS08) to depths up to approximately 5.45m bgl. • Soil samples were collected at regular intervals from each exploratory hole for chemical laboratory analysis. • Surface water samples were collected from Glossop Brook upstream, adjacent to and downstream of the site for chemical laboratory analysis.
Ground Conditions	A limited thickness of Made Ground was recorded beneath hardstanding of concrete and tarmac and ranged in thickness from approximately 0.59m to 0.66m. Glacial Till were encountered beneath the Made Ground at depths ranging from approximately 0.66m to 0.88m bgl. The stratum was variable in nature and consisted of interbedded cohesive and granular strata.
Contamination	Contaminants of concern were not recorded in soil samples analysed from beneath the site at concentrations in excess of AC protective of commercial site users. Furthermore, the presence of hardstanding across the proposed development will prevent site users coming into direct contact with potential contaminants of concern in soils. The presence of hardstanding will also prevent the windblown migration of potentially contaminated dust towards neighbouring site users. The superficial deposits present on the site are designated as an Undifferentiated Secondary Aquifer. The underlying sandstone bedrock is classified as a Secondary A Aquifer. The site is not located within a Source Protection Zone and there are no groundwater abstraction points located within 500m of the site. Therefore, these aquifers are not considered to represent sensitive groundwater resource receptors. Furthermore, concentrations of contaminants of concern considered potentially harmful to controlled water receptors were not recorded in soil samples analysed from beneath the site.

The Glossop Brook is present adjacent to the site. However, concentrations of contaminants of concern considered potentially harmful to controlled water receptors were not recorded in soil samples analysed from beneath the site.

Concentrations of contaminants of concern in excess of EQS values for freshwater were not recorded within surface water samples analysed from upstream and downstream of the site. Marginally elevated concentrations of lead and copper were recorded in a sample collected from the Brook adjacent to the site. However, it is unclear whether this is related to former/ongoing site use. Given the absence of elevated contaminant concentrations in the sample collected downstream of the site, this is not considered to represent a significant risk to the surface water receptor.

Waste Characterisation

Based on available information, it is considered likely that the majority of the Alluvium beneath the site would be suitable for disposal to an Inert Waste Landfill (if it needed to be removed from site). However, Made Ground would require disposal to a Non-Hazardous Waste Landfill.

Any material sent to landfill should be accompanied by the appropriate duty of care documentation and the chemical data should be forwarded to the accepting landfill for approval prior to removal of the soil from site.

Recommendations / Considerations

No further work is considered to be required with respect to the assessment of potentially contaminated land and no remediation is considered to be necessary. However, it would be prudent to carry out regular surface water monitoring of the adjacent brook during construction works.

A geotechnical assessment did not form part of this site investigation. A geotechnical site investigation including boreholes with in situ geotechnical testing and geotechnical laboratory analysis of soil samples will be required to enable foundation and floor slab design for the proposed development.

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1.0 Introduction

1.1 Background

Clancy Consulting Limited has been instructed by Carpenters Limited to carry out a Phase 2 Site Investigation on land located off Shaw Lane at Dinting Lodge Industrial Estate, Glossop. A site location plan is presented in Appendix I.

These works follow a Phase 1 Geo-Environmental Desk Study carried out for the by Clancy Consulting Ltd in February 2020. This Assessment is summarised in Section 2.0.

The site currently comprises two warehouses with tarmac surfaced areas used for HGV loading and site access. The current development proposals are for the partial demolition of one of the warehouses and complete demolition of the second to create a new car parking area and access road. In addition, an area currently utilised for HGV parking in the southeast of the site is proposed to be extended northwards.

These works have been undertaken to aid in the discharge of Condition 17 of the Planning Decision Notice, relating to the investigation of potentially contaminated land. The current development proposals are for the partial demolition of the most westerly warehouse and complete demolition of the second to create a new car parking area and access road.

A proposed development plan is presented in Appendix I. Site photographs are presented in Appendix II.

1.2 Objectives

The objectives of this investigation are summarised below:

- Provide a summary of the previous Phase 1 Geo-Environmental Desk Study.
- Undertake intrusive site investigation works to establish the ground conditions across the proposed development area.
- Carry out chemical testing of soil and surface water samples to determine the contamination status of the site and potential risk posed to human health and environmental receptors.
- Carry out chemical testing of soil samples to determine their waste classification for potential disposal to landfill.
- Refine the preliminary risk assessment and conceptual site model undertaken as part of the Phase 1 assessment.
- Provide recommendations regarding the requirement for further investigations or remedial works, if required, to satisfy the Local Planning Authority and to inform detailed civil and structural design.

1.3 Limitations of the Study

Clancy Consulting Limited cannot be held responsible for any omissions, misrepresentation, errors or inaccuracies with the supplied third-party report information. The report is written in the context of an agreed scope of work and budget and should not be used in a different context. New information or improved practices and changes in legislation may require a reinterpretation of the report in whole or in part.

Clancy Consulting Limited reserves the right to amend either conclusions or recommendations in light of any further information that may become available. The report is provided for the sole use of Carpenter Limited for the objectives discussed previously only and is confidential to them.

The report may not be relied upon by any other party without prior written consent of Clancy Consulting Limited. Those using this information in subsequent assessments or evaluations do so at their own risk.

It must be noted that whilst this investigation aims to characterise the general ground conditions beneath the proposed development site, Clancy Consulting Ltd cannot be held accountable for variations in ground and groundwater conditions, unidentified contamination or the presence of below ground structures present.

2.0 Summary of Previous Phase 1 Geo-Environmental Desk Study Report

The following assessment was undertaken for the site by Clancy Consulting Ltd in February 2020:

Phase 1 Geo-Environmental Desk Study Report, New Car Park, Dinting Lodge industrial Park' Ref: 10/1576/001.

Findings of the report, relevant to the current assessment are summarised in the section below:

The site forms an irregular shaped parcel of land covering an area of roughly 2.72 hectares. The site currently comprises two warehouses with tarmac surfaced areas used for HGV loading and site access. The current development proposals are for the partial demolition of one of the warehouses and complete demolition of the second to create a new car parking area and access road. In addition, an area currently utilised for HGV parking in the southeast of the site is proposed to be extended northwards.

The area surrounding the site generally comprises commercial and industrial land with areas of open, undeveloped land beyond. The site is bound to the north by the wider Carpenter Limited site, to the west and south by Glossop Brook and beyond that, industrial buildings. Open undeveloped land is present to the east.

Historical Ordnance Survey mapping dating back to 1887 indicate that the site has been occupied warehouses associated with the Dinting Vale Print Works. Residential buildings were present in the south of the site. In subsequent years, demolition and construction of updated or additional industrial warehouse buildings took place in the north of the site. Development included tanks, electrical substations, a pond and outbuildings associated with these works. In the south, residential buildings were demolished and woodland cleared to make way for the construction of car parking.

Surrounding land use has been predominantly industrial in nature with some residential buildings. Several gravel pits and quarries have been located in close proximity to the site. The land surrounding the site is now a mixture of residential and industrial buildings.

The site is indicated to be underlain by Alluvium (clay, silt, sand and gravel). However, River Terrace Deposits (sand and gravel) are indicated to be present along the northeastern boundary. Glacial Till (Diamicton) is indicated to be present in the southeast. The site is indicated to be further underlain by sandstone bedrock of the Huddersfield White Rock. Given that several phases of construction and demolition have taken place at the site, Made Ground should be expected overlying natural strata, particularly in the north / northwest. Where the warehouse buildings were present.

The Glacial Till is designated by the Environment Agency (EA) as an Undifferentiated Secondary Aquifer. The sandstone bedrock is classified as a Secondary A Aquifer. The site is not located within a Source Protection Zone (SPZ) and there are no groundwater abstraction points located within 500m of the site.

According to EA records, the northwestern section of the site is located within an area at risk of flooding from rivers or sea without defences (Zone 3). The southeastern section of the site is located within an area at risk of extreme flooding from rivers or sea without defences (Zone 2). A Flood Risk Assessment has been carried out for the site, presented under a separate cover.

There are two historical landfill sites identified as being located within 500m of the site. These are identified as:

- 'Dinting Lodge Industrial Estate', located on site. The deposited waste includes inert and industrial waste. The landfill is recorded as being active from December 1992 to March 1993 and the licence holder is listed as E R Carpenter Plc.
- 'Land adjacent to Shaw Lane' located 233m northeast of the site. The deposited waste included inert waste and is recorded as accepting waste between 1980 and 1986.

In addition to the above, there are 16 areas of potentially infilled land indicated to be present within 500m of the site.

The environmental setting of the site was considered to be of 'moderate' risk. The underlying Secondary A Aquifer, associated with the sandstone bedrock, and the adjacent Glossop Brook were identified as the most sensitive receptors. The proposed development will comprise hard surfaced car parking, which will limit surface water infiltration and runoff and therefore limit the likelihood of these receptors being impacted by ground conditions at the site. However, protection of the adjacent Glossop Brook maybe required during construction works, during which time runoff into the Brook could occur.

Following redevelopment, the site will be surfaced with hardstanding, which will prevent future site users coming into contact with potential contaminants of concern in soil or groundwater beneath the site.

Structures are not proposed as part of the development. Therefore, the pathways ground gas or contaminant vapour inhalation in enclosed areas are not considered to be active.

According to Coal Authority, records indicate the site to lie within a Coal Mining Reporting Area and a Development High Risk Area. A Coal Authority Consultants Mining Report was therefore obtained. Although the Coal Authority report indicates the presence of probable shallow coal workings, the proposed development is to comprise a single level car park and will not introduce any new structures or significant additional loads. The risk of subsidence at ground surface cannot be fully discounted. However, the potential impact of such subsidence would likely be limited. Therefore intrusive mining investigations are not considered necessary, unless the client / landowner wishes to fully assessment this potential risk to the development.

3.0 Site Investigation

3.1 Investigation Design & Objectives

Pollutant linkages identified within the Preliminary Conceptual Site Model are currently active or will be made active upon redevelopment of the site. The investigation design approach was based on guidance provided in BS 10175 Code of Practice for Investigation of Potentially Contaminated Land (2011). The investigation also provided information on ground conditions.

It must be noted that whilst this investigation aims to characterise the general ground conditions beneath the proposed development site, Clancy Consulting Ltd cannot be held accountable for variations in ground and groundwater conditions, unidentified contamination or the presence of below ground structures in areas of the site which fall outside our borehole locations.

3.2 Fieldwork

Site investigation works were carried out on 5th, 6th and 18th January and comprised:

- Eight window sample boreholes (WS01 to WS08) to depths up to approximately 5.45m bgl.
- Soil samples were collected at regular intervals from each exploratory hole for chemical laboratory analysis.
- Surface water samples were collected from Glossop Brook upstream, adjacent to and downstream of the site for chemical laboratory analysis.

A plan indicating the positions of the exploratory hole boreholes is provided in Appendix I. Exploratory hole logs are provided as Appendix III.

It should be noted that access to some areas of the site were restricted due to the presence of existing structures, sub-structures and live buried services.

3.3 Laboratory Testing

3.3.1 Environmental Laboratory Testing – Soil

Five samples of the Made Ground and four samples of the Alluvium were submitted to a UKAS/MCERTS accredited laboratory and analysed for a number of determinands including:

Inorganic Determinands:

pH, arsenic, beryllium, cadmium, chromium, hexavalent chromium, copper, lead, mercury, nickel, sulphate, selenium, vanadium, zinc and asbestos.

Organic Determinands:

Polycyclic aromatic hydrocarbons (PAH) and total petroleum hydrocarbons (TPH).

Two samples collected from the Made Ground and one sample of the Alluvium were also submitted for Waste Acceptance Criteria (WAC) analysis.

Chemical Laboratory Certificates are presented as Appendix IV.

4.0 Site Investigation Findings

4.1 Ground Conditions & Geotechnical Testing Parameters

The strata encountered during the intrusive investigation are summarised in the table below and described in the following section.

Table 1 – Encountered Strata

Strata	Depth to Top of Strata m bgl	Thickness (m)
Hardstanding	Ground level	0.11 to 0.28
Made Ground	Ground level to 0.22	0.17 to 0.89
Alluvium	0.17 to 1.10	Not proven to a maximum depth of approximately 5.45m bgl

General descriptions of the strata encountered during the intrusive investigation are summarised below. Reference should be made to the borehole logs within Appendix III of this report for full descriptions of ground conditions underlying the site.

4.1.1 Made Ground

A limited thickness of Made Ground was recorded beneath concrete or tarmac hardstanding, ranging from approximately 0.17m to 0.89m. The Made Ground was variable in nature, but typically comprised brown-grey, slightly sandy gravel. Gravel comprised angular to sub-angular, fine to coarse coal and fragments of brick, plastic and clinker.

Clinker and coal are often representative of elevated concentrations of metals and PAH. No other visual or olfactory evidence of contamination was noted within this stratum.

4.1.2 Alluvium

Natural soils considered likely to be representative of Alluvium were encountered beneath the Made Ground at depths ranging from approximately 0.17m to 1.10m bgl. The stratum was variable in nature and consisted of interbedded cohesive and granular strata. The cohesive deposits generally comprised brown-grey, sandy, occasionally gravelly clay. The granular deposits generally comprised yellow-grey-brown, fine to coarse, slightly gravelly, slightly clayey sand. Gravel comprised angular to subangular, fine to medium sandstone, siltstone and quartzite.

No visual or olfactory evidence of contamination was noted within this stratum.

4.2 Groundwater

Groundwater strikes were recorded in boreholes during intrusive works at depths ranging from approximately 3.20m to 4.00m bgl within granular layers of the Alluvium. Groundwater is likely to be restricted to granular layers of the Alluvium, which would account for the variation in the depth to groundwater strikes and absence of recorded groundwater in some locations.

5.0 Tier 1 Contamination Analysis

The field investigation findings indicate that pathways are present or will become present during development by which contaminants of concern can impact identified receptors. Chemical analysis has been carried out on five samples of the Made Ground and four samples of the Alluvium. Concentrations of contaminants of concern within the soil samples can be compared to assessment criteria (AC) to determine whether these represent an unacceptable risk to human health receptors.

In addition, chemical analysis has been carried out on surface water samples collected from the adjacent Glossop Brook up-stream, adjacent to and down-stream of the site to determine if any contamination present beneath the site is impacting upon this surface water receptor. The concentrations of contaminants of concern within the water can be compared to AC to determine whether these represent an unacceptable risk to surface water receptors.

The derivation of ACs to be used and the comparison of these criteria to the results of the chemical analyses are presented below.

5.1 Human Health Assessment Criteria

In order to assess risks to future site users, concentrations of contaminants of concern have been compared to Suitable 4 Use Levels (S4UL) generic AC published by Land Quality Management: Chartered Institute of Environmental Health (LQM:CIEH) in 2015.

The assessment has been based upon the use of the site as parking / commercial purposes.

As a conservative measure, concentrations of contaminants of concern have been compared to the S4UL (1.00% Soil Organic Matter) values.

A notable exclusion from the S4ULs is lead. In the absence of a S4UL for lead, the Category 4 Screening Level (C4SL) has been selected, published by DEFRA in 2014. It is noted that the C4SL are based on the acceptance of a low level of toxicological concern, rather than the more conservative standard adopted in the derivation of S4ULs, which are based on a tolerable or minimal level of risk.

The potential risk posed to controlled waters from contaminants of concern within soils beneath the site is not addressed by these screening criteria.

5.2 Comparison of Soil Analyses to Human Health Assessment Criteria

Chemical analysis was undertaken on five samples of the Made Ground and four samples of the Alluvium. A comparison of soil analyses to the relevant AC is presented below.

5.2.1 Inorganic Determinands

Inorganic contaminants of concern were not recorded within soil samples analysed from beneath the site at concentrations in excess of adopted AC.

5.2.2 Organic Determinands

Organic contaminants of concern were not recorded within soil samples analysed from beneath the site at concentrations in excess of adopted AC.

5.2.3 Asbestos

Asbestos containing materials (ACMs) were not identified in any of the soil samples submitted for screening.

5.3 Surface Water Assessment Criteria

In order to assess risks to the adjacent Glossop Brook, concentrations of contaminants of concern within surface water samples have been compared to Annual Allowable EQS Freshwater Standards 2016 (updated February 2022).

5.4 Comparison of Water Analyses to Groundwater Assessment Criteria

Chemical analysis was undertaken on three surface water samples collected from the Glossop Brook at locations up-stream, adjacent to and down-stream of the site. Sample locations are presented on the exploratory hole location plan in Appendix I.

A comparison of water analyses to the relevant AC is presented below.

5.4.1 Inorganic Determinands

Inorganic contaminants of concern were not recorded within water samples analysed from beneath the site at concentrations in excess of adopted AC, with the exception of copper and lead within the sample collected adjacent to the site.

The concentration of copper was 5.00µg/l, compared to the AC of 1.00µg/l. The concentration of lead was 2.00µg/l compared to the AC of 1.20µg/l.

5.4.2 Organic Determinands

Organic contaminants of concern were not recorded within the surface water samples analysed at concentrations in excess of the laboratory limit of detection.

6.0 Contamination Assessment

6.1 Introduction

Based on the information obtained during the ground investigation and laboratory testing, the 'Preliminary Conceptual Site Model' has been amended accordingly. The Conceptual Site Model is used as a basis to identify contamination sources, pathways and receptors and is subject to constant refinement as more information becomes available.

6.2 Human Health Receptors

Contaminants of concern were not recorded in soil samples analysed from beneath the site at concentrations in excess of AC protective of commercial site users. Furthermore, the presence of hardstanding across the proposed development will prevent site users coming into direct contact with potential contaminants of concern in soils. The presence of hardstanding will also prevent the wind-blown migration of potentially contaminated dust towards neighbouring site users.

6.3 Construction / Maintenance Workers

S4UL screening criteria cannot be used to assess the acute (short term exposure) risk that personnel in close contact with exposed soils may experience during construction/site maintenance duties.

Potential risks to construction/maintenance workers can be controlled by the use of appropriate personal protection equipment (e.g. disposable coveralls, gloves and particulate/vapour masks) and by adopting high levels of personal hygiene.

6.4 Groundwater

The superficial deposits present on the site are designated as an Undifferentiated Secondary Aquifer. The underlying sandstone bedrock is classified as a Secondary A Aquifer. The site is not located within a Source Protection Zone and there are no groundwater abstraction points located within 500m of the site. Therefore, these aquifers are not considered to represent sensitive groundwater resource receptors. Furthermore, concentrations of contaminants of concern considered potentially harmful to controlled water receptors were not recorded in soil samples analysed from beneath the site.

6.5 Surface Water

The Glossop Brook is present adjacent to the site. However, concentrations of contaminants of concern considered potentially harmful to controlled water receptors were not recorded in soil samples analysed from beneath the site.

Concentrations of contaminants of concern in excess of EQS values for freshwater were not recorded within surface water samples analysed from upstream and downstream of the site. Marginally elevated concentrations of lead and copper were recorded in a sample collected from the Brook adjacent to the site. However, it is unclear whether this is related to former/ongoing site use. Given the absence of elevated contaminant concentrations in the sample collected downstream of the site, this is not considered to represent a significant risk to the surface water receptor.

6.6 Polymeric Utility Pipes

Concentrations of hydrocarbon contaminants considered potentially harmful to potable water supply pipes were not recorded within soil samples analysed from beneath the site. Standard polymeric utility pipes may therefore be suitable for the proposed development.

Requirements for buried utility pipes should be discussed with service providers before the development stage.

6.7 Revised Conceptual Site Model

The potential source-pathway-receptor linkages and associated risks upon completion of the proposed development at the site, as identified following completion of the assessment, are summarised in the table below.

Table 2 – Revised Conceptual Site Model

Potential Source	Via	Potential Pathways	Linkage Potentially Active? (Yes/No)	Receptors
On site: Made Ground	Soil	Direct contact/ingestion	No	Site users
		Inhalation of volatiles	No	Site users
		Airborne migration of soil or dust	No	Off-site users
		Leaching of mobile contaminants	No	Superficial Deposits Undifferentiated Secondary Aquifer Sandstone Bedrock Secondary A Aquifer
	Groundwater	Direct contact/ingestion	No	Site users
			No	Off-site users
		Inhalation of volatiles	No	Site users
			No	Off-site users
		Vertical and lateral migration in permeable strata	No	Superficial Deposits Undifferentiated Secondary Aquifer Sandstone Bedrock Secondary A Aquifer
			No	Glossop Brook
Off site: Runoff from road network and neighbouring commercial / industrial land use	Groundwater	Direct contact/ingestion	No	Site users
		Inhalation of volatiles	No	Site users
	Service conduits	Direct contact/ingestion	No	Site users
		Inhalation of volatiles	No	Site users
On and off-site: Potential hazardous ground gas and vapours from Made Ground	Ground Gas	Inhalation of ground gas	No	Site users
			No	Off-site users
		Explosive risks	No	Site users
			No	Off-site users

The risk assessment is based upon the available information relating to the site and all recommended mitigation measures being implemented. Should ground conditions inconsistent with those outlined in this report be encountered CCL should be contacted to enable further assessment. The findings of the CSM should be confirmed upon finalisation of the proposed redevelopment plans.

7.0 Waste Characterisation

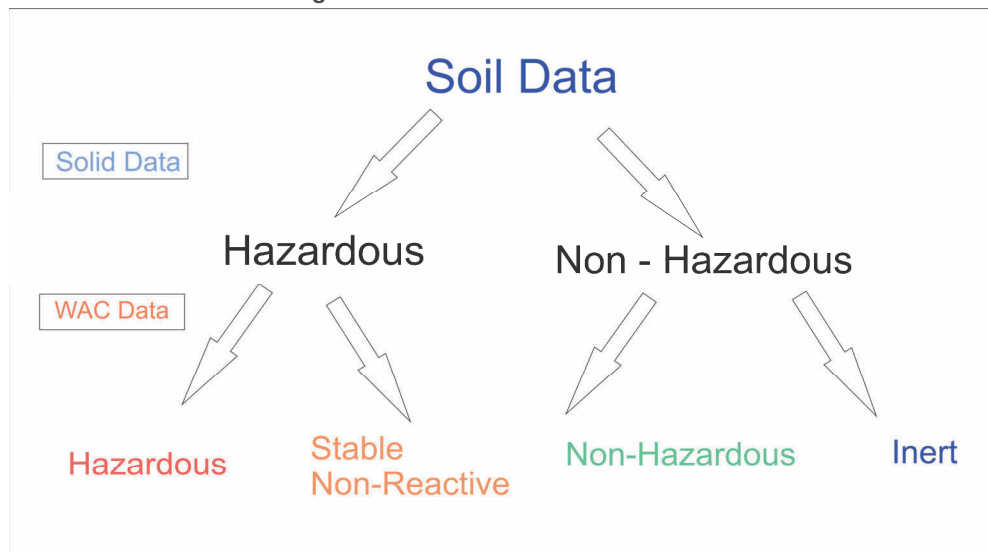
7.1 Assessment Criteria

It is likely that soil arisings generated through excavations associated with the development will require removal from site, since there is limited potential for on-site re-use of this material. Should no suitable off site re-use options be available, disposal to landfill may need to be considered. However, if contaminated material is to be disposed of, use of soil treatment facilities should also be considered.

If disposal to landfill is required, the excavated material would be considered as waste and should be classified in line with the Hazardous Waste Directive - HWD, Council Directive 91/689/EC. This legislation divides waste into two categories, hazardous and non-hazardous. These two categories can then be subdivided into a number of classes relating to the type of landfill/cell to which the material can be sent; these are illustrated below.

In order to provide an indication of the likely waste characterisation of soils excavated from the site, should disposal be required, a waste characterisation exercise has been carried out. This is summarised in Sections 7.2 to 7.5 below. Any material sent to landfill should be accompanied by the appropriate duty of care documentation and the chemical data should be forwarded to the accepting landfill for approval prior to removal of the soil from site.

Figure 1 – Waste Characterisation Categories



7.2 Soil Sampling and Testing

7.2.1 Solid Suite of Analysis

Chemical analysis was undertaken on five samples of Made Ground and four samples of the Alluvium. Soil samples were analysed for the following solid suite of analysis:

pH, arsenic, asbestos, boron, cadmium, chromium, copper, lead, mercury, nickel, selenium, zinc, sulphide, sulphate and PAH.

7.2.2 WAC Testing

One sample of Made Ground collected from borehole WS05 at a depth of approximately 0.53m bgl and two samples of Alluvium collected from borehole WS01 at a depth of approximately 0.90m bgl and borehole WS07 at 0.84m bgl were also submitted for the solid WAC suite of analysis.

The solid WAC suite of analysis included testing for the following determinands:

Total organic carbon (TOC), loss on ignition (LOI), BTEX, sum of PCBs, mineral oil and total PAH, acid neutralisation capacity and pH.

WAC single stage leachate analysis was also carried out on the above samples. The analysis included testing for the following determinands:

Arsenic, barium, cadmium, chromium, copper, mercury, molybdenum, nickel, lead, antimony, selenium, zinc, chloride, fluoride, sulphate, total dissolved solids (TDS), phenol index and dissolved organic carbon.

All soil analysis and WAC results are provided in Appendix III.

7.3 Solid Soil Data

Results of the solid suite were analysed using HazWasteOnline Software which allows users to classify waste as defined in the EWC (European Waste Catalogue 2002) based on the regulatory framework for the Classification Labelling and Packaging of Substances and mixtures Regulation, (EC) No 172/2008 and the latest Environment Agency guidance (Technical Guidance WM3).

The results of the analysis show that all of the samples of Made Ground and Alluvium analysed would be suitable for disposal as non-hazardous waste.

7.4 WAC Data

7.4.1 Solid Data

The samples of Made Ground and Alluvium were subject to the WAC solid suite of analysis.

The sample of Made Ground from borehole WS05 exceeded the inert waste threshold for TOC.

The samples of Alluvium did not exceed any of the inert waste thresholds.

7.4.2 Leachate Data

The samples were also subject to the WAC leachate suite of analysis. The samples did not exceed any of the thresholds for Inert Waste.

7.5 Summary of Results

The results of the waste characterisation exercise are provided in Appendix V and summarised in the table below.

Table 3– Summary of Waste Characterisation Exercise

Position	Depth (m bgl)	Strata	Solid Suite of Analysis	Exceedance of Corresponding Inert, SNRHW and Hazardous waste WAC Limit Value?	WAC Analysis Results
WS01	0.48	Made Ground	Non-Hazardous	N/A	N/A
WS01	0.90	Alluvium	Non-Hazardous	None	Inert
WS04	0.83	Alluvium	Non-Hazardous	N/A	N/A
WS05	0.53	Made Ground	Non-Hazardous	TOC	Non-Hazardous
WS05	0.77	Made Ground	Non-Hazardous	N/A	N/A
WS06	0.28	Made Ground	Non-Hazardous	N/A	N/A
WS06	0.44	Made Ground	Non-Hazardous	N/A	N/A
WS07	0.84	Alluvium	Non-Hazardous	None	Inert
WS08	0.58	Alluvium	Non-Hazardous	N/A	N/A

N/A – Additional WAC analysis not carried out on sample

Based on available information, it is considered likely that the majority of the Alluvium beneath the site would be suitable for disposal to an Inert Waste Landfill (if it needed to be removed from site). However, Made Ground would require disposal to a Non-Hazardous Waste Landfill.

Any material sent to landfill should be accompanied by the appropriate duty of care documentation and the chemical data should be forwarded to the accepting landfill for approval prior to removal of the soil from site.

It should be noted that ground conditions are often variable, particularly Made Ground. To manage disposal costs, we recommend that Made Ground soils generated during construction works be stockpiled separately, sorted by location and composition and subjected to further testing to confirm final waste classification with the receiving landfill. As such, the advice provided in this report should be considered preliminary at this stage and is subject to change depending on the actual waste materials generated during the construction works.

7.6 Waste Management

Arisings generated from excavations including service trenches etc. may be classified as waste and it is the responsibility of the holder of such material to form a view as to whether or not it constitutes waste.

Guidance on how this can be achieved is set out in the Development Industry Code of Practice (CoP) (CL:AIRE, March 2011).

The handling, re-use or disposal of waste materials is regulated by the Environment Agency, who take into account the CoP in determining whether materials are classified as waste. If materials are handled in accordance with the CoP it is considered unlikely that they will be considered waste at the point when they are used during development. This might be because the materials were never formally discarded or because they have been processed as part of a 'recovery' operation and therefore ceased to be waste.

Should site won material be intended for re-use on site a Materials Management Plan will be required from a suitably qualified environmental consultant in order to comply with the CoP.

8.0 Conclusions and Recommendations

Clancy Consulting Limited was instructed by Carpenters Limited to carry out a Phase 2 Site Investigation on land located off Shaw Lane at Dinting Lodge Industrial Estate, Glossop. The site currently comprises two warehouses with tarmac surfaced areas used for HGV loading and site access. The current development proposals are for the partial demolition of one of the warehouses and complete demolition of the second to create a new car parking area and access road. In addition, an area currently utilised for HGV parking in the southeast of the site is proposed to be extended northwards.

These works have been undertaken to aid in the discharge of Condition 17 of the Planning Decision Notice, relating to the investigation of potentially contaminated land.

The current development proposals are for the partial demolition of one of the warehouses and complete demolition of the second to create a new car parking area and access road. In addition, an area currently utilised for HGV parking in the southeast of the site is proposed to be extended northwards.

Site investigation works were carried out on 5th, 6th and 18th January and comprised:

- Eight window sample boreholes (WS01 to WS08) to depths up to approximately 5.45m bgl.
- Soil samples were collected at regular intervals from each exploratory hole for chemical laboratory analysis.
- Surface water samples were collected from Glossop Brook upstream, adjacent to and downstream of the site for chemical laboratory analysis.

A limited thickness of Made Ground was recorded beneath hardstanding of concrete and tarmac and ranged in thickness from approximately 0.59m to 0.66m. Glacial Till were encountered beneath the Made Ground at depths ranging from approximately 0.66m to 0.88m bgl. The stratum was variable in nature and consisted of interbedded cohesive and granular strata.

Contaminants of concern were not recorded in soil samples analysed from beneath the site at concentrations in excess of AC protective of commercial site users. Furthermore, the presence of hardstanding across the proposed development will prevent site users coming into direct contact with potential contaminants of concern in soils. The presence of hardstanding will also prevent the windblown migration of potentially contaminated dust towards neighbouring site users.

The superficial deposits present on the site are designated as an Undifferentiated Secondary Aquifer. The underlying sandstone bedrock is classified as a Secondary A Aquifer. The site is not located within a Source Protection Zone and there are no groundwater abstraction points located within 500m of the site. Therefore, these aquifers are not considered to represent sensitive groundwater resource receptors. Furthermore, concentrations of contaminants of concern considered potentially harmful to controlled water receptors were not recorded in soil samples analysed from beneath the site.

The Glossop Brook is present adjacent to the site. However, concentrations of contaminants of concern considered potentially harmful to controlled water receptors were not recorded in soil samples analysed from beneath the site.

Concentrations of contaminants of concern in excess of EQS values for freshwater were not recorded within surface water samples analysed from upstream and downstream of the site. Marginally elevated concentrations of lead and copper were recorded in a sample collected from the Brook adjacent to the site. However, it is unclear whether this is related to former/ongoing site use. Given the absence of elevated contaminant concentrations in the sample collected downstream of the site, this is not considered to represent a significant risk to the surface water receptor.

Based on available information, it is considered likely that the majority of the Alluvium beneath the site would be suitable for disposal to an Inert Waste Landfill (if it needed to be removed from site). However, Made Ground would require disposal to a Non-Hazardous Waste Landfill.

Any material sent to landfill should be accompanied by the appropriate duty of care documentation and the chemical data should be forwarded to the accepting landfill for approval prior to removal of the soil from site.

No further work is considered to be required with respect to the assessment of potentially contaminated land and no remediation is considered to be necessary. However, it would be prudent to carry out regular surface water monitoring of the adjacent brook during construction works.

A geotechnical assessment did not form part of this site investigation. A geotechnical site investigation including boreholes with in situ geotechnical testing and geotechnical laboratory analysis of soil samples will be required to enable foundation and floor slab design for the proposed development.

APPENDIX I
DRAWINGS