



**ENVIRONMENTAL PROTECTION ACT 1990, SECTION 78B**

**RECORD OF THE DETERMINATION THAT LAND, KNOWN AS GEORGE STREET ALLOTMENTS, READING IS CONTAMINATED LAND**

In accordance with Part 2A of the Environmental Protection Act 1990 Reading Borough Council has determined that the land at:

George Street Allotments, George Street, Reading, RG1 7NT

National grid reference: 470470 173690.

Is **Contaminated Land**, as defined by section 78A(2) of the Environmental Protection Act 1990, because:

**Reading Borough Council has identified the presence of a contamination source, a pathway, and a receptor with respect to the current use of the land. The Council is satisfied that as a result of this pollution linkage a significant possibility of significant harm exists, with no suitable and sufficient risk management arrangements in place to prevent such harm.**

A summary of the basis on which this determination has been made is set out in the schedule to this record.

Dated 16<sup>th</sup> September 2008

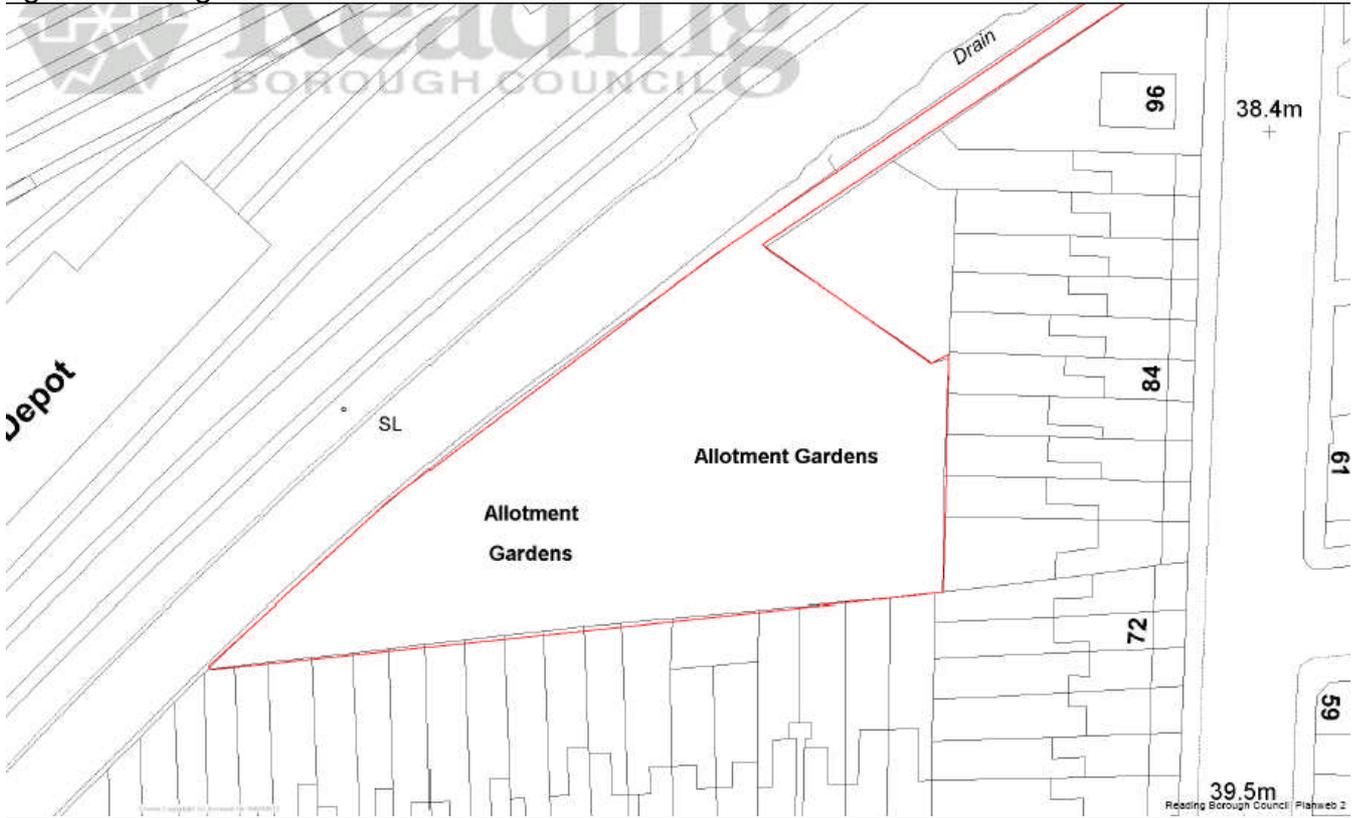
A handwritten signature in black ink, appearing to read 'Kevin Holyer', written over a light grey rectangular background.

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Kevin Holyer  
Head of Environment and Consumer Services  
Reading Borough Council

Civic Centre  
Reading  
RG1 7AE

figure 1 George Street Allotments



## Schedule

### 1. DESCRIPTION OF THE SIGNIFICANT POLLUTION LINKAGE

In order to declare the site as Statutorily Contaminated Land, it is considered that the following pollutant linkages are significant pollutant linkages, assessed in accordance with the Guidance (A.11 – A.17).

Table 1. significant pollutant linkages found at site.

Sources	Pathways	Receptors
Benzo[a]Pyrene	<ul style="list-style-type: none"> <li>• Direct contact with soils</li> <li>• Direct and indirect ingestion of soils (including dust tracked back to homes)</li> <li>• Ingestion of site-grown vegetables</li> <li>• Inhalation of outdoor vapours/dust</li> </ul>	Allotment Users and their families (Most sensitive = female age 1-6)

The above significant pollutant linkages have been identified in accordance with the Guidance (A.27 – A.34). It is considered that authoritative, scientifically-based, relevant assessments of risk have been carried out to provide a level of protection in line with the qualitative criteria set out in Tables A and B.

## **2. A SUMMARY OF THE EVIDENCE UPON WHICH THE DETERMINATION IS BASED.**

The determination has been made by compiling evidence over a period of time. Initially the problem was brought to our attention by an allotment holder as there was clear visual and olfactory evidence of hydrocarbon contamination. Then several investigations were carried out as listed below:

- ENVIROS sampled allotment with purpose of producing a report (ref: 080403 Allotments RA D5.Doc) to delineate the impacted areas and assess the potential health risks. April 2008 – Report showed that the concentrations of benzo(a)pyrene in the made ground and compost are considered to be a potentially significant risk to human health. The distribution of the contamination is not consistent with a source from flood water, and is considered more likely to be related to historical use of the site as allotments or possibly the previous use of the land as open ground at the rear of houses that may have been used for domestic ash disposal.
- Due to the findings of the ENVIROS report (080403), ENVIROS were commissioned to complete a further investigation (ref: Gpe 070808.Doc) with the purpose of determining contaminant concentrations across the allotment site and assess the potential health risks. Concentrations of benzo(a)pyrene within the topsoil are generally up to six times the ESV for allotments, however in the area known to have been impacted by railway run off concentrations are up to sixteen times greater. The CLEA methodology, which is used to calculate the ESVs is currently under review by DEFRA (Ref. 8). The Health Protection Agency (HPA) has recently presented information at a conference which suggests that soil concentrations above 10mg/kg would present a significant risk to health of users (Ref.9). We are aware that sites with children have been determined with a benzo(a)pyrene concentration of 6mg/kg. the concentrations within the topsoil at this site significantly exceed this less conservative value, therefore the potential risk to allotment holders at this site is considered to be significant.'

## **3. DESCRIPTION OF POTENTIALLY CONTAMINATIVE ACTIVITY AT THE SITE**

There is no other known potentially contaminative use of the site other than its current use as allotments, which has been known to be in use since 1930. Therefore it has been concluded that the contamination has come from allotment users adding ash to the soil as an improver, or possibly from an unknown previous use.

## **4. SUMMARY OF EVIDENCE UPON WHICH THE DETERMINATION HAS BEEN MADE**

The Site has been determined to be Statutorily Contaminated Land in accordance with Section 78A(2a) of the act, because:

“There is a significant possibility of significant harm being caused”.

In declaring the Site as Contaminated Land, an assessment of available information and an intrusive investigation has been carried in accordance with the guidance (B.39, B.45)

The determination has been made using information obtained from a comprehensive site investigation undertaken by ENVIROS on Reading Borough Council’s behalf to characterise the extent of the contamination. The investigation also considered information gathered in a previous site investigation carried out by ENVIROS.

Concentrations of benzo(a)pyrene within the topsoil were generally found to be six times the ENVIROS screening value (ESV) for allotments, however in the area known to have been impacted by railway runoff concentrations are up to sixteen times greater.

*Table 2. Summary of determinands exceeding the relevant screening criteria in silty topsoil (mg/Kg) based on 5% soil organic matter (taken from ENVIROS report 070808).*

Determinand	Analyses	SGV/ESV (Exceeded)	Min	Max	Location of Max	US95 Excluding Outliers
Benzo[a]Pyrene	21	1.5 (21)	2.1	25	HP5 (0.0 – 0.1m)	9.72

Establishing an assessment criteria for benzo[a]pyrene is not currently straightforward as no clear authoritative guidance is available, and there is no locally established precedent. Guidance is continually emerging but there is no clear indication for when an established position may emerge.

Given the current uncertainty regarding what level might represent a significant possibility of significant harm, Reading Borough Council are faced with the choice of either waiting for authoritative guidance or making the determination based on the current available guidance.

Rather than prolonging the sense of uncertainty and hardship felt by the allotment holders, it is the decision of Reading Borough Council to make the determination using the currently available guidance.

Guidance that has been considered during the course of this determination include:

- DEFRA – CLAN 6/06 Way Forward discussion document
- Health Protection Agency – Margins of exposure approach discussion document
- Health Protection Agency – Contaminated Land Clarification Note: Benzo(a)Pyrene, Use of excess lifetime cancer risk estimates.
- ENVIROS – George Street Allotments: Phase 2 Investigation 070808.

**The available guidance on non-threshold substances such as benzo(a)pyrene suggests that levels should be kept as low as reasonably practicable. Considering this as well as local conditions and factors, Reading Borough Council considers the quantity of benzo(a)pyrene identified at George Street Allotments to represent a significant possibility of significant harm.**

## **5. REFERENCES**

### **Site Specific Information, Reports and Documents.**

ENVIROS

George Street Allotments: Assessment of Risks to Health, ref: 080403 (April 2008)

ENVIROS

George Street Allotments: Phase 2 Investigation, ref: Gpe 070808 (July 2008)

### **Statutory Guidance**

CL-RBC-01

The Contaminated Land (England) Regulations 2000, Statutory Instrument 227

Chartered Institute of Environmental Health

Circular 01/2006 Environmental Protection Act 1990: Part 2A, Contaminated Land (September 2006)

### **Procedural Guidance**

Chartered Institute of Environmental Health

Local Authority Guide to the Application of Part 2A of The Environmental Protection Act 1990 (July 2001)

DEFRA

Applying the Definition of Contaminated Land Under Part 2A of the EPA 1990 (July 2008)

DEFRA

CLAN 6/06, Assessing Risks From Land Contamination – a Proportionate Approach: the Way Forward (November 2006)

DEFRA

Improvements to Contaminated Land Guidance: Outcomes of the Way Forward (22<sup>nd</sup> July 2008)

### **General Guidance**

CL:AIRE

Guidance on Comparing Soil Contamination Data with a Critical Concentration (May 2008)

Health Protection Agency

Discussion Paper – Margins of Exposure (2008)

Health Protection Agency

Unpublished Draft Consultation – contaminated Land and Public Health (June 2008)



**ENVIRONMENTAL PROTECTION ACT 1990 PART IIA, SECTION 78H (7)**

**REMEDICATION STATEMENT FOR THE LAND KNOWN AS GEORGE STREET ALLOTMENTS, GEORGE STREET, READING, BERKSHIRE RG1 7NT**

This remediation statement has been prepared by Reading Borough Council (RBC) in relation to contaminated land previously identified under section 78B of the Environmental Protection Act 1990 Part IIA (the EPA 1990).

The location and extent of the contaminated land to which the remediation statement relates (the Land) are set out in Schedule 1.

RBC as the enforcing authority for the land was precluded by section 78H(5) of the EPA 1990 Part IIA from serving a Remediation Notice, due to the proposed remedial actions being considered satisfactory without the service of a notice, and has therefore prepared this Remediation Statement in accordance with section 78H(7).

The actions which have been done by way of remediation are set out in Schedule 2. Particulars of the substances and the significant harm by reason of which the land was contaminated land are set out in Schedule 3.

The current use of the land is allotments, which has been the known use since 1930. **The land has been remediated and is considered to be suitable for its current use.**

The name and address of the person who is responsible for the remediation as set out in Schedule 2 of the Remediation Statement by section 78H(7)(b) are:

Reading Borough Council  
Environmental Protection  
Civic Centre  
Reading  
Berkshire RG1 7AE

**Name and Position of Person Issuing the Statement on behalf of RBC:**

Kevin Holyer, Head of Environment and Consumer Services

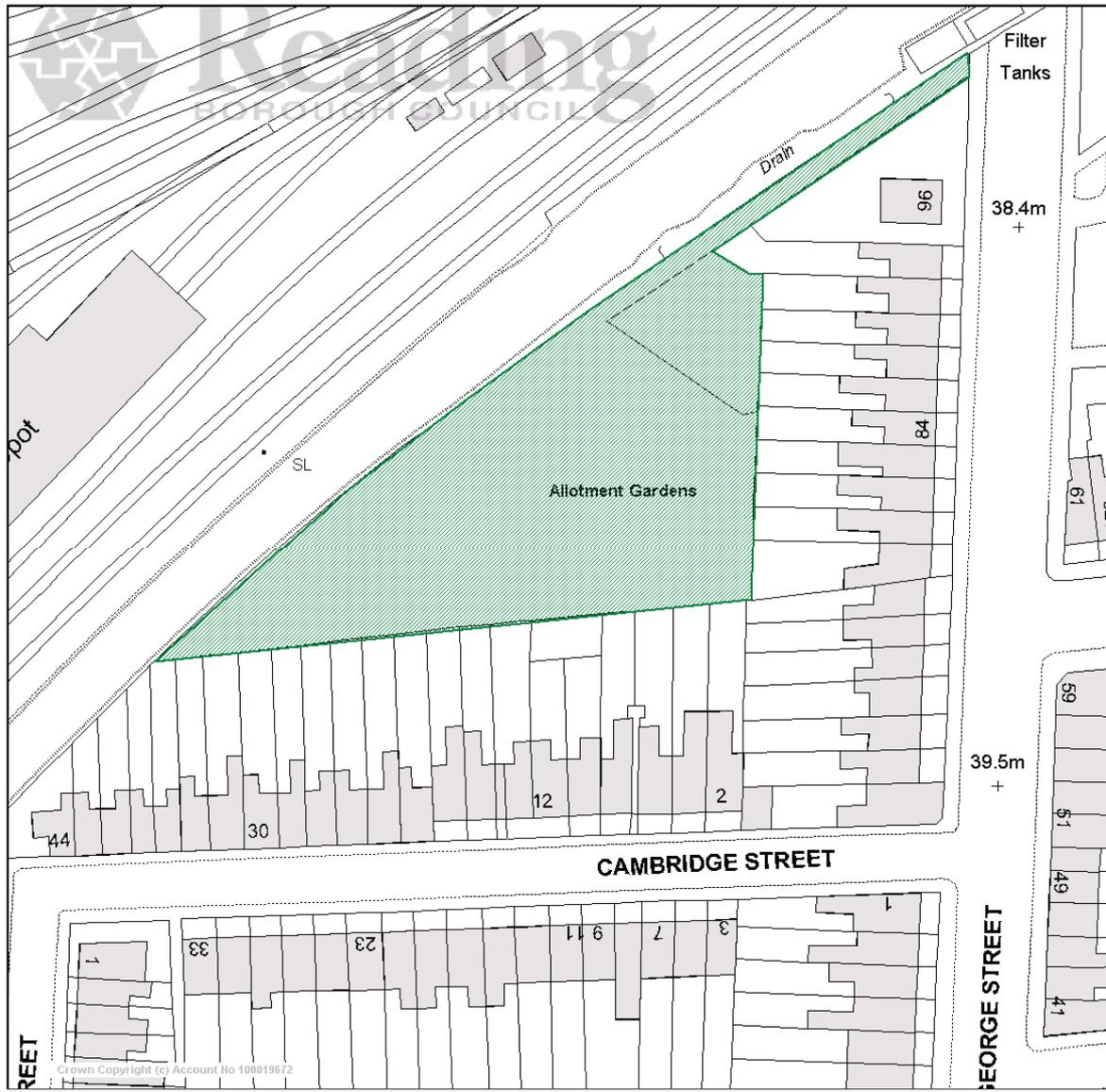
.....Dated 23<sup>rd</sup> February 2011

**The contact name for the purposes of this remediation statement is:**

Mrs Catherine Lewis, Environmental Protection Team Leader

**Schedule 1**  
**Location and Extent of the Previously Contaminated Land to which this Remediation Statement Relates**

The location and extent of the previously contaminated land to which this remediation statement relates is shown in figure 1 below and is known as George Street Allotments, George Street, Reading, Berkshire, RG1 7NT (National grid reference: 470470 173690). The boundary of the site that this remediation statement relates to is the same as that of the Determination, dated 16<sup>th</sup> September 2008.



**Figure 1 – Site Location Plan**

## **Schedule 2 – Remediation and Verification**

The verification report (Enviros 2010) sets out further detail of the remediation carried out and provides verification information in line with guidance (CLR11) to demonstrate that the works were carried out according to the specification. These details are summarised below.

### **Remedial Treatment Actions**

Following an award of funding from DEFRA, Reading Borough Council commissioned Enviros Consulting Ltd to manage the remediation works, and a subsequent tendering exercise led to the appointment of Vertase FLI limited as principle contractor.

The following remedial treatment actions have been carried out at the site in order to break the significant pollutant linkage upon which the Determination was made:

1. Excavation of the made ground until the natural ground was exposed, the depth of which varied across the site, from 0.4 m – 0.6 m along the north western boundary of the site and from 0.6 m – 1.6 m towards the southern and eastern boundaries.
2. Removal of the made ground from the site, which consisted of a total of 2026.5 tonnes of contaminated soils.
3. Disposal of these soils as non hazardous waste at a suitably permitted waste management facility.
4. Replacement with uncontaminated subsoil and topsoil to original ground level.

### **Remediation Timescale**

The remediation works were undertaken between the 3<sup>rd</sup> November 2009 and the 11<sup>th</sup> December 2009.

### **Verification of the Remediation**

It is considered that the remedial objectives of the scheme have been met and the significant pollution linkage removed. Therefore the land no longer meets the definition of contaminated land set out in the statutory guidance. The following verification of this has been provided:

1. Enviros visited the site regularly throughout the remedial works to ensure that the works conducted by the contractor complied with the remedial specification.
2. Previous investigations undertaken by Enviros determined that the contamination was limited to within the made ground, and the excavation of soils comprised the removal of all made ground.
3. The base of the excavations were sampled by Enviros. A total of ten samples were collected from locations selected to provide coverage across the site and results verified that the contamination had been removed in all areas which allotment holders would feasibly encounter in the future.

### **Maintenance**

On completion of the remedial works, no maintenance is considered necessary as the majority of the contamination is considered to have been removed from site.

### Schedule 3

#### The reason by which the land was determined to be Contaminated Land

The site was determined to be Statutorily Contaminated Land on 16<sup>th</sup> September 2008 in accordance with Section 78A(2a) of EPA 1990 Part IIA, because following the outcome of investigations there was considered to be a significant possibility of significant harm being caused due to the presence of the pollutant linkages detailed in table 1 below and the fact that there was no suitable and sufficient risk management arrangements in place to prevent such harm.

Sources	Pathways	Receptors
Benzo[a]Pyrene	<ul style="list-style-type: none"> <li>• Direct contact with soils</li> <li>• Direct and indirect ingestion of soils (including dust tracked back to homes)</li> <li>• Ingestion of site-grown vegetables</li> <li>• Inhalation of outdoor vapours/dust</li> </ul>	Allotment Users and their families (Most sensitive = female age 1-6)

*Table 1 Significant pollutant linkages found at the site*

#### REFERENCES

##### **Site Specific Information, Reports and Documents.**

ENVIROS Reports:

George Street Allotments: Assessment of Risks to Health, ref: 080403 (April 2008)

George Street Allotments: Phase 2 Investigation, ref: Gpe 070808 (July 2008)

Remediation of Contaminated Land: George Street Allotments, Reading, Verification Report - Final (January 2010), ref RE0700016 2010 10 Rem Val Report Reading Final

##### **Statutory Guidance**

The Contaminated Land (England) Regulations 2006, Statutory Instrument 1380

Circular 01/2006 Environmental Protection Act 1990: Part 2A, Contaminated Land (September 2006)

##### **Procedural Guidance**

Environment Agency

CLR 11 – Contaminated Land Report 11: Model Procedures for the Management of Contaminated Land