

68, 70, 72 and 74 Wellington Street, Thame
Remediation Summary Statement
South Oxfordshire District Council



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Report to: **South Oxfordshire District Council
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Wallingford
OX10 8NL**

Report Title: **68, 70, 72 and 74 Wellington Street, Thame
Remediation Summary Statement**

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Executive Summary

Site Location and Description:	<p>The site comprises residential properties at 68, 70, 72 and 74 Wellington Street, Thame, Oxfordshire, and their curtilages.</p> <p>The National Grid Reference for the site is 471025, 205750.</p> <p>The area subject to remediation comprised the front and rear gardens of the properties.</p>
Proposed Site Use:	<p>The site is to remain in residential use.</p>
Site History:	<p>The site was occupied by a part of as gas works between the 1930s and 1970s. The site was redeveloped with the current houses in the 1970s.</p>
Contaminated Land Inspection Work:	<p>The site has been subject to various phases of inspection for potentially contaminated land by South Oxfordshire District Council under Part 2A of the Environmental Protection Act 1990. The conclusion of the inspection work was that there was a significant possibility of significant harm to human health from several PAH compounds, cyanide and petroleum hydrocarbons within soils at the site.</p>
Remediation Contractor:	<p>Hydrock Contracting Ltd, Over Court Barns, Over Lane, Almondsbury, Bristol, BS32 4DF.</p>
Remediation Supervisor:	<p>Ecus Ltd, Brook Holt, 3 Blackburn Road, Sheffield, South Yorkshire. S61 2DW.</p>
Remedial Works Undertaken:	<p>The existing contaminated topsoil and underlying made ground were substantially excavated to a depth of 750mm (locally 600mm) and removed from site by licensed waste carriers to licensed waste management facilities. A clean cover system was then installed, comprising geofabric separator, high visibility warning barrier, capillary break layer and clean imported subsoil and topsoil prior to site reinstatement with turf, fences, footpaths and sheds.</p>
Outcome of the Remediation Works:	<p>The remediation works have been undertaken in general accordance with the Remediation Method Statement. The risk to the health of the residents living on the site has been removed and therefore the site is no longer be considered to be 'contaminated land' as defined within Part 2A of the Environmental Protection Act 1990.</p>

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1 Introduction

1.1 Terms of Reference

- 1.1.1 Ecus Ltd (hereafter Ecus) was instructed by South Oxfordshire District Council (SODC) to produce a Remediation Summary Statement for land at 68, 70, 72 and 74 Wellington Street, Thame, Oxfordshire, hereafter referred to as 'the site'.
- 1.1.2 The site previously formed part of a gas works, and has previously been subject to several phases of inspection as being potentially 'contaminated land' under Part 2A of the Environmental Protection Act 1990 (hereafter Part 2A), as reported within several reports produced by Serco Ltd between 2006 and 2008.
- 1.1.3 The site was determined as 'contaminated land' as defined within Part 2A by SODC based on the evidence and recommendations within the reports produced by Serco, due to the risk posed to site residents from exposure to soils contaminated by gasworks wastes remaining on the site.
- 1.1.4 Accordingly, SODC employed Ecus to produce a Remediation Method Statement in April 2011 to describe how the site should be remediated so that it no longer met the definition of 'contaminated land' and the risk to the site residents was reduced to an acceptable level.
- 1.1.5 This Remediation Summary Statement is a non-technical summary of the main Remediation Verification Report produced by Ecus.
- 1.1.6 Reference should be made to the full Remediation Verification Report for all technical details relating to the remediation works.
- 1.1.7 All previous site investigation reports, the Remediation Method Statement and the Remediation Verification Report are available for inspection at the offices of SODC at Benson Lane, Crowmarsh Gifford, Wallingford, OX10 8NL.

1.2 Objectives of the Remediation and Remediation Summary Statement

- 1.2.1 The main objective of the remediation works, as set out in the Remediation Method Statement (RMS) is to remove contaminated soils from the site and replace with clean soils, so that the risks to the health of the residents living on the site is removed.
- 1.2.2 The objectives of this Remediation Summary Statement are as follows:
- To state where information relating to the remediation may be accessed;
 - To summarise the remediation works;
 - To confirm that the remediation and reinstatement of the site has been undertaken satisfactorily;
 - To confirm that the risks to the health of site residents from contaminated soils have been removed, and that the land is no longer 'contaminated land'.

1.3 Site Location

- 1.3.1 The location of the site, which centres on National Grid Reference 471025, 205750, is shown in Figures A1 and A2, Appendix A.
- 1.3.2 The site comprises four residential dwellings and their curtilages, comprising two pairs of semidetached houses (68 & 70 Wellington Street and 72 & 74 Wellington Street).

1.4 Basis of the Requirement for Remediation

- 1.4.1 Local authorities are required to inspect land within their areas for the purposes of identifying any land that meets the definition of contaminated land under Part 2A.
- 1.4.2 After several investigations by Serco, the Council determined the site as being contaminated land under Part 2A, based on the risk to human health from soil contaminants including polycyclic aromatic hydrocarbon (PAH) compounds, free cyanide and petroleum hydrocarbons.

1.5 Chosen Remediation Technique

- 1.5.1 The chosen remediation technique was the removal of existing contaminated soils to a depth of 750mm in order to allow installation of the clean soil cover system while maintaining the existing ground levels.
- 1.5.2 A narrow strip of soil between Nos. 70 and 72 Wellington Street was to be subject to shallower excavation and clean soil cover system 600mm thick, due to the difficulty of excavating in the confined space within this area. The installation of the clean soil cover system in this area is the same as the rest of the site, with a reduced thickness of subsoil. Therefore the risk of contact with contaminated soil in this area has been removed.

2 Organisations involved in the Remediation

2.1 Employer

2.1.1 The Employer was South Oxfordshire District Council (SODC) of Benson Lane, Crowmarsh Gifford, Wallingford, OX10 8NL.

2.2 Remediation Contractor

2.2.1 The remediation works were undertaken by Hydrock Contracting Ltd of Over Court Barns, Over Lane, Almondsbury, Bristol, BS32 4DF.

2.2.2 The Remediation Contractor was responsible for all setting out, site clearance, excavation and disposal of contaminated soils, importation and replacement of clean soils and reinstatement of the site.

2.3 Remediation Supervisor

2.3.1 The remediation works were supervised by Ecus. The Remediation Supervisor was responsible for supervision of the remediation works to ensure compliance with the Remediation Method Statement.

2.4 CDM Co-ordinator

2.4.1 The remediation works were notifiable under the Construction (Design & Management) Regulations 2007 (CDM Regulations). The CDM Co-ordinator was Atkins Ltd.

2.5 Dates of the Remediation Works

2.5.1 The remediation works were undertaken between September and December 2011.

3 Description of the Remediation Works

3.1 Site Clearance and Enabling Works

- 3.1.1 During the site clearance phase, fences and hedges between the gardens were removed, along with trees, bushes and other vegetation within the gardens. Vegetation was chipped on site and removed in skips to a licensed waste management facility as green waste. Sheds and outbuildings were dismantled and, where present, patios and shed-bases taken up and stored for replacement following the remediation works. Concrete paths and slabs were broken out and removed from site.
- 3.1.2 Prior to the remediation works, topographical, boundary, utility and structural surveys were carried out by the Contractor for all properties on the site and on Wellington Street. Survey stations were set up on the houses (Nos. 68, 70, 72 and 74) themselves in order to allow for weekly monitoring as a precautionary measure to ensure no movement in structures during the shallow digging works.

3.2 Excavation of Contaminated Soils

- 3.2.1 Contaminated soils were excavated primarily using a 3 tonne mini-digger, with supplementary excavation by hand where required.
- 3.2.2 The depth of excavation was generally 750mm below existing ground level (begl).
- 3.2.3 Those areas of the site where excavation of existing soils to 750mm below ground level was not possible are indicated on Figure A3, Appendix A. This area equates to 7% of the garden areas. Calculations show that there is no risk to the health of residents from soils remaining in the gardens on the site.
- 3.2.4 In addition, there were areas within the front gardens that were not excavated to the full 750mm depth due to the presence of underground services.
- 3.2.5 No natural subsoils were encountered during the works.
- 3.2.6 Soils identified as being hazardous and non-hazardous waste were excavated, handled and disposed of separately.
- 3.2.7 Excavated soils were stored for a minimal period prior to removal from the site within the designated soil storage area. Prior to stockpiling, the front gardens were covered with plastic sheeting and plywood boards to avoid contact with the underlying ground.

3.3 Disposal of Contaminated Soils

- 3.3.1 The tonnages of waste soils removed from the site to disposal sites are summarised in Table 1.

Table 1: Tonnages of Waste Soils Removed from Site

Waste Type	Tonnage Removed
Non-hazardous waste soils	369
Hazardous waste soils	203.80
Hazardous waste soils (failing waste acceptance criteria)	57.38
TOTAL	630.18

- 3.3.2 Waste soils were removed from site by Lynch Plant Hire and Haulage Ltd, Lynch House, Parr Road, Stanmore, HA7 1LE, and Churngold Recycling Ltd, Unit 1,

Severn View Industrial Park, Hallen, Bristol, BS10 7SD who are Environment Agency-licensed waste carriers.

3.3.3 All waste soils were disposed of at the following licensed waste disposal facilities, as shown in Table 2.

Table 2: Disposal Sites for Waste Soils Removed from Site

Waste Management Site	Operator	Waste Classification
Chapel Farm, Blunston St Andrew, Oxfordshire	Hills Waste Solutions Ltd	Non-hazardous waste soils
Parkgate Farm, Purton, Wiltshire	Hills Waste Solutions Ltd	Hazardous waste soils
Churngold Recycling Yard, Unit 1, Severn View Industrial Park, Hallen, Bristol, BS10 7SD	Churngold Recycling Ltd	Hazardous waste soils failing WAC

3.3.4 No pre-treatment of waste soils was undertaken on the site prior to removal.

4 Placement of the Clean Soil Cover System

4.1 Geofabric and Warning Barrier Layer

4.1.1 Following excavation of contaminated soils and prior to the placement of clean soils, a geofabric layer was laid down to prevent mixing of the clean soil cover system and underlying subgrade. A layer of orange warning barrier mesh was placed above this to indicate to residents, builders etc., digging or excavating on the site in the future that the barrier between clean soil and potentially contaminated soil.

4.2 Capillary Break Layer

4.2.1 A 150mm thick capillary break layer was placed above the basal geofabric and warning barrier layer across all areas excavated, except where services were present within the front garden areas.

4.2.2 The capillary break layer comprised 40mm single-sized limestone imported directly from Shellingford Quarry near Faringdon, Oxfordshire.

4.2.3 Following placement of the capillary break layer, a second layer of geofabric was placed to prevent loss of fines from the overlying subsoil into the coarse capillary break material.

4.3 Subsoil

4.3.1 A layer of subsoil, 300mm thick, was placed over the capillary break layer.

4.3.2 The subsoil comprised as-dug quarry overburden (light yellow-brown slightly gravelly sand) delivered directly to the site from Shellingford Quarry near Faringdon, Oxfordshire.

4.3.3 Samples of the subsoil imported to the site were analysed for the suite of chemical determinants specified within the Remediation Method Statement by Chemtest, Newmarket, a UKAS accredited testing laboratory, on behalf of the Remediation Contractor.

4.3.4 The results of the chemical analysis met the chemical acceptance criteria within the Remediation Method Statement, and the subsoil was found to be acceptable for use within residential gardens.

4.4 Topsoil

4.4.1 The topsoil comprised quarry overburden delivered directly to the site from Shellingford Quarry near Faringdon in Oxfordshire.

4.4.2 Laboratory analysis provided by the supplier confirmed that the topsoil is in accordance with British Standard BS3882:2007, *Specification for Topsoil and Requirements for use*.

4.4.3 Samples of the topsoil imported to the site were analysed as specified within the Remediation Method Statement by Chemtest, Newmarket, a UKAS accredited testing laboratory, on behalf of the Remediation Contractor.

4.4.4 The results of the chemical analysis met the chemical acceptance criteria within the Remediation Method Statement, and that the topsoil is suitable for use within residential gardens.

5 Reinstatement

5.1 Reinstatement Works Undertaken

- 5.1.1 Following the placement of the clean soil cover system, the Remediation Contractor reinstated the site to render it suitable for continuing residential use in accordance with the Remediation Method Statement.
- 5.1.2 The Remediation Contractor undertook ground levelling surveys before excavation of contaminated soils and after replacement with clean imported soils. These surveys showed that the finished ground levels are within 50mm of the original ground levels across the site. Accordingly, the restoration of ground levels is considered to be in accordance with the Remediation Method Statement.
- 5.1.3 Following placement of clean topsoil, imported turf was laid within the garden areas. The turf was supplied by certified suppliers and pre-treated with non-residual herbicides.
- 5.1.4 Fences were erected to form the boundaries between the rear gardens of the properties to replace those removed during the remediation works. Some fence panels forming the rear garden boundary between Nos. 68 and 70 immediately adjacent to houses and to the rear site boundary remained in place throughout the duration of the works and were not replaced.
- 5.1.5 Some shrubs were removed from the rear garden of No. 72 and placed adjacent to the rear boundary of No. 70 to give additional visual screening to the rear boundary of the site.
- 5.1.6 The Remediation Contractor made good any damage caused during the remediation works, including replacement of a drain cover in the front garden area. In addition, a gas pipe damaged within the front garden area was repaired by Southern Gas, with the cost borne by the Remediation Contractor.

6 Conclusions

6.1 Confirmation that the Remediation has been Undertaken Satisfactorily

6.1.1 Existing contaminated soils have been substantially removed from the site to the depths required within the RMS and removed to licensed waste management facilities, and replaced with a clean soil cover system that is in accordance with the requirements within the RMS. The site has been reinstated to the satisfaction of the residents and / or SODC. It is therefore confirmed that the remediation has been undertaken satisfactorily.

6.2 Confirmation that the Remediation Objectives have been achieved

6.2.1 The primary objective of the remediation, to ensure that the risk to the health of residents living on the site from contaminated soils is no longer present, has been achieved.

6.3 Precautions to be undertaken during Future Excavation

6.3.1 Care should be taken during future digging or excavation within the gardens to avoid damage to the upper geofabric separating layer located 600mm below finished ground level, which is white in colour.

6.3.2 There is a bright orange plastic marker barrier layer above the lower geofabric layer located 750mm below ground level to alert anyone excavating to the fact that they have reached the base of the clean cover system and potentially contaminated soils are present below that depth.

6.3.3 It was identified and accepted within the Remediation Method Statement that it would be likely that some existing soils would have to remain in place at depths shallower than 750mm, as it would not be possible to excavate them without creating a risk of damage to structures, trees or underground services, etc.

6.3.4 The areas in which complete excavation was not undertaken, and therefore in which existing soils may remain within 750mm of the ground surface are shown on Figure A3, Appendix A.

6.3.5 Where excavating within the areas highlighted in Figure A3, the following precautions should be undertaken:

- Gloves should be worn when contact with the soils could occur;
- Any soil that is attached to clothes, boots, etc., should be removed before they are taken indoors;
- There should be no eating, drinking or smoking when working in contact with soils;
- Any contractors employed to undertake works involving excavation in the future should be given a copy of this document so that they are aware of the precautions that they should adopt;
- If any building or excavation works that may extend deeper than 750mm below ground level in garden areas are planned, South Oxfordshire District Council must be contacted for advice.

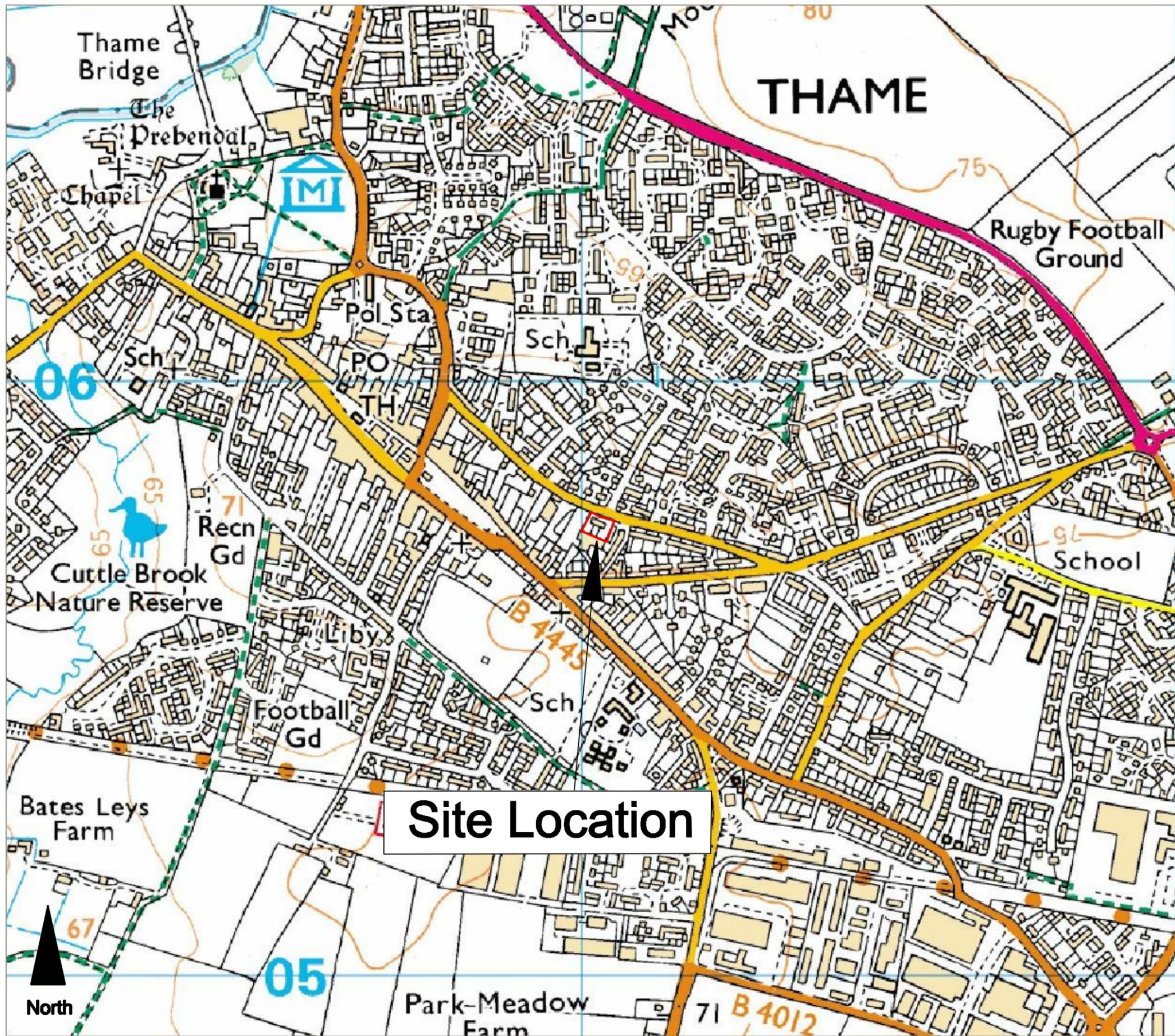
6.3.6 If there is any doubt as to the precautions that should be undertaken when excavating on the site, South Oxfordshire District Council should be contacted in the first instance for advice.

6.4 Summary

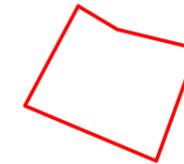
- 6.4.1 There is no longer a risk to the health of residents from contaminated soils on the site. Therefore, the site no longer meets the definition of 'contaminated land' under Part 2A of the Environmental Protection Act 1990.

Appendix A: Figures

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KEY



Site boundary

Site Location

Remediation Verification Report

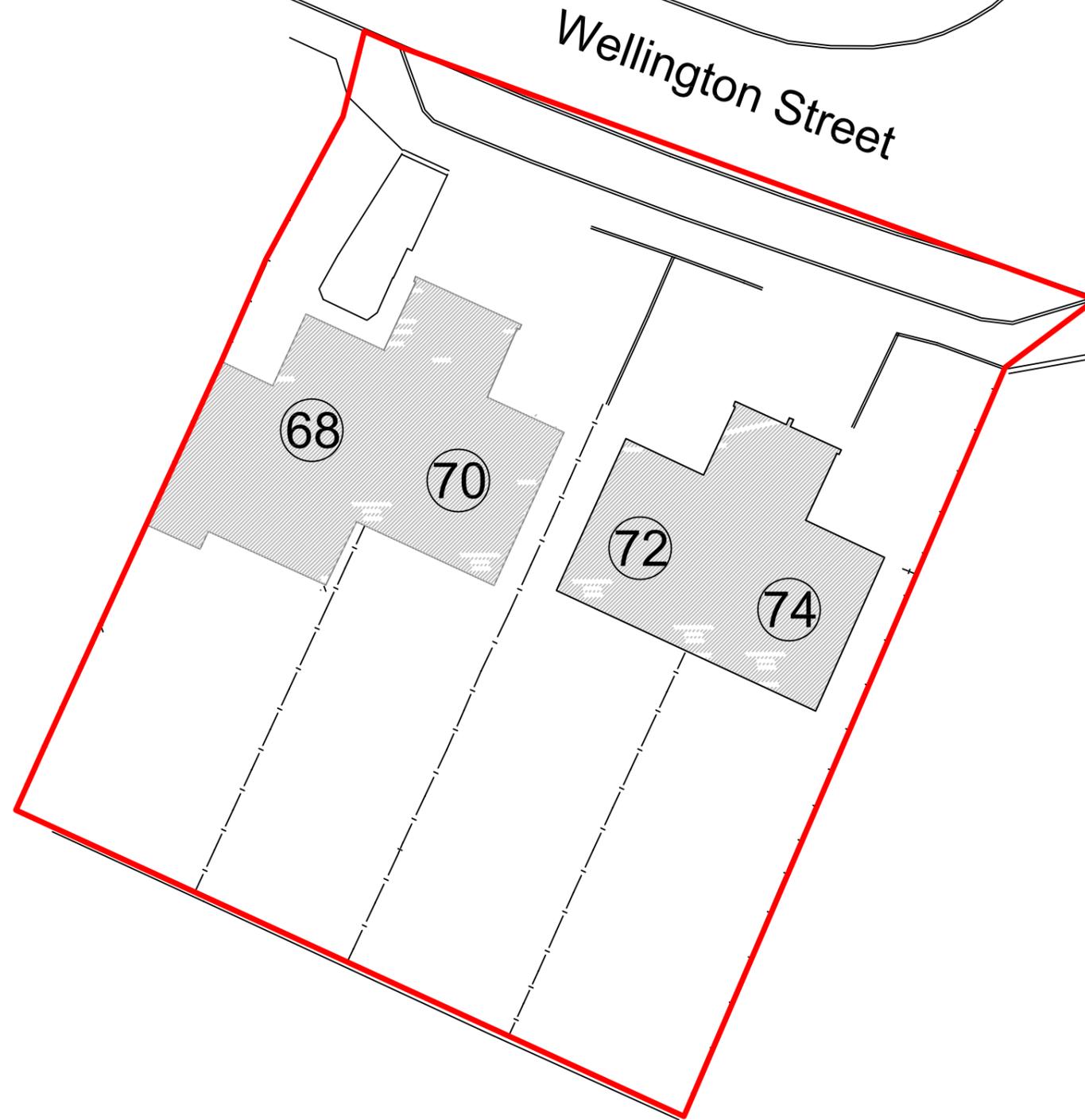
**68, 70, 72 and 74 Wellington Street,
Thame**

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Site Location Plan

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KEY



North

Remediation Verification Report

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KEY

-  Site boundary
-  Dust monitoring point
-  Area where soil excavated to at least 0.6m below ground level
-  Area where depth of excavation was less than 0.75m
-  Area not investigated or remediated where contaminated soils could remain within 0.75m of surface (houses, patios, concrete pathways and drives)
-  Areas left blank within the red site boundary did not require remediation



Remediation Verification Report

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Remediation Features Plan

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