JPC Environmental Services
(A Division of J P Chick & Partners Ltd)
Consulting Civil & Structural Engineers

Flax Farm Barn
Sudbury

STAGE 2
Options Appraisal & Remediation Strategy

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SUFFOLK: Registered Office: 7 Museum Street Ipswich Suffolk IP1 1HQ T 01473 280699 F 01473 280701 E ipswich@chick.co.uk (Registered No: 4806356)
ESSEX: 8 Atlantic Square Station Road Witham Essex CM8 2TL T 01376 503020 E witham@chick.co.uk
NORFOLK: 23 St Stephens Road Norwich Norfolk NR1 3SP T 01603 619093 F 01603 619840 E norwich@chick.co.uk

DOCUMENT CONTROL

Report prepared by:	***Report reviewed by:***
[redacted] **C Jooste BSc (Hons) Mres MIEnvSc** **Senior Environmental Engineer** On behalf of JPC Environmental Services A Division of JP Chick & Partners Limited	[redacted] **R M Crowther PIEMA AMEI AMICE** **Divisional Director** On behalf of JPC Environmental Services A Division of JP Chick & Partners Limited
JPC Issuing Office	***7 Museum Street, Ipswich, IP1 1HQ***

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EXECUTIVE SUMMARY

Site Name & Address:	Flax Farm Barn, Stansfield Road, Poslingford, Sudbury, CO10 8RD
Client:	Mr I. Burnett
Local Planning Authority:	West Suffolk Council
Historical Site Use:	Former agricultural barn
Present Site Use:	Redundant agricultural barn
Proposed Site Use:	1no. residential dwelling

Remedial Objectives/ Criteria:

The remediation works are required to address the contamination posed by Lead, Arsenic, Polycyclic Aromatic Hydrocarbon (PAHs) and Asbestos fragments and fibres in the Made Ground; The principal objective is to ensure the contaminated Made Ground is remediated so that the soils do not pose an unacceptable risk to the future residential development.

Remediation Activities

Ground Remediation Works- Pre Build

Site wide hand pick of asbestos fragments from surface prior to any intrusive works;
Removal of asbestos from former barn and demolition of remaining structure;
Removal of Lead hotspots to 0.35mbgl, and removal as 'Hazardous' waste from site;
Removal of floor slab beneath the barn, ensuring that the sub-base is removed to atleast 0.35mbgl, to remove PAH, arsenic and asbestos contamination;
Strip, excavate and screen the remaining external Made Ground, to 0.35m bgl, ensuring removal of any asbestos fragments, and recovery of any oversized recyclable aggregate content;
Verification sampling throughout the excavation works to ensure contaminants have been removed;
Excavation of Made Ground will ensure hand over site levels should be in accordance with accommodating a suitable depth of topsoil to remove any residual underlying risks to future site users.

Remediation Works- Build Phase

Services;
Re-use of certified crushed site won aggregate;
Reinstatement of landscaped areas with imported certified topsoil to suitable depths.

Verification Requirements

Ground Remediation Works- Pre Build

Method statements / risk assessments for remediation works;
Health and safety procedures;
Details/ diary records of soil excavation/ segregation on site;
Laboratory test reports, validation sample location plan, photographs of underlying validated soils;
Waste notes for all soils disposed off-site;
Consignment notes for hazardous soils and asbestos removed from site as waste;
Laboratory test reports for the testing of the fines element from crushed aggregate;
Grading certification for any crushed, graded and stockpiled aggregate for re-use during the 'Build Phase';
Any Regulatory correspondence, site visits during the remediation;

Air Monitoring (fibres)Records;
Photographs throughout remediation works.

Remediation Works- Build Phase

Source and supplier documentation on any imported aggregates/ topsoil (in advance of delivery);
Delivery tickets – for any imported aggregates;
Delivery tickets for topsoil;
Any Regulatory correspondence, site visits during the remediation;
Photographs throughout remediation works.

1 INTRODUCTION

1.1 Brief

1.1.1 JPC Environmental Services were appointed by Mr I. Burnett, to undertake a Stage 2 Options Appraisal and Remediation Strategy for 'Flax farm barn, Stansfield Road, Poslingford, Sudbury, CO10 8RD' (hereafter referred to as 'the site').

1.1.2 This document details the remediation methods, and validation requirements to be employed at the site, to ensure construction workers, future site users and the surrounding environment are protected.

1.1.3 The options appraisal and remediation strategy has been developed accordance with the following documents:

Environment Agency (April 2021): Land Contamination Risk Management (LCRM);
JPC Environmental Services Ltd: Phase II Contaminated Assessment- Flax Farm Barn (29th April 2020, IE20/040/PII/HP)
JPC Environmental Services Ltd: Further Intrusive Ground Investigation (May 2022, IE20/040/HP/RMC)

1.1.4 This report shall be for the private and confidential use of Mr I. Burnett, for whom it was undertaken. It should not be reproduced in whole or in part, or relied upon by a third party for any use without the express written authority of JPC Environmental Services (JPC ES).

1.1.5 In producing this report, we have exercised all the reasonable skill, care and diligence to be expected of an appropriately qualified and competent consultant, experienced in carrying out equivalent services for developments of a similar size, value, purpose, scope and complexity.

1.2 Site Details

Table 1. Site Details

Location	Flax farm barn, Stansfield Road, Poslingford, Sudbury, CO10 8RD
Grid Reference	577470, 249410
Area	~0.2 hectares
Access	The site is accessed off Stansfield Road, to the south.

1.2.1 A site location plan is enclosed within the appendices.

1.3 Brief History of Site and Previous Uses

1.3.1 The site has primarily been in agricultural use since around 1888, when Flax Farm is noted on the historical maps. By 1905 there appears to be a small structure at the junction of the access road and the highway with a further structure located on the northern boundary of the site by 1958. These appear to have been demolished by 1968 when a further small structure appears onsite. By 1984 the current onsite structures are present with no evident changes until the present day.

1.3.2 The surrounding land uses are primarily agricultural.

1.4 Development Proposal

1.4.1 The proposed development comprises the demolition of the existing barn and grain dryer buildings and construction of a single dwelling. Figure 1 below shows the proposed site layout, with a full copy provided in the appendices.

Figure 1. Proposed Development Plan.

1.5 Previous Site Investigations

1.5.1 The site has been the subject of both a desk top study and two ground investigations. The reports are listed below and should be referred to in conjunction with the options appraisal and remediation strategy. A brief overview of the findings from the reports has been provided, to assist the contractor and regulator in understanding why the remediation is necessary.

Table 2. Previous Site Reports

Author	Title of Report	Date
Bright Green Environmental Consultancy Ltd (BGEC Ltd)	Phase I environmental site assessment (project ref: 17229)	January 2018
JPC Environmental Services Ltd	Phase II contaminated land assessment (IE20/040)	April 2020
JPC Environmental Services Ltd	Further intrusive ground investigation to inform the remediation strategy (IE20/040)	May 2020
JPC Environmental Services Ltd	Site walkover and re-assessment of site conditions to inform condition 9 - remediation strategy (dc/22/1266/ful).	November 2022

BGEC Ltd – Phase I Environmental Site Assessment (January 2018)

1.5.2 The BGEC preliminary risk assessment identified potential on-site sources of contamination to include:

Demolition/construction activities

Hydrocarbon storage

Agricultural activities.

Asbestos Containing Materials (ACMs) - The fabric of the building(s) were likely to contain ACMs.

1.5.3 The historical review of the surrounding area (within 250m of the site) has shown that nearby activities are predominantly agricultural or residential in nature, although 1 No. potentially infilled pond was identified within the south-west corner of Flax Farm. BGEC Ltd concluded that as the pond was infilled sometime prior to 1958, considerable time had passed, allowing for the degradation of organic materials to have occurred and gas production to have long since ceased. BGEC Ltd also noted the presence of an unspecified tank to the rear of the dwelling at Flax Farm however given its position the risk to the site was considered negligible.

1.5.4 Based on the findings of the Phase I report, BGEC Ltd recommended that a demolition asbestos survey should be undertaken on the existing barn and grain dryer buildings, and an intrusive investigation carried out in order to provide site specific data on the nature of the near surface soil and the ground gas regime beneath the site.

JPC ES - Phase II contaminated land assessment (April 2020)

1.5.5 The intrusive investigation was undertaken in April 2020, with a total of 10No. trial pits undertaken, mainly targeting future garden areas and areas of potential contamination. A total of 7No. trial pits were excavated through concrete hardstanding, with 3No. established in open ground. The material under the concrete hardstanding comprised a concrete slab over crush rock sub-base, whilst the trial pits in open ground comprised an initial layer of a brown silty slightly clayey topsoil.

1.5.6 A mixture of anthropogenic inclusions of brick, concrete, pottery, glass and tile were identified in most locations. The natural underlying geology was encountered in all trial pits, and generally comprised soft light brown Clay. No significant depth of Made Ground or quantities of organic material were identified within any of the trial pits. Made Ground was identified to a maximum depth of 0.45m bgl, with the underlying natural geology proven within all the trial pit locations. As a result, the potential risk from ground gas migrating to and accumulating beneath the converted barn was considered to be 'Low'.

1.5.7 Chemical analysis of the shallow on-site soils identified Lead above the 'residential with home grown produce' screening criteria (SC) in 3No. sample locations, and Arsenic above the SC in 1No. location. Petroleum hydrocarbon concentrations were above the SC in 1No. location, and PAH concentrations were above the SC in 2No. locations. A Lead concentration of 18,000mg/kg detected at TP103, represents a 'Low-Moderate' risk to groundwater, although reduced significantly by 0.4m bgl. This source of contamination was identified as requiring remediation. All of the deeper soil samples tested passed the SC for the site.

1.5.8 Chrysotile asbestos fibres were detected within the shallow soils in 2No. locations, at concentrations ranging between <0.001% - 0.002%. Fragments of asbestos cement sheet containing Chrysotile & Crocidolite asbestos were found on the surface across the site.

1.5.9 The report advised that a remediation strategy would be required to address the risk posed from lead, TPHs, PAHs and asbestos within the soils. To facilitate the development of a sustainable and cost-effective strategy, it was recommended that some further trial pitting, targeting areas of already identified sources, and particularly beneath areas of hard standing was recommended.

JPC ES - Further intrusive ground investigation to inform the remediation strategy (May 2020)

1.5.10 A further investigation was undertaken in May 2020. A total of 3No. trial pits were excavated around TP103 and 3no. pits around TP102, to establish the extent of the Lead contamination in these two locations. 7No. trial pits were excavated around TP109 and TP110 to identify the extent of the asbestos and PAH contamination in these areas. A series of surface scrapes were also undertaken to establish the presence of asbestos fragments.

1.5.11 The laboratory test results detected Lead above the screening criteria in TP202 but below the screening criteria in all other samples tested. The Lead hotspot was therefore considered to be isolated to the area covered by TP103 and TP202 at surface level only (i.e. 0.0m to 0.35m bgl), and not extending to the east or north as the samples retrieved from the further pits were proven to contain lower lea concentrations.

1.5.12 Although no exceedances of mercury were identified in the initial site investigation, the supplementary investigation identified a small pocket of mercury above the SC at TP204. Mercury levels were lower in the surrounding trial pits, so we consider the hotspot to be very localised and only marginally above the screening criteria in this supplementary site investigation.

1.5.13 A selection of PAHs (including Benzo(b)fluoranthene, Benzo(a)pyrene and Dibenz(ah)anthracene) were above the screening criteria in TP203, TP204, TP207, TP208 and TP210 but below the screening criteria in all other samples tested. The high levels of PAHs were mainly encountered within the trial pits undertaken beneath the concrete hard standings in and around the main structure.

1.5.14 Asbestos was positively identified in TP204 (chrysotile) and TP205 (chrysotile, amosite and crocidolite) in the form of loose fibres. At TP211 chrysotile loose fibrous debris and hard cement was encountered. Chrysotile and crocidolite hard cement fragments were identified in the shallow soils (0.10 – 0.25mbgl) of TP202, TP203 and TP211, while no asbestos was detected in all other samples. Asbestos fragments were visually identified in trial pits undertaken on the south (leeward) side on the main structure and in several trial pits in the entrance and beneath the concrete hardstanding. No asbestos was encountered stuck to the underside of the concrete slabs in the locations investigated.

1.5.15 The investigation established that the depth of excavation and removal of soils in landscaped and garden areas needed to be increased from the 0.30mbgl recommended in the initial investigation to 0.35mbgl to ensure all the contamination is captured. The wide-spread presence of asbestos fragments on the surface, of the site would also require a through hand pick of the site prior to any site work taking place.

JPC ES -Site walkover and re-assessment of site conditions to inform condition 9 - remediation strategy (Nov 2022)

1.5.16 JPC ES undertook a visual survey of the site condition and surroundings in October 2022. The reason for the review was twofold:

A change in the planning permission from a conversion to demolishing the existing barn and construction of a single dwelling; and

The period of inactivity since the last site inspection and sampling which was undertaken in May 2020. Due to the time that has elapsed, JPC Environmental advised that a review of the current site condition was needed to inform Condition 9; and subsequent development of a suitable remediation strategy.

1.5.17 The visual inspection largely revealed an improvement in the site conditions. Stockpiled waste materials at the edge of the eastern boundary had been removed prior to sale, and the general maintenance on the barn and external ground, had managed the risk of any further degradation and dispersal of asbestos sheeting.

1.5.18 The new development proposals included within the report showed the dwelling will have a smaller footprint than the current agricultural building. The new house will encapsulate a proportion of the site, with a larger area available as garden land once the development is complete.

1.6 Developed Conceptual Site Model

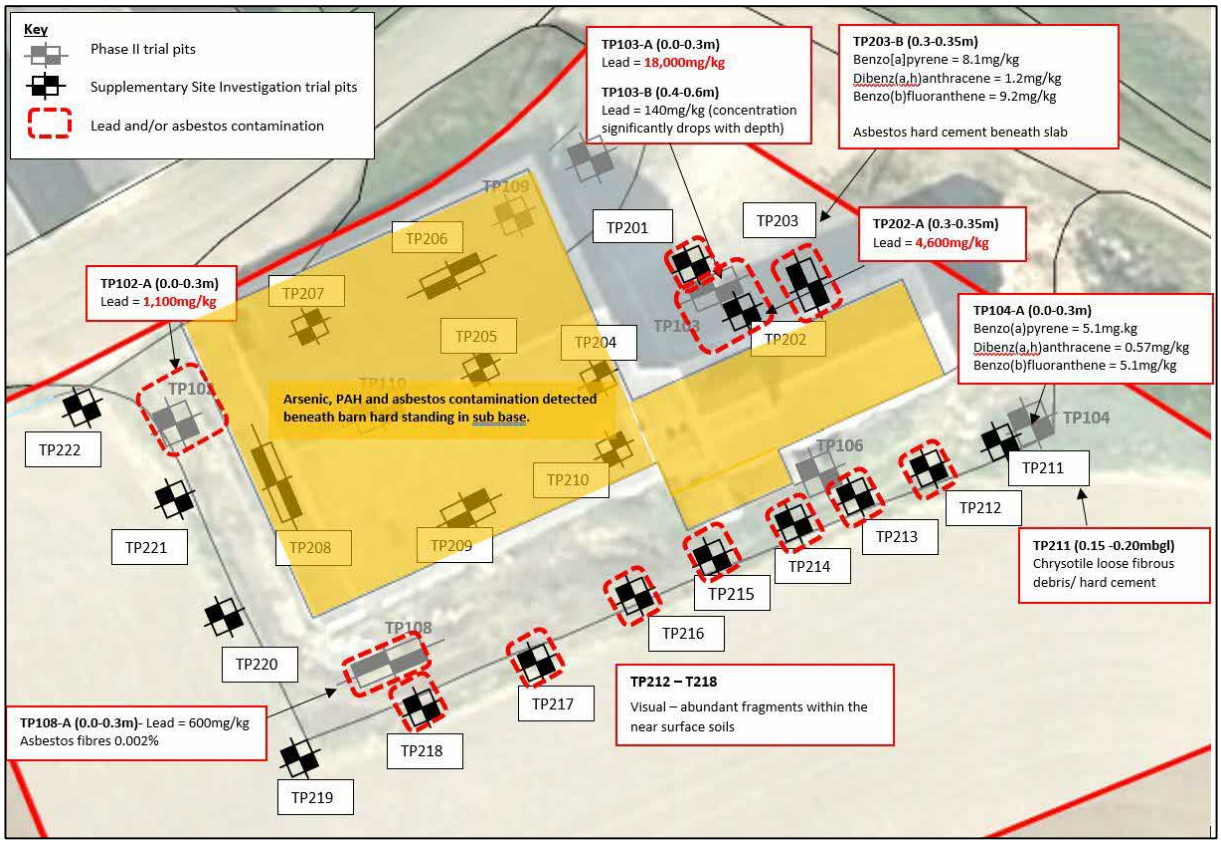
1.6.1 In accordance with The Land Contamination Risk Management (LCRM) guidance, "A conceptual site model is a representation of the characteristics of the site. It shows the possible relationships between contaminants, pathways and receptors". The table overleaf shows the developed conceptual site model for the site, detailing only Moderate to High risks, which require remediation.

Table 3. Developed Conceptual Site Model.

Possible Pollutant Linkage			RISK CHARACTERISATION
Potential Sources	Pathways	Receptors	
Chrysotile fibres within near surface soils (0.0-0.35mbgl) TP108 (0.002%) TP110 (<0.001%) TP204-A TP205A (0.0 -0.30mbgl) Chrysotile, Amosite & Crocidolite loose fibres. TP211 (0.15 -0.20mbgl) Chrysotile loose fibrous debris/ hard cement.	Inhalation	Future Site Users	Moderate
		Construction Workers	Moderate
Chrysotile & Crocidolite hard cement fragments on surface of site and in shallow soils TP203 (0.10mbgl) TP202 (0.20mbgl) TP211 (0.20-0.25mbgl)	Further physical damage during construction (release of fibres) Inhalation	Future Site Users Construction Workers	Moderate/High
Arsenic above SC (TP109-A 0.0-0.3m) Lead above SC (TP102A, 103A & 108A 0.0-0.35mbgl)	Inhalation / ingestion	Future Site Users Construction Workers	Moderate- High (Children)
	Leaching of contaminants into soil	On Site Soils Buried Services Controlled Waters	Low- Moderate
Mercury above SC TP204 (0.0-0.35mbgl)	Inhalation / ingestion	Future Site Users Construction Workers	Low- Moderate
	Leaching of contaminants into soil	On Site Soils Buried Services	
TPH EC10-21 above SC TP106A (0.0-0.3m)	Leaching of contaminants into soil	On Site Soils Buried Services Controlled Waters	Low/ Moderate
	Inhalation / ingestion / dermal absorption	Future Site Users/ Construction Workers	
TP104A, TP110A, TP203, TP204, TP207, TP208 & TP210 Benzo(a)pyrene Dibenz(a,h)anthracene Benzo(b)fluoranthene above SC at 0.0-0.35mbgl	Inhalation / ingestion / dermal absorption	Future Site Users/ Construction Workers	Low/ Moderate
	Leaching of contaminants into soil	On Site Soils Buried Services	

1.6.2 Figure 2 shows the location of the contamination identified during the previous investigations.

Figure 2. Site Layout Showing Areas of Contamination.



2 OPTIONS APPRAISAL

2.1 Management Objectives:

2.1.1 The remediation options appraisal objectives are:

To make the site safe for construction workers & future site users;

To undertake a sustainable remediation solution, which is economically cost effective, whilst ensuring protection of the underlying soil, and minimising environmental impacts to landfill;

Improve the condition of the amenity garden land to the new residential dwelling;

Consider environmental regulatory controls that may need to be met when choosing a suitable remediation technique/s (regulatory position statement, permits, licenses and practices: i.e Environment Agency Waste Exemptions/ Waste Permits/ CL:AIRE Definition of Waste Code of Practice).

2.2 Technical Objectives:

Where contaminated soil has been detected, this will require remediation, in order to protect future site users;

Waste soils will need to be suitably segregated, and classified for appropriate waste disposal;

To ensure correct waste classification, disposal routes and minimise costs, sampling of generated waste stockpiles should be undertaken;

2.3 Objectives & Criteria of the Remediation Works

2.3.1 Remediation objectives are site-specific objectives, relating to reducing, controlling or removing the risks associated with the contaminant linkages identified with the Conceptual Site Model. The remediation objective and criterion for the site have been listed below:

<u>Remediation objective:</u>

To ensure soil within the identified contaminated areas (figure 2) is remediated so as not to pose an unacceptable risk to human health or controlled waters.

<u>Remediation criterion:</u>

To ensure the contamination within the Made Ground is remediated to a standard in accordance with the future land use for the site.

Validation sampling will be required throughout the remediation to determine if further excavation is required and record any underlying residual concentrations (i.e. beneath future cover systems);

All waste soils/ materials must be appropriately segregated, tested and classified before disposal from site;

The remediated site will need to be left at suitable depths, in order to accommodate an appropriate thickness of topsoil within future gardens;

Any imported soils will need to be fully validated, comply with current guidance and legislation and be suitable for use.

2.4 Feasible remediation options

2.4.1 A shortlist of options, which break the relevant contaminant linkages in table 1, have been bulleted below.

2.4.2 The Environment Agency remediation options applicability matrix (EA, 5th June 2019) and INFO-OA2: detailed evaluation of remediation options on the CL:AIRE Water and Land Library were used when determining which options would be feasible at the site. Based on the contamination encountered at the site, a combination of methods will be required due to the applicability of techniques to various contaminants.

Excavation & Disposal (soil)

Containment/ Cover System (soil)

Biopiles (soil)

Biosparging (soil & water)

Windrow turning (soil)

Chemical oxidation (soil & water)

Soil Flushing (soil)

Solvent extraction (soil)

Soil vapour extraction (soil)

Soil washing (soil)

Soil Stabilisation/ Solidification- Hydraulic Binders (soil)

Thermal desorption (soil)

2.5 Initial screening of options

2.5.1 We have undertaken an initial screening of the above options to remove those which are not practical due to the regulatory requirements, practicality on a small site, costs, machinery/ equipment, timescales and overall sustainability if they were implemented. Many of the options above such as chemical oxidation, soil flushing, solvent extraction, soil vapour extraction, soil washing and thermal desorption rely on larger developments to make them cost effective.

2.5.2 The inclusions of materials such as asbestos encountered at the site, also mean that one of these techniques alone would not be sufficient, and excavation would still need to occur to remove the waste materials present to make the site suitable for its future use.

2.5.3 As a result the remediation techniques chosen to be taken forward for a more detailed evaluation are:

Excavation & Disposal;

Containment/ Cover System;

Soil stabilisation and solidification.

2.6 Detailed Evaluation of Options

2.6.1 Table 4 overleaf details the advantages and disadvantages of the remaining options. Site characteristics, time scales and wider factors have also been considered within the 'Remediation Options Assessment' for the site.

Table 4. Remediation Options Assessment.

Remediation Technique	Advantages	Disadvantages	Feasible Option?
<u>Excavation & Disposal</u> Involves excavation of contamination identified, disposal off site as waste. Timescales: Weeks	Excavation ensures the contaminated soil is removed, and tested at the time of remediation. The site is easily accessible and contamination can be removed without any practical constraints. Leaves a higher degree of certainty in remediating the site and in a relatively short timescale given the size of this site. Although excavation and disposal would not be sustainable for other larger sites, the site is small, so excavation works out cost effective. When compared to other techniques such as soil washing and thermal desorption, the economic and social benefits outweigh the negative environmental impacts to landfill. The nature and inclusions of asbestos within the made ground at the site, would also affect the reliability of other in situ techniques like thermal desorption and chemical oxidation, as asbestos would still have to be physically removed.	Not particularly environmentally sustainable as landfill space is limited. Supervision & additional testing will be required during the excavation to correctly segregate and classify the contaminated soils and waste materials and remove asbestos fragments and potentially recyclable material. Excavation and disposal of soils can be expensive.	Yes
<u>Containment/ Cover System</u> Cover systems can include hi-viz geotextile membranes, suitable depths of certified imported topsoil, and hardstanding covering.	Contains contaminants within the site, if applied straight above contaminated areas. The process leaves a capped site, with no day to day access to the contaminated soil and therefore addresses the risk to future site users. This approach is likely to be cheaper than excavation and disposal as the off-site disposal costs are reduced or eliminated.	The depth of cover system within soft landscaping areas usually requires 300-600mm of certified topsoil, therefore depending on final site levels, a certain amount of excavation is always usually required. The remainder of the site will need to be encapsulated by buildings or hard standings. Some contamination is likely to remain on-site, which may limit future extensions or redevelopment of the site by a third party. As the contamination remains in-situ, it could have an impact on asset value;	Yes

Remediation Technique	Advantages	Disadvantages	Feasible Option?
Timescales: Weeks		Mitigation measures such as protected services would be required, as the lead and petroleum hydrocarbon contamination would remain in-situ. A cover system wouldn't address the risk of leaching, lateral migration from the high concentrations of lead in certain areas of the site, and therefore the risk to controlled waters. Soft landscaped areas may require separate treatment or be positively drained. Raised beds / planters could be considered.	
<u>Stabilisation/solidification</u> Relies on a reaction between reagents and soil matrix to reduce mobility of contaminants. Common reagents include cement, pulverised fuel ash, lime based binders and organophilic clays. Pilot trials may be required to ascertain the effectiveness. Timescales typically <1 year (subject to trials)	While the contaminants remain on-site they are locked up in a cement / pfa or Lime matrix. Minimal constraints to future development as contaminated soil 'locked up' locally rather than relying solely on an undisturbed depth of impermeable cover. Mitigation measures such as protected services can be omitted by targeted placement of stabilised material. Stabilised material can replace some or all of the sub-base for hard standing areas such as car parking.	Uncertainty over durability and potential contaminant release in future. Pilot trials for stabilising the soils with different reagents may be required in advance by Regulators to determine if the stabilisation would be successful and no deterioration occurs with leaching of contaminants. More expensive than encapsulation but could be cheaper than excavation and disposal, depending on pilot trials. Longer lead time prior to development, as samples of the on-site soils may require cube testing to identify a suitable cement / pfa ratio or suitability for lime stabilisation. Stabilised cubes of site material may require testing under lab conditions to gauge leaching potential and long term durability of the matrix, which would cost with no guarantee of a successful technique being approved.	No (To many unknowns with potential future contaminant release, and timescales for testing and Regulatory approval)

3 REMEDIATION

3.1 Remediation Techniques

3.1.1 We have concluded from the assessment, in this instance, that the remediation works will comprise of:

Excavation and disposal;

Cover system of certified topsoil in landscaped areas (or replacement soil, where all contaminants have been successfully removed).

3.1.2 The works will also comprise of two phases: the pre-build ground remediation works, and then the build works remediation, which have both been detailed below.

Ground Remediation Works- Pre Build

Site wide hand pick of asbestos fragments from surface prior to any intrusive works;

Removal of asbestos from former barn and demolition of remaining structure;

Removal of Lead hotspots to 0.35mbgl, and removal as 'Hazardous' waste from site;

Removal of floor slab beneath the barn, ensuring that the sub-base is removed to atleast 0.35mbgl, to remove PAH, arsenic and asbestos contamination. The fines element of the sub-base will need disposal off site as waste, due to the contaminants. The oversized element to be inspected to ensure removal of asbestos, but can then be crushed along with the floor slab, and graded as a re-useable product;

Strip, excavate and screen the remaining external Made Ground, to 0.35m bgl, ensuring removal of any asbestos fragments, and recovery of any oversized recyclable aggregate content;

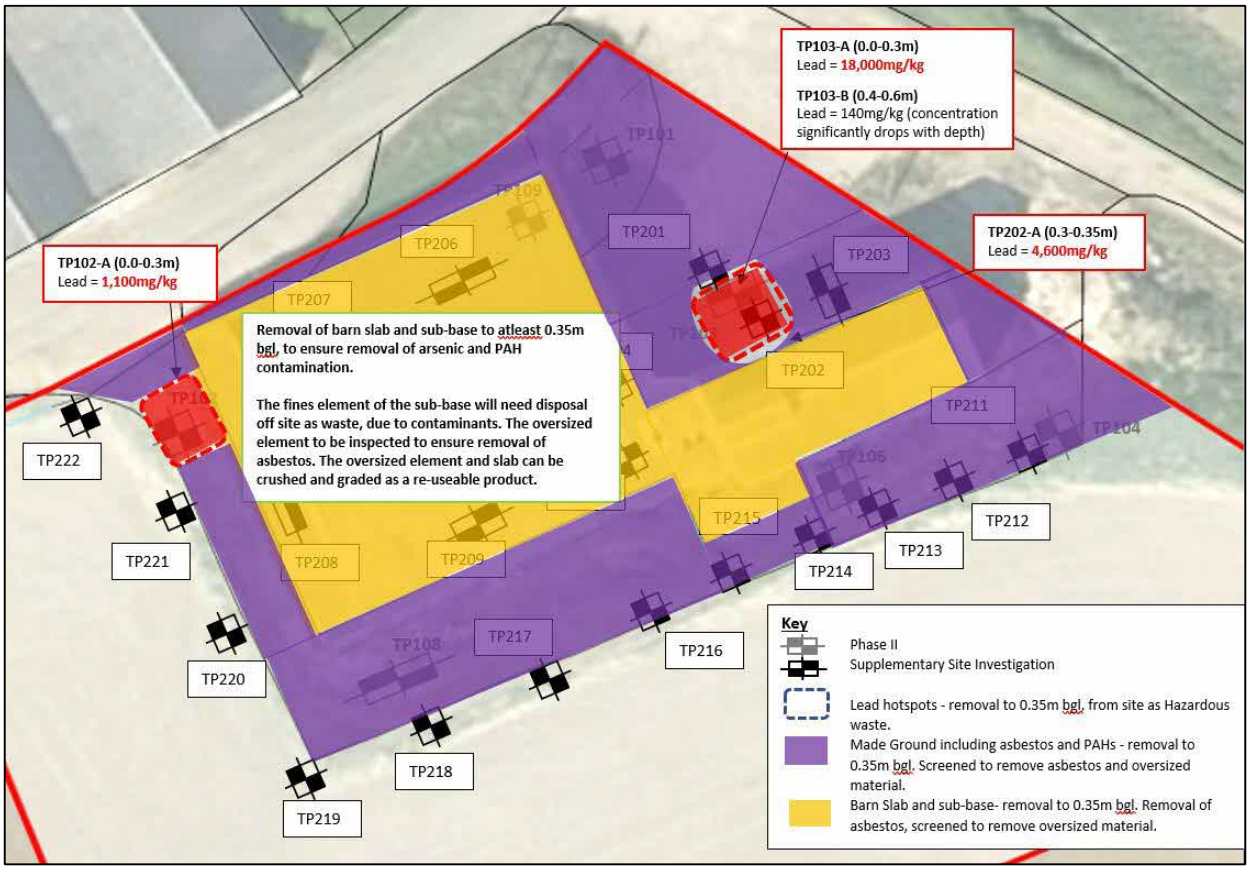
Verification sampling throughout the excavation works to ensure contaminants have been removed;

Secondary excavation, where validation testing identifies contaminant concentrations above the remedial targets;

Excavation of Made Ground will ensure hand over site levels should be in accordance with accommodating a suitable depth of topsoil to remove any residual underlying risks to future site users.

3.1.3 Figure 3 shows a site plan detailing the areas to be remediated during the pre-build works.

Figure 3. Site Plan Showing Areas of Remediation.



Remediation Works- Build Phase

Services;
Re-use of certified crushed site won aggregate;
Reinstatement of landscaped areas with imported certified topsoil to suitable depths.

3.1.4 Alongside the above a 'Discovery Strategy' will need to be employed during all excavation works to ensure that in the event of any previously undetected contamination being identified, this can be assessed, and the Regulators informed, with an agreed approach in its management and remediation going forward.

3.1.5 The above elements of the remediation are discussed further in section 3.2 – 3.12.

GROUND REMEDIATION WORKS- PRE-BUILD

3.2 Asbestos – Hand Pick of site surface and removal from structure

3.2.1 Due to the presence of asbestos fragments on the site surface, particularly to the south of the barn, a thorough hand pick will be undertaken across the whole site, but particularly focusing on this area prior to any mechanical disturbance/ excavations. The front of the barn (north-east) is laid to hard standing and has shown no evidence of asbestos fragments on the surfacing. The concrete apron and Made Ground to the south had abundant fragments within the surface soils during the investigations.

3.2.2 The asbestos cladding on the barn will then be removed by a competent contractor for removal from site as waste.

3.2.3 The hand pick and removal of asbestos cladding from the building should be undertaken by an asbestos competent contractor in accordance with HSG264 and all asbestos cement fragments packaged and labelled in accordance with the Control of Asbestos Regulations 2012 and The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations, 2009. The packaged asbestos fragments will need to be disposed of at a permitted landfill site.

3.3 Removal of Hotspots of Lead Contamination- TP102/ 103 & TP202 (Hazardous Waste)

3.3.1 The removal of the two lead hotspots at TP102/103 and TP202 require excavation to atleast 0.35mbgl. These soils will need to be stockpiled on an impermeable liner or hard surfacing, and disposed from site as soon as possible as 'Hazardous' waste, as per the waste classification and laboratory test reports detailed in the appendices. Further testing and waste classification may be required before arranging disposal.

3.3.2 Once the excavation has been completed, validation samples will be collected from the base and sides, to confirm that the identified contamination has been removed. If concentrations are above the site screening criteria, the extent of the excavation will need to be extended.

3.3.3 The remedial targets are presented in the appendices.

3.4 Floor Slab and Sub-Base Removal Beneath Structure and Excavation and Screening of Remaining Contaminated Made Ground

3.4.1 The presence of contamination beneath the floor slab of the structure and within the Made Ground across the majority of the site, especially to the rear (south), will require excavation to approximately 0.35mbgl, or the underlying natural geology if shallower. Firstly the concrete slab beneath the structure and any external hard standings will be lifted and the undersides carefully inspected for the presence of asbestos fragments. Any slabs which have asbestos fragments attached, will need to be segregated to one side, and disposed of from site as 'Hazardous' waste.

3.4.2 The excavated soils beneath will then need to be screened to remove any residual asbestos fragments and segregate any oversized material in the Made Ground. The fines element from the screening will be stockpiled and removed from site as 'Non Hazardous' waste, as per the waste classification generated from the previous testing.

3.4.3 During excavations and material screening, air monitoring and dust suppression will need to be adopted to minimise the risk of potential airborne fibres, as well potential contaminated dust derived soils. Such measures will be required due to the proven risk of asbestos fragments and fibres within the Made Ground.

3.4.4 The screening process should enable a smaller fraction of material to be disposed of as hazardous waste, i.e. any asbestos fragments hand picked out, and then the fines segregated and disposed as 'Non Hazardous'.

3.4.5 Once all the Made Ground has been excavated, screened, and the waste element removed from site, underlying samples will need to be retrieved from the base and sides throughout the remediation area. JPC ES will attend site to take validation soil samples from the sides and base of the remediated area to verify that all contamination has been removed. We would recommend that samples be collected at a minimum frequency of one sample per 10-15m^2 from the side walls (boundaries of the site) and one sample per 50m^2 from the base. The depth of the excavated areas are to be measured and photographs taken to record the validation sampling.

3.4.6 The remedial targets, which are to be used to assess the success of this remediation are presented within the appendices. We have based the remedial targets on the proposed future use of the site as 'Residential with home grown produce'.

3.5 Re-use of Certified Crushed Site Won Aggregate

3.5.1 Previous investigations have shown that the Made Ground contains oversized material and the concrete slabs throughout the site could also provide a re-useable source of aggregate. As the Made Ground will be screened, any oversized material will be stockpiled separately. All lifted slabs from throughout the site will be inspected for asbestos. Any with asbestos attached will have to be segregated and disposed of as 'Hazardous' waste, but those which are suitable could be crushed on site to form a suitable graded material for re-use.

3.5.2 The aggregate generated from the screening and crushing works will need to have the fines element tested for asbestos identification. The aggregate will also need to have particle size distribution and a materials classification undertaken to prove its suitability for its intended use. The aggregate should be sampled every 100-150m^3, and stockpiled on site if suitable for re-use as sub-base beneath paths, patio and the access driveway, but would need to be compacted in accordance with its material classification and the 'Specification for Highway Works 600 Series'.

3.6 Undiscovered Contamination

3.6.1 A 'Discovery' strategy will need to be implemented during all excavation works. In the event that any previously unidentified contamination, such as caches of buried asbestos are encountered, or buried waste. We would recommend that photographs are taken and the area immediately covered over or dampened down if asbestos containing materials are encountered. The project environmental engineer (JPC ES) should then be notified.

3.6.2 The project environmental engineer will then determine what action needs to be taken including the possible collection of samples for off-site testing.

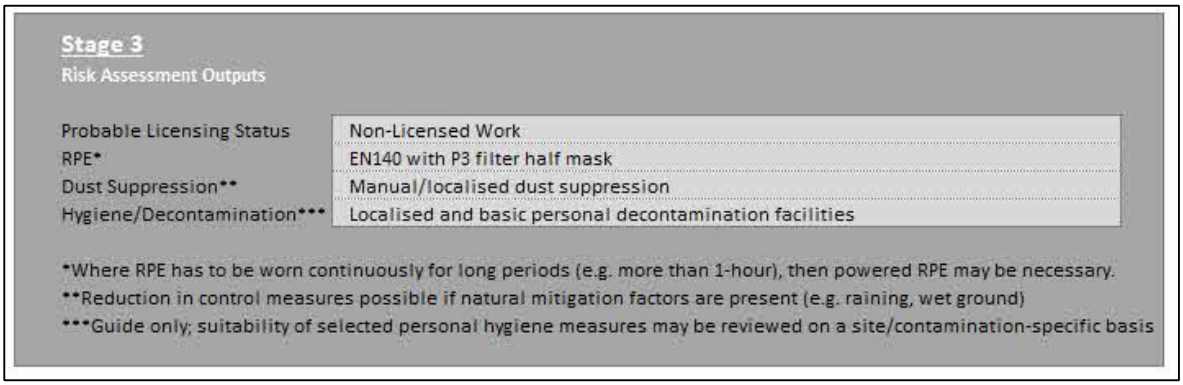
3.6.3 It is recommended that the remediation contractor undertake their own risk assessments. Individuals will need to be sufficiently trained and equipped with the appropriate PPE and aware of the risks and how to mitigate the residual risk outlined above.

3.7 Health and Safety – Asbestos Protection Measures

3.7.1 We have utilised the CL:AIRE and Joint Industry Working Group (JIWG) decision support tool for the 'Categorisation of Work Activities involving Asbestos in Soil and C&D Materials in accordance with the Control of Asbestos Regulations 2012' to provide an initial indication of the appropriate protection measures that would need to be implemented during the remediation.

3.7.2 The risk assessment has taken account of JPC investigation data. The risk assessment also takes into account exposure factors for people working on the site, which includes duration of exposure, activity type and effect on the deterioration of ACM's. The full risk assessment is presented within the appendices. Figure 4 shows the final stage 3 'Risk Assessment Outputs' from the JIWG Decision Support Tool.

Figure 4. Extract from JIWG Decision Support Tool- Stage 3- Risk Assessment Outputs.



Stage 3
Risk Assessment Outputs

Probable Licensing Status	Non-Licensed Work
RPE*	EN140 with P3 filter half mask
Dust Suppression**	Manual/localised dust suppression
Hygiene/Decontamination***	Localised and basic personal decontamination facilities

*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary.
**Reduction in control measures possible if natural mitigation factors are present (e.g. raining, wet ground)
***Guide only; suitability of selected personal hygiene measures may be reviewed on a site/contamination-specific basis

3.7.3 Figure 4 shows that based on the site investigation data, the planned works are considered to be Non-Licensed works. All remediation workers on the site will need to have had 'asbestos awareness' training and be fully aware of their responsibilities when it comes to wearing their RPE, reducing the risk of spreading potential asbestos, decontamination, waste handling and what to do in the unlikely event that any larger quantities of ACMs are encountered, such as a previously undiscovered cache or burial.

3.7.4 It is expected that the remediation contractor will undertake their own risk assessments, to support the above assessment. Individuals will need to be sufficiently trained and equipped with the appropriate PPE and aware of the risks and how to mitigate the residual risk outlined above.

3.8 Environmental Legislation - Permits, Licensing & Practices

3.8.1 To ensure the remediation works are undertaken compliantly under the auspices of the most appropriate legislation, we have reviewed the various permits, licenses and practices available to determine which would be most appropriate for the site.

3.8.2 The Environment Agency Regulatory Position Statement for 'Land contamination pilot trials and small-scale remediation schemes: RPS 215' is most suitable for small scale pilot trials and remediation projects where the total volume is <1000m3. Based on the sites dimensions and depth of remedial excavations on site being limited to 0.35mbgl, we have determined that the remediation works fall in line with RPS 215 requirements.

3.8.3 The RPS was designed to cover the following:

site-specific pilot trials to see if an established remediation technique will be successful;

small scale remediation schemes

3.8.4 You can only use 'RPS' once in a 3-year period for an individual site. You would need to apply for an environmental permit if you:

Need to do more trials or remediation at the site;

Want to undertake treatment for disposal;

Meet the specified volumes for a pilot trial of not exceeding 1,000m^3;

Produce and follow a method statement;

Keep records of your activities for 6 years;

Complete the activity as soon as possible and in any event within 6 months;

You must notify your local Environment Agency Groundwater and Contaminated Land Team in writing at least 5 working days before any work starts;

The Environment Agency does not need to approve your treatment or trial, but you must be able to provide evidence that mitigation measures were in place if problems occur;

You must produce and follow a method statement, which must include details of the mitigation measures you will use to prevent harm to human health and pollution of the environment. The guidance must be complied with to show the pilot trial can comply with noise, odour and other emissions;

Details of how you intend to 'reuse any treated material' such as under an exemption or by using the CL:AIRE Definition of waste: code of practice (DoW CoP);

How you will verify if the treatment or trial has worked;

Expected outcome, including details of proposed next steps such as completion or to apply for a permit and deployment;

A contingency plan if the trial or remediation does not work as expected.

3.8.5 You are not allowed to:

Permanently store waste

You can only temporarily store the waste soils and contaminated materials, substances or product types, prior to treatment listed in your method statement under the RPS.

3.9 Waste Disposal

3.9.1 Prior to any waste soils being removed from site, it will be necessary to liaise with local landfill operators to confirm the waste classification of the waste soils and their compliance with the landfills Environmental Permits and Waste Management Licences (or exemptions).

3.9.2 The remediation contractor will be responsible for the management and disposal of any waste soil during the remediation process. Details of all waste disposal sites and waste carriers must be supplied to JPC Environmental Services, who will verify their suitability to receive the selected waste.

3.9.3 A licensed Waste Carrier, under full waste transfer documentation, will transport any waste materials removed from site.

3.9.4 Based on the previous investigations at the site, most of the Made Ground can be classified as 'Non Hazardous' waste. As the organic matter content was approximately 3.5% and due to a mixture of anthropogenic inclusions such as brick and concrete in many of the locations, we consider it unlikely that any soils would be considered 'Inert'. The European Waste Catalogue (EWC) number for soil classified as Non-hazardous waste is 17 05 04 ('soil and stones other than those mentioned in 17 05 03').

3.9.5 Where natural sub-soils are excavated, and the organic matter is <3.0%, this material MAY be classified as Inert, subject to additional testing.

TP102 & TP103 (including TP202) - Hazardous Waste

3.9.6 At TP102 to the west of the structure and TP103 (including TP202), undertaken to the east of the main structure and within the front yard, the concentration of lead within these samples would result in soils being classified as 'Hazardous' waste. Further sampling around these areas, has shown that the lead is within an isolated hotspot, which will reduce the quantity of soils which need to be excavated and segregated as 'Hazardous' waste.

3.9.7 A list of waste code of 17.09.03* 'Other construction and demolition waste (including mixed wastes) containing hazardous substances' would need to be used on all consignment notes for removal of the material from site.

3.9.8 The above waste classification is only indicative of the soil samples taken to date and it is possible that haulage contractors or landfill facilities may request a Waste Acceptance Criteria (WAC) test before removing any waste soil from the site, particularly when disposing of clean sub-soils as 'Inert'. The soil test results attached to this report should be provided to the waste disposal contractor to ensure the waste is disposed of at a suitably permitted site, which is licensed to accept the waste.

3.9.9 An extract from the 'HazWasteOnline' software showing the waste classification of each soil sample is presented below. A full copy of the waste classification report is presented within the appendices.

Figure 5. Extract from HazWasteOnline.

#	Sample Name	Depth [m]	Classification Result	Hazard properties
1	TP101A	0.00-0.30	Non Hazardous	
2	TP102A	0.00-0.30	Hazardous	HP 7
3	TP103A	0.00-0.30	Hazardous	HP 7, HP 10, HP 14
4	TP104A	0.00-0.30	Non Hazardous	
5	TP105A	0.00-0.30	Non Hazardous	
6	TP106A	0.00-0.30	Non Hazardous	
7	TP106B	0.40-0.60	Non Hazardous	
8	TP108A	0.00-0.30	Non Hazardous	
9	TP109A	0.00-0.30	Non Hazardous	
10	TP110A	0.00-0.30	Non Hazardous	
11	TP102B	0.40-0.60	Non Hazardous	
12	TP103B	0.40-0.60	Non Hazardous	
13	TP104B	0.40-0.60	Non Hazardous	
14	TP108B	0.40-0.60	Non Hazardous	
15	TP109B	0.40-0.60	Non Hazardous	
16	TP110B	0.40-0.60	Non Hazardous	

3.9.10 Any asbestos fragments removed from excavated soils will need to classified as Hazardous waste and will require a European Waste Catalogue (EWC) number for is 17.06.05* (Construction materials containing asbestos).

3.9.11 Where waste soil is removed from site, this must be accompanied by a duty of care waste transfer note for non-hazardous soils and a waste consignment note for hazardous soils or asbestos waste. The Duty of Care must list the site address, the destination, the waste classification and EWC code along with details of the waste carrier.

3.9.12 Where waste soil is removed from site, this must be accompanied by a duty of care waste transfer note for non-hazardous soils and a waste consignment note for hazardous soils or asbestos waste. The Duty of Care must list the site address, the destination, the waste classification and EWC code along with details of the waste carrier.

REMEDIATION WORKS- BUILD PHASE

3.10 Services

3.10.1 In January 2011, UK Water Industry Research (UKWIR) published "Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites" (Ref 10/WM/03/21; the 'UKWIR Guidance'). The aim of the guidance is to ensure that appropriate materials are selected for water pipes and connection components specified for below ground use on Brownfield sites.

3.10.2 On sites where elevated concentrations of organic or in-organic contaminants have been detected it may be necessary to consider upgrading buried drinking water pipe work to protect potable water supplies.

3.10.3 A total of 10No. samples were submitted for a '3-band' TPH suite, which divides TPH concentrations into the gasoline range (C8 – C10), diesel range (C10 – C21) and the mineral range (C21 – C40). While this is less detailed than the full TPHCWG suite it allows us to undertake a conservative assessment of potential TPH contamination, where no hydrocarbon odour has been detected.

3.10.4 In this instance 8No. samples tested fell above the limits in the shallow soils (0.0 – 0.30m bgl) As a result, standard polyethylene pipe would usually be unsuitable for potable drinking water supplies at the site, and PVC or barrier pipe would likely to be required. See figure 6 below.

Figure 6. Extract from 'Anglian Water guidance for the selection of water pipes in land potentially affected by contamination'.

		Pipe material					
		All threshold concentrations are in mg/kg					
	Parameter group	**PE**	**PVC**	**Barrier pipe (PE-Al-PE)**	**Wrapped Steel**	**Wrapped Ductile Iron**	**Copper**
1	Extended VOC suite by purge and trap or head space and GC-MS with TIC	0.5	0.125	Pass	Pass	Pass	Pass
1a	+ BTEX + MTBE	0.1	0.03	Pass	Pass	Pass	Pass
2	SVOCs TIC by purge and trap or head space and GC-MS with TIC (aliphatic and aromatic C5-C10)	2	1.4	Pass	Pass	Pass	Pass
2e	+ Phenols	2	0.4	Pass	Pass	Pass	Pass
2f	+ Cresols and chlorinated phenols	2	0.04	Pass	Pass	Pass	Pass
3	Mineral oil C11-C20	10	Pass	Pass	Pass	Pass	Pass
4	Mineral oil C21-C40	500	Pass	Pass	Pass	Pass	Pass
5	Corrosive (Conductivity, Redox and pH)	Pass	Pass	Pass	Corrosive if pH <7 and conductivity >400µS/cm	Corrosive if pH <5, Eh not neutral and conductivity >400µS/cm	Corrosive if PH <5 or >8 and Eh positive
	Specific suite identified as relevant following site investigation						
2a	Ethers	0.5	1	Pass	Pass	Pass	Pass
2b	Nitrobenzene	0.5	0.4	Pass	Pass	Pass	Pass
2c	Ketones	0.5	0.02	Pass	Pass	Pass	Pass
2d	Aldehydes	0.5	0.02	Pass	Pass	Pass	Pass
6	Amines	Fail	Pass	Pass	Pass	Pass	Pass

3.10.5 As well as hydrocarbon contamination, significant concentrations of lead were detected up to 18,000mg/kg in the shallow Made Ground, which would have the potential to affect standard polyethylene pipe. However the remediation strategy will ensure the removal of the lead hotspots and the shallow Made Ground from across the site.

3.10.6 We would recommend that the results of the verification sampling from the underlying soils are reviewed post ground remediation phase to determine whether the potable drinking water pipe requires upgrading.

3.10.7 When making arrangements for a new mains water connection for the site, Anglian Water will require a copy of this report, and the previous site investigation reports to verify that they agree with the findings of the validation report.

3.11 Re-use of Certified Crushed Site Won Aggregate

3.11.1 Any aggregate screened, crushed and certified suitable for re-use from the pre build remediation phase will have been stockpiled on site for re-use beneath paths, patio and the access driveway. This will be put in place during the build phase of works. It will need to be compacted in accordance with its material classification and the 'Specification for Highway Works 600 Series'. The location of these features is shown in figure 7 overleaf.

3.12 Reinstatement of Landscaped Areas with Imported Soils

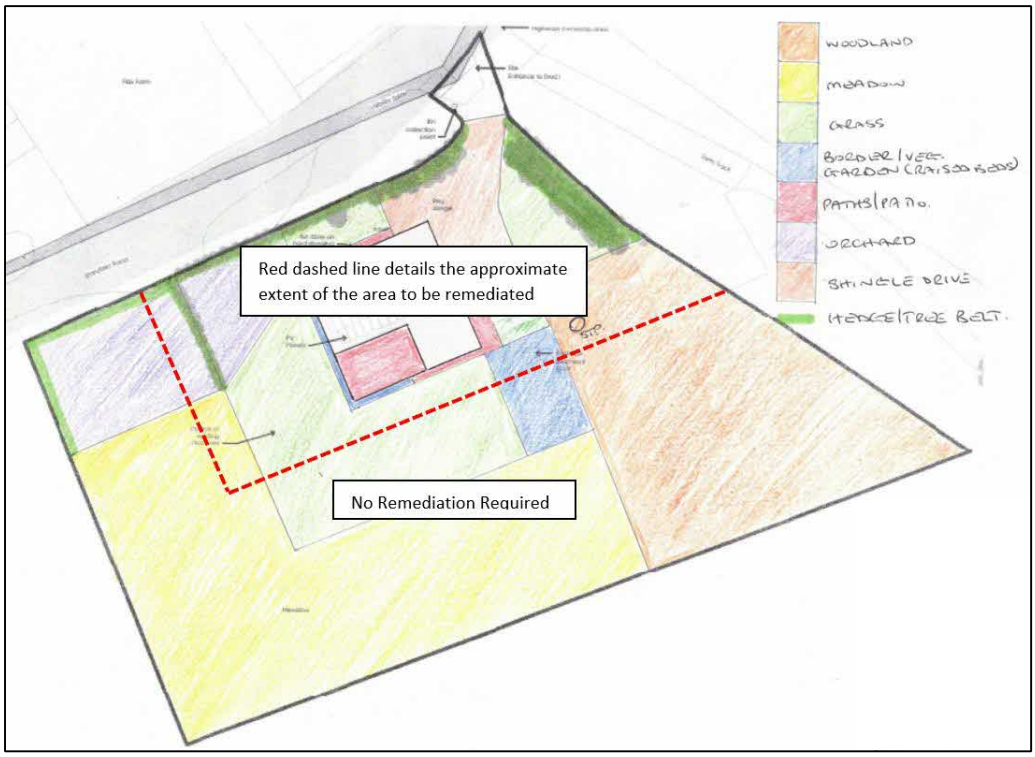
3.12.1 Subject to the verification testing of the underlying soils proving that contamination concentrations meet the remedial criteria, all soft landscaped areas (e.g. grass, meadow, hedge/ tree belt and orchard) are to be reinstated to design levels with imported, certified clean topsoil. Based on the depth of excavation being 0.35mbgl, and assuming finished levels of the new structure to be similar to the existing, around 350mm of topsoil will be required in the soft landscaped areas, where remediation is occurring.

3.12.2 We would recommend a minimum of 300mm of topsoil is applied to soft landscaped areas (e.g. grass, meadow, hedge/ tree belt and orchard), with the depth increased to 500mm shrubs and up to 1.0m for the planting of new trees. However we would recommend further discussions with your landscape architect or similar professional.

3.12.3 Figure 7 shows the red hashed line outlining the approximate extent of the site to be remediated, and the final surfacing for throughout the site. A full copy of the plan is provided within the appendices.

3.12.4 The area outside of the line is not subject to remediation.

Figure 7. Site Plan showing approximate area to be remediated.



3.12.5 The imported topsoil should be of good quality, consistent, and from a well-documented source. Based on experience, we recommend British Sugar Topsoil's 'Landscape 20', which is derived from Beet washed soils, originating from arable farmland. As a result, most contaminant concentrations are extremely low.

3.12.6 The Suffolk Environmental Protection Group 'Guidance for Developers and Consultants on the importation of soils' (July, 2007) details that the supplier and confirmation of the source(s) of soil, along with test certification should be supplied to the Local Authority for review and approval prior to use.

3.12.7 In addition to the supplier's documentation, independent verification sampling of the imported topsoil will be required for independent chemical analysis to confirm that the delivered soil is suitable. The soil should be supplied in accordance with BS3882:2015, and we would propose a routine suite of chemical determinants, such as CLEA metals, Asbestos and TPH (total) and speciated PAH's (16).

3.12.8 The guidance details that sampling should comprise 2 random samples for every 15m^3 of soil from a single source for residential gardens. For larger amounts of soil from a single source and for soft landscaping areas the sampling frequency may be reduced subject to agreement by the Local Authority. A copy of the 'Guidance for Developers and Consultants on the importation of soils' is enclosed in the appendices at the end of this report.

3.12.9 A final site visit will need to be undertaken once the topsoil placement has been completed. This will comprise of a series of hand dug pits to confirm that a suitable depth of cover has been achieved, where topsoil has been placed.

4 VERIFICATION

4.1 Reporting Requirements

4.1.1 The contract completion documentation will include records of environmental controls and validation of environmental works. This information will be issued to the client, Principal Contractor and regulatory authorities (LPA & EA) if required. The information will take the form of a validation report, confirming that works undertaken on site have complied with guidance contained in this document.

4.1.2 These remediation activities will be validated by the provision of the following information:

Ground Remediation Works- Pre Build

Method statements / risk assessments for remediation works;

Health and safety procedures;

Details/ diary records of soil excavation/ segregation on site;

Laboratory test reports, validation sample location plan, photographs of underlying validated soils;

Waste notes for all soils disposed off-site;

Consignment notes for hazardous soils and asbestos removed from site as waste;

Laboratory test reports for the testing of the fines element from crushed aggregate;

Grading certification for any crushed, graded and stockpiled aggregate set aside for re-use during the 'Build Phase';

Air Monitoring Records;

Any Regulatory correspondence, site visits during the remediation;

Photographs throughout remediation works.

Remediation Works- Build Phase

Source and supplier documentation on any imported aggregates/ topsoil (in advance of delivery);

Delivery tickets – for any imported aggregates;

Delivery tickets for topsoil;

Any Regulatory correspondence, site visits during the remediation;

Photographs throughout remediation works;

Validation Sampling plan, Laboratory test reports for validating any imported topsoil;

Correspondence with Anglian Water.

4.1.3 The Verification Report for the ground remediation works (pre build and build phase) will be compiled by JPC ES, based on information supplied by the Remediation Contractor, Client, site inspection records and laboratory test reports.

4.2 Sampling & Testing Protocol

4.2.1 All soil samples will be collected by an environmental engineer or environmental technician working for or appointed by JPC ES.

4.2.2 In addition to the routine PPE required by the Principal Contractor, the sampler will wear disposable nitrile gloves. Soil samples will be collected using a clean stainless steel trowel, to avoid direct contact with possibly contaminated material, and placed in an appropriate sample containers.

4.2.3 Full 'Chain of Custody Documentation' will be retained by JPC ES for inclusion in the Validation report, which will be produced by JPC ES following the completion of all remedial works.

4.2.4 Where samples of imported topsoil are collected for validation purposes, these will be submitted for a broad range of typical environmental contaminants, including a CLEA metals suite, speciated polycyclic aromatic hydrocarbons, petroleum hydrocarbons (TPH total), and asbestos screen.

4.3 Remediation Requirements and Verification Evidence

4.3.1 The remediation requirement/ action, along with the validation evidence and responsible party is shown in the table below. The table should be followed by the remediation contractor and principal contractor throughout the works, ensuring JPC ES are contacted to arrange the necessary site visits at the required stages.

4.3.2 We would recommend that all people involved in the remediation process are made aware of the actions within the table below and a copy is printed and kept to hand within the site office.

Table 5. Site Remediation & Validation Requirements.

Remediation Action	Validation Evidence	Responsible Party
The remediation work schedule should be planned and provided to JPC ES in advance of the remediation works commencing.	Schedule/ Plan	Remediation Contractor

1. Implementation of RPS 215 on site		
Inform the Local Environment Agency Office via email on the implementation of RPS 215 at the site, no later than 5 days prior to commencement of remediation works on site.	Evidence of notifying the local Environment Agency Team	JPC ES
GROUND REMEDIATION WORKS- PRE-BUILD		
2. Asbestos – Hand Pick of site surface and removal from structure		
Due to the presence of asbestos fragments on the site surface, a thorough hand pick will be undertaken across the whole site, until all visible fragments are removed The 'hand pick' should be undertaken by an asbestos competent contractor in accordance with HSG264 and all asbestos cement fragments packaged and labelled in accordance with the Control of Asbestos Regulations 2012 and The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations, 2009.	Waste Consignment notes. Photographs.	Remediation Contractor.
3. Removal of Hotspots of Lead Contamination (Hazardous Waste)		
Once the two lead hotspots have been excavated to 0.35mbgl at TP102/103 and TP202, JPC ES will undertake a site visit to inspect the areas and retrieve samples of the underlying soils for lead testing only. The soils from the two hotspots will need to be stockpiled on an impermeable liner or hard surfacing and disposed from site as soon as possible as 'Hazardous' waste, as per the waste classification and laboratory test reports detailed in the appendices.	Validation testing of underlying soils. Validation Sample Location Plan. Laboratory test reports. Consignment Notes for waste soils. Photographs.	JPC ES Site Visits. Remediation Contractor.
4. Floor Slab and Sub Base Removal Beneath Structure and Excavation and Screening of Remaining Contaminated Made Ground.		
Removal of slabs and Made Ground from across the remainder of the site to 0.35mbgl, or the underlying natural geology if shallower. All lifted slabs to be carefully inspected for the presence of asbestos fragments. If any slabs have asbestos fragments attached, these will need to be segregated to one side, and disposed of from site as 'Hazardous' waste. The excavated soils are to be screened to remove any residual asbestos fragments and segregate any oversized	Photographs. Waste Transfer notes.	Remediation Contractor.

material. The fines element from the screening will be stockpiled and removed from site as 'Non Hazardous' waste, as per the waste classification generated from the previous testing. Air monitoring and dust suppression to be adopted throughout all excavation and screening works. Once all the Made Ground has been excavated, screened, and the waste element removed from site, JPC ES will undertake a site visit/s to inspect the areas and retrieve samples of the underlying soils for lead, arsenic, PAH, TPH (3-Band) and asbestos identification only. We would recommend that samples be collected at a minimum frequency of one sample per 10-15m^2 from the boundaries of the site and one sample per 50m^2 from the base. The depth of the excavated areas are to be measured and photographs taken to record the validation sampling.	Air Monitoring/ Individual Personal Monitoring Certificates Validation testing of underlying soils. Validation Sample Location Plan.	JPC ES Site Visits.
REMEDIATION WORKS- BUILD PHASE		
5. Services - Potable Water Pipes		
Confirmation from Anglian Water regarding the type of water pipe to be installed on site. Copies of site investigation reports, remediation strategy and validation testing of the underlying remediated soils to be provided to Anglian Water.	Correspondence with Anglian Water Copies of supplier tickets for water pipe/ photographs of installation	Client.
6. Re-use of Certified Crushed Site Won Aggregate		
Oversized concrete and brick retrieved during excavating will be crushed and stockpiled on site. All lifted slabs from throughout the site will be inspected for asbestos. Any with asbestos attached will have to be segregated and disposed of as 'Hazardous' waste, but those which are suitable could be crushed on site to form a suitable graded material for re-use. Regular samples of crushed aggregate to be retrieved and particle size distribution and materials classification to be undertaken (~100-150m^3) Material to be graded as a suitable product prior to re-use.	Waste Consignment notes for removal of any asbestos impacted slabs. Photographs of material stockpiled. Geotechnical Laboratory/ Grading Reports.	Remediation Contractor. JPC ES Site Visits.

The fines element will also be subject to asbestos identification testing.	Laboratory test reports on fines element.	
7. Reinstatement of Landscaped Areas with Imported Soils		
All soft landscaped areas (e.g. grass, meadow, hedge/ tree belt and orchard) are to be reinstated to design levels with imported, certified clean topsoil. We would recommend a minimum of 300mm of topsoil within soft landscaped areas (e.g. grass, meadow, hedge/ tree belt and orchard), with the depth increased to 500mm for plants and shrubs and 1.0m for the planting of new trees. Source and Supplier information on the topsoil to be provided in advance of delivery, with sampling to comprise of 2 random samples for every 15m^3 of soil. An initial delivery of topsoil will be required at the site, where JPC ES will test the soil for a routine suite of chemical determinants, including: CLEA metals, TPH (3-band), PAH's (16)and asbestos identification to verify its suitability prior to replacement within the rear gardens. A final site visit will need to be undertaken once the topsoil placement has been completed. This will comprise of a series of hand dug pits to confirm that a suitable depth of cover has been achieved, where topsoil has been placed, and further samples retrieved for laboratory testing if required.	Laboratory Certification/ Supplier Documentation on source of topsoil – to be reviewed by JPC ES. Initial validation testing of topsoil. Validation Sample Plan. Laboratory test reports. Photographs.	Client JPC ES review of supplier documentation. JPC ES Site Visit. JPC ES Site Visit.
Discovery Strategy		
If potentially contaminated material or soils, other than that previously described is observed when excavating, work should cease and JPC ES contacted to attend site if necessary and retrieve samples for further testing.	Visual Inspections Photographs Testing if required	JPC ES
Validation Report for final condition of site		
A Validation report will be produced at the end of the works detailing the remediation process undertaken at the site. This will include all evidence collected throughout the site works.	All the above evidence to be provided by Remediation & Principal Contractor for JPC ES to complete Validation Report.	JPC ES

5 PERSONAL PROTECTION EQUIPMENT AND HYGIENE

5.1 Personal Protection Equipment

5.1.1 Personal Protection Equipment (PPE) is essential, due to the presence of contaminants in the ground.

5.1.2 An assessment of the personal protection measures required during groundworks and construction should be made by a qualified person working, based on the available data. It is the responsibility of the employer to determine the appropriate PPE for their staff.

5.1.3 It is likely that the following PPE will need to be worn by all those in contact with, or close proximity to, the contaminated material identified during the previous investigations on site:

Disposable gloves, where direct contact with soil. The majority of the works will be undertaken by mechanical means with very few occasions where site operatives will come into contact with the site materials, so 'rigger'-type cotton gloves will be suitable for the majority of works;

Safety boots will be worn at all times, in accordance with general site safety rules;

Clothing- Exposed skin should be minimised by site operatives when working. High-visibility clothing will be worn by site-operatives at all times when on site;

Where remediation of asbestos contamination is being undertaken, RPE, dust suppression and hygiene/ decontamination will be required for remediation workers.

5.2 Hygiene

5.2.1 Before starting work each day, site operatives are required to apply barrier cream to their hands.

5.2.2 A designated 'clean' area should be established, where site operatives are able to eat and drink. A separate smoking area should be provided, unless a No Smoking policy is in place. When entering the 'clean' area, site operatives should wash their hands immediately in the welfare facilities provided. Boot washes could be placed to minimise any potentially contaminated material being brought into the clean areas.

5.2.3 At the end of each day, site operatives are required to wash their hands thoroughly before leaving site.

5.2.4 Standard welfare facilities should include a changing / drying room, toilets, sinks, hot and cold running water, drinking water, hand-protection system (including barrier cream, liquid soap and moisturiser), food preparation facilities, first aid location and telephone.

6 REFERENCES

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Statutory Instruments: 2012: Environmental Protection, England. Contaminated Land (England) (Amendment) Regulations 2012 No. 263 coming into force 6th April 2012.

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Water Regulations Advisory Scheme. 2002. Information and Guidance Note No. 9-04-03.

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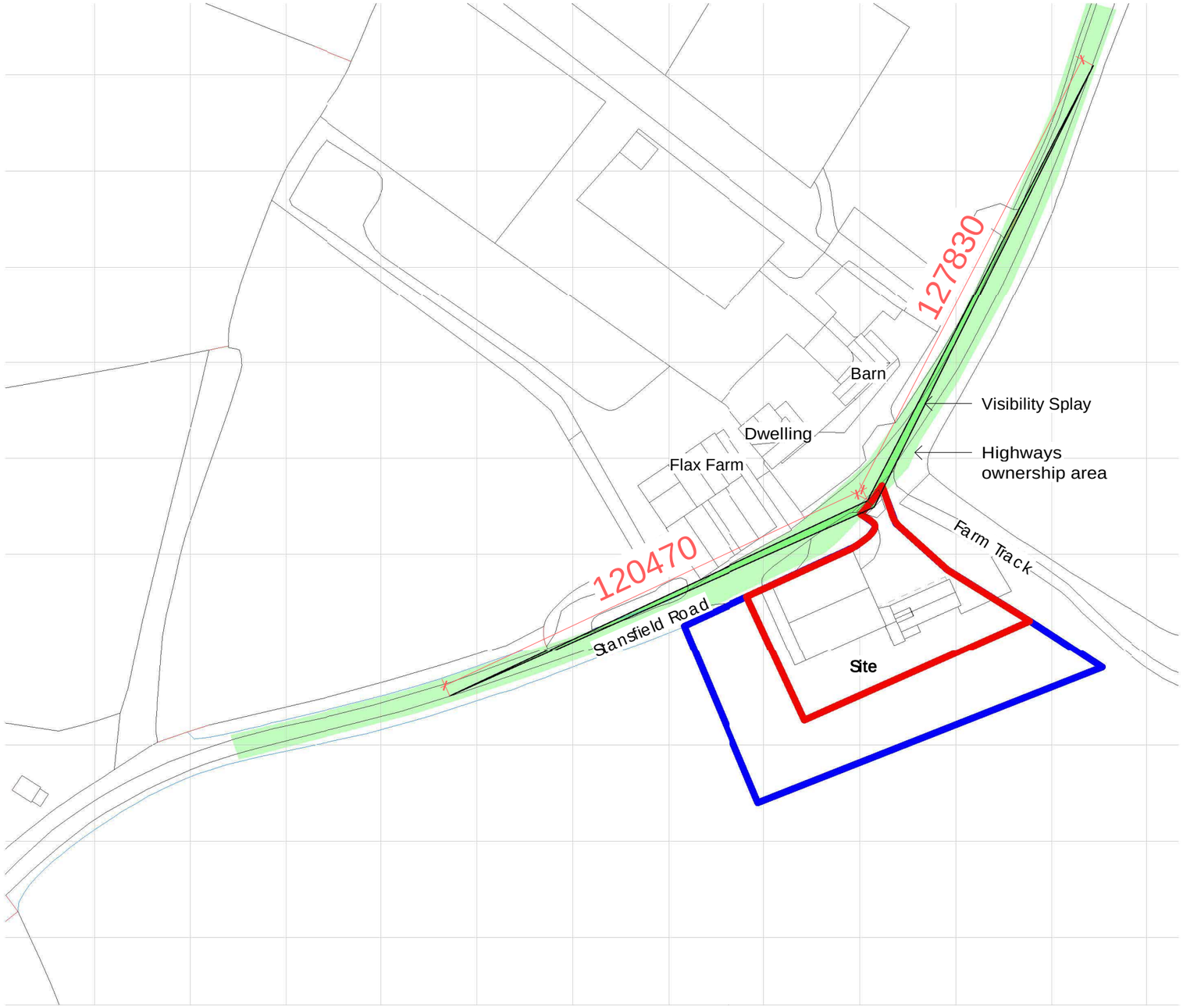
Appendix A – Site Location Plan

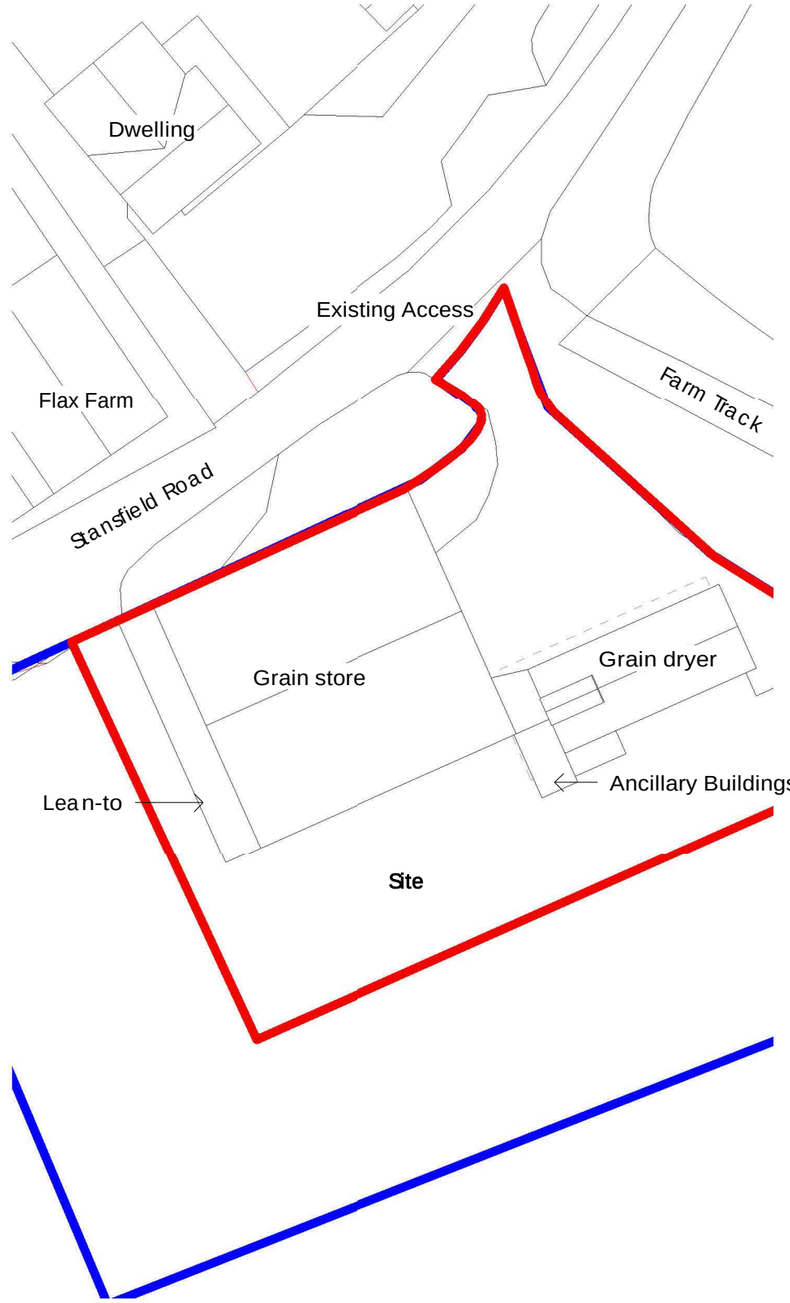


Site Location Plan - Existing

1 : 1250

0 25 50 100

GRAPHIC SCALE 1:1250



Block Plan - Existing

1 : 500

0 5 10 20 30 40 50

GRAPHIC SCALE 1:500

N

As indicated

Rev	Date	Description
A	28/07/22	Visibility Splays

CLIENT: *Ian & Nicola Burnett*

PROJECT: *Flax Farm Barn, Stansfield Road, Poslingford, Sudbury, CO10 8RD*

JOB: *1920*

STATUS:

Date Printed: 29/07/2022 12:03:14

DRAWN BY: ***AE*** CHECKED BY: ***MB***

DR. NUMBER: ***000*** DR. TITLE: *Site Plans - Existing*

REV: ***A*** SCALE @ A3: ***As indicated***

modece architects

4 The Old Fox Yard, Ipswich Street,
Stowmarket, IP14 1AB
T 01284 830085
studio@modece.com
www.modece.com

Appendix B –Proposed Development Plan

Notes

To be read in conjunction with Structural Engineers drawings.
ALL STRUCTURAL ELEMENTS TO STRUCTURAL ENGINEERS DESIGN
Architect to be consulted if any discrepancy between drawings are observed. All dimension to be taken from face of structure.

Block Plan - Proposed
1 : 200

N

0 8 16 m

Rev	Date	Description
A	28/07/22	Visibility Splays

CLIENT: *Ian & Nicola Burnett*
PROJECT: *Flax Farm Barn, Stansfield Road, Poslingford, Sudbury, CO10 8RD*
JOB: *1920*
STATUS:

DR. NUMBER: ***001***
DR. TITLE: *Block Plan - Proposed*
REV: ***A***
Date Printed: 29/07/2022 12:04:31
SCALE @ **A1**/ A3: ***1 : 200***

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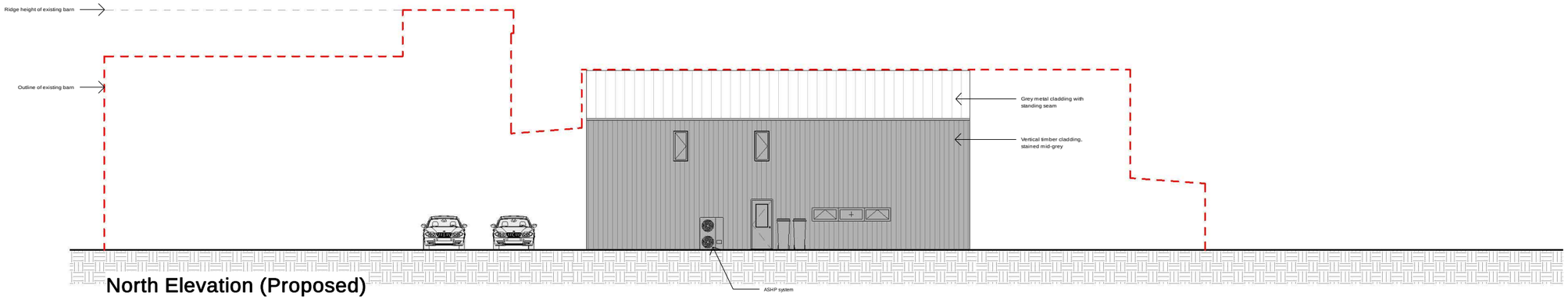
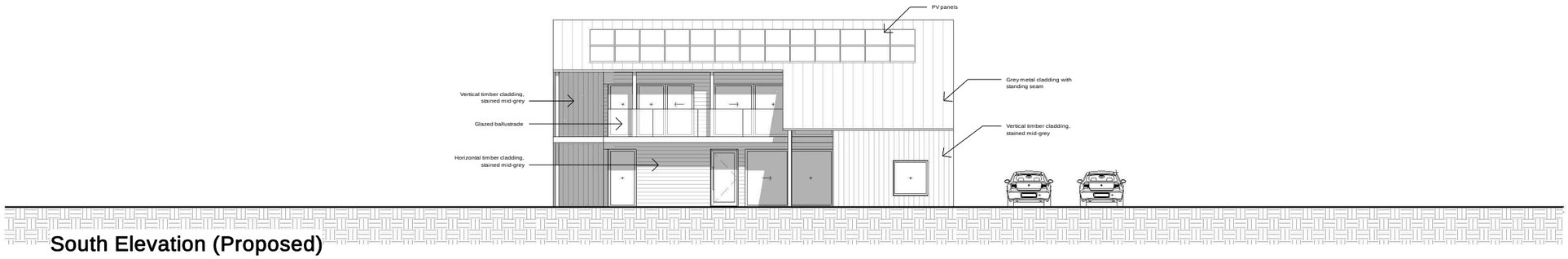
architects
4 The Old Fox Yard, Ipswich Street, Stowmarket, IP14 1AB
T 01284 850085
studio@modece.com
www.modece.com

DRAWN BY: ***HS*** CHECKED BY: ***MB***



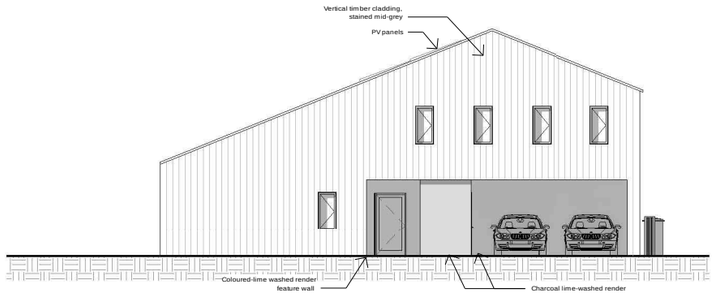
North Elevation (Proposed)

1 : 200



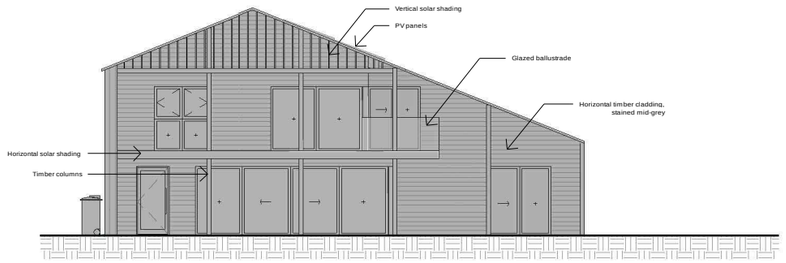
South Elevation (Proposed)

1 : 200



East Elevation (Proposed)

1 : 200



West Elevation (Proposed)

1 : 200

1 : 200

0 8 16 m

Rev	Date	Description

CLIENT: *Ian & Nicola Burnett*

PROJECT: *Flax Farm Barn, Stansfield Road, Poslingford, Sudbury, CO10 8RD*

JOB: *1920*

STATUS:

Date Printed: 13/07/2022 16:05:19

DRAWN BY: ***HS*** CHECKED BY: ***MB***

DR. NUMBER: ***201*** DR. TITLE: *Elevations - Proposed*

REV: SCALE @ A3: ***1 : 200***

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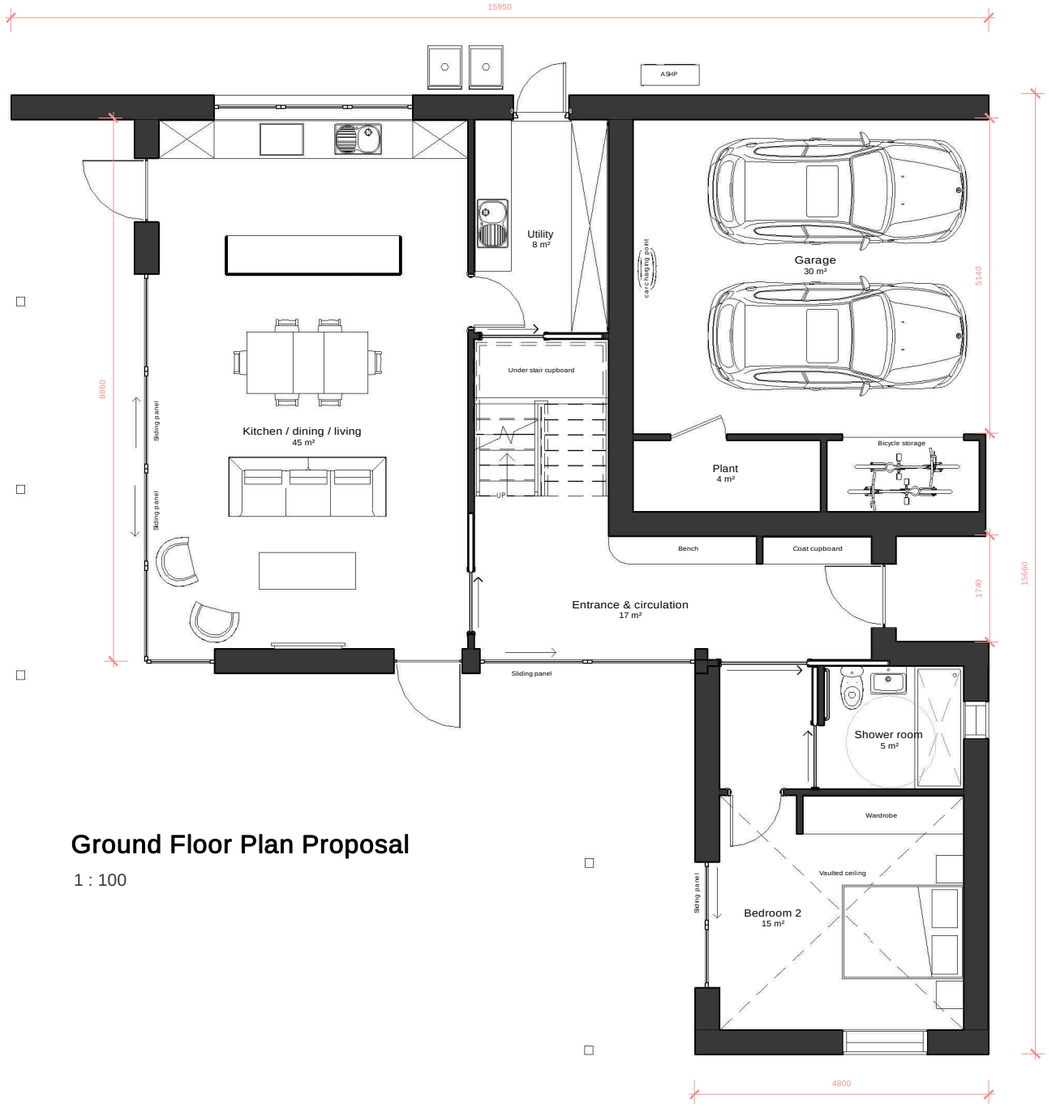
4 The Old Fox Yard, Ipswich Street, Stowmarket, IP14 1AB
T 01284 830085
studio@modece.com
www.modece.com



Ground Floor Plan Proposal

1 : 100

First Floor Plan Proposal

1 : 100

1 : 100

0 5 10 m

Rev	Date	Description

CLIENT: *Ian & Nicola Burnett*

PROJECT: *Flax Farm Barn, Stansfield Road, Poslingford, Sudbury, CO10 8RD*

JOB: *1920*

STATUS:

Date Printed: 13/07/2022 16:05:15

DRAWN BY: ***HS*** CHECKED BY: ***MB***

DR. NUMBER: ***103*** DR. TITLE: *Floor Plans - Proposed*

REV: SCALE @ A3: ***1 : 100***

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4 The Old Fox Yard, Ipswich Street, Stowmarket, IP14 1AB
T 01284 830085
studio@modece.com
www.modece.com

Appendix C –Waste Classification Report

Waste Classification Report

7275X-45K28-9TMNB

Job name

Flax Farm Barn, Sudbury_1

Description/Comments

10No. samples of made ground
6No. samples of natural underlying soils

Project

IE20/040

Site

Flax Farm Barns, Stansfield Road, Poslingford, Sudbury, CO10 8RD

Related Documents

#	Name	Description
1	Classification Report-Elm Tree Farm, Parham.pdf	Classification for Job: Elm Tree Farm, Parham
2	Classification Report-Whitehouse Farm Barns.pdf	Classification for Job: Whitehouse Farm Barns

Waste Stream Template

Metals, PAH's, Asbestos, Cyanide, TPH 3 Band

Classified by

Name:
Caroline Jooste
Date:
24 Apr 2020 15:38 GMT
Telephone:
01473 280699

Company:
JP Chick & Partners
7 Museum Street
Ipswich
IP1 1HQ

HazWasteOnline™ Training Record:

Course	Date
Hazardous Waste Classification	-
Advanced Hazardous Waste Classification	-

Report

Created by: Caroline Jooste
Created date: 24 Apr 2020 15:38 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	TP101A	0.00-0.30	Non Hazardous		3
2	TP102A	0.00-0.30	Hazardous	HP 7	5
3	TP103A	0.00-0.30	Hazardous	HP 7, HP 10, HP 14	8
4	TP104A	0.00-0.30	Non Hazardous		11
5	TP105A	0.00-0.30	Non Hazardous		13
6	TP106A	0.00-0.30	Non Hazardous		15
7	TP106B	0.40-0.60	Non Hazardous		17
8	TP108A	0.00-0.30	Non Hazardous		19
9	TP109A	0.00-0.30	Non Hazardous		21
10	TP110A	0.00-0.30	Non Hazardous		23

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
11	TP102B	0.40-0.60	Non Hazardous		25
12	TP103B	0.40-0.60	Non Hazardous		26
13	TP104B	0.40-0.60	Non Hazardous		27
14	TP108B	0.40-0.60	Non Hazardous		28
15	TP109B	0.40-0.60	Non Hazardous		29
16	TP110B	0.40-0.60	Non Hazardous		30

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	31
Appendix B: Rationale for selection of metal species	32
Appendix C: Version	33

Classification of sample: TP101A

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

Sample details

Sample Name:
TP101A
Sample Depth:
0.00-0.30 m
Moisture content:
17%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 17% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic }	033-001-00-X	231-148-6	7440-38-2		15 mg/kg		15 mg/kg	0.0015 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.9 mg/kg	3.22	6.118 mg/kg	0.000612 %		
3	cadmium { cadmium fluoride }	048-006-00-2	232-222-0	7790-79-6		<0.2 mg/kg	1.338	<0.268 mg/kg	<0.0000268 %		<**LOD**
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		28 mg/kg	1.462	40.924 mg/kg	0.00409 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<4 mg/kg	1.923	<7.692 mg/kg	<0.000769 %		<**LOD**
6	copper { copper(II) carbonate – copper(II) hydroxide (1:1) }	029-020-00-8	235-113-6	12069-69-1		20 mg/kg	1.74	34.796 mg/kg	0.00348 %		
7	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	130 mg/kg		130 mg/kg	0.013 %		
8	mercury { mercury }	080-001-00-0	231-106-7	7439-97-6		0.4 mg/kg		0.4 mg/kg	0.00004 %		
9	nickel { nickel }	028-002-00-7	231-111-4	7440-02-0	7	34 mg/kg		34 mg/kg	0.0034 %		
10	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
11	zinc { zinc powder - zinc dust (stabilised) }	030-001-01-9	231-175-3	7440-66-6		95 mg/kg		95 mg/kg	0.0095 %		
12	pH			PH		8 pH		8 pH	8pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthylene	205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
15		acenaphthene	201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
16		fluorene	201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
17		phenanthrene	201-581-5	85-01-8		0.36	mg/kg		0.36	mg/kg	0.000036 %		
18		anthracene	204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
19		fluoranthene	205-912-4	206-44-0		0.77	mg/kg		0.77	mg/kg	0.000077 %		
20		pyrene	204-927-3	129-00-0		0.72	mg/kg		0.72	mg/kg	0.000072 %		
21		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.46	mg/kg		0.46	mg/kg	0.000046 %		
22		chrysene	601-048-00-0	205-923-4	218-01-9	0.48	mg/kg		0.48	mg/kg	0.000048 %		
23		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.33	mg/kg		0.33	mg/kg	0.000033 %		
24		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.37	mg/kg		0.37	mg/kg	0.000037 %		
25		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
26		benzo[ghi]perylene	205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
27		indeno[123-cd]pyrene	205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
28		TPH (C6 to C40) petroleum group		TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
29		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5			<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.4	mg/kg		0.4	mg/kg	0.00004 %		
										Total:	0.0381 %		

Key

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

Classification of sample: TP102A

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

Sample details

Sample Name:
TP102A
Sample Depth:
0.00-0.30 m
Moisture content:
17%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

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

Hazard Statements hit:

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

Because of determinand:

lead compounds with the exception of those specified elsewhere in this Annex (worst case): (Note 1 conc.: 0.11%)

Determinands

Moisture content: 17% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic }	033-001-00-X	231-148-6	7440-38-2		12 mg/kg		12 mg/kg	0.0012 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		2.3 mg/kg	3.22	7.406 mg/kg	0.000741 %		
3	cadmium { cadmium fluoride }	048-006-00-2	232-222-0	7790-79-6		0.5 mg/kg	1.338	0.669 mg/kg	0.0000669 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		26 mg/kg	1.462	38 mg/kg	0.0038 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<4 mg/kg	1.923	<7.692 mg/kg	<0.000769 %		<**LOD**
6	copper { copper(II) carbonate – copper(II) hydroxide (1:1) }	029-020-00-8	235-113-6	12069-69-1		32 mg/kg	1.74	55.673 mg/kg	0.00557 %		
7	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	1100 mg/kg		1100 mg/kg	0.11 %		
8	mercury { mercury }	080-001-00-0	231-106-7	7439-97-6		0.7 mg/kg		0.7 mg/kg	0.00007 %		
9	nickel { nickel }	028-002-00-7	231-111-4	7440-02-0	7	24 mg/kg		24 mg/kg	0.0024 %		
10	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
11		zinc { zinc powder - zinc dust (stabilised) }				180	mg/kg		180	mg/kg	0.018 %		
		030-001-01-9	231-175-3	7440-66-6									
12		pH				7.9	pH		7.9	pH	7.9 pH		
				PH									
13		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
14		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									
15		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
16		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7									
17		phenanthrene				1.7	mg/kg		1.7	mg/kg	0.00017 %		
			201-581-5	85-01-8									
18		anthracene				0.31	mg/kg		0.31	mg/kg	0.000031 %		
			204-371-1	120-12-7									
19		fluoranthene				3.7	mg/kg		3.7	mg/kg	0.00037 %		
			205-912-4	206-44-0									
20		pyrene				3.4	mg/kg		3.4	mg/kg	0.00034 %		
			204-927-3	129-00-0									
21		benzo[a]anthracene				2.4	mg/kg		2.4	mg/kg	0.00024 %		
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				1.9	mg/kg		1.9	mg/kg	0.00019 %		
		601-048-00-0	205-923-4	218-01-9									
23		benzo[k]fluoranthene				1.2	mg/kg		1.2	mg/kg	0.00012 %		
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				1.8	mg/kg		1.8	mg/kg	0.00018 %		
		601-032-00-3	200-028-5	50-32-8									
25		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
26		benzo[ghi]perylene				1.1	mg/kg		1.1	mg/kg	0.00011 %		
			205-883-8	191-24-2									
27		indeno[123-cd]pyrene				0.92	mg/kg		0.92	mg/kg	0.000092 %		
			205-893-2	193-39-5									
28		TPH (C6 to C40) petroleum group				95	mg/kg		95	mg/kg	0.0095 %		
				TPH									
29		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
		006-007-00-5											
30		benzo[b]fluoranthene				2.2	mg/kg		2.2	mg/kg	0.00022 %		
		601-034-00-4	205-911-9	205-99-2									
										Total:	0.154 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No hydrocarbon odours/ liquids or staining observed

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0095%)

Classification of sample: TP103A

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

Sample details

Sample Name:
TP103A
Sample Depth:
0.00-0.30 m
Moisture content:
19%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

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

Hazard Statements hit:

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

Because of determinand:

lead compounds with the exception of those specified elsewhere in this Annex (worst case): (Note 1 conc.: 1.8%)

HP 10: Toxic for reproduction "waste which has adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring"

Hazard Statements hit:

Repr. 1A; H360Df "May damage the unborn child. Suspected of damaging fertility."

Because of determinand:

lead compounds with the exception of those specified elsewhere in this Annex (worst case): (Note 1 conc.: 1.8%)

HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment"

Hazard Statements hit:

Aquatic Chronic 1; H410 "Very toxic to aquatic life with long lasting effects."

Because of determinand:

lead compounds with the exception of those specified elsewhere in this Annex (worst case): (Note 1 conc.: 1.8%)

Determinands

Moisture content: 19% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic }	033-001-00-X	231-148-6	7440-38-2		12 mg/kg		12 mg/kg	0.0012 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.2 mg/kg	3.22	3.864 mg/kg	0.000386 %		
3	cadmium { cadmium fluoride }	048-006-00-2	232-222-0	7790-79-6		0.3 mg/kg	1.338	0.401 mg/kg	0.0000401 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		22 mg/kg	1.462	32.154 mg/kg	0.00322 %		

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<4	mg/kg	1.923	<7.692	mg/kg	<0.000769 %		<LOD
6	copper { copper(II) carbonate – copper(II) hydroxide (1:1) }	029-020-00-8	235-113-6	12069-69-1		120	mg/kg	1.74	208.775	mg/kg	0.0209 %		
7	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	18000	mg/kg		18000	mg/kg	1.8 %		
8	mercury { mercury }	080-001-00-0	231-106-7	7439-97-6		0.4	mg/kg		0.4	mg/kg	0.00004 %		
9	nickel { nickel }	028-002-00-7	231-111-4	7440-02-0	7	15	mg/kg		15	mg/kg	0.0015 %		
10	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
11	zinc { zinc powder - zinc dust (stabilised) }	030-001-01-9	231-175-3	7440-66-6		580	mg/kg		580	mg/kg	0.058 %		
12	pH			PH		8.5	pH		8.5	pH	8.5 pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
14	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
15	acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
16	fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
17	phenanthrene		201-581-5	85-01-8		0.66	mg/kg		0.66	mg/kg	0.000066 %		
18	anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
19	fluoranthene		205-912-4	206-44-0		1.6	mg/kg		1.6	mg/kg	0.00016 %		
20	pyrene		204-927-3	129-00-0		1.4	mg/kg		1.4	mg/kg	0.00014 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.9	mg/kg		0.9	mg/kg	0.00009 %		
22	chrysene	601-048-00-0	205-923-4	218-01-9		0.78	mg/kg		0.78	mg/kg	0.000078 %		
23	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.57	mg/kg		0.57	mg/kg	0.000057 %		
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.74	mg/kg		0.74	mg/kg	0.000074 %		
25	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
26	benzo[ghi]perylene		205-883-8	191-24-2		0.45	mg/kg		0.45	mg/kg	0.000045 %		
27	indeno[123-cd]pyrene		205-893-2	193-39-5		0.35	mg/kg		0.35	mg/kg	0.000035 %		
28	TPH (C6 to C40) petroleum group			TPH		91	mg/kg		91	mg/kg	0.0091 %		
29	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
30	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.85	mg/kg		0.85	mg/kg	0.000085 %		
										Total:	1.896 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No hydrocarbon odours/ liquids or staining observed

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0091%)

Classification of sample: TP104A

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

Sample details

Sample Name:
TP104A
Sample Depth:
0.00-0.30 m
Moisture content:
17%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 17% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic }	033-001-00-X	231-148-6	7440-38-2		13 mg/kg		13 mg/kg	0.0013 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		4.2 mg/kg	3.22	13.523 mg/kg	0.00135 %		
3	cadmium { cadmium fluoride }	048-006-00-2	232-222-0	7790-79-6		0.8 mg/kg	1.338	1.07 mg/kg	0.000107 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		29 mg/kg	1.462	42.385 mg/kg	0.00424 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<4 mg/kg	1.923	<7.692 mg/kg	<0.000769 %		<**LOD**
6	copper { copper(II) carbonate – copper(II) hydroxide (1:1) }	029-020-00-8	235-113-6	12069-69-1		25 mg/kg	1.74	43.495 mg/kg	0.00435 %		
7	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	120 mg/kg		120 mg/kg	0.012 %		
8	mercury { mercury }	080-001-00-0	231-106-7	7439-97-6		0.7 mg/kg		0.7 mg/kg	0.00007 %		
9	nickel { nickel }	028-002-00-7	231-111-4	7440-02-0	7	25 mg/kg		25 mg/kg	0.0025 %		
10	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
11	zinc { zinc powder - zinc dust (stabilised) }	030-001-01-9	231-175-3	7440-66-6		170 mg/kg		170 mg/kg	0.017 %		
12	pH			PH		7.8 pH		7.8 pH	7.8 pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									
15		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
16		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7									
17		phenanthrene				2.2	mg/kg		2.2	mg/kg	0.00022 %		
			201-581-5	85-01-8									
18		anthracene				0.56	mg/kg		0.56	mg/kg	0.000056 %		
			204-371-1	120-12-7									
19		fluoranthene				7.8	mg/kg		7.8	mg/kg	0.00078 %		
			205-912-4	206-44-0									
20		pyrene				7.2	mg/kg		7.2	mg/kg	0.00072 %		
			204-927-3	129-00-0									
21		benzo[a]anthracene				5.2	mg/kg		5.2	mg/kg	0.00052 %		
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				4.5	mg/kg		4.5	mg/kg	0.00045 %		
		601-048-00-0	205-923-4	218-01-9									
23		benzo[k]fluoranthene				3.9	mg/kg		3.9	mg/kg	0.00039 %		
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				5.1	mg/kg		5.1	mg/kg	0.00051 %		
		601-032-00-3	200-028-5	50-32-8									
25		dibenz[a,h]anthracene				0.57	mg/kg		0.57	mg/kg	0.000057 %		
		601-041-00-2	200-181-8	53-70-3									
26		benzo[ghi]perylene				2.9	mg/kg		2.9	mg/kg	0.00029 %		
			205-883-8	191-24-2									
27		indeno[123-cd]pyrene				2.4	mg/kg		2.4	mg/kg	0.00024 %		
			205-893-2	193-39-5									
28		TPH (C6 to C40) petroleum group				129	mg/kg		129	mg/kg	0.0129 %		
				TPH									
29		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
		006-007-00-5											
30		benzo[b]fluoranthene				5.1	mg/kg		5.1	mg/kg	0.00051 %		
		601-034-00-4	205-911-9	205-99-2									
										Total:	0.0616 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No hydrocarbon odours/ liquids or staining observed

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0129%)

Classification of sample: TP105A

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

Sample details

Sample Name:
TP105A
Sample Depth:
0.00-0.30 m
Moisture content:
19%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 19% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic }	033-001-00-X	231-148-6	7440-38-2		13	mg/kg		13	mg/kg	0.0013 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		4.4	mg/kg	3.22	14.167	mg/kg	0.00142 %		
3	cadmium { cadmium fluoride }	048-006-00-2	232-222-0	7790-79-6		0.4	mg/kg	1.338	0.535	mg/kg	0.0000535 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		26	mg/kg	1.462	38	mg/kg	0.0038 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<4	mg/kg	1.923	<7.692	mg/kg	<0.000769 %		<**LOD**
6	copper { copper(II) carbonate – copper(II) hydroxide (1:1) }	029-020-00-8	235-113-6	12069-69-1		28	mg/kg	1.74	48.714	mg/kg	0.00487 %		
7	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	150	mg/kg		150	mg/kg	0.015 %		
8	mercury { mercury }	080-001-00-0	231-106-7	7439-97-6		0.7	mg/kg		0.7	mg/kg	0.00007 %		
9	nickel { nickel }	028-002-00-7	231-111-4	7440-02-0	7	26	mg/kg		26	mg/kg	0.0026 %		
10	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
11	zinc { zinc powder - zinc dust (stabilised) }	030-001-01-9	231-175-3	7440-66-6		120	mg/kg		120	mg/kg	0.012 %		
12	pH			PH		8.5	pH		8.5	pH	8.5 pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									
15		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
16		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7									
17		phenanthrene				1.8	mg/kg		1.8	mg/kg	0.00018 %		
			201-581-5	85-01-8									
18		anthracene				0.24	mg/kg		0.24	mg/kg	0.000024 %		
			204-371-1	120-12-7									
19		fluoranthene				2.7	mg/kg		2.7	mg/kg	0.00027 %		
			205-912-4	206-44-0									
20		pyrene				2.3	mg/kg		2.3	mg/kg	0.00023 %		
			204-927-3	129-00-0									
21		benzo[a]anthracene				1.5	mg/kg		1.5	mg/kg	0.00015 %		
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				1.5	mg/kg		1.5	mg/kg	0.00015 %		
		601-048-00-0	205-923-4	218-01-9									
23		benzo[k]fluoranthene				1.1	mg/kg		1.1	mg/kg	0.00011 %		
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				1.3	mg/kg		1.3	mg/kg	0.00013 %		
		601-032-00-3	200-028-5	50-32-8									
25		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
26		benzo[ghi]perylene				0.67	mg/kg		0.67	mg/kg	0.000067 %		
			205-883-8	191-24-2									
27		indeno[123-cd]pyrene				0.58	mg/kg		0.58	mg/kg	0.000058 %		
			205-893-2	193-39-5									
28		TPH (C6 to C40) petroleum group				54	mg/kg		54	mg/kg	0.0054 %		
				TPH									
29		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
		006-007-00-5											
30		benzo[b]fluoranthene				1.2	mg/kg		1.2	mg/kg	0.00012 %		
		601-034-00-4	205-911-9	205-99-2									
										Total:	0.0491 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No hydrocarbon odours/ liquids or staining observed

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0054%)

Classification of sample: TP106A

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

Sample details

Sample Name:
TP106A
Sample Depth:
0.00-0.30 m
Moisture content:
19%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 19% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic }	033-001-00-X	231-148-6	7440-38-2		13 mg/kg		13 mg/kg	0.0013 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		3 mg/kg	3.22	9.66 mg/kg	0.000966 %		
3	cadmium { cadmium fluoride }	048-006-00-2	232-222-0	7790-79-6		<0.2 mg/kg	1.338	<0.268 mg/kg	<0.0000268 %		<**LOD**
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		28 mg/kg	1.462	40.924 mg/kg	0.00409 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<4 mg/kg	1.923	<7.692 mg/kg	<0.000769 %		<**LOD**
6	copper { copper(II) carbonate – copper(II) hydroxide (1:1) }	029-020-00-8	235-113-6	12069-69-1		19 mg/kg	1.74	33.056 mg/kg	0.00331 %		
7	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	95 mg/kg		95 mg/kg	0.0095 %		
8	mercury { mercury }	080-001-00-0	231-106-7	7439-97-6		0.6 mg/kg		0.6 mg/kg	0.00006 %		
9	nickel { nickel }	028-002-00-7	231-111-4	7440-02-0	7	24 mg/kg		24 mg/kg	0.0024 %		
10	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
11	zinc { zinc powder - zinc dust (stabilised) }	030-001-01-9	231-175-3	7440-66-6		100 mg/kg		100 mg/kg	0.01 %		
12	pH			PH		8 pH		8 pH	8pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									
15		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
16		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7									
17		phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-581-5	85-01-8									
18		anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-371-1	120-12-7									
19		fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-912-4	206-44-0									
20		pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-927-3	129-00-0									
21		benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
23		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
25		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
26		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
27		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
28		TPH (C6 to C40) petroleum group				580	mg/kg		580	mg/kg	0.058 %		
				TPH									
29		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
		006-007-00-5											
30		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
										Total:	0.0908 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No hydrocarbon odours/ liquids or staining observed

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.058%)

Classification of sample: TP106B

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

Sample details

Sample Name:
TP106B
Sample Depth:
0.40-0.60 m
Moisture content:
18%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 18% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic }	033-001-00-X	231-148-6	7440-38-2		12 mg/kg		12 mg/kg	0.0012 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.8 mg/kg	3.22	5.796 mg/kg	0.00058 %		
3	cadmium { cadmium fluoride }	048-006-00-2	232-222-0	7790-79-6		<0.2 mg/kg	1.338	<0.268 mg/kg	<0.0000268 %		<**LOD**
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		33 mg/kg	1.462	48.231 mg/kg	0.00482 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<4 mg/kg	1.923	<7.692 mg/kg	<0.000769 %		<**LOD**
6	copper { copper(II) carbonate – copper(II) hydroxide (1:1) }	029-020-00-8	235-113-6	12069-69-1		13 mg/kg	1.74	22.617 mg/kg	0.00226 %		
7	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	21 mg/kg		21 mg/kg	0.0021 %		
8	mercury { mercury }	080-001-00-0	231-106-7	7439-97-6		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<**LOD**
9	nickel { nickel }	028-002-00-7	231-111-4	7440-02-0	7	31 mg/kg		31 mg/kg	0.0031 %		
10	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
11	zinc { zinc powder - zinc dust (stabilised) }	030-001-01-9	231-175-3	7440-66-6		85 mg/kg		85 mg/kg	0.0085 %		
12	pH			PH		8.6 pH		8.6 pH	8.6 pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
15		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
16		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
17		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
18		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
19		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
20		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
21		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
22		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
23		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
24		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
25		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
26		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
27		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
28		TPH (C6 to C40) petroleum group			TPH		130	mg/kg		130	mg/kg	0.013 %		
29		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
											Total:	0.0368 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No hydrocarbon odours/ liquids or staining observed

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.013%)

Classification of sample: TP108A

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

Sample details

Sample Name:
TP108A
Sample Depth:
0.00-0.30 m
Moisture content:
23%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 23% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic }	033-001-00-X	231-148-6	7440-38-2		16	mg/kg		16	mg/kg	0.0016 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		2.3	mg/kg	3.22	7.406	mg/kg	0.000741 %		
3	cadmium { cadmium fluoride }	048-006-00-2	232-222-0	7790-79-6		0.4	mg/kg	1.338	0.535	mg/kg	0.0000535 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		34	mg/kg	1.462	49.693	mg/kg	0.00497 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<4	mg/kg	1.923	<7.692	mg/kg	<0.000769 %		<**LOD**
6	copper { copper(II) carbonate – copper(II) hydroxide (1:1) }	029-020-00-8	235-113-6	12069-69-1		34	mg/kg	1.74	59.153	mg/kg	0.00592 %		
7	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	600	mg/kg		600	mg/kg	0.06 %		
8	mercury { mercury }	080-001-00-0	231-106-7	7439-97-6		0.7	mg/kg		0.7	mg/kg	0.00007 %		
9	nickel { nickel }	028-002-00-7	231-111-4	7440-02-0	7	29	mg/kg		29	mg/kg	0.0029 %		
10	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
11	zinc { zinc powder - zinc dust (stabilised) }	030-001-01-9	231-175-3	7440-66-6		160	mg/kg		160	mg/kg	0.016 %		
12	pH			PH		8.1	pH		8.1	pH	8.1 pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthylene	205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
15		acenaphthene	201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
16		fluorene	201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
17		phenanthrene	201-581-5	85-01-8		0.55	mg/kg		0.55	mg/kg	0.000055 %		
18		anthracene	204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
19		fluoranthene	205-912-4	206-44-0		1.6	mg/kg		1.6	mg/kg	0.00016 %		
20		pyrene	204-927-3	129-00-0		1.5	mg/kg		1.5	mg/kg	0.00015 %		
21		benzo[a]anthracene	200-280-6	56-55-3		1.1	mg/kg		1.1	mg/kg	0.00011 %		
		601-033-00-9											
22		chrysene	205-923-4	218-01-9		1	mg/kg		1	mg/kg	0.0001 %		
		601-048-00-0											
23		benzo[k]fluoranthene	205-916-6	207-08-9		0.68	mg/kg		0.68	mg/kg	0.000068 %		
		601-036-00-5											
24		benzo[a]pyrene; benzo[def]chrysene	200-028-5	50-32-8		0.88	mg/kg		0.88	mg/kg	0.000088 %		
		601-032-00-3											
25		dibenz[a,h]anthracene	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2											
26		benzo[ghi]perylene	205-883-8	191-24-2		0.53	mg/kg		0.53	mg/kg	0.000053 %		
27		indeno[123-cd]pyrene	205-893-2	193-39-5		0.47	mg/kg		0.47	mg/kg	0.000047 %		
28		TPH (C6 to C40) petroleum group		TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
29		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
		006-007-00-5											
30		benzo[b]fluoranthene	205-911-9	205-99-2		0.92	mg/kg		0.92	mg/kg	0.000092 %		
		601-034-00-4											
										Total:	0.0953 %		

Key

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

Classification of sample: TP109A

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

Sample details

Sample Name:
TP109A
Sample Depth:
0.00-0.30 m
Moisture content:
26%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 26% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic }	033-001-00-X	231-148-6	7440-38-2		40 mg/kg		40 mg/kg	0.004 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		4.1 mg/kg	3.22	13.201 mg/kg	0.00132 %		
3	cadmium { cadmium fluoride }	048-006-00-2	232-222-0	7790-79-6		0.4 mg/kg	1.338	0.535 mg/kg	0.0000535 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		26 mg/kg	1.462	38 mg/kg	0.0038 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<4 mg/kg	1.923	<7.692 mg/kg	<0.000769 %		<**LOD**
6	copper { copper(II) carbonate – copper(II) hydroxide (1:1) }	029-020-00-8	235-113-6	12069-69-1		31 mg/kg	1.74	53.934 mg/kg	0.00539 %		
7	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	68 mg/kg		68 mg/kg	0.0068 %		
8	mercury { mercury }	080-001-00-0	231-106-7	7439-97-6		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<**LOD**
9	nickel { nickel }	028-002-00-7	231-111-4	7440-02-0	7	61 mg/kg		61 mg/kg	0.0061 %		
10	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
11	zinc { zinc powder - zinc dust (stabilised) }	030-001-01-9	231-175-3	7440-66-6		260 mg/kg		260 mg/kg	0.026 %		
12	pH			PH		8 pH		8 pH	8pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									
15		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
16		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7									
17		phenanthrene				1.1	mg/kg		1.1	mg/kg	0.00011 %		
			201-581-5	85-01-8									
18		anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-371-1	120-12-7									
19		fluoranthene				2.5	mg/kg		2.5	mg/kg	0.00025 %		
			205-912-4	206-44-0									
20		pyrene				2.3	mg/kg		2.3	mg/kg	0.00023 %		
			204-927-3	129-00-0									
21		benzo[a]anthracene				1.3	mg/kg		1.3	mg/kg	0.00013 %		
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				1.5	mg/kg		1.5	mg/kg	0.00015 %		
		601-048-00-0	205-923-4	218-01-9									
23		benzo[k]fluoranthene				1.1	mg/kg		1.1	mg/kg	0.00011 %		
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				1.2	mg/kg		1.2	mg/kg	0.00012 %		
		601-032-00-3	200-028-5	50-32-8									
25		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
26		benzo[ghi]perylene				0.76	mg/kg		0.76	mg/kg	0.000076 %		
			205-883-8	191-24-2									
27		indeno[123-cd]pyrene				0.49	mg/kg		0.49	mg/kg	0.000049 %		
			205-893-2	193-39-5									
28		TPH (C6 to C40) petroleum group				167	mg/kg		167	mg/kg	0.0167 %		
				TPH									
29		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
		006-007-00-5											
30		benzo[b]fluoranthene				1.1	mg/kg		1.1	mg/kg	0.00011 %		
		601-034-00-4	205-911-9	205-99-2									
										Total:	0.0726 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No hydrocarbon odours/ liquids or staining observed

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0167%)

Classification of sample: TP110A

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

Sample details

Sample Name:
TP110A
Sample Depth:
0.00-0.30 m
Moisture content:
27%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 27% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic }	033-001-00-X	231-148-6	7440-38-2		16	mg/kg		16	mg/kg	0.0016 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		6.2	mg/kg	3.22	19.963	mg/kg	0.002 %		
3	cadmium { cadmium fluoride }	048-006-00-2	232-222-0	7790-79-6		0.4	mg/kg	1.338	0.535	mg/kg	0.0000535 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		22	mg/kg	1.462	32.154	mg/kg	0.00322 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<4	mg/kg	1.923	<7.692	mg/kg	<0.000769 %		<**LOD**
6	copper { copper(II) carbonate – copper(II) hydroxide (1:1) }	029-020-00-8	235-113-6	12069-69-1		31	mg/kg	1.74	53.934	mg/kg	0.00539 %		
7	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	91	mg/kg		91	mg/kg	0.0091 %		
8	mercury { mercury }	080-001-00-0	231-106-7	7439-97-6		0.6	mg/kg		0.6	mg/kg	0.00006 %		
9	nickel { nickel }	028-002-00-7	231-111-4	7440-02-0	7	23	mg/kg		23	mg/kg	0.0023 %		
10	selenium { selenium }	034-001-00-2	231-957-4	7782-49-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
11	zinc { zinc powder - zinc dust (stabilised) }	030-001-01-9	231-175-3	7440-66-6		180	mg/kg		180	mg/kg	0.018 %		
12	pH			PH		8.2	pH		8.2	pH	8.2 pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									
15		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
16		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7									
17		phenanthrene				1.5	mg/kg		1.5	mg/kg	0.00015 %		
			201-581-5	85-01-8									
18		anthracene				0.29	mg/kg		0.29	mg/kg	0.000029 %		
			204-371-1	120-12-7									
19		fluoranthene				3.9	mg/kg		3.9	mg/kg	0.00039 %		
			205-912-4	206-44-0									
20		pyrene				3.6	mg/kg		3.6	mg/kg	0.00036 %		
			204-927-3	129-00-0									
21		benzo[a]anthracene				2.8	mg/kg		2.8	mg/kg	0.00028 %		
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				1.8	mg/kg		1.8	mg/kg	0.00018 %		
		601-048-00-0	205-923-4	218-01-9									
23		benzo[k]fluoranthene				1.2	mg/kg		1.2	mg/kg	0.00012 %		
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				1.9	mg/kg		1.9	mg/kg	0.00019 %		
		601-032-00-3	200-028-5	50-32-8									
25		dibenz[a,h]anthracene				0.3	mg/kg		0.3	mg/kg	0.00003 %		
		601-041-00-2	200-181-8	53-70-3									
26		benzo[ghi]perylene				1.1	mg/kg		1.1	mg/kg	0.00011 %		
			205-883-8	191-24-2									
27		indeno[123-cd]pyrene				0.97	mg/kg		0.97	mg/kg	0.000097 %		
			205-893-2	193-39-5									
28		TPH (C6 to C40) petroleum group				79	mg/kg		79	mg/kg	0.0079 %		
				TPH									
29		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
		006-007-00-5											
30		benzo[b]fluoranthene				2.4	mg/kg		2.4	mg/kg	0.00024 %		
		601-034-00-4	205-911-9	205-99-2									
										Total:	0.0529 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No hydrocarbon odours/ liquids or staining observed

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0079%)

Classification of sample: TP102B

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

Sample details

Sample Name:
TP102B
Sample Depth:
0.40-0.60 m
Moisture content:
20%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 20% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1		lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	49	mg/kg		49	mg/kg	0.0049 %		
		082-001-00-6											
										Total:	0.0049 %		

Key

	User supplied data
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP103B

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

Sample details

Sample Name:
TP103B
Sample Depth:
0.40-0.60 m
Moisture content:
21%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 21% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1		lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	140	mg/kg		140	mg/kg	0.014 %		
		082-001-00-6											
										Total:	0.014 %		

Key

	User supplied data
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP104B

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

Sample details

Sample Name:
TP104B
Sample Depth:
0.40-0.60 m
Moisture content:
19%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 19% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1		benzo[a]pyrene; benzo[def]chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-032-00-3	200-028-5	50-32-8							
2		dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-041-00-2	200-181-8	53-70-3							
3		benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
		601-034-00-4	205-911-9	205-99-2							
								Total:	0.00001 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP108B

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

Sample details

Sample Name:
TP108B
Sample Depth:
0.40-0.60 m
Moisture content:
19%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 19% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1		lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	23	mg/kg		23	mg/kg	0.0023 %		
		082-001-00-6											
										Total:	0.0023 %		

Key

	User supplied data
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP109B

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

Sample details

Sample Name:
TP109B
Sample Depth:
0.40-0.60 m
Moisture content:
20%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 20% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1		arsenic { arsenic }				12 mg/kg		12 mg/kg	0.0012 %		
		033-001-00-X	231-148-6	7440-38-2							
								Total:	0.0012 %		

Key

	User supplied data
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration

Classification of sample: TP110B

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

Sample details

Sample Name:
TP110B
Sample Depth:
0.40-0.60 m
Moisture content:
25%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 25% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
										Total:	5.0e-06 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
<LOD	Below limit of detection
ND	Not detected

Appendix A: Classifier defined and non CLP determinands

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

CLP index number: 033-001-00-X
Description/Comments: Worst Case: IARC considers arsenic Group 1; Carcinogenic to humans
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)
Additional Hazard Statement(s): Carc. 1A H350
Reason for additional Hazards Statement(s):
29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

- **lead compounds with the exception of those specified elsewhere in this Annex (worst case)**

CLP index number: 082-001-00-6
Description/Comments: Worst Case: IARC considers lead compounds Group 1; Carcinogenic to humans; Lead REACH Consortium considers some lead compounds Carcinogenic category 1A
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)
Additional Hazard Statement(s): Carc. 1A H350
Reason for additional Hazards Statement(s):
03 Jun 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html (worst case lead compounds). Review date 29/09/2015

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

Conversion factor: 1.462
Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Repr. 1B H360FD , Skin Sens. 1 H317 , Resp. Sens. 1 H334 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302 , Acute Tox. 4 H332

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 1 H310 , Acute Tox. 1 H330 , Acute Tox. 4 H302

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 2 H411 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

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

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

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

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

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

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

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

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

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

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

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

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

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Aquatic Chronic 2 H411 , Repr. 2 H361d , Carc. 1B H350 , Muta. 1B H340 , STOT RE 2 H373 , Asp. Tox. 1 H304 , Flam. Liq. 3 H226

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

CLP index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

Appendix B: Rationale for selection of metal species

arsenic {arsenic}

Used for agricultural purposes such as wood preservatives, animal feed, and insecticides, which could have historically been used, as surround area former farm.

lead {lead compounds with the exception of those specified elsewhere in this Annex (worst case)}

Lead Chromate dismissed, due to levels of chromium within all soil samples.

boron {diboron trioxide; boric oxide}

Used in enamels and the starting material for other boron compounds.

cadmium {cadmium fluoride}

Used in brake linings, which could have been within former vehicles used on site.

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

Historically may have been used in paints and may be found in soil.

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Historically may have been used in wood preservatives and may be found in soil.

copper {copper(II) carbonate – copper(II) hydroxide (1:1)}

Historically could have bee used in pesticides, animal feed, fungicides in surrounding farm.

mercury {mercury}

Could have historically been used in thermometers, fluorescent lamps.

nickel {nickel}

Is used in steel, nonferrous alloys and super-alloys, electroplating and a few other niche uses.

selenium {selenium}

is used in refining ores, the production of glass, alloys, manganese electrolysis and a few other niche uses.

zinc {zinc powder - zinc dust (stabilised)}

zinc is used in alkaline batteries, paints, grease, lubricants, brake lining, machinery and vehicles, which could have all been present on and surrounding the site.

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

Former Farm

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2020.113.4250.8416 (22 Apr 2020)
HazWasteOnline Database: 2020.113.4250.8416 (22 Apr 2020)

This classification utilises the following guidance and legislation:
WM3 v1.1 - Waste Classification - 1stEditionv1.1-May2018
CLP Regulation - Regulation1272/2008/ECof16December2008
1st ATP - Regulation790/2009/ECof10August2009
2nd ATP - Regulation286/2011/ECof10March2011
3rd ATP - Regulation618/2012/EUof10July2012
4th ATP - Regulation487/2013/EUof8May2013
Correction to 1st ATP - Regulation758/2013/EUof7August2013
5th ATP - Regulation944/2013/EUof2October2013
6th ATP - Regulation605/2014/EUof5June2014
WFD Annex III replacement - Regulation1357/2014/EUof18December2014
Revised List of Wastes 2014 - Decision2014/955/EUof18December2014
7th ATP - Regulation2015/1221/EUof24July2015
8th ATP - Regulation(EU)2016/918of19May2016
9th ATP - Regulation(EU)2016/1179of19July2016
10th ATP - Regulation(EU)2017/776of4May2017
HP14 amendment - Regulation(EU)2017/997of8June2017
13th ATP - Regulation(EU)2018/1480of4October2018
POPs Regulation 2004 - Regulation850/2004/ECof29April2004
1st ATP to POPs Regulation - Regulation756/2010/EUof24August2010
2nd ATP to POPs Regulation - Regulation757/2010/EUof24August2010

Appendix D – Laboratory Test Reports from previous site investigations

Hannah Purkis
JP Chick & Partners Ltd
7 Museum Street
Suffolk
Ipswich
IP1 1HQ

e: Hannah.Purkis@chick.co.uk

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

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 20-95847

Replaces Analytical Report Number : 20-95847, issue no. 1

Additional analysis undertaken.

Project / Site name:	Flax Farm, Poslingford	**Samples received on:**	07/04/2020
Your job number:	IE20 040	**Samples instructed on:**	07/04/2020
Your order number:	IE20 040	**Analysis completed by:**	23/04/2020
Report Issue Number:	2	**Report issued on:**	28/04/2020
Samples Analysed:	2 bulk samples - 10 soil samples		

Signed: [redacted]

Agnieszka Czerwińska

Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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

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

Analytical Report Number: 20-95847

Project / Site name: Flax Farm, Poslingford
Your Order No: IE20 040

Lab Sample Number				1490732	1490733	1490734	1490735	1490736
Sample Reference				TP101A	TP102A	TP103A	TP104A	TP105A
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.00-0.30	0.00-0.30	0.00-0.30	0.00-0.30	0.00-0.30
Date Sampled				03/04/2020	03/04/2020	03/04/2020	03/04/2020	03/04/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)								
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	17	17	19	17	19
Total mass of sample received	kg	0.001	NONE	1.3	1.3	1.3	1.2	1.2
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.0	7.9	8.5	7.8	8.5
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Thiocyanate as SCN	mg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Sulphate as SO_4	mg/kg	50	MCERTS	390	840	2000	800	730
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	55	52	160	62	32
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.027	0.026	0.080	0.031	0.016
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	27.4	26.1	80.1	31.2	16.0
Sulphide	mg/kg	1	MCERTS	< 1.0	< 1.0	19	< 1.0	< 1.0
Organic Matter	%	0.1	MCERTS	2.1	4.5	1.8	4.5	4.2
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 20-95847

Project / Site name: Flax Farm, Poslingford

Your Order No: IE20 040

Lab Sample Number				1490732	1490733	1490734	1490735	1490736
Sample Reference				TP101A	TP102A	TP103A	TP104A	TP105A
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.00-0.30	0.00-0.30	0.00-0.30	0.00-0.30	0.00-0.30
Date Sampled				03/04/2020	03/04/2020	03/04/2020	03/04/2020	03/04/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)								
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.36	1.7	0.66	2.2	1.8
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.31	< 0.05	0.56	0.24
Fluoranthene	mg/kg	0.05	MCERTS	0.77	3.7	1.6	7.8	2.7
Pyrene	mg/kg	0.05	MCERTS	0.72	3.4	1.4	7.2	2.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.46	2.4	0.90	5.2	1.5
Chrysene	mg/kg	0.05	MCERTS	0.48	1.9	0.78	4.5	1.5
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.40	2.2	0.85	5.1	1.2
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.33	1.2	0.57	3.9	1.1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.37	1.8	0.74	5.1	1.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.92	0.35	2.4	0.58
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.57	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	1.1	0.45	2.9	0.67
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	3.89	20.6	8.38	47.3	14.8

Analytical Report Number: 20-95847

Project / Site name: Flax Farm, Poslingford
Your Order No: IE20 040

Lab Sample Number				1490732	1490733	1490734	1490735	1490736
Sample Reference				TP101A	TP102A	TP103A	TP104A	TP105A
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.00-0.30	0.00-0.30	0.00-0.30	0.00-0.30	0.00-0.30
Date Sampled				03/04/2020	03/04/2020	03/04/2020	03/04/2020	03/04/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)								
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15	12	12	13	13
Boron (water soluble)	mg/kg	0.2	MCERTS	1.9	2.3	1.2	4.2	4.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.5	0.3	0.8	0.4
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	28	26	22	29	26
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	32	120	25	28
Lead (aqua regia extractable)	mg/kg	1	MCERTS	130	1100	18000	120	150
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4	0.7	0.4	0.7	0.7
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	34	24	15	25	26
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	95	180	580	170	120
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C25)	mg/kg	10	MCERTS	< 10	27	34	41	20
TPH (C25 - C40)	mg/kg	10	MCERTS	< 10	68	57	88	34

Analytical Report Number: 20-95847

Project / Site name: Flax Farm, Poslingford
Your Order No: IE20 040

Lab Sample Number				1490737	1490738	1490739	1490740	1490741
Sample Reference				TP106A	TP106B	TP108A	TP109A	TP110A
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.00-0.30	0.40-0.60	0.00-0.30	0.00-0.30	0.00-0.30
Date Sampled				03/04/2020	03/04/2020	03/04/2020	03/04/2020	03/04/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)								
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	19	18	23	26	27
Total mass of sample received	kg	0.001	NONE	1.3	1.3	1.3	1.4	1.2
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Chrysotile	-	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Detected	Not-detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	0.002	-	< 0.001
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	0.002	-	< 0.001
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.0	8.6	8.1	8.0	8.2
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Thiocyanate as SCN	mg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Sulphate as SO_4	mg/kg	50	MCERTS	580	240	650	790	1100
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	47	37	39	180	250
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.024	0.019	0.019	0.088	0.12
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	23.7	18.6	19.3	88.2	123
Sulphide	mg/kg	1	MCERTS	< 1.0	1.5	6.2	1.9	6.0
Organic Matter	%	0.1	MCERTS	2.4	0.7	3.4	4.2	5.8
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 20-95847

Project / Site name: Flax Farm, Poslingford
Your Order No: IE20 040

Lab Sample Number				1490737	1490738	1490739	1490740	1490741
Sample Reference				TP106A	TP106B	TP108A	TP109A	TP110A
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.00-0.30	0.40-0.60	0.00-0.30	0.00-0.30	0.00-0.30
Date Sampled				03/04/2020	03/04/2020	03/04/2020	03/04/2020	03/04/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)								
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.55	1.1	1.5
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.29
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.6	2.5	3.9
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.5	2.3	3.6
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.1	1.3	2.8
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.0	1.5	1.8
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.92	1.1	2.4
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.68	1.1	1.2
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.88	1.2	1.9
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.47	0.49	0.97
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.30
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.53	0.76	1.1
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	9.23	13.3	21.7

Analytical Report Number: 20-95847

Project / Site name: Flax Farm, Poslingford
Your Order No: IE20 040

Lab Sample Number				1490737	1490738	1490739	1490740	1490741
Sample Reference				TP106A	TP106B	TP108A	TP109A	TP110A
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.00-0.30	0.40-0.60	0.00-0.30	0.00-0.30	0.00-0.30
Date Sampled				03/04/2020	03/04/2020	03/04/2020	03/04/2020	03/04/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)								
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	12	16	40	16
Boron (water soluble)	mg/kg	0.2	MCERTS	3.0	1.8	2.3	4.1	6.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.4	0.4	0.4
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	28	33	34	26	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	13	34	31	31
Lead (aqua regia extractable)	mg/kg	1	MCERTS	95	21	600	68	91
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.6	< 0.3	0.7	< 0.3	0.6
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	24	31	29	61	23
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	85	160	260	180
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C25)	mg/kg	10	MCERTS	430	86	< 10	27	26
TPH (C25 - C40)	mg/kg	10	MCERTS	150	44	< 10	140	53

Analytical Report Number: 20-95847

Project / Site name: Flax Farm, Poslingford

Lab Sample Number				1490742	1490743			
Sample Reference				ACM 1	ACM 2			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				03/04/2020	03/04/2020			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Bulk Analysis)								
Asbestos Identification	Type	N/A	ISO 17025	Chrysotile-Hard/Cement Type Material	Chrysotile, Crocidolite-Hard/Cement Type Material			

Analytical Report Number: 20-95847
Project / Site name: Flax Farm, Poslingford
Your Order No: IE20 040

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1490739	TP108A	0.00-0.30	103	Loose Fibrous Debris	Chrysotile	0.002	0.002
1490741	TP110A	0.00-0.30	125	Loose Fibres	Chrysotile	< 0.001	< 0.001

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

Analytical Report Number : 20-95847

Project / Site name: Flax Farm, Poslingford

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1490732	TP101A	None Supplied	0.00-0.30	Brown clay and loam with gravel.
1490733	TP102A	None Supplied	0.00-0.30	Brown loam and clay with gravel.
1490734	TP103A	None Supplied	0.00-0.30	Brown loam and clay with gravel.
1490735	TP104A	None Supplied	0.00-0.30	Brown loam and clay with gravel.
1490736	TP105A	None Supplied	0.00-0.30	Brown loam and clay with gravel.
1490737	TP106A	None Supplied	0.00-0.30	Brown loam and clay with gravel.
1490738	TP106B	None Supplied	0.40-0.60	Brown clay with gravel.
1490739	TP108A	None Supplied	0.00-0.30	Brown clay with gravel.
1490740	TP109A	None Supplied	0.00-0.30	Brown clay with gravel.
1490741	TP110A	None Supplied	0.00-0.30	Brown clay with gravel.

Analytical Report Number : 20-95847

Project / Site name: Flax Farm, Poslingford

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Bulks	Asbestos Identification in bulk material with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	W	ISO 17025
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
PRO (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Thiocyanate in soil	Determination of thiocyanate in soil by extraction in water followed by acidification followed by addition of ferric nitrate followed by discrete analyser (spectrophotometer).	In-house method	L082-PL	D	NONE

Analytical Report Number : 20-95847

Project / Site name: Flax Farm, Poslingford

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
TPH Oils (Soils)	Determination of extractable hydrocarbons in soil by GC-MS/FID.	In-house method with silica gel split/clean up.	L076-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP101A		S	20-95847	1490732	b	PRO (Soil)	L088-PL	b
TP102A		S	20-95847	1490733	b	PRO (Soil)	L088-PL	b
TP103A		S	20-95847	1490734	b	PRO (Soil)	L088-PL	b
TP104A		S	20-95847	1490735	b	PRO (Soil)	L088-PL	b
TP105A		S	20-95847	1490736	b	PRO (Soil)	L088-PL	b
TP106A		S	20-95847	1490737	b	PRO (Soil)	L088-PL	b
TP106B		S	20-95847	1490738	b	PRO (Soil)	L088-PL	b
TP108A		S	20-95847	1490739	b	PRO (Soil)	L088-PL	b
TP109A		S	20-95847	1490740	b	PRO (Soil)	L088-PL	b
TP110A		S	20-95847	1490741	b	PRO (Soil)	L088-PL	b

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

Hannah Purkis
JP Chick & Partners Ltd
7 Museum Street
Suffolk
Ipswich
IP1 1HQ

e: Hannah.Purkis@chick.co.uk

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

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 20-96780

Project / Site name:	Flax Farm, Poslingford	**Samples received on:**	07/04/2020
Your job number:	IE20 040	**Samples instructed on:**	20/04/2020
Your order number:	IE20 040	**Analysis completed by:**	23/04/2020
Report Issue Number:	1	**Report issued on:**	23/04/2020
Samples Analysed:	6 soil samples		

Signed: [redacted]

Agnieszka Czerwińska

Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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

Analytical Report Number: 20-96780

Project / Site name: Flax Farm, Poslingford
Your Order No: IE20 040

Lab Sample Number				1495543	1495544	1495545	1495546	1495547
Sample Reference				TP102B	TP103B	TP104B	TP108B	TP109B
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40-0.60	0.40-0.60	0.40-0.60	0.40-0.60	0.40-0.60
Date Sampled				03/04/2020	03/04/2020	03/04/2020	03/04/2020	03/04/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)								
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	20	21	19	19	20
Total mass of sample received	kg	0.001	NONE	1.0	1.0	1.0	1.0	1.0
Asbestos in Soil	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Speciated PAHs								
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	-
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	12
Lead (aqua regia extractable)	mg/kg	1	MCERTS	49	140	-	23	-

Analytical Report Number: 20-96780

Project / Site name: Flax Farm, Poslingford

Your Order No: IE20 040

Lab Sample Number				1495548				
Sample Reference				TP110B				
Sample Number				None Supplied				
Depth (m)				0.40-0.60				
Date Sampled				03/04/2020				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)								
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	25				
Total mass of sample received	kg	0.001	NONE	1.0				
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected				
Speciated PAHs								
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-				

Analytical Report Number : 20-96780

Project / Site name: Flax Farm, Poslingford

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1495543	TP102B	None Supplied	0.40-0.60	Brown clay and sand with gravel.
1495544	TP103B	None Supplied	0.40-0.60	Brown clay and sand with gravel.
1495545	TP104B	None Supplied	0.40-0.60	Brown clay and sand with gravel.
1495546	TP108B	None Supplied	0.40-0.60	Brown clay and sand with gravel.
1495547	TP109B	None Supplied	0.40-0.60	Brown clay and sand with gravel.
1495548	TP110B	None Supplied	0.40-0.60	Brown clay and sand with gravel.

Analytical Report Number : 20-96780

Project / Site name: Flax Farm, Poslingford

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Robin Crowther
JP Chick & Partners Ltd
7 Museum Street
Suffolk
Ipswich
IP1 1HQ

e: robin.crowther@chick.co.uk

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

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 20-99607

Project / Site name:	Flax Barn, Poslingford	**Samples received on:**	14/05/2020
Your job number:	IE20-040	**Samples instructed on:**	14/05/2020
Your order number:		**Analysis completed by:**	20/05/2020
Report Issue Number:	1	**Report issued on:**	20/05/2020
Samples Analysed:	3 bulk samples - 12 soil samples		

Signed: [redacted]

Karolina Marek
Head of Reporting Section

For & on behalf of i2 Analytical Ltd.

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

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Analytical Report Number: 20-99607

Project / Site name: Flax Barn, Poslingford

Lab Sample Number				1510420	1510421	1510422	1510423	1510426
Sample Reference				TP201	TP202	TP203	TP203	TP204
Sample Number				A	A	A	B	A
Depth (m)				0.40-0.45	0.30-0.35	0.07-0.15	0.30-0.35	0.30-0.35
Date Sampled				12/05/2020	12/05/2020	12/05/2020	12/05/2020	12/05/2020
Time Taken				1258	1235	1140	1140	1320
Analytical Parameter (Soil Analysis)								
Stone Content	%	0.1	NONE	< 0.1	< 0.1	-	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	21	14	-	26	44
Total mass of sample received	kg	0.001	NONE	1.2	1.2	-	1.2	1.2
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	Chrysotile - Loose Fibres
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	-	-	-	8.2	8.2
Total Cyanide	mg/kg	1	MCERTS	-	-	-	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	-	-	-	< 1	< 1
Thiocyanate as SCN	mg/kg	5	NONE	-	-	-	< 5.0	< 5.0
Total Sulphate as SO_4	mg/kg	50	MCERTS	-	-	-	860	1200
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	200	200
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	0.099	0.10
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	98.9	101
Sulphide	mg/kg	1	MCERTS	-	-	-	26	1.4
Organic Matter	%	0.1	MCERTS	-	-	-	4.4	7.3
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	0.24	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	0.42	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	-	-	0.47	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	6.4	2.3
Anthracene	mg/kg	0.05	MCERTS	-	-	-	1.8	0.67
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	16	5.3
Pyrene	mg/kg	0.05	MCERTS	-	-	-	14	5.0
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	9.4	3.3
Chrysene	mg/kg	0.05	MCERTS	-	-	-	7.2	2.6
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	9.2	3.4
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	6.2	2.0
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	8.1	3.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	5.0	1.6
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	1.2	0.54
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	5.5	2.0
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	-	-	90.6	31.8

Analytical Report Number: 20-99607

Project / Site name: Flax Barn, Poslingford

Lab Sample Number				1510420	1510421	1510422	1510423	1510426
Sample Reference				TP201	TP202	TP203	TP203	TP204
Sample Number				A	A	A	B	A
Depth (m)				0.40-0.45	0.30-0.35	0.07-0.15	0.30-0.35	0.30-0.35
Date Sampled				12/05/2020	12/05/2020	12/05/2020	12/05/2020	12/05/2020
Time Taken				1258	1235	1140	1140	1320
Analytical Parameter (Soil Analysis)								
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	15	11
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	-	2.3	3.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-	-	0.3	0.4
Chromium (hexavalent)	mg/kg	4	MCERTS	-	-	-	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	22	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	15	24
Lead (aqua regia extractable)	mg/kg	1	MCERTS	140	4600	-	190	60
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-	-	0.5	2.7
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	21	21
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	120	160
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
TPH (C10 - C25)	mg/kg	10	MCERTS	-	-	-	110	58
TPH (C25 - C40)	mg/kg	10	MCERTS	-	-	-	97	67

Analytical Report Number: 20-99607

Project / Site name: Flax Barn, Poslingford

Lab Sample Number				1510427	1510428	1510429	1510430	1510431
Sample Reference				TP205	TP206	TP207	TP208	TP209
Sample Number				A	A	A	A	A
Depth (m)				0.25-0.30	0.20-0.25	0.20-0.25	0.30-0.35	0.25-0.30
Date Sampled				12/05/2020	12/05/2020	12/05/2020	12/05/2020	12/05/2020
Time Taken				1328	1338	1454	1440	1420
Analytical Parameter (Soil Analysis)								
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	22	32	35	34	35
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.2	1.2	1.2
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile, Amosite, Crocidolite - Loose Fibres; Chrysotile, Amosite - Loose Fibrous Debris	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	10.7	8.2	8.3	8.4	8.1
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Thiocyanate as SCN	mg/kg	5	NONE	< 5.0	7.4	7.8	< 5.0	7.4
Total Sulphate as SO_4	mg/kg	50	MCERTS	1500	830	990	1300	890
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	240	240	650	470	140
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.12	0.12	0.33	0.23	0.069
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	122	122	326	233	69.2
Sulphide	mg/kg	1	MCERTS	4.3	19	23	< 1.0	10
Organic Matter	%	0.1	MCERTS	1.3	6.5	8.3	5.7	7.2
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.36	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.43	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.59	1.3	5.1	2.7	0.86
Anthracene	mg/kg	0.05	MCERTS	0.19	0.40	0.92	0.75	0.25
Fluoranthene	mg/kg	0.05	MCERTS	0.68	2.1	8.5	6.6	1.5
Pyrene	mg/kg	0.05	MCERTS	0.70	2.0	7.5	5.9	1.4
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.40	1.3	5.3	4.1	0.93
Chrysene	mg/kg	0.05	MCERTS	0.39	1.1	3.7	3.2	0.78
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.60	1.4	5.2	4.3	0.95
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.30	0.88	3.4	2.4	0.60
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.39	1.4	4.7	3.6	0.88
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.29	0.72	2.7	2.3	0.47
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.90	0.64	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.25	0.78	2.9	2.5	0.54
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	4.78	13.4	51.6	38.9	9.17

Analytical Report Number: 20-99607

Project / Site name: Flax Barn, Poslingford

Lab Sample Number				1510427	1510428	1510429	1510430	1510431
Sample Reference				TP205	TP206	TP207	TP208	TP209
Sample Number				A	A	A	A	A
Depth (m)				0.25-0.30	0.20-0.25	0.20-0.25	0.30-0.35	0.25-0.30
Date Sampled				12/05/2020	12/05/2020	12/05/2020	12/05/2020	12/05/2020
Time Taken				1328	1338	1454	1440	1420
Analytical Parameter (Soil Analysis)								
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	34	12	12	12	12
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	4.4	1.8	3.1	4.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.4	0.2	0.2	0.3
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	37	21	22	22	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	91	18	24	20	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	39	60	74	55	45
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.6	0.7	0.4	0.7
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	55	23	25	25	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	120	150	99	98	100
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C25)	mg/kg	10	MCERTS	< 10	71	42	40	11
TPH (C25 - C40)	mg/kg	10	MCERTS	< 10	57	22	25	< 10

Analytical Report Number: 20-99607

Project / Site name: Flax Barn, Poslingford

Lab Sample Number				1510432	1510433			
Sample Reference				TP210	TP211			
Sample Number				A	A			
Depth (m)				0.35-0.40	0.15-0.20			
Date Sampled				12/05/2020	12/05/2020			
Time Taken				1358	1530			
Analytical Parameter (Soil Analysis)								
Stone Content	%	0.1	NONE	< 0.1	-			
Moisture Content	%	N/A	NONE	43	-			
Total mass of sample received	kg	0.001	NONE	1.2	-			
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile- Loose Fibrous Debris, Hard/Cement Type Material, Loose Fibres			
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected			
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.1	-			
Total Cyanide	mg/kg	1	MCERTS	< 1	-			
Free Cyanide	mg/kg	1	MCERTS	< 1	-			
Thiocyanate as SCN	mg/kg	5	NONE	< 5.0	-			
Total Sulphate as SO_4	mg/kg	50	MCERTS	1000	-			
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	290	-			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.14	-			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	145	-			
Sulphide	mg/kg	1	MCERTS	45	-			
Organic Matter	%	0.1	MCERTS	9.1	-			
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-			
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-			
Acenaphthene	mg/kg	0.05	MCERTS	0.36	-			
Fluorene	mg/kg	0.05	MCERTS	0.37	-			
Phenanthrene	mg/kg	0.05	MCERTS	4.9	-			
Anthracene	mg/kg	0.05	MCERTS	0.99	-			
Fluoranthene	mg/kg	0.05	MCERTS	8.8	-			
Pyrene	mg/kg	0.05	MCERTS	7.8	-			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	5.0	-			
Chrysene	mg/kg	0.05	MCERTS	4.0	-			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	4.8	-			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	3.3	-			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	4.0	-			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.4	-			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.61	-			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.8	-			
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	50.0	-			

Analytical Report Number: 20-99607

Project / Site name: Flax Barn, Poslingford

Lab Sample Number				1510432	1510433			
Sample Reference				TP210	TP211			
Sample Number				A	A			
Depth (m)				0.35-0.40	0.15-0.20			
Date Sampled				12/05/2020	12/05/2020			
Time Taken				1358	1530			
Analytical Parameter (Soil Analysis)								
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	-			
Boron (water soluble)	mg/kg	0.2	MCERTS	6.9	-			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	-			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	-			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	-			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	56	-			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.5	-			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19	-			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	96	-			
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	-			
TPH (C10 - C25)	mg/kg	10	MCERTS	94	-			
TPH (C25 - C40)	mg/kg	10	MCERTS	130	-			

Analytical Report Number: 20-99607

Project / Site name: Flax Barn, Poslingford

Lab Sample Number				1510424	1510425	1510434		
Sample Reference				TP203	TP202	TP211		
Sample Number				C	B	B		
Depth (m)				0.10	0.20	0.20-0.25		
Date Sampled				12/05/2020	12/05/2020	12/05/2020		
Time Taken				1140	1218	1527		
Analytical Parameter (Bulk Analysis)								
Asbestos Identification	Type	N/A	ISO 17025	Chrysotile-Hard/Cement Type Material	Chrysotile - Hard/Cement Type Material	Chrysotile-Hard/Cement Type Material		

Analytical Report Number : 20-99607

Project / Site name: Flax Barn, Poslingford

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1510420	TP201	A	0.40-0.45	Brown clay and sand with gravel.
1510421	TP202	A	0.30-0.35	Brown clay and sand with gravel.
1510422	TP203	A	0.07-0.15	-
1510423	TP203	B	0.30-0.35	Brown clay and sand with gravel.
1510426	TP204	A	0.30-0.35	Brown clay and sand with gravel.
1510427	TP205	A	0.25-0.30	Brown loam and clay with gravel.
1510428	TP206	A	0.20-0.25	Brown clay and sand with gravel.
1510429	TP207	A	0.20-0.25	Black clay and sand with gravel.
1510430	TP208	A	0.30-0.35	Brown clay and sand with gravel.
1510431	TP209	A	0.25-0.30	Brown clay and sand with gravel.
1510432	TP210	A	0.35-0.40	Brown clay and sand with gravel.
1510433	TP211	A	0.15-0.20	-

Analytical Report Number : 20-99607

Project / Site name: Flax Barn, Poslingford

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Bulks	Asbestos Identification in bulk material with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	W	ISO 17025
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
PRO (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Thiocyanate in soil	Determination of thiocyanate in soil by extraction in water followed by acidification followed by addition of ferric nitrate followed by discrete analyser (spectrophotometer).	In-house method	L082-PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS

Analytical Report Number : 20-99607

Project / Site name: Flax Barn, Poslingford

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
TPH Oils (Soils)	Determination of extractable hydrocarbons in soil by GC-MS/FID.	In-house method with silica gel split/clean up.	L076-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP203	B	S	20-99607	1510423	b	PRO (Soil)	L088-PL	b
TP204	A	S	20-99607	1510426	b	PRO (Soil)	L088-PL	b
TP205	A	S	20-99607	1510427	b	PRO (Soil)	L088-PL	b
TP206	A	S	20-99607	1510428	b	PRO (Soil)	L088-PL	b
TP207	A	S	20-99607	1510429	b	PRO (Soil)	L088-PL	b
TP208	A	S	20-99607	1510430	b	PRO (Soil)	L088-PL	b
TP209	A	S	20-99607	1510431	b	PRO (Soil)	L088-PL	b
TP210	A	S	20-99607	1510432	b	PRO (Soil)	L088-PL	b

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

Appendix E –Remedial Targets

JPC Environmental Services
(A division of JP Chick & Partners Ltd)

‘Residential with homegrown produce’ End Use

Remedial Targets

Tier 1 Human Health Screening Values for Inorganic Determinands

Determinand	Screening Values (mg/kg)	Source of Parameters for Tier 1 Screening Values
Arsenic	37	DEFRA C4SL (2014)
Cadmium	11	LQM-CIEH S4UL (2014)
Chromium	910	LQM-CIEH S4UL (2014)
Chromium (VI)	6	LQM-CIEH S4UL (2014)
Copper	2400	LQM-CIEH S4UL (2014)
Lead	200	DEFRA C4SL (2014)
Mercury	1.2	LQM-CIEH S4UL (2014)
Nickel	180	LQM-CIEH S4UL (2014)
Selenium	250	LQM-CIEH S4UL (2014)
Zinc	3700	LQM-CIEH S4UL (2014)

Tier 1 Human Health Screening Values for Phenol and PAHs in Soils
‘Residential with homegrown produce’ End Use, based on a SOM of 1.0%

Determinand	Screening Values (mg/kg)	Source of Parameters for Tier 1 Screening Values
Phenol	120	LQM-CIEH S4UL (2015)
Naphthalene	2.3	LQM-CIEH S4UL (2014)
Acenaphthylene	170	LQM-CIEH S4UL (2014)
Acenaphthene	210	LQM-CIEH S4UL (2014)
Fluorene	170	LQM-CIEH S4UL (2014)
Phenanthrene	95	LQM-CIEH S4UL (2014)
Anthracene	2400	LQM-CIEH S4UL (2014)
Fluoranthene	280	LQM-CIEH S4UL (2014)
Pyrene	620	LQM-CIEH S4UL (2014)
Benzo(a)anthracene	7.2	LQM-CIEH S4UL (2014)
Chrysene	15	LQM-CIEH S4UL (2014)
Benzo(b)fluoranthene	2.6	LQM-CIEH S4UL (2014)
Benzo(k)fluoranthene	77	LQM-CIEH S4UL (2014)
Benzo(a)pyrene	2.2	LQM-CIEH S4UL (2014)
Indeno(123-cd)pyrene	27	LQM-CIEH S4UL (2014)
Dibenz(a,h)anthracene	0.24	LQM-CIEH S4UL (2014)
Benzo(ghi)perylene	320	LQM-CIEH S4UL (2014)

LQM/CIEH S4ULs for Petroleum Hydrocarbons

‘Residential with homegrown produce’ End Use, based on a SOM of 1.0%

	TPH Carbon Band	Screening Values (mg/kg)*
Aliphatic	EC 5-6	42
	EC >6-8	100
	EC >8-10	27
	EC >10-12	130
	EC >12-16	1100
	EC >16-35	65000
	EC > 35-44	65000
Aromatic	EC 5-7	70
	EC >7-8	130
	EC >8-10	34
	EC >10-12	74
	EC >12-16	140
	EC >16-21	260
	EC >21-35	1100
	EC> 35-44	1100

Appendix F – JIWG Decision Support Tool

JIWG

Joint Industry Working Group

Asbestos in Soil and Construction & Demolition Materials

Project Reference	IE20/040
Site Name	Flax Farm Barn, Stansfield Road, Poslingford, Sudbury, CO10 8RD
Client	Mr I. Burnett
Run by	C.Jooste
Date	21.11/2022
Scenario details	Former Agricultural Farm

Decision Support Tool for CAR2012 Work Categories

Stage 1

Hazard Factors

		Score
Select ACM type (run model for each type to generate 'Worst Case' output)	Free dispersed fibres/fibre bundles	2
Extent of degradation of ACMs at outset of work	Disaggregated (dominated by loose fibrous material; extreme degradation in ACM and/or free asbestos fibres/fibre bundles)	4
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Friable ACM or ACM with fibres not linked in any matrix (free dispersed fibres/fibre bundles)	4
Distribution of Visible Asbestos Across Affected Area	Sporadic/random occurrences of visible contamination by ACMs	2
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Very Low quantities - <0.001 to 0.01 %wt/wt	1
Sub-total		13

Note: the asbestos licensing regime is unaffected by the type of asbestos fibre present in ACMs

Hazard ranking: Medium

Stage 2

Exposure Factors

			Score
Anticipated airborne fibre concentration - Control Limit or SALI?	<0.01 fibres/ml		1
Anticipated duration of exposure to asbestos	< 2 hours in a 7 day period for all persons involved (e.g. Short Duration Work)		1
Activity type and effect on deterioration of ACMs during work	Low intensity, no or minimal deterioration expected		0
Best description of primary host material matrix (soil/made ground)	Made Ground - Recycled Aggregate, Track Ballast		4
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Low		2
Sub-total			8
Exposure ranking			Low
Combined hazard and exposure ranking		21	Medium

Stage 3
Risk Assessment Outputs

Probable Licensing Status	Non-Licensed Work
RPE*	EN140 with P3 filter half mask
Dust Suppression**	Manual/localised dust suppression
Hygiene/Decontamination***	Localised and basic personal decontamination facilities

*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary.
**Reduction in control measures possible if natural mitigation factors are present (e.g. raining, wet ground)
***Guide only; suitability of selected personal hygiene measures may be reviewed on a site/contamination-specific basis

Appendix G – Development Plan showing final finished surfacing


WOODLAND
MEADOW
GRASS
BORDER/VEG. GARDEN (RAISED BEDS)
PATHS/PATIO.
ORCHARD
SHINGLE DRIVE
HEDGE/TREE BELT.
HOUSE
STP.

Appendix H –Guidance for Developers and Consultants on the importation of soils

The Suffolk Environmental Protection Group
Contaminated Land Sub Group (SEPG-CL)

Guidance for developers and consultants on the importation of soils
May 2007

Introduction

This guidance has been produced in order to demonstrate that soil materials brought onto a development site for garden plots or soft landscaping areas are suitable for use and does not present harm to human health, the environment and property.

The guidance is intended for contaminated land sites which are regulated through the planning regime. As part of a planning permission condition a remediation strategy will have been produced, this may involve the placement of imported soil which is to act as a barrier to contaminated land or involved the replacement of soil removed from the site.

In order to demonstrate that suitable soil has been brought onto site, the following requirements should be met:

Imported Recycled and Topsoil Material

1. Details on the supplier and confirmation on the source(s) of soil material should be supplied to the Local Authority (LA). The soil should be free from metals, plastic, wood, glass, tarmac, paper and odours associated with contaminated soils as specified in BS 3882:1994 – *Specification for Topsoil*. A description of the soil materials should be forwarded to the LA based on BS5930 *Code of Practice of Site Investigations*.

2. Materials should be brought onto the development site and stockpiled until its use has been approved by the LA. For LA approval, independent sampling and analysis of the stockpile shall take place by a suitably qualified person. If the site has insufficient space for stockpiling, sampling may have to be undertaken following emplacement.

   Please note that sampling and analysis certificates submitted by the supplier of the soil material will not be accepted. i.e. independent sampling and analysis should be carried out.

3. Sampling should comprise 2 random samples for every 15m^3 of soil from a single source (see soil source definition below) for residential gardens. For larger amounts of soil from a single source and for soft landscaping areas the sampling frequency can be reduced with agreement of the LA.

   Soil Source - the location at which the soil was loaded onto the truck prior to delivery at the development site.

4. The samples shall be sent to an independent accredited laboratory on a quick turnaround for an analytical suite which should include as a minimum Metals, PAH (speciated), TPH (Total) and pH. Additional parameters such as asbestos maybe required if deemed necessary by the LA.

5. The results should to be forwarded to the LA for approval before the soil can be placed (unless agreement has already been given by the LA for emplacement). The results will be compared to CLEA Soil Guideline Values (SGV) or levels which have been previously agreed in the remediation strategy. If the results of the analytical testing show concentrations of contaminants which may be a risk, then the soil must be removed off site or remediated with the approval of the LA.

   Please note - the Environment Agency will be notified if suspected controlled waste is being deposited in contravention of the Waste Management Licensing Regulations 1994.

Imported Naturally Sourced Quarried Materials

Materials derived from quarries may be deemed suitable for use as subsoil if they are certified clean. This does not include naturally sourced topsoils which shall be treated as recycled soils.

In order to satisfy the LA, details on the supplier, confirmation on the source(s) material, a certificate that the material is naturally sourced from a quarry and a description of the soil based on BS5953 *Code of Practice of Site Investigations* shall be forwarded to the LA.

Depth of Soil Layer

The recommended depth of imported topsoil/subsoil should be specified in the remediation strategy for the site and agreed by the Local Authority prior to emplacement. The required depth is dependant upon the presence of contaminants (and their concentrations) which remains in-situ and the proposed future use of the site.

In areas of soft landscaping, or in residential gardens where minor contamination is present, a soil depth of 600 mm (two spade depths) will be required. In residential gardens where major residual contamination is still present, a soil depth of 1000 mm will be required. This increased depth will act as a barrier between the contamination and the resident, which is necessary to protect the resident from coming into contact with the contamination during potential future major excavation works e.g. pond installation.

Please note that if a marker layer is installed between the contamination and the imported soils, a reduced depth of soil may be acceptable with agreement of the LA.

References:

British Standard BS 3882:1994 *Specification for Topsoil*

British Standard BS 5930 *Code of Practice of Site Investigations*

BRE *Cover Systems for Land Regeneration* March 2004

NHBC Engineering *Guidance on Validation of Imported Topsoil and Retained/Re-used Topsoils* – June 2004