

FINAL

Netherdown Ltd

**Phase II Geoenvironmental
Ground Investigation Report**

Maydencroft Gardens

Gosmore

Hitchin

SG4 7EJ

Report No: 25-02-12

APRIL 2025



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EXECUTIVE SUMMARY

Site Location	Maydencroft Gardens, Gosmore, Hitchin, SG4 7EJ
OS Grid Reference	TL 18432 27133
Development Proposals	It is proposed that two new residential dwellings with associated parking and soft landscaping be constructed at Maydencroft Gardens, Gosmore, Hitchin, SG4 7EJ. This follows the development of much of the wider site.
Published Geology	Geological maps identify that the investigation area is directly underlain by Glaciofluvial Deposits, Mid Pleistocene, underlain by the Zig Zag Chalk Formation.
Site History	The subject site was located within the north west corner of the former aquatic site. The area was formally occupied by a series of shallow ponds/basins that were used for the growing of aquatic plants. As part of the site clearance, the whole of the Paul Bromfield Aquatics site including these ponds were removed. The subject land now consisted of an open parcel of land and was more recently used as the compounds for the development of the rest of the site.
Ground Conditions Encountered	The site and laboratory test work revealed that the general succession of strata can be represented by Made Ground, overlying Glaciofluvial Deposits. Made ground was encountered to a maximum depth of 0.70m below ground level, whilst Glaciofluvial Deposits were encountered below the made ground to a depth exceeding the base of the excavations at 1.00m below ground level.
Groundwater Encountered	Slight seepages of groundwater were encountered in TP4 and TP5, which appeared to be sat on top of the membrane at the base of the Made Ground, likely indicative of perched water at this level.
Chemical Analysis	There is no significantly elevated risk perceived to Human Health or the Environment at the site. From the assessment of the soil samples screened as part of this investigation, none have exceeded the relevant GACs or identified any ACM.
Recommendations	We recommend a watching brief should be undertaken during the construction phase, and if, during development, any previously undiscovered contamination (including visual or olfactory evidence) is found, then site management should be immediately informed and inspection by a suitably qualified person should be undertaken.

This executive summary must be read in conjunction with this report and the previous site reports.

1 GROUND INVESTIGATION REPORT

1.1 INTRODUCTION

Geo-Integrity Ltd were commissioned by Cory O'Connor of Netherdown on the 14th of February 2025 to undertake an additional site investigation at Maydencroft Gardens, Gosmore, Hitchin, SG4 7EJ. This supplementary Phase II intrusive investigation has been completed to gather site-specific geo-environmental data.

Previously, the Former Paul Broomfield Aquatics site had been the subject of both Phase 1 and Phase 2 Geo-Environmental reports by a range of ground investigation contractors, going back to 2018. The original reports were for the redevelopment of the wider site into a number of residential dwellings with associated parking, roadways and soft landscaping areas.

The salient findings of these previous investigations have been reviewed and included (where practical) in this report to provide a more comprehensive analysis of the site area.

This report describes the past (updated where practical) desk-based searches of geological, environmental and historical information, the fieldwork and laboratory testing undertaken and provides an interpretative section of the geo-environmental data from this investigation to inform the proposed development.

The site is located at National Grid Reference TL 18432 27133.

The report is likely to be reviewed by the Council with reference to the NPPF. Once the development is completed, as a minimum, land must not be capable of being determined as 'contaminated land' under the terms of Part IIA of the Environmental Protection Act 1990. However, it also states that "Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner." As such, this desk study report is the first stage in investigating whether the site is likely to be considered "contaminated" in accordance with the ground conditions and pollution clause.

The objectives of this phase I and phase II interpretative report are:-

-  To review the previous salient information, including historical, geological and environmental information.
-  To assess the existing site conceptual models so that potential pollutant linkages can be established and investigated further.
-  Briefly summarise the site development proposals and site setting.

-  To cover the salient information from the past site investigation reports.
-  To describe and report the supplementary fieldwork undertaken at the site.
-  To describe and report the supplementary chemical laboratory work undertaken on selected samples.
-  To provide an interpretation of the results of this investigation with regard to the geo-environmental implications for the proposed development.

The investigation was performed in accordance with the general requirements of BS 5930:2015+A1-2020, BS EN 1997-2 (2009), BS EN ISO 22475-1 (2006) and other relevant related standards identified below. The fieldwork undertaken by Geo-Integrity was undertaken on 25th February 2025.

1.2 SOURCES OF INFORMATION

The following sources of information have been used to compile this report:-

-  Results from the chemical testing
-  Information from previous reports at the site by different contractors

1.3 DEVELOPMENT PROPOSALS

It is proposed that two new residential dwellings with associated parking and soft landscaping be constructed at Maydencroft Gardens, Gosmore, Hitchin, SG4 7EJ. This follows the development of much of the wider site.

2 SITE INFORMATION

2.1 UPDATED WALKOVER SURVEY

An updated site walkover survey was undertaken upon arrival at the site on 25th February 2025. Site location and layout plans are included in the Appendices, along with a selection of photographs taken during the survey.

The site is located in Maydencroft Gardens, Gosmore, and is an area to the east of the road way, opposite two of the recently constructed houses.

The investigation area consists of the former builder's yard area that was formerly used for storage during the construction of the remainder of Maydencroft Gardens. The site consists of soft landscaping/rubble in the majority, with one shipping container being present to the north of the site. It is thought that the area may have previously had construction machinery parked/stored on it, as part of its usage as the builders compound for the neighbouring recent residential development.

The general topography of the investigation area is generally flat-lying.

The investigation area is surrounded by panelled fencing to the north and west, by separate wooden fencing to the south, and by Heras fencing to the east.

During the site walkover, there were no existing significant potential point sources of contamination encountered.

3 GEOLOGY

3.1.1 Published Geology

Reference to the British Geological Survey website and Sheet 221; Hitchin; 1995; indicates that the site is directly underlain by Glaciofluvial Deposits, Mid Pleistocene, underlain by the Zig Zag Chalk Formation.

The Gosmore/Hitchin Valley is distinguished by a complex and intriguing geological history. Its foundation is primarily composed of Cretaceous Chalk formations, which serve as the region's bedrock. However, the valley's defining characteristic lies in the significant superficial deposits that overlay this Chalk. These include extensive glacial deposits, and more recent alluvial sediments deposited through the actions of ancient fluvial systems. Over time, these deposits have contributed to a stratigraphically intricate infill, shaping the valley's hydrology, influencing soil properties, and impacting ground conditions.

The Glaciofluvial Deposits, Mid Pleistocene, are described as “deposited by meltwater streams. It mostly includes coarse-grained sediments (i.e. sand and gravel) with some finer-grained layers (i.e. clay and silt). Sand and gravel, locally with lenses of silt, clay or organic material.” Depending on the depositional environment, the strata can be encountered up to 50m in thickness in this area, given the site’s location on a deep infilled glacial channel.

The Zig Zag Chalk Formation is described as “Mostly firm, pale grey to off-white blocky chalk with a lower part characterised by rhythmic alternations of marls and marly chalks with firm white chalk. Thin gritty, silty chalk beds act as markers in the sequence.” The Zig Zag Chalk is predicted to be between 45m and 80m thick in this area.

3.1.1.1 Solution Features

Chalk, as a calcium-carbonate rich rock, is highly susceptible to dissolution by water containing carbon dioxide. This dissolution can create three common types of features within the chalk, grouped together under the generic term ‘dissolution features. These features include:

Sinkholes: Depressions at the ground surface caused by the collapse of overlying chalk or superficial deposits into underground voids created by dissolution. Shape and size are dependent on the underlying void feature.

Solution pipes: A feature in the surface of the Chalk caused by increased dissolution in an area of closely spaced discontinuities. These features may or may not have a ground surface expression. Up to 20 metres in diameter, though commonly much smaller.

Swallow Holes: A void within the surface of the Chalk where a stream is ‘swallowed’ by the Chalk to flow underground. Often occur at the junction of impermeable strata and Chalk. Infilled ancient swallow holes do exist where streams used to flow and may not have any surface expression. Up to 14m in diameter, though commonly a few metres.

3.1.2 Natural Cavities Risk Assessment

Whilst outside the scope of this report a natural cavities risk assessment has been undertaken following the paper written by Clive Edmonds in 2001, ‘Predicting natural cavities in chalk’. This gives a score to various factors, including the type of chalk, topography, groundwater level, strata overlying the chalk, and periglacial and glacial history. The score for this site was 108, which means there is

predicted to be a low risk of natural cavities beneath this site (3% occurrence). Any design of foundation should take this risk into account.

3.2 UNEXPLODED ORDNANCE AND BOMB SITES

Reference to the site-specific unexploded bomb risk map (UXO) produced by Zetica indicates that the site is located in an area where there is a low risk of unexploded ordnance. Low regions are those with a bombing density of up to 15 bombs per 1000 acres or less.

4 PREVIOUS INVESTIGATION & ANALYSIS RESULTS

The salient information from the available previous report/s has been provided in the section below to build an updated conceptual site model for the investigation. For full details, the previous report/s should be referred to in the first instance.

The Report Update by Brown 2 Green Associates dated 15th March 2023– which itself is a review of the previous investigations;

-  Go Contaminated Land Solutions, Phase 1 Environmental Report of the site at Paul Bromfield Aquatics, Maydencroft Lane, Hertfordshire; Report ref 1118-PE-1-B, dated 16th July 2018. Phase II Ground Investigation Report prepared by Geo-Environmental Services Ltd in November 2006.
-  Brown 2 Green Associates Ltd, Verification Report, Former Paul Bromfield Aquatics, Maydencroft Lane, Gosmore, Hertfordshire; Ref 2220/Rpt 5 v1, dated October 2021.
-  Updated Site History and Conceptual Site Model following the review of the two reports above

The 2023 Brown 2 Green Associates report (which itself is a review of the previous investigations which are not all available for review at present) was supplied to Geo-Integrity by the client as part of the tender pack. It is understood that the client Netherdown has full reliance on this information and it has therefore been treated as such. Therefore, the salient findings of these previous investigations have been included below to provide a more comprehensive analysis of the site area.

4.1 GO CONTAMINATED LAND SOLUTIONS LTD, 2018

The Phase 1 desk study conducted by Go Contaminated Land Solutions Ltd in 2018 highlighted the potential that contaminated land may be present on the site. The on-site contamination area of the report reads as follows: *“Within areas A and B of the site there is an aquatic nursery, a workshop, garages and soft landscaped areas used for parking. It is considered there is potential for contamination of this area of the site from fuel spillages or leakages from onsite parking and from potential spillage or leakage of fuel which may have been stored within the workshop and garages... . Area C of the site appeared to be in use as a storage facility for a groundworks, landscaping and plant hire contractor and a garden maintenance company. This area of the site comprised of heavy plant and equipment, stockpiled building materials and soil, steel oil tanks, steel oil drums formerly used to store gas oil and lubricating oil, trailers and plastic containers used to store transmission fluid, mortar plasticiser and plant growth regulator (stabling 750). This area was in part soft*

landscaped and in part surfaced by a black top surfacing which was in a poor condition. It is therefore considered there potential for contamination to be present within this area of the site. Given the age of the property, asbestos may be present within hardcore under foundations and ground slabs across areas of the site. The historic maps have also indicated that demolition of some buildings of the site may have occurred and therefore demolition debris may comprise a source of asbestos at the site. No olfactory or visual evidence of contamination was noted on site". Given the potential source-pathway-receptor linkages identified in this report, it was recommended that an intrusive environmental site investigation should take place to determine if contamination was present.

4.2 BROWN 2 GREEN ASSOCIATES LTD, 2021

The report by Brown 2 Green Associates Ltd in 2021 is a verification report that was undertaken following the issue of two geo-environmental site investigation reports as well as a remediation method statement. All three of these reports were issued by Brown 2 Green Associates Ltd.

4.2.1 Previous Investigation Made Ground

A summary of all previous reports is provided within the Brown 2 Green Associates Ltd 2021 report. A summary of the made ground encountered for the wider site is included and reads as follows:

"The boreholes and trial pits indicate that the majority of the site was underlain by disturbed ground consisting of mid to dark brown, slightly gravelly, slightly sandy clay with gravels of fine to medium flints and rare brick fragments. The first phase of site investigation identified the presence of road scalplings across localised parts of the site.

Up to 2.3m of made ground was identified within a raised area located in the south west corner of the site. The greater thickness is due because the ground levels within this part of the site have been raised. The made ground consisted of: brown mottled yellow brown and red brown, gravelly (fine to coarse flints), slightly sandy to sandy, silty clay with variable percentages of anthropogenic materials including fragments and whole bricks, metal, plastic concrete fragments to blocks. In TP26 the made ground consisted of dark brown gravelly, slightly silty, sandy clay with gravel of fine to medium, subangular to sub-rounded flint and rare fragments of wood/peaty material. A yellow-brown sand & gravel was identified across the ground surface.

A backfilled pond located adjacent to the eastern boundary of the site contained up to 0.8m of made ground. The made ground consists of dark brown, medium to coarse sand and gravel. The gravel consists of medium to coarse flints with fragments of crushed concrete. At the base of made ground there was a series of plastic pipes and a pond liner.”

4.2.2 Previous Investigation Natural Strata

A brief summary of the natural strata encountered during the previous investigation is provided below and reads as follows: *“The made ground is underlain by an interbedded slightly clayey, silty fine to coarse sand, gravelly sand and silty fine to medium sandy gravel.”*

4.2.3 Previous Investigation Soil Contamination Results

The summary of the contamination assessment highlights the localised identification of asbestos cement and loose asbestos fibres within the soil in the eastern area of the site. This overlaps partially with the updated site and proposed location of new dwellings. Additionally, other areas of the wider site were identified as being contaminated, with significant levels of arsenic and PAHs.

4.2.4 Previous Investigation Remediation

Part of the current investigation site area had been tested for contamination by Brown 2 Green Associates Ltd within their Phase 2 Site Investigation, with asbestos being identified within the soil. Following this, remediation took place within the affected area, with all of the Made Ground in the area where asbestos had been identified being removed and disposed of at a suitable waste disposal facility. This area was then backfilled which had been excavated from other areas of the site. Following this, a remediation verification took place in this area, indicating that no asbestos was present in the soil.

Full details on this including waste transfer tickets are provided in the Brown 2 Green Associates Ltd report, and this should be viewed in the first instance.

4.2.5 Updated & Amalgamated Site History and Conceptual Site Model by Brown 2 Green Associates Ltd, 2023

Due to the previous reports using a boundary that does not encompass the whole subject site and investigation area for the report update, a brief site history was put together. The site history reads as follows: *“The subject site was located within the north west corner of the former aquatic site. The*

area was formally occupied by a series of shallow ponds/basins that were used for the growing of aquatic plants. As part of the site clearance, the whole of the Paul Bromfield Aquatics site including these ponds were removed. The subject land now consisted of an open parcel of land and was used as the compounds for the development of the rest of the site.” Upon reviewing the site history and the previous Phase 1 and 2 reports, a conceptual site model was constructed and consisted of the following: *“Based on the findings of the review of the Phase 1 Desk Study and the revised preliminary risk assessment it is concluded that the redevelopment of the site as residential will introduce active pollution pathways to the identified sources of potential contamination. From the assessment it is considered that contamination may potentially result in an unacceptable level of risk to the identified receptors.”* The identified sources of potential contamination were identified as the following: *“Petrol and diesel range hydrocarbons; Polycyclic aromatic hydrocarbons; Metals; pH; Asbestos fibres in soil.”* The potential receptors of contamination were identified as the following: *“Human health - future users of the site (residential with private gardens); Human health - construction workers; Controlled water (groundwater and surface water); Buildings and construction materials (concrete); Water supply pipework.”*

5 UPDATED SITE SPECIFIC INITIAL CONCEPTUAL SITE MODEL

In accordance with the Environment Agency guidance LCRM *Land Contamination: Risk Management* (EA, 2019), this desk study and site reconnaissance report constitutes a preliminary risk assessment in order to establish the potential presence of pollutant linkages. The diagram below illustrates the potential linkages.

Reference to the previous investigations and site conditions encountered during the site visit indicates the potential for the soil within the area being tested by Geo-Integrity to be contaminated. Given the site’s history as an area of ponds, which are no longer visible, it can be inferred that the area has been backfilled with unknown material. Due to the unknown nature of the material, there is a potential that this may be contaminated. Further to this, the site subsequent use as a builders yard during the construction of the other houses means that potential contaminants may have been introduced into the soil such as heavy metals and hydrocarbons. Additionally given the site’s position near to and within an area of historically identified with ACM contamination that was subsequently remediated it is considered that there may be a residual risk, in particular to the western site area and outside the remediated zoned. provides a potential source-pathway-receptor linkage.

It is considered that there may be a potential risk of contamination at the site, which may impact both human health and the environment via a source/pathway/receptor's linkage. Therefore, as part of the Phase II investigation, both a Human Health and Environmental risk assessment has been undertaken, including sampling of the soils across the investigation area.

Potential Source	Potential Pathway	Potential Receptor	Considered Risk
Historic contaminants (such as metals and inorganic substances) within the ground from long human history, backfilling and use as a builders yard	Ingestion, inhalation, or absorption from direct contact with soil.	End Users	Medium risk
	Leaching through the ground	Controlled Waters	Low/Medium risk
	Possible contact during work phase	Construction Workers	Low risk
Historic hydrocarbons within the ground from long human history, backfilling and use as a builders yard	Ingestion, inhalation, or absorption from direct contact with soil.	End Users	Medium risk
	Volatile vapours possible	End Users	Low risk
	Leaching through the ground	Controlled Waters	Low/Medium risk
	Possible contact during work phase	Construction Workers	Low risk
	Possible contact	Underground services	Medium risk
Historic asbestos within the made ground from long human history, backfilling and use as a builders yard	Inhalation from exposed soil.	End Users	Medium risk
	Possible contact during work phase	Construction Workers	Medium risk

6 PHASE II INTRUSIVE INVESTIGATION

6.1 SITE WORK

The fieldwork was undertaken in accordance with BS 5930:2015+A1:2020, BS EN 1997-2 (2007) (NA 2009) and BS EN ISO 22475-1 (2006), with the exploratory locations being selected by Netherdown with guidance from Brown 2 Green Associates Ltd. The exploratory hole locations can be seen in the Appendices.

The fieldwork was undertaken on 25th February 2025, with the client providing a micro digger to dig eight pits, from which samples were taken at various depths for subsequent laboratory testing. On completion, all pits were backfilled with arisings. Due to the previous identification of asbestos in the soil to the western boundary of the site (since remediated), additional samples from four of the pits excavated towards this boundary were tested solely for the presence of asbestos, with a further four tests from the wider site undergoing full contamination testing, including testing for the presence of asbestos.

6.2 GROUND CONDITIONS

6.2.1 Summary

The site and laboratory test work revealed that the general succession of strata can be represented by Made Ground, overlying Glaciofluvial Deposits. Descriptions of the strata encountered are given on the exploratory hole records and are summarised below. Further information is provided on the exploratory hole logs in the appendices.

6.2.2 *Made Ground*

Made Ground was encountered in all exploratory holes in varying forms from ground level to depths between 0.35m and >0.70m. These were generally in different combinations and concentrations of clays, silts, sands and gravels, with silt and gravel encountered in all forms of made ground. One exception to this was the Made Ground topsoil found between ground level and 0.20m in TP6. In TP3,4,5,6,7 & 8, a woven membrane was encountered at the base of the made ground, dividing the made ground and glaciofluvial deposits.

6.2.3 *Glaciofluvial Deposits*

Glaciofluvial Deposits were encountered in all deeper exploratory holes, from below the Made Ground and to a maximum depth of between 0.95m and 1.00m, at which point each of the pits were terminated. In all cases, it was encountered as a sandy, gravelly clay.

6.2.4 *Groundwater*

Slight seepage of groundwater was encountered in TP4 and TP5, which appeared to be sat on top of the membrane at the base of the made ground.

6.2.5 *Evidence of Contamination*

No obvious or significant contamination was identified within the natural or Made Ground soils encountered during the field work. However, some man-made materials were encountered within the Made Ground, such as brick, metal, concrete, plastic, ash and ceramic, which may contain elevated levels of possible contaminants. Therefore, chemical testing has been undertaken at the site; see environmental risk assessments below.

6.3 GEOENVIRONMENTAL TESTING

Geo-environmental laboratory testing was scheduled by Geo-Integrity on eight near-surface Made Ground soil samples recovered during the fieldwork. The testing followed the recommendations in Attachment 5 of the Brown to Green Report Ref 2220/230202/L1 and was carried out at an MCERTS and UKAS-accredited laboratory. The results are presented in the Appendices.

Four soil samples (TP2 – 0.20m, TP6 – 0.10m, TP7 – 0.50m, TP8 – 0.20m) were tested for a varied suite containing the following:

-  Metals and inorganic substances
-  Speciated Polyaromatic Hydrocarbons (PAH)
-  Benzene, Toluene, Ethylbenzene and Xylene (BTEX)
-  Total Petroleum Hydrocarbons (TPH), with eight band split
-  Asbestos

Four soil samples (TP1 – 0.40m, TP3 – 0.30m, TP4 – 0.25m, TP5 – 0.50m) were tested solely for the quantification and identification of Asbestos, selected given their location bordering the remediated zone where asbestos was previously identified and remediated.

7 GEO-ENVIRONMENTAL INTERPRETATION SECTION

7.1 RISKS TO HUMAN HEALTH

7.1.1 Introduction

Environment Agency guidance LCRM *Land Contamination: Risk Management* (EA, 2019) states that human health risk assessment should be undertaken by a tiered approach using the source-pathway-receptor principle. A desk study constitutes the first tier, and this has been undertaken as part of this investigation. The conclusions of this phase were that:-

“Reference to the previous investigations and site conditions encountered during the site visit indicates the potential for the soil within the area being tested by Geo-Integrity to be contaminated. Given the site’s history as an area of ponds, which are no longer visible, it can be inferred that the area has been backfilled with unknown material. Due to the unknown nature of the material, there is a potential that this may be contaminated. Further to this, the site subsequent use as a builders yard during the construction of the other houses means that potential contaminants may have been introduced into the soil such as heavy metals and hydrocarbons. Additionally given the site’s position near to and within an area of historically identified with ACM contamination that was subsequently remediated it is considered that there may be a residual risk, in particular to the western site area and outside the remediated zoned. provides a potential source-pathway-receptor linkage.

Therefore, as part of the investigation, chemical testing was undertaken at the site. Results are analysed under the second tier, known as a Generic Quantitative Risk Assessment (GQRA), which uses generic guideline values to compare site chemical data against, and the final tier would be a Detailed Quantitative Risk Assessment (DQRA), which use data derived from the ground investigation to assess risks to identified receptors.”

The assessment included in this report comprises a GQRA, which is undertaken by comparing soil contaminant concentrations from this investigation with conservative Generic Assessment Criteria (GAC). GAC for various land use and exposure scenarios have been selected from the following sources:

-  CL:AIRE Category 4 Screening Levels (C4SL);
-  LQM Suitable for Use Levels (S4UL);
-  CL:AIRE/EIC/AGS GAC

The GACs have been derived using the Environment Agency Contaminated Land Exposure Assessment (CLEA) model for a range of land uses and exposure scenarios, including:

-  Residential with the consumption of homegrown produce;
-  Residential without the consumption of home-grown produce;
-  Commercial;
-  Allotments;
-  Public Open Space near residential housing (POS_{resi}); and
-  Public Open Space public park scenario (POS_{park})

It is considered that as the development at the site will consist of residential dwellings with soft landscaping, and as such, the land use “Residential with the consumption of home-grown produce” has been used.

7.1.2 Results of Chemical Testing

Of the four soil samples screened as part of this investigation, screened against the relevant GAC for a ‘Residential with the consumption of home-grown produce’ land use scenario as described above, none have exceeded the relevant GACs.

7.1.2.1 Asbestos

Screening for the presence of asbestos in all eight samples tested did not reveal any asbestos-containing material (ACM) or fibres. This therefore indicates that the remediation of the ACM identified historically was successful, and that no further backfilled ACM is present across the remainder of the site.

7.1.3 Risk to End Users

Given the results of the desk study, intrusive investigation and laboratory testing, no significant source-pathway-receptor linkage exists at the site, and consequently, no additional human health risk assessment is considered necessary. However, this should be confirmed by the relevant Regulatory Authority as soon as possible prior to development.

7.1.4 Risk to Surrounding Residents and Construction Workers

Given the results of the intrusive investigation and laboratory testing, it is considered that there is no significant risk to the surrounding residents of the site. To reduce the risk to as low as reasonably

practicable for the construction workers, it is recommended that high standards of personal hygiene should be maintained amongst the site personnel at all times. All personnel coming into contact with the soil, ground workers in particular, should be instructed to use gloves when on site to avoid dermal contact and restrict inadvertent hand-to-mouth ingestion. Washing facilities should be provided for the site staff to use and should be used prior to eating or smoking. Reference should be made to the HSE Document, "Protection of Workers and the General Public during Development of Contaminated Land".

It is also recommended that a watching brief for undiscovered contamination is included in the Works Method Statement. Given the long human history of the surrounding area, it is always possible that some previous undiscovered contamination may be encountered. If this is the case, the area should be isolated, and contact should be made to a suitably qualified professional for further advice. This is particularly important if the contamination is possibly ACM or liquid based.

7.1.5 Risk to Controlled Waters

The previous investigations concluded that there are no unacceptable concentrations of potential contaminants within the underlying soils that would pose a potential risk to controlled waters.

Additionally, none of the metal and inorganic contaminants tested for within the total soil chemical tests recorded significantly elevated values. Therefore, it is considered that there is no significantly elevated risk of significant harm to Controlled Waters pollution from development at this site.

The Environment Agency is the regulatory body charged with the protection of controlled waters and may be a consultee in the planning process. We recommend that the conclusions of this report are agreed with the relevant Local Authority at the earliest stage, to reduce potential delays to the development.

7.2 GEO-ENVIRONMENTAL CONCLUSION

Given the findings of the fieldwork and laboratory testing, it is considered that a very low risk to Human Health exists on this site. As such, based on the findings of this investigation, NO further works or remedial measures are necessary prior to development. It is considered that topsoil would need to be imported to the proposed garden areas given the lack of any on site. Imported materials should be suitable for use and certified clean. It is recommended that certificates be obtained verifying this upon delivery.

7.3 DISCOVERY STRATEGY

During construction, unexpected ground or groundwater conditions may be encountered despite prior investigation.

During construction, ground workers must immediately report any previously undiscovered contamination or unforeseen ground conditions to the Site Manager, who will then notify the developer/client and, by extension, an appointed consultant (such as Geo-integrity Ltd).

When deemed necessary, the Consultant shall attend the site and inspect the area of contention and provide recommendations for further actions, if any. Where necessary, the regulatory authority shall be informed.

Following any additional investigation and/or subsequent laboratory testing, the client shall report the results of any proposed remedial measures to the regulatory authority or other appropriate organisation for consensus prior to implementation of additional remedial measures.

A documented discovery strategy folder should be lodged on site, and provisions made to ensure that all workers are made aware of their responsibility to observe, report, and act on any potentially suspicious, abnormal, unforeseen or contaminated ground and/or groundwater conditions they may encounter, in keeping with their requirements under H&S and safe working practises.

Depending on the nature, type, and extent of any "discovery," it may be necessary to stop development work in that area until the assessment is complete. This will be evaluated on a case-by-case basis for each "discovery" and in consultation with the client, other technical staff, and regulatory or approval organizations.

As a general guide, where such unexpected conditions are encountered, the following approach is required as a minimum:

-  All discoveries are to be reported to the Site Manager immediately, and work at that location (which qualify under the above) are to halt until further notice;
-  If any unexpected discoveries are made, the Site Manager must immediately report them to the Client and consult with a consultant, such as Geo-Integrity Ltd. All discoveries must be reported immediately to the Site Manager. Any works being carried out at that location which fall under the above criteria should be halted until further notice.

- Following notification of a qualifying discovery from the Site Manager, the relevant parties should be informed and, if considered necessary, arrange to meet on-site to view the discovery;
- An appointed consultant will visit the site to document the location, extent, and nature of any qualifying discoveries. They will also implement a suitable sampling and analysis plan, taking into consideration the type and nature of the discovery, as well as the known and probable land uses in that particular area of the site.;
- When additional remedial action is necessary, the client should seek regulatory consultation and approval;
- A record will be produced by the appointed consultant and held on-site (with copies held by the Consultant, Client and Local Authority/other relevant organisation), detailing the discovery, assessment works undertaken, conclusions, and Confirmation should either state no action required or detail remedial action taken and its validation.

Any future works such as the above fall outside the scope of this report and would necessitate further instruction and fees.

8 RECOMMENDATIONS

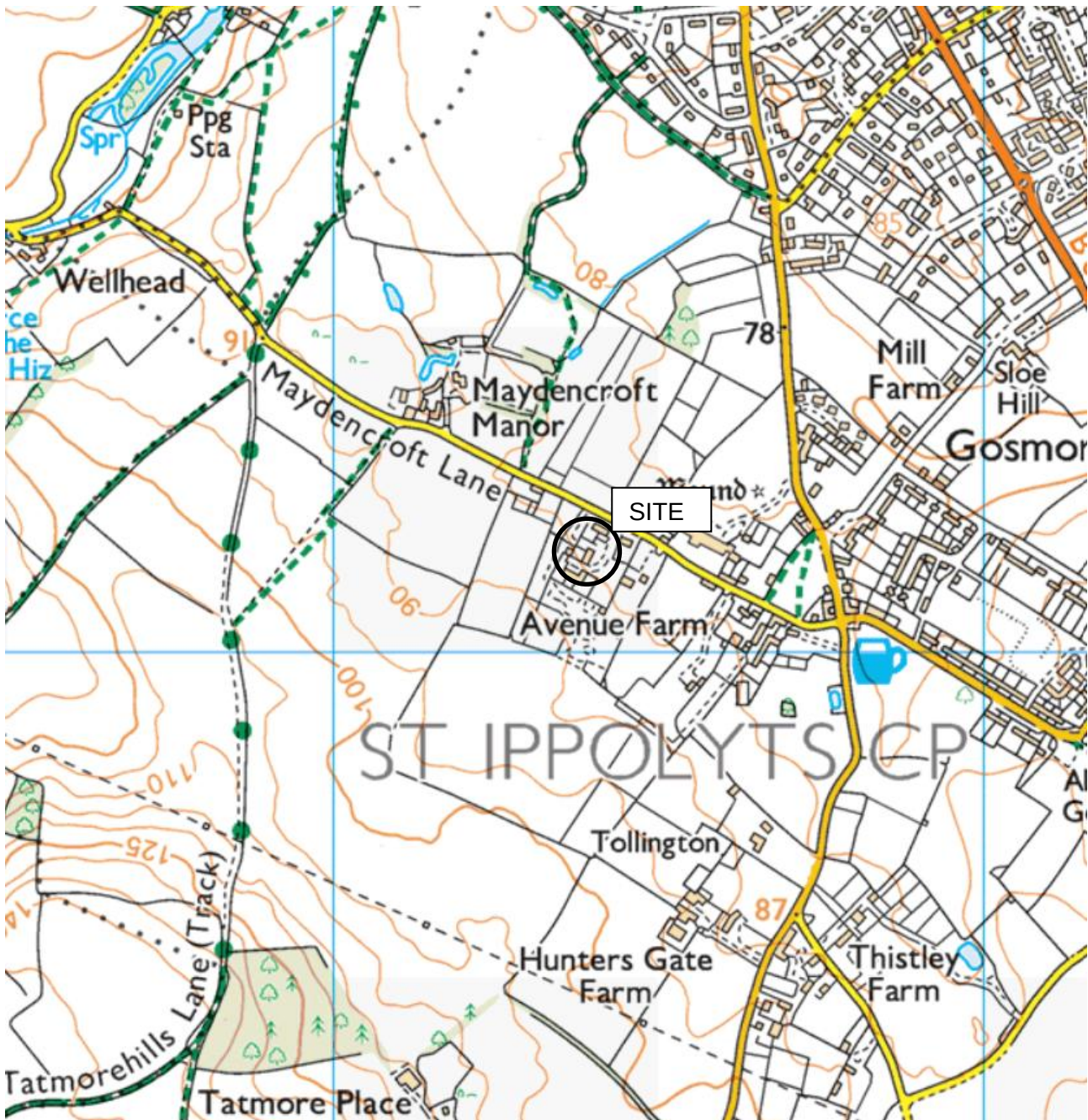
We recommend a watching brief should be undertaken during the construction phase, and if, during development, any previously undiscovered contamination (including visual or olfactory evidence) is found, then site management should be immediately informed and inspection by a suitably qualified person should be undertaken.

It is considered that topsoil would need to be imported to the proposed garden areas given the lack of any on site. Imported materials should be suitable for use and certified clean. It is recommended that certificates be obtained verifying this upon delivery.

9 REFERENCES

- Building Research Establishment (BRE) BR 211, Radon: guidance on protective measures for new buildings. 2007.
- National House Building Council (NHBC) Standards, Chapter 4.2 Building Near Trees. 2011.
- National House Building Council (NHBC) Standards, Chapter 4.1 Land Quality – Managing Ground Conditions. 2011.
- Environment Agency, ‘Land contamination: risk management’, LCRM, 2019.
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- BS EN ISO 14688-1:2018: Geotechnical investigation and testing - Identification and classification of soil - Part 1 Identification and description. British Standards Institution.
- BS EN ISO 14688-2:2018: Geotechnical investigation and testing - Identification and classification of soil - Part 2 Principles for a classification. British Standards Institution. Investigation of Potentially Contaminated Sites – Code of Practice, BS10175, 2011.
- Environment Agency, “Waste Sampling and Testing for Disposal to Landfill” March 2013
- G Card and S Wilson, An Alternative Approach for Ground Gas Risk Assessment, 2011.

Appendix A





Key

- Asbestos Test Trial Pit
- Full Contamination Test Trial Pit
- Area Previously Remediated (Brown 2 Green Associates Ltd, Verification 2220/Rpt 5 v1, Report)



4 Church Street
Maids Moreton
MK18 1QE

Tel:- 01280 816409
Mob:- 07858 367 125
www. geo-integrity.co.uk

Exploratory Hole Location Plan

SITE:- Maydencroft Gardens, Gosmore, Hitchin, SG4 7EJ

JOB NO.:- 25-02-12

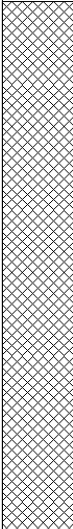
CLIENT:- Netherdown

Drawn
HF

Checked
DL

Scale: Not To Scale, for indicative purposes only

Appendix B

 www.geo-integrity.co.uk info@geo-integrity.co.uk 01280 816409					Site Maydencroft Gardens, Gosmore, Hitchin, SG4 7EJ		Trial Pit Number TP1		
Machine : Micro Digger Method : Trial Pit		Dimensions		Ground Level (mOD)		Client Netherdown		Job Number 25-02-12	
		Location (Handheld GPS) 518422 E 227132 N		Dates 25/02/2025		Engineer Harry Fellingham		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.40	D				(0.70) 0.70	MADE GROUND - Soft brown slightly silty slightly sandy very gravelly CLAY. Gravel is fine to coarse, subangular to subrounded flint, brick and ceramic with one cement cobble			
						Complete at 0.70m			
					Remarks				
									Scale (approx) 1:10



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01280 816409

Site
Maydencroft Gardens, Gosmore, Hitchin, SG4 7EJ

Trial Pit Number
TP2

Machine : Micro Digger Method : Trial Pit	Dimensions	Ground Level (mOD)	Client Netherdown	Job Number 25-02-12
	Location (Handheld GPS) 518430 E 227136 N	Dates 25/02/2025	Engineer Harry Fellingham	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	D				(0.45)	MADE GROUND - Loose light brown slightly silty gravelly SAND. Gravel is fine to coarse concrete, brick, flint, quartzite, plastic and ash		
					0.45	Becoming very gravelly with depth		
					(0.55)	GLACIOFLUVIAL DEPOSITS - Loose to medium dense orangish-brown slightly sandy clayey GRAVEL. Gravel is fine to coarse flint and quartzite with occasional flint cobbles		
					1.00	Complete at 1.00m		



Remarks		
Scale (approx) 1:10	Logged By HF	Figure No. 25-02-12.TP2





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01280 816409

Site
Maydencroft Gardens, Gosmore, Hitchin, SG4 7EJ

Trial Pit Number
TP3

Machine : Micro Digger Method : Trial Pit	Dimensions	Ground Level (mOD)	Client Netherdown	Job Number 25-02-12
	Location (Handheld GPS) 518434 E 227142 N	Dates 25/02/2025	Engineer Harry Fellingham	Sheet 1/1

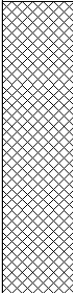
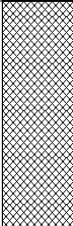
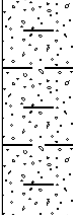
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.30	D				(0.35)	MADE GROUND - Loose light brown slightly silty gravelly SAND. Gravel is fine to coarse concrete, brick, flint and quartzite		
					0.35	Woven membrane at 0.35m		
					(0.65)	GLACIOFLUVIAL DEPOSITS - Loose to medium dense orangish-brown slightly sandy clayey GRAVEL. Gravel is fine to coarse flint and quartzite with occasional flint cobbles		
					1.00	Complete at 1.00m		

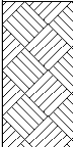
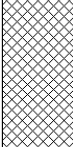
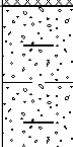


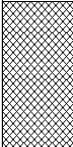
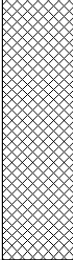
Remarks		
Scale (approx) 1:10	Logged By HF	Figure No. 25-02-12.TP3

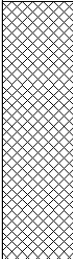
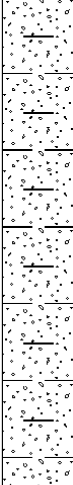


 www.geo-integrity.co.uk info@geo-integrity.co.uk 01280 816409					Site Maydencroft Gardens, Gosmore, Hitchin, SG4 7EJ		Trial Pit Number TP4		
Machine : Micro Digger Method : Trial Pit		Dimensions		Ground Level (mOD)		Client Netherdown		Job Number 25-02-12	
		Location (Handheld GPS) 518439 E 227137 N		Dates 25/02/2025		Engineer Harry Fellingham		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.25	D		Slight Seepage(1) at 0.40m.		(0.40)	MADE GROUND - Loose brown slightly silty gravelly SAND. Gravel is fine to coarse concrete, brick, flint and quartzite		V1	
				0.40	Woven membrane at 0.40m				
				(0.60)	GLACIOFLUVIAL DEPOSITS - Loose to medium dense orangish brown slightly sandy clayey GRAVEL. Gravel is fine to coarse flint and quartzite with occasional flint cobbles				
0.70	D				1.00	Complete at 1.00m			
						Remarks			
						Scale (approx) 1:10		Logged By HF	

 www.geo-integrity.co.uk info@geo-integrity.co.uk 01280 816409					Site Maydencroft Gardens, Gosmore, Hitchin, SG4 7EJ		Trial Pit Number TP5		
Machine : Micro Digger Method : Trial Pit		Dimensions		Ground Level (mOD)		Client Netherdown		Job Number 25-02-12	
		Location (Handheld GPS) 518434 E 227130 N		Dates 25/02/2025		Engineer Harry Fellingham		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.20	D				(0.40)	MADE GROUND - Soft brown slightly silty slightly sandy very gravelly CLAY. Gravel is fine to coarse subangular to subrounded flint, brick and ceramic with occasional brick cobbles			
0.50	D		Slight Seepage(1) at 0.65m.		0.40 (0.30)	MADE GROUND - Loose light brown silty very sandy GRAVEL with occasional concrete cobbles. Gravel is fine to coarse flint, brick, ash and concrete		V ₁	
				0.70	Woven membrane at 0.70m				
				(0.30)	GLACIOFLUVIAL DEPOSITS - Loose to medium dense orangish-brown slightly sandy clayey GRAVEL. Gravel is fine to coarse flint and quartzite with occasional flint cobbles				
				1.00	Complete at 1.00m				
					Remarks				
					Scale (approx) 1:10		Logged By HF		Figure No. 25-02-12.TP5

					www.geo-integrity.co.uk info@geo-integrity.co.uk 01280 816409					Site Maydencroft Gardens, Gosmore, Hitchin, SG4 7EJ					Trial Pit Number TP6	
Machine : Micro Digger Method : Trial Pit			Dimensions			Ground Level (mOD)			Client Netherdown			Job Number 25-02-12				
			Location (Handheld GPS) 518441 E 227120 N			Dates 25/02/2025			Engineer Harry Fellingham			Sheet 1/1				
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water								
0.10	D				(0.20)	MADE GROUND - Turf over dark brown organic slightly silty slightly gravelly clayey TOPSOIL. Gravel is fine to coarse brick, flint and ash with occasional concrete										
					0.20	MADE GROUND - (Loose) brown slightly silty sandy GRAVEL. Gravel is fine to coarse concrete, brick and flint with frequent brick cobbles										
					(0.40)	Becoming clayey with depth										
						Woven membrane at 0.60m										
0.50	D				0.60	GLACIOFLUVIAL DEPOSITS - Loose to medium dense orangish-brown slightly sandy clayey GRAVEL. Gravel is fine to coarse flint and quartzite with occasional flint cobbles										
					(0.35)											
					0.95	Complete at 0.95m										
									Remarks							
																
Scale (approx) 1:10						Logged By HF		Figure No. 25-02-12.TP6								

 www.geo-integrity.co.uk info@geo-integrity.co.uk 01280 816409					Site Maydencroft Gardens, Gosmore, Hitchin, SG4 7EJ		Trial Pit Number TP7		
Machine : Micro Digger Method : Trial Pit		Dimensions		Ground Level (mOD)		Client Netherdown		Job Number 25-02-12	
		Location (Handheld GPS) 518443 E 227129 N		Dates 25/02/2025		Engineer Harry Fellingham		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.10	D				(0.20)	MADE GROUND - Soft brown slightly silty gravelly CLAY. Gravel is fine to coarse brick, flint, ash and concrete with one large concrete boulder at 0.10m			
					0.20	MADE GROUND - Loose brown and light brown slightly silty sandy GRAVEL. Gravel is fine to coarse brick, flint, concrete, ash and plastic			
					(0.35)				
0.50	D					Woven membrane at 0.55m			
					0.55	GLACIOFLUVIAL DEPOSITS - Loose to medium dense orangish-brown slightly sandy clayey GRAVEL. Gravel is fine to coarse flint and quartzite with occasional flint cobbles			
					(0.45)				
0.80	D				1.00				
						Complete at 1.00m			
					Remarks				
					Scale (approx) 1:10 Logged By HF Figure No. 25-02-12.TP7				

 www.geo-integrity.co.uk info@geo-integrity.co.uk 01280 816409					Site Maydencroft Gardens, Gosmore, Hitchin, SG4 7EJ		Trial Pit Number TP8		
Machine : Micro Digger Method : Trial Pit		Dimensions		Ground Level (mOD)		Client Netherdown		Job Number 25-02-12	
		Location (Handheld GPS) 518448 E 227139 N		Dates 25/02/2025		Engineer Harry Fellingham		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.20	D				(0.35)	MADE GROUND - Loose brown slightly silty very sandy GRAVEL. Gravel is fine to coarse brick, metal, concrete and flint with occasional pockets of buff-orange sand			
					0.35	Woven membrane at 0.35m			
0.70	D				(0.65)	GLACIOFLUVIAL DEPOSITS - Loose to medium dense orangish-brown slightly sandy clayey GRAVEL. Gravel is fine to coarse flint and quartzite with occasional flint cobbles			
					1.00	Complete at 1.00m			
						Remarks			
									Scale (approx) 1:10 Logged By HF Figure No. 25-02-12.TP8

Appendix C



4161



Geo-Integrity
4 Church Street
Buckingham
MK18 1QE

Analytical Test Report: L25/02316/GIN - 25-58837

Your Project Reference:	Gosmore 25-02-12		
Your Order Number:	Q24-00626/1	Samples Received / Instructed:	28/02/2025 / 28/02/2025
Report Issue Number:	1	Sample Tested:	28/02 to 12/03/2025
Samples Analysed:	8 sample(s)	Report issued:	12/03/2025

Signed



James Gane
Analytical Services Manager
CTS

Notes:

General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report with the exception of the asbestos test portion which is held for 6 months unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Stone Content was determined in accordance with CTS method statement MS - CL - Sample Prep and refers to the percentage of stones retained on a 10mm BS test sieve.

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Asbestos

Please note: Where further analysis is required samples identified as containing asbestos are screened and tested on an as received basis. No correction is made for moisture content and other than the asbestos test(s) these results are not covered by our accreditation

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

This report shall not be reproduced except in full

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited, subUKAS - Subcontracted to a laboratory UKAS accredited for this test, subMCERTS - Subcontracted to a laboratory MCERTS accredited for this test

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

UKAS accreditation on waters only covers the Ground water and Surface water matrices

Date of Issue: 12.03.25

Issued by: J. Gane

Issue No: 4

Rev No: 26



4161



L25/02316/GIN - 25-58837

Project Reference - Gosmore 25-02-12

Analytical Test Results - Solid

Lab Reference			461722	461723	461724	461725	461726	461727
Client Sample ID			-	-	-	-	-	-
Client Sample Location			TP01	TP2	TP3	TP4	TP5	TP6
Client Sample Type			D	D	D	D	D	D
Client Sample Number			-	-	-	-	-	-
Depth - Top (m)			0.40	0.20	0.30	0.25	0.50	0.10
Depth - Bottom (m)			0.40	0.20	0.30	0.25	0.50	0.10
Date of Sampling			25/02/2025	25/02/2025	25/02/2025	25/02/2025	25/02/2025	25/02/2025
Time of Sampling			-	-	-	-	-	-
Sample Matrix			Soil	Clay	Soil	Soil	Soil	Clay
Determinant	Units	Accreditation						
Arsenic	(mg/kg)	MCERTS	-	18	-	-	-	18
Cadmium	(mg/kg)	MCERTS	-	1.1	-	-	-	1.2
Chromium (Total)	(mg/kg)	UKAS	-	20	-	-	-	14
Copper	(mg/kg)	MCERTS	-	35	-	-	-	74
Lead	(mg/kg)	MCERTS	-	53	-	-	-	110
Mercury	(mg/kg)	UKAS	-	< 2.5	-	-	-	< 2.5
Nickel	(mg/kg)	MCERTS	-	25	-	-	-	25
Selenium	(mg/kg)	u	-	< 8.0	-	-	-	< 8.0
Zinc	(mg/kg)	MCERTS	-	120	-	-	-	170
Chromium (Hexavalent)	(mg/kg)	u	-	< 1.0	-	-	-	< 1.0
Acenaphthene	(mg/kg)	MCERTS	-	< 0.20	-	-	-	< 0.20
Acenaphthylene	(mg/kg)	UKAS	-	< 0.20	-	-	-	< 0.20
Anthracene	(mg/kg)	UKAS	-	< 0.20	-	-	-	0.29
Benzo (a) anthracene	(mg/kg)	MCERTS	-	0.39	-	-	-	0.77
Benzo (a) pyrene	(mg/kg)	MCERTS	-	0.53	-	-	-	0.95
Benzo (b) fluoranthene	(mg/kg)	MCERTS	-	0.59	-	-	-	1.1
Benzo (g, h, i) perylene	(mg/kg)	MCERTS	-	0.49	-	-	-	0.72
Benzo (k) fluoranthene	(mg/kg)	MCERTS	-	0.24	-	-	-	0.42
Chrysene	(mg/kg)	MCERTS	-	0.39	-	-	-	0.83
Dibenzo (a,h) anthracene	(mg/kg)	MCERTS	-	< 0.20	-	-	-	< 0.20
Fluoranthene	(mg/kg)	MCERTS	-	0.73	-	-	-	1.6
Fluorene	(mg/kg)	MCERTS	-	< 0.20	-	-	-	< 0.20
Indeno (1, 2, 3,-cd) pyrene	(mg/kg)	MCERTS	-	0.41	-	-	-	0.61
Naphthalene	(mg/kg)	MCERTS	-	< 0.20	-	-	-	< 0.20
Phenanthrene	(mg/kg)	MCERTS	-	0.35	-	-	-	0.81
Pyrene	(mg/kg)	MCERTS	-	0.65	-	-	-	1.4
Total PAH (Sum of USEPA 16)	(mg/kg)	UKAS	-	6.1	-	-	-	11
Asbestos	-	UKAS	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected



4161



L25/02316/GIN - 25-58837

Project Reference - Gosmore 25-02-12

Analytical Test Results - Solid

Lab Reference			461728	461729
Client Sample ID			-	-
Client Sample Location			TP7	TP8
Client Sample Type			D	D
Client Sample Number			-	-
Depth - Top (m)			0.50	0.20
Depth - Bottom (m)			0.50	0.20
Date of Sampling			25/02/2025	25/02/2025
Time of Sampling			-	-
Sample Matrix			Clay	Clay
Determinant	Units	Accreditation		
Arsenic	(mg/kg)	MCERTS	16	18
Cadmium	(mg/kg)	MCERTS	1.0	1.2
Chromium (Total)	(mg/kg)	UKAS	12	17
Copper	(mg/kg)	MCERTS	27	32
Lead	(mg/kg)	MCERTS	52	53
Mercury	(mg/kg)	UKAS	< 2.5	< 2.5
Nickel	(mg/kg)	MCERTS	22	25
Selenium	(mg/kg)	u	< 8.0	< 8.0
Zinc	(mg/kg)	MCERTS	99	120
Chromium (Hexavalent)	(mg/kg)	u	< 1.0	< 1.0
Acenaphthene	(mg/kg)	MCERTS	< 0.02	< 0.02
Acenaphthylene	(mg/kg)	UKAS	0.02	0.03
Anthracene	(mg/kg)	UKAS	0.07	0.06
Benzo (a) anthracene	(mg/kg)	MCERTS	0.22	0.16
Benzo (a) pyrene	(mg/kg)	MCERTS	0.24	0.25
Benzo (b) fluoranthene	(mg/kg)	MCERTS	0.29	0.30
Benzo (g, h, i) perylene	(mg/kg)	MCERTS	0.17	0.24
Benzo (k) fluoranthene	(mg/kg)	MCERTS	0.11	0.11
Chrysene	(mg/kg)	MCERTS	0.21	0.18
Dibenzo (a,h) anthracene	(mg/kg)	MCERTS	0.03	0.06
Fluoranthene	(mg/kg)	MCERTS	0.55	0.34
Fluorene	(mg/kg)	MCERTS	< 0.02	< 0.02
Indeno (1, 2, 3,-cd) pyrene	(mg/kg)	MCERTS	0.15	0.20
Naphthalene	(mg/kg)	MCERTS	< 0.02	< 0.02
Phenanthrene	(mg/kg)	MCERTS	0.21	0.13
Pyrene	(mg/kg)	MCERTS	0.48	0.31
Total PAH (Sum of USEPA 16)	(mg/kg)	UKAS	2.8	2.4
Asbestos	-	UKAS	No asbestos detected	No asbestos detected



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Analytical Test Results - VPH / EPH

Lab Reference			461723	461727	461728	461729
Client Sample ID			-	-	-	-
Client Sample Location			TP2	TP6	TP7	TP8
Client Sample Type			D	D	D	D
Client Sample Number			-	-	-	-
Depth - Top (m)			0.20	0.10	0.50	0.20
Depth - Bottom (m)			0.20	0.10	0.50	0.20
Date of Sampling			25/02/2025	25/02/2025	25/02/2025	25/02/2025
Time of Sampling			-	-	-	-
Sample Matrix			Clay	Clay	Clay	Clay
Determinant	Units	Accreditation				
Benzene	(mg/kg)	MCERTS	< 0.01	< 0.01	< 0.01	< 0.01
Toluene	(mg/kg)	MCERTS	< 0.01	< 0.01	< 0.01	< 0.01
Ethylbenzene	(mg/kg)	MCERTS	< 0.01	< 0.01	< 0.01	< 0.01
m&p Xylene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02	< 0.02
o-Xylene	(mg/kg)	MCERTS	< 0.01	< 0.01	< 0.01	< 0.01
MTBE	(mg/kg)	MCERTS	< 0.01	< 0.01	< 0.01	< 0.01
Total >C ₅ to C ₄₀ [EH_2D+HS_1D_Total]	(mg/kg)	MCERTS	65	100	44	48
Total TPH >C ₅ to C ₆ [HS_MS_1D_TOTAL]	(mg/kg)	u	< 1.0	< 1.0	< 1.0	< 1.0
Total TPH >C ₆ to C ₇ [HS_MS_1D_TOTAL]	(mg/kg)	u	< 1.0	< 1.0	< 1.0	< 1.0
Total TPH >C ₇ to C ₈ [HS_MS_1D_TOTAL]	(mg/kg)	u	< 1.2	< 1.0	< 1.0	< 1.2
Total TPH >C ₈ to C ₁₀ [EH_2D_TOTAL]	(mg/kg)	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Total TPH >C ₁₀ to C ₁₂ [EH_2D_TOTAL]	(mg/kg)	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Total TPH >C ₁₂ to C ₁₆ [EH_2D_TOTAL]	(mg/kg)	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Total TPH >C ₁₆ to C ₂₁ [EH_2D_TOTAL]	(mg/kg)	MCERTS	6.0	11	< 5.0	6.1
Total TPH >C ₂₁ to C ₃₅ [EH_2D_TOTAL]	(mg/kg)	MCERTS	46	70	32	35
Total TPH >C ₃₅ to C ₄₄ [EH_2D_TOTAL]	(mg/kg)	u	15	23	< 10	< 10



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Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)
461723	-	TP2	D	-	Brown slightly gravelly slightly sandy silty clay with occasional organic matter	14	28
461727	-	TP6	D	-	Dark brown slightly gravelly silty clay with occasional organic matter brick fragments	17	17
461728	-	TP7	D	-	Made Ground- brown slightly gravelly slightly sandy silty clay with rare brick fragments organic matter concrete	12	22
461729	-	TP8	D	-	Brown slightly gravelly slightly sandy silty clay with rare brick fragments organic matter	11	29



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Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
461723	-	TP2	D	-	PAHAR 1/10 Dilution VPH/BTEX - Sample taken from container with headspace.
461727	-	TP6	D	-	PAHAR 1/10 Dilution VPH/BTEX - Sample taken from container with headspace.
461728	-	TP7	D	-	VPH/BTEX - Sample taken from container with headspace.
461729	-	TP8	D	-	VPH/BTEX - Sample taken from container with headspace.



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Analysis Methodologies

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Details
SKALARHCS	MS - CL - Hexavalent Chromium by Skalar	As received	Passing 10mm test sieve	Determination of hexavalent chromium in soil using Skalar segmented flow analyser
ICPMETS	MS - CL - ICP Metals	Air dried	Passing 10mm test sieve	Determination of metals in soils via ICP
PAHASRDS	MS - CL - PAH (As Received)	As received	Passing 10mm test sieve	Determination of Polyaromatic hydrocarbons in soil via GC-MS
GCXGCS	MS - CL - TPH & EPH by GCXGC	As received	Passing 10mm test sieve	Determination of TPH and EPH in soils via GCxGC-FID
CWGS	Calculation from VPH-S and EPH-S	As received	Passing 10mm test sieve	Determination of TPH CWG (Volatile Petroleum Hydrocarbons and Extractable Petroleum Hydrocarbons) in soils via Headspace-GC-MS and GC-GC-FID respectively
VPHS	MS - CL - VPH	As received	Passing 10mm test sieve	Determination of VPH in soils via Headspace-GC-MS
ASB	MS - AS - Asbestos	-	-	Fibre identification is in accordance with in house documented methods which are based on the procedure documented in the HSE Document HSG 248 "Asbestos: The analysts guide for sampling, analysis and clearance procedures"
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis



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Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided

W - No time of sampling provided for water sample

C - Received in inappropriate container

H - Contains headspace

T - Temperature on receipt exceeds storage temperature

R - Sample(s) received with less than 96 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
461723	-	TP2	D	-	MS - CL - VPH	X



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HWOL TPH Acronym Index

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics and Aromatics
AL	Aliphatics Only
AR	Aromatics Only
2D	GC-GC - Double Coil Gas Chromatography
#1	EH_Total but with humics mathmatically subtracted
#2	EH_Total but with fatty acids mathmatically subtracted
_	Operator - underscore to separate acronyms (except for +)
+	Operator to indicate cumlative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry