



PART 2A OF THE ENVIRONMENTAL PROTECTION ACT 1990

REMEDIATION STATEMENT

This Remediation Statement has been prepared pursuant to section 78(h) of the Environmental Protection Act 1990, for the property:

10 ALNEY TERRACE, ALNEY ISLAND, GLOUCESTER, GL1 2RZ

(Identified on the attached plan as land within the blue boundary)

National grid reference 382412, 219162

The above property has been determined to be Contaminated Land, under Part 2A of the Environmental Protection Act 1990 and this Remediation Statement should be read in conjunction with the Record of Determination that Land is Contaminated Land, issued on 5th August 2008.

This Remediation Statement describes the remediation actions claimed to have been carried out, the dates on which they are claimed to have been carried out, the details of the person(s) responsible for carrying them out, and details of the evidence that they were carried out.

Gloucester City Council is satisfied that the remediation work summarised in this Remediation Statement has been carried out appropriately, and that the significant pollutant linkage, which formed the basis for the site being identified as Contaminated Land, no longer exists.

Gloucester City Council currently has no further concerns regarding risk from ground contamination at 10 Alney Terrace.

Dated 5th May 2010

Lloyd Griffiths
Environmental Protection Manager

Environmental Health
Gloucester City Council
Herbert Warehouse
The Docks
Gloucester
GL1 2EQ

10 ALNEY TERRACE, ALNEY ISLAND, GLOUCESTER, GL1 2RZ

(Identified on the plan below as land within the blue boundary)



1 - DESCRIPTION OF THE PROPERTY

The property comprises the semi-detached residential property 10 Alney Terrace, Alney Island, Gloucester, GL1 2RZ.

National Grid Reference: 382412, 219162

At the time of determination the garden of the property was predominantly lawn and jetty and patio.

At the completion of remediation the garden of the property was predominantly lawn and jetty and patio.

2 - DESCRIPTION OF THE SIGNIFICANT POLLUTION LINKAGE

Pollutants: Benzo(a)Pyrene in surface soils

Pathways: Direct soil/dust ingestion
Consumption of homegrown produce and soil
Consumption of soil attached to homegrown produce
Indoor dermal uptake from dust
Outdoor dermal uptake from soil contact
Indoor dust inhalation
Outdoor dust inhalation

Receptor: Young child (age 1-6 years) potentially resident at the determined property

In combination these source-pathway-receptor linkages are considered to represent a Significant Pollution Linkage, indicative of a significant possibility of significant harm to human health.

Subsequently the Council accepted that although the majority of the pathways above were not likely to be in effect at the time of determination, there was no regulatory restriction to how the garden could be used in the future. Given these concerns and the soil results obtained, the decision was taken, following discussions with both the Health Protection Agency and the Environment Agency, to determine the site.

SHALLOW SOIL RESULTS FROM THE PROPERTY (mg/kg)

<u>Benzo(a)Pyrene:</u>	120.0	62.0	57.0	35.0	33.0	25.0	21.0	18.0
	13.0	9.3	5.1	4.9	4.8	1.9		

Sample Mean: 29.3mg/kg

US95%: 44.55mg/kg

Assuming Normal Distribution

97% confidence that population mean exceeds 11mg/kg

98% confidence that population mean exceeds 9mg/kg

99% confidence that population mean exceeds 6mg/kg

Assuming Non-normal Distribution (using Chebychev)

87% - 97% confidence that population mean exceeds 11mg/kg

85% - 98% confidence that population mean exceeds 9mg/kg

88% - 99% confidence that population mean exceeds 6mg/kg

Refer to the Record of Determination for further information.

3 - DETAILS OF THE REMEDIATION CONTRACTOR

Following tender, Gloucester City Council appointed Vertase FLI Limited as the principal remediation contractor for the project.

Vertase FLI Limited
Number One
Middle Bridge Business Park
Bristol Road
Portishead
Bristol
BS20 6PN

Land Quality Management were appointed to undertake final soil quality validation testing of all soft landscaped garden areas near the completion of the project.

Land Quality Management Limited
Unit 8
The Business Park
Technology Drive
Beeston
Nottingham
NG9 2ND

Project management was undertaken by Gloucester City Council's Contaminated Land Officer, Steve Moreby.

Environmental Protection
Gloucester City Council
Herbert Warehouse
The Docks
Gloucester
GL1 2EQ

Additional engineering design of a retaining wall structure at one property was undertaken on behalf of the Council by a qualified engineer.

4 - SUMMARY OF THE REMEDIATION UNDERTAKEN

The following summary has been taken from the Vertase FLI Limited Contract Completion Report (Rev A) March 2010, and relates to the remediation carried out between 15th June (mobilisation) and 19th September 2009 (demobilisation).

- 1 Application for Land Drainage Consent from the Environment Agency
- 2 Production of the Remediation Method Statement
- 3 Pre-Commencement Topographic Survey, detailing boundaries, fencelines, roads and levels
- 4 Pre-Commencement Condition Survey
- 5 Dismantling and removal to storage of all garden structures and contents
- 6 Vegetation strip
- 7 Excavation of gardens, to a maximum depth of 0.8m bgl.

- 8 Appropriate classification and disposal of waste arisings
- 9 Installation of a marker layer at the base of the excavations
- 10 Backfill and compaction of excavated areas
- 11 Reinstatement of lawns and hardstanding areas
- 12 Reinstatement of fences and access routes.

Excavation was conducted by small mobile plant within gardens where appropriate. The excavated soils were transported to a temporary stockpile area (bundled and covered) where they were placed in clearly marked stockpiles for each garden. Each stockpile was then sampled to allow waste classification prior to off-site disposal.

Within the gardens a marker layer of visually distinct material was placed at the bottom of all excavations to clearly indicate the extent of the remediated soils. The excavations in each garden were inspected by Gloucester City Council prior to backfilling to confirm the required depth had been achieved.

All imported soils were stockpiled on site and tested by Vertase FLI prior to placement within the gardens (further validation testing of the remediated gardens was conducted by independent consultants (Land Quality Management Ltd) following the completion of works. The lower 0.5m of topsoil was compacted once placed, via light mechanical compaction; to avoid reducing its growing potential the top 0.3m of topsoil did not undergo compaction.

Gardens were completed by the provision of turf, patio or decking, as instructed by GCC, following discussions with the residents. At 10 Alney Terrace the garden was finished to lawn, patio and deck. A photographic record was obtained.

On completion of all excavations, backfilling, top-soiling and turf laying, all fences were reinstated. Wherever possible original panels were retained and used, and any replacement materials were kept as close in style to the original materials as possible, and approved in advance by Gloucester City Council.

One significant variation to the original specification was implemented at 10 Alney Terrace, the provision of a replacement retaining wall in the rear garden. During preliminary works in No.10, it was established that excavation of soils from within the garden area would either be significantly restricted, or would risk compromising the integrity of the existing retaining wall structure.

Gloucester City Council employed an independent geotechnical engineer to assess and design a new retaining structure, using stone filled baskets, which was then constructed by Vertase FLI. The drawing D1025_20 (Vertase FLI) shows the layout and design of the as-built structure.

All soils exported off-site were hauled by Bristol and Avon Ltd. In total 380 tonnes of excavated soils were exported from the residential garden areas. The arisings were taken to Kingsweston Landfill, Avonmouth, Bristol.

A three month snagging period took place at the completion of the project. At No.10 Alney Terrace significant snagging works comprised provision of a safety handrail and other works on the replaced jetty, a realignment of the front gate and restoration of the barrier and soil below side fencing.

Vertase FLI Limited demobilised from site on 19th September 2009 following completion of all works in accordance with the Remedial Strategy and original scope of works produced by Gloucester City Council. Subsequent testing within the remediated gardens (soft landscaped areas) conducted by LQM indicated that no elevated contaminant concentrations were recorded within the gardens.

Prior to leaving the site, Vertase's Contract Completion Report states that Vertase FLI Limited's Site Manager carried out a walkover with the property occupiers, to confirm they were satisfied with the works undertaken.

5 - REFERENCES

Site Specific Information, Reports and Documents – Remediation and Validation

Vertase FLI Limited
Contract Completion Report: Alney Island, Gloucester (Rev A)
(March 2010)

Land Quality Management Limited
Verification Sampling of Imported Topsoil and Reporting
(September 2009)

Site Specific Information, Reports and Documents – Investigation and Determination

Fugro Engineering Services Ltd
Alney Island Flood Defence: Site Investigation Interpretative report [DRAFT] (September 2005)

Land Quality Management
Alney Island Investigations: Phase 1 Assessment (April 2007)

Land Quality Management
Alney Island Investigations: Phase 2 Assessment Factual Report (April 2008)

Land Quality Management
Alney Island Investigations: Phase 2 Assessment Interpretative Report (April 2008)

Geotechnical Engineering Ltd
Alney Island Investigations: Appendix 3 Exploratory Hole Logs (December 2007)

Land Quality Management
Alney Island Investigations: Appendix 4 Soil and Leachate Analysis (April 2008)

Land Quality Management
Alney Island Investigations: Appendix 5 Groundwater Analysis (April 2008)

Health Protection Agency
Consultation response letter concerning assessment of risk at Alney Island (July 2008)

Environment Agency
Emailed correspondence concerning justification for determination (July 2009)

Gloucester City Council

Record of Determination that land is Contaminated Land (*5th August 2008*)

Gloucester City Council

Record of Determination that land is Contaminated Land (*5th August 2008*)