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Remediation Method Statement

For The Proposed Development

Austendyke Road, Weston Hills, Spalding

Client Tawny Homes Ltd

Date: April 2017
Report: 973/4008/P

REMEDICATION METHOD STATEMENT
FOR THE PROPOSED DEVELOPMENT
AUSTENDYKE ROAD, WESTON HILLS, SPALDING

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1.0 Introduction

This document is produced for Tawny Homes Ltd. as the method to be employed in the remediation of a site off Austendyke Road, Weston Hills, Spalding.

The site has been the subject of investigations by Humberside Materials Laboratory. This document is intended to be a working document of the procedures employed by all parties concerned with the remediation of the site.

This method statement is produced solely for Tawny Homes Ltd. and should only be copied in full. When transmitted electronically the definitive copy of the report is held by Humberside Materials Laboratory Ltd.

2.0 Site Description

The site is situated on land to the north of Austendyke Road in Weston Hills near Spalding. The national grid reference for the centre of the site is 528360 321890. The site is rectangular shaped. It was previously used as a village fuel station and vehicle repair facility. The site comprises of an old forecourt with a building that is currently a workshop. To the rear is an area of hardstanding. There is an above ground diesel tank the left front of the building. To the front is the former forecourt which has a below ground fuel tanks believed to have been decommissioned by cement grout filling. Above these were two fuel pumps. A location plan for the site is enclosed in appendix A. A proposed layout plan is not available at this stage but is thought to have three houses at the rear and two at the front with a private access road down the middle. The site is still operational as a repair facility. It is as described above.

The site is flat with domestic properties to the front right and left. There is a commercial property at the rear of the domestic property to the eastern side of the site. To the rear are open fields.

Local information has indicated the site was originally a small village fuel station. An additional tract of land to the rear was purchased and used as a haulage yard. The fuel station side of the business closed many years ago. Local information indicated a spill had occurred near the above ground diesel tank many years ago. This explains the slight odour at the shallow level. The sample from the natural ground immediately below the hardstanding did not indicate excess contamination. It is however, recommended that the made ground from around the tank is removed from site.

3.0 Objectives

The aim of the works is to remove the made ground from all garden areas which has been proven to contain PAH above the assessment criteria and is also unsuitable as a growth medium in gardens.

To remove the below ground fuel tanks and associated pipework. To remove made ground from around the above ground fuel tank that has been impacted by a historic spill.

The success of the remediation is dependent on good operational procedures. It is essential that good communication links are maintained and that verification for the works is obtained. There is an obligation to keep the local authority informed of any problems or requests for variations to this method statement.

4.0 Remediation Overview

The below ground fuel tanks will be removed from site.

The above ground fuel tank will be removed from site. The impacted made ground from the area around this will be removed from site. The extent will be agreed on site based on visual and olfactory evidence.

The current ground conditions present within the site forms a stable platform for structural work required on the site. Therefore, structural and ground works will be undertaken prior to the removal of the made ground in all garden areas. Any made ground removed as part of the structural and groundworks will be removed from site. Natural ground has been proven to be uncontaminated and maybe stockpiled on site and used later to make up levels in garden areas. This will be stockpiled in such a manner that it cannot be cross contaminated by any other materials.

Standard PPE is considered suitable for all operatives involved in the works. A good standard of hygiene should be maintained by all involved on the site.

4.1 Pre-contract works

The site is to be secure when work is not being undertaken on site, once construction has started.

The project and the remediation will be managed and undertaken by Tawny Homes Ltd.

Appointed Independent Consultant for remediation works
Mr M Green Humberside Materials Laboratory Ltd.

Surplus natural soils are anticipated to remain on site for use in garden areas. If additional topsoil is required for garden areas this will be from a proven clean inert source.

5.0 Remediation Methods

The below ground fuel tanks will be excavated and removed from site. If TPH impacted soils are encountered around the tanks this will be excavated and removed from site.

The above ground fuel tank will be removed from site. Following this the impacted made ground from the area around the tank will be excavated and removed from site.

The current ground conditions present within the site forms a stable platform for structural work required on the buildings. Therefore, it is proposed to undertake the structure work prior to remediation of the garden areas.

Standard PPE is considered suitable for all operatives involved in the works. A good standard of hygiene should be maintained by all involved on the site.

On completion of the structural work and groundwork for each house the made ground shall be excavated and removed from all garden areas, front and rear.

Surplus natural soils from site will be used to makeup level. If imported topsoil is used it shall be from a proven clean inert source and deposited within the site in such a manner that it cannot be cross contaminated by any other materials. It will be deposited and levelled in each garden area to the required finished level.

Photographic evidence will also be taken of the locations and depths. Photographs will include a marked board indicating the plot number and date.

If during the development any unexpected contamination is encountered, work in that area will be halted. The local authority shall be notified. The unexpected contamination shall be investigated and remediated, if required, to the satisfaction of the local authority.

6.0 Validation

The below ground tanks will be removed. The resulting void will be inspected for visual and olfactory evidence of contamination. Five samples from the sides and base of the excavation will be taken and tested for speciated TPH to demonstrate the cleanliness of the remaining soils. Photographs will be taken of the excavation at various stages. The resulting void will be backfilled with clean inert material.

The above ground fuel tank will be removed from site. The surrounding made ground will be removed until there is no visual or olfactory evidence of TPH impacted material. Photographs of this removal shall be taken.

Photographs shall be taken of the made ground removal from each plot and the deposition of natural soils or imported soils.

If imported topsoil is required data will be obtained prior to importation to demonstrate it is clean and inert. The test results for imported materials shall be evaluated against the criteria for domestic garden with plant uptake included as given in the LQM/CIEH S4UL report. The assessment criteria are reproduced below.

element	mg/kg
Arsenic	37
Boron	290
Cadmium	11
chromium III	910
chromium VI	6
lead (C4SL)	200
Mercury element	1.2
mercury inorganic	40
mercury methyl	11
selenium	250
copper	2400
nickel	130
zinc	3700

element	mg/kg
Acenaphthene	210-1100
Acenaphthylene	170-920
Anthracene	2400-11000
benzo a anthracene	7.2-13
benzo pyrene	2.2-3
benzo b fluoranthene	2.6-3.7
benzo k fluoranthene	77-100
benzo perylene	320-350
chrysene	15-27
dibenzo anthracene	0.24-0.3
fluoranthene	280-890
fluorene	170-860
indeno pryene	27-41
Naphthalene	2.3-13
phenanthrene	95-440
pyrene	620-2000
BaP as Surrogate marker	0.79-1.1

A range is quoted for PAH contaminants based on the soil organic matter content which will be determined on each sample submitted at the prescribed rates.

element	Residential with plant uptake 1% SOM	element	Residential with plant uptake 1% SOM
TPH aliphatic		TPH aromatic	
C5-6	42	C5-7	70
C6-8	100	C7-8	130
C8-10	27	C8-10	34
C10-12	130(48)	C10-12	74
C12-16	1100(24)	C12-16	140
C16-35	65000(8.5)	C16-21	260
		C21-35	1100

All imported soils will be from a proven clean inert source. Test data will be made available to prove the soils are compliant with the assessment criteria, based on domestic gardens with plant uptake included. If reliable test data is not available, testing will be undertaken prior to importing. Testing shall include metals, speciated polycyclic aromatic hydrocarbons and asbestos. If any source is proposed that is either potentially from a brownfield or recycled site, then speciated petroleum hydrocarbons will also be tested for. Further advice will be sought from the independent engineer once the proposed source is confirmed as to any additional testing that may be required, which will be dependent on the known history of the proposed source.

Testing will be undertaken at a minimum sample frequency of 1 per 250m³ for material from a greenfield site or 1 per 100m³ for material from a brownfield site. The minimum number of samples shall be 3 from a greenfield source and six from a brown field source. Any material above the assessment criteria will not be accepted on site. Photographs will be presented as evidence of the thickness throughout.

On completion of the works a validation report shall be produced. This will include.

- a) Description of remediation
- b) Photographs of the areas and depths at each stage.
- c) Test data at the prescribed rate to prove the cleanliness of imported topsoil.
- d) Diary of events.
- e) Conveyance notes for any materials removed from site and the location for disposal.
- f) Delivery notes for the imported topsoil and source details.

Copies of the validation report will be submitted to the local authority.

7.0 Conclusion

This document provides a working method for the remediation and requirements to validate the remediation of the site to make it suitable for residential development. It employs best practices to ensure a cost-effective solution to achieve the objectives.

The success of the remediation is dependent on good operational procedures. It is essential that good communication links are maintained and that the independent consultant is in attendance on a regular basis.

Order of the works is: -

- Secure site
- Remove above and below ground tanks with validation.
- Complete structural work.
- Excavate made ground from all garden areas.
- Placement of topsoil to garden areas.
- Validate works throughout.

If during the development any unexpected contamination is encountered, work in that area will be halted. The local authority shall be notified. The unexpected contamination shall be investigated and remediated, if required, to the satisfaction of the local authority.

There is an obligation to inform the local authority environmental health department of any variations from this method statement or unexpected conditions. On completion, copies of the validation report shall be submitted to North Lincolnshire Council.



M.J. Green I.Eng. F.I.H.I.E.

APPENDIX A



Site location