

Our Ref: 16REC001/RS

22nd September 2016

FAO
Read Construction
Enterprise Centre,
Blast Road,
Brymbo,
Wrexham
LL11 5BT



P / 2016 / 0928

Dear Sirs,

LAND AT PEN Y CAE SCHOOL, WREXHAM, NORTH WALES

Introduction

This document is to provide a Remediation Strategy for the contamination encountered in the Betts Geo Ltd site investigation in the location of WS1 in June 2016.

Site Location

The site is located south of Bryn Y Coed/Copperas Hill Road, Pen Y Cae, Wrexham, LL14 2SD.

Published Geology

Geology is anticipated as follows (Sheet 121 Wrexham 1:50,000 1993);

- Glacial Till – Clay Silt, Sand and Gravel
- Pennine Lower Coal Measures and Pennine Middle Coal Measures
Siltstone, Sandstone and Coal.

Fieldwork Scope

The fieldwork was undertaken on 1st June 2016 and included the following;

- Four (4 No) machine excavated trial holes to between 1.50mbgl (TP3) and 2.70mbgl (TP1).
- One (1 No) hand dug pit to 0.40mbgl.
- Three (3 No) window sampling small diameter boreholes to between 2.00mbgl (WS2) and 3.00mbgl (WS1).
- Three (3 No) small diameter boreholes installed with gas and groundwater monitoring wells, followed by six (6 No) ground gas monitoring visits over a period of at least three (3 No) months with varying barometric pressures.
- Chemical analysis (Metals, PAH's, TPH's) of four (4 No) samples.
- Analysis of four (4 No) samples for asbestos screening and geotechnical analysis.



Old Marsh Farm Barns, Welsh road,
Sealand, Flintshire CH5 2LY
Telephone: 01244 288 179
Fax: 01244 288 516

www.betts-associates.co.uk
enquiries@betts-associates.co.uk

Ground Conditions

- TOPSOIL – Silty very sandy CLAY.
- Various types of MADE GROUND.
- CLAY – Soft to stiff silty sandy CLAY.
- SAND – Medium dense gravelly fine to coarse SAND.

Contamination Encountered

- **Topsoil** - All determinants for heavy metals, TPH's and PAH's fell below the parkland and residential guidance within the Topsoil.
- **Made Ground** - All determinants for heavy metals, TPH's and PAH's fell below the parkland and residential guidance within the Made Ground with the exception of the lead in WS1 0.20m with a level of 12400mg/kg v SGV 1300mg/kg and arsenic in WS1 0.20m with a level of 71mg/kg v SGV 41.4mg/kg.
- **Natural Strata** - No samples within the Natural Strata were taken during the Ground Investigation.
- **Asbestos** - No asbestos was detected within any of the samples screened.

Remediation Strategy

It is believed that the works at the school are being phased as follows;

- Work starts 17th October 2016 on car parks, access roads and MUGA.
- Circa 18th January 2017 it is anticipated that commencement works in the school playground is to commence.

To ensure safe removal of the contamination in the vicinity of WS1 that delineation is required upon removal of tarmac playground and drains.



The following programme of works should be undertaken;

1. Attendance by Betts Geo Engineer to supervise the removal of the tarmac and the delineation of the contamination beneath the tarmac with sampling for arsenic and lead.
2. Contaminated material to be placed in skip and covered with metal lid, visqueen or tarpaulin to prevent water ingress.
3. The contaminated material to stay within the skip until the results are received (5-6 workings days).
4. A review of site works and levels to determine whether the material can be safely stored on site at depth, protecting the site end users and prevent contamination to the water course that is proposed. A
5. Alternatively WAC testing will be required to dispose of the material offsite to landfill.

It is essential that Read Construction inform Betts Geo Ltd of any changes to the proposed works within the contaminated area, so that the contaminated material is safely disposed of.

Yours Sincerely



Steven Millar
Senior Engineering Geologist/Geo-Environmental Engineer
BETTS GEO ENVIRONMENTAL LIMITED



1470