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FENN LANE COMPOSTING FACILITY

PHASE 1 (DESK STUDY) ENVIRONMENTAL REPORT

Prepared by

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On behalf of

ZEESHAN ASLAM

June 2008

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EXECUTIVE SUMMARY

Silkstone Environmental Ltd (SEL) have been commissioned by Zeeshan Aslam to carry out an Environmental Phase 1 (Desk Study) of a site at Fenn Lane, near Fenny Drayton, Nuneaton. This investigation has been undertaken to provide environmental information to support a planning application for the development of a proposed composting facility.

The site is located off Fenn Lane, Fenny Drayton, approximately 5 kilometres (km) north of Nuneaton town centre, centred at National Grid Reference 436440E 296810N.

The proposed development land is rectangular, about 180m by 120m (approximate area of 2.23 Ha), orientated northeast to southwest and is generally flat and level. It comprises areas of broken concrete surfacing, rough ground (including demolition rubble) and sparse vegetation (along southeast boundary). At the north corner of the site is a disused two storey brick building and the remainder of the site is predominantly rough grass. Numerous piles of demolition material are located on the hard surfaced areas, on the southeast of the site.

Historical maps show the site as open fields until 1955. Some development then occurred comprising a number of rectangular buildings along the southeast boundary, and a single building in the north corner. The surrounding area has comprised Lindley Wood to the northwest and Rowden Gorse, also a mixed wood, to the southeast. These areas have remained largely unchanged until the present day.

An area some 600m to the southeast is shown as an Airfield up until 1968. This is now shown as a Motor Vehicle Proving Ground.

There is a gap in the historical data between 1930 and 1955 probably due to restrictions imposed during the Second World War. It is assumed that the Airfield would have been present earlier than 1955 and this is corroborated by information sourced from the internet (www.aircadetonline.com). The website gives details of the Airfield being an operational RAF site between 1942 and 1946 and remained MOD property into the 1950s. Similarly it is believed that the rectangular buildings shown on the 1955 map, and the existing building, were support buildings for the Airfield although their specific use is unknown.

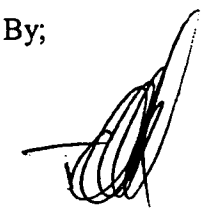
The east of the site is underlain by glacial clay deposits, including Glacial Till and Lake Clay, the remainder of the site is shown to have no drift deposits. The solid geology is shown to be of the Mercia Mudstone Group.

There is one record on the Substantiated Pollution Incident Register relating to a occurrence on the site recorded for February 2002. The incident relates to inert and other specific waste material impacting on the land and has been classed as a Category 2, significant incident.

The risk of contamination, and therefore a potential risk to human health and the environment, is elevated due to the possible former military site use. It is therefore recommended that a contamination ground investigation is carried out to clarify the Initial Conceptual Site Model and the Initial Environmental Risk Assessment, which are presented in this report.

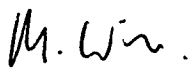
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1. INTRODUCTION

1.1 Brief

Silkstone Environmental Ltd (SEL) have been commissioned by Zeeshan Aslam to carry out a Environmental Phase 1 (Desk Study) of a site at Fenn Lane, near Fenny Drayton, Nuneaton. This investigation has been undertaken to provide environmental information to support a planning application for the development of a proposed composting facility.

1.2 Outline of Report

This report firstly consists of a Phase 1 (Desk Study) in Section 2, reviewing the readily available information relating to the site. A preliminary risk assessment and conceptual model have then been produced in Section 3 based on the Desk Study. Recommendations on further investigation are included at the end of Section 3.

1.3 Legislative and Regulatory Context

If land proposed to be developed is suspected to be contaminated either historically or by its current use, an investigation will be requested by the Local Authority under the Town and Country Planning Act (1990) and Planning Policy Statement 23 to determine the level of risk and if remediation is necessary. Under this regime investigations are carried out to determine if the current condition of the site is suitable for its proposed use.

1.4 Guidance and Information Sources Used Within This Report

This report has been produced in line with relevant guidance and best practice. The report has been produced in general accordance with the recommendations of BS5930: 1999 *Code of Practice for Site Investigations* and BS10175 *Investigation of Potentially Contaminated Sites: Code of Practice (2001).*

3. PRELIMINARY RISK ASSESSMENT AND CONCEPTUAL MODEL

3.1 Potential Pollutant Linkages

The preliminary risk assessment process involves the identification of potential sources, pathways and receptors to determine the potential for a pollutant linkage to be present. A pollutant linkage can only be present if all three of the above are involved. There must be a source of contamination present, a receptor for the contamination to impact on and a pathway for the contamination to reach the receptor.

3.2 Potential Sources of Contamination

On Site

Potential sources of contamination and associated contaminants which may be present on site are shown in Table 3. The potential contaminants are based on Tables 2.3 and 2.4 of CLR8, *Potential Contaminants for the Assessment of Land.*

Table 3: Potential Sources of Contamination on site

Potential Sources	Potential Contaminants
Made Ground (spread as surface material and of unknown thickness).	Various contaminants dependant on the nature and source of the fill materials. Potential for generation of contaminating leachates and landfill gases. Potential contaminants (not exhaustive): PAHs, Hydrocarbons from fuel oil, waste oil and lubricating oil, Sulphates, Metals such as Cadmium, Chromium, Nickel, Copper, Lead, Mercury, Zinc and Arsenic, and Asbestos.
Unknown former site use along southeast of site.	As above.
Possible former airfield storage or accommodation	Potential contaminants (not exhaustive): Chromium, Copper, Asbestos, Hydrocarbons from fuel oil, waste oil and lubricating oil, PCBs.
Possible former electricity substation or transformer	Potential contaminants (not exhaustive): Heavy metals and semi metals, Hydrocarbons from fuel oil, waste oil and lubricating oil, PCBs, Sulphates, Asbestos.
Substantiated Pollution Incident	Pollutant described as inert and other specific waste, therefore in lieu of additional information contaminants as Made Ground listing.

Off Site

There have been no potentially contaminative sources identified in close proximity of the site. The area is not developed industrially and the only potential historical industry has been identified as on site. It can therefore be concluded that there are no significant known potentially contaminative sources off site.

3.3 Potential Pathways and Receptors

3.3.1 Human Health

Chronic Risks

Potential exposure pathways are based on those in the Conceptual Exposure Model for human health which is detailed in Contaminated Land Report 10.

The chronic risks to human health take into account those risks to end users of the site, in this case it is reasonable to consider that the commercial / industrial scenario is most applicable. The potential pathways used in the assessment are below.

- Ingestion of soil
- Ingestion of dust
- Ingestion of soil and dust on home grown vegetables
- Dermal contact with soil
- Dermal contact with dust
- Inhalation of fugitive soil dust
- Inhalation of fugitive building dust
- Inhalation of vapours outside
- Inhalation of vapours inside
- Migration of contaminants through soil/groundwater

Acute Risks

Acute risks are considered with respect to construction workers/engineers on site.

NB: During any intrusive ground works appropriate health and safety measures should be adopted to protect site workers from any potential risks associated with contamination in the ground. This should include the use of any personal protective equipment necessary and a general awareness of any possible risks to safety and human health on site.

3.3.2 Controlled Waters

Groundwater

The site is expected to be underlain by Triassic Mudstones, which are classed by the Environment Agency as a non aquifer. The site is not within a Source Protection Zone for the protection of drinking water supplies.

In this case groundwater is not considered to be a significant receptor.

Surface Water

The nearest surface water feature is around 110m northeast of the site, based on an inspection of the latest maps this is believed to be a small pond. Given this it is not considered that surface water would be a significant receptor.

3.3.3 Buildings

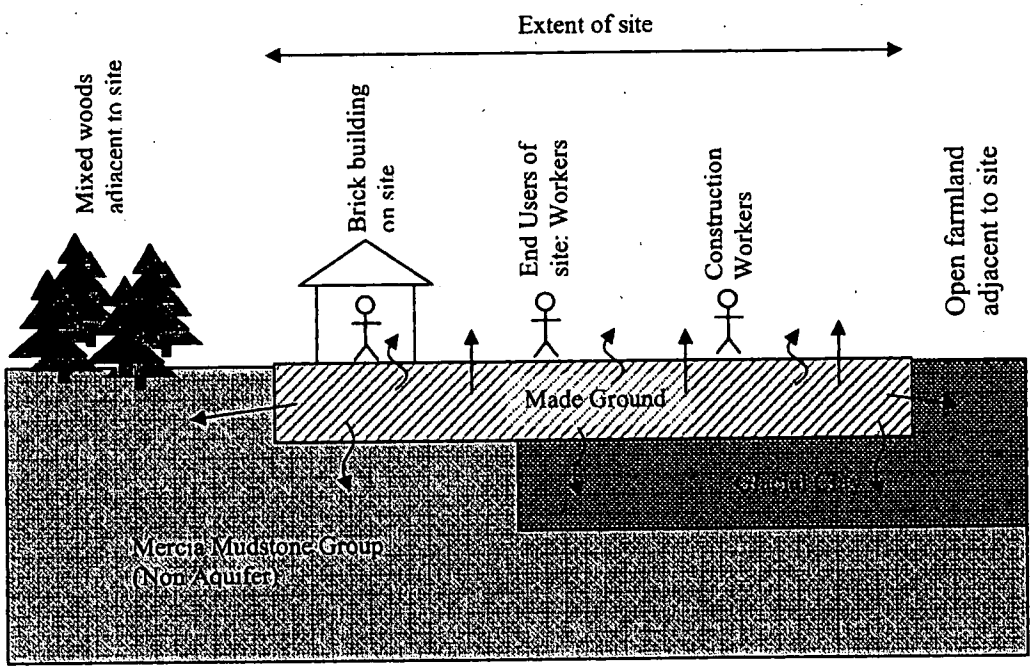
The proposed development is for a composting facility, comprising several building including for offices and storage, along with a significant amount of hard cover.

These building and the occupants would be considered to be significant receptors.

3.4 Initial Conceptual Site Model

Based on all the information gained in previous sections of this report the Conceptual Site Model (CSM) identifies the potential pollutant linkages which may exist on the site. Contaminants may be present within soil on site and may have the potential to impact on various receptors including human health of site-end-users, controlled waters and buildings.

From the available information the preliminary conceptual model is visualised as follows and summarised in Table 4:



Migration of soluble contaminants, soil gases and vapours.

Dermal Contact with contaminated soil or dust.

Made Ground: Including possible contaminants from military site use, electricity substations, Substantiated Pollution Incident and demolition material

Table 4: Initial Conceptual Model

Receptor	Potential Pollutant Linkage
Site users (Workers at the Composting Facility)	Inhalation of soil gas, vapours or dust.
	Ingestion of, and dermal contact with, contaminated soil or dust.
Construction/ maintenance workers.	Inhalation of soil gas, odours or dust.
	Ingestion of, and skin contact with, contaminated soil.
Buildings and Structures	Flow of ground gas into buildings. Asphyxiation, toxicity, explosion and fire hazards.
	Sulphate attack of foundations.
	Hydrocarbons penetrating plastic water supply pipes.
Groundwater	Migration of soluble contaminants into groundwater on or off site.
	Migration of oils into groundwater on or off site.
Surface water	Migration of soluble contaminants and/or direct run-off of contaminants.
	Migration of oils into groundwater on or off site.

3.5 Initial Environmental Risk Assessment

This section aims to expand the initial CSM to assess the level of risk for each potential pollutant linkage.

Table 5 shows classifications presented in CIRIA Report C552 which have been used in the assessment of risk:

Table 5: Risk Assessment from CIRIA C552

Probability	Consequences			
	Severe	Moderate	Mild	Minor
High	Very high	High	Moderate	Moderate / Low
Medium	High	Moderate	Moderate / Low	Low
Low	Moderate	Moderate / Low	Low	Very Low
Unlikely	Moderate / Low	Low	Very Low	Very Low

Table 6: Initial Environmental Risk Assessment

Receptor	Potential Pollutant Linkage	Estimated Degree of Risk to Receptor
Site users (Workers at the Composting Facility)	Inhalation of soil gas, vapours or dust.	Moderate
	Ingestion of, and dermal contact with, contaminated soil or dust.	Moderate
Construction/ maintenance workers	Inhalation of soil gas, odours or dust.	Low*
	Ingestion of, and skin contact with, contaminated soil.	Low*
Buildings and Structures	Flow of ground gas into buildings. Asphyxiation, toxicity, explosion and fire hazards.	Moderate / Low
	Sulphate attack of foundations.	Low
	Hydrocarbons penetrating plastic water supply pipes.	Moderate
Groundwater	Migration of soluble contaminants into groundwater on or off site.	Very Low
	Migration of oils into groundwater on or off site.	Very Low
Surface water	Migration of soluble contaminants and/or direct run-off of contaminants.	Very Low
	Migration of oils into groundwater on or off site.	Very Low

*Assumes basic PPE is used.

In this qualitative risk assessment a **Moderate** risk implies that remedial action may be necessary at the site, although until a contamination ground investigation is carried out this cannot be confirmed.

3.6 Conclusions and Recommendation

The Initial Environmental Risk Assessment has found an overall Moderate / Low risk for the site and it is therefore recommended that a Phase 2 Ground Investigation be carried out.

The objectives of any investigation will be to:

- Clarify the Initial Conceptual Site Model.
- Clarify the Initial Environmental Risk Assessment.
- Provide data for the design of any remedial works that may be required.
- Benchmark the contamination status of the site.

To achieve these objectives it is recommended that an investigation is undertaken comprising machine trial pitting. The holes should pass through all made ground into underlying natural soils and should be to a depth that soils or groundwater could be affected by any contamination that may be known of or present.

Samples of soil and groundwater (where possible) for contamination testing should be taken from the made ground and from some of the underlying natural soils, especially if considered to be contaminated.

Additionally it is recommended that some investigation work be carried out to facilitate foundation design. This could include cable percussive boring or percussive window sampling to recover undisturbed soils samples for analysis in the laboratory.