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First Interim Completion Report:

**Former Texaco Service Station,
Station Road
Angmering**

Client: JS Bloor (Newbury) Ltd.

Report: MAS-BH-312-1
Rev 01
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2015/16/17/18/19/20

**Former Texaco Service Station,
Station Road
Angmering:**

FIRST INTERIM COMPLETION REPORT

FOREWORD

Planning Permission was granted by Arun District Council in 2007 (Application No. A/5/07) for the redevelopment of the former Texaco service station at Station Road, Angmering. The approved development was to comprise 21 flats in a single block up to 3-storeys high with associated surface car parking and landscaped areas.

Planning Permission A/5/07 was granted subject to the submission of:

"A Method Statement detailing the remediation requirements, including measures to minimise the impact on ground and surface waters, using information obtained from the Site Investigation has been submitted to the Local Planning Authority prior to that remediation being carried out on the site."

This requirement was satisfied by submission of a *Proposed Remediation Scheme* with the planning application.

Planning Permission A/5/07 includes a number of Conditions relating to contamination. This First Interim Completion Report, which describes works carried out between July 2007 and June 2008, is intended to partially satisfy Condition 9 which states:

"On completion of the remediation detailed in the Method Statement a report shall be submitted to the Local Planning Authority that provides verification that the required works have been carried out in accordance with the approved Method Statement(s). Post remediation sampling and monitoring works shall be included in the report to demonstrate that the required remediation has been fully met. If appropriate, future monitoring proposals and reporting shall also be detailed in the report."

A further planning application has now been submitted (Application A/158/08) for a development comprising eleven two and three bedroom dwellings with individual gardens.

This requires only minor changes to the programme of works set out in the approved *Proposed Remediation Scheme*. These are indicated where appropriate in this report. One of the tasks required is a formal review of the analytical results for soils to confirm that the assessment on which the approved *Proposed Remediation Scheme* is based remains valid for the revised development scheme.

This report provides information on the condition of the site prior work starting on the revised development, should permission be granted.

It is not anticipated that any remedial works to remove contaminated ground will be required other than those already identified in the approved *Proposed Remediation Scheme*. However, should any such works be required, they should be governed by the proposed "target residual concentrations" indicated in the table in Appendix XV of this report, rather than those in Table 9.1 of the approved *Proposed Remediation Scheme*.

**Former Texaco Service Station,
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**FORMER TEXACO SERVICE STATION,
STATION ROAD
ANGMERING, WEST SUSSEX, BN16 3RF:**

FIRST INTERIM COMPLETION REPORT

SUMMARY

Planning Permission has been granted by Arun District Council (Application No. A/5/07) for the redevelopment of the former Texaco service station at Station Road, Angmering. The Planning Permission includes Conditions relating to contamination (see Box 2). Subsequent to the permission being granted, agreement was reached with the Local Planning Authority that elements (a) (b) & (c) of Condition 6 had been satisfied by virtue of the information submitted with the planning application. Element (d) of Condition 6 was satisfied by submission of a *Version 2* of the *Proposed Remediation Scheme* submitted with the planning application.

This document is intended to partially satisfy Condition 9 which states:

"On completion of the remediation detailed in the Method Statement a report shall be submitted to the Local Planning Authority that provides verification that the required works have been carried out in accordance with the approved Method Statement(s). Post remediation sampling and monitoring works shall be included in the report to demonstrate that the required remediation has been fully met. If appropriate, future monitoring proposals and reporting shall also be detailed in the report."

This First Interim Completion Report describes the works and monitoring carried out between July 2007 and June 2008 including all works carried out prior to piling. As planned for this stage of the remediation and development process some elements of the Remediation Scheme remain to be completed (see below).

"Contamination" is taken throughout the report to mean the "presence of one or more potentially harmful substances (PHSs) as a result of human activity". The use of the term in this way does not imply that harm is being caused, or might be caused, by the contamination. It should be noted that "contamination" can have different meanings under different regulatory regimes, for example, taxation, planning, building control and Part IIA of the Environmental Protection Act 1990. Naturally elevated concentrations of potentially harmful substances (PHSs) may also be of concern.

The essential requirement in terms of protection of human health and safety is that the site is remediated to a condition in which it does not pose unacceptable risks to future site users or other human receptors taking into account the form of the residential development and the compliance criteria have been set accordingly.

The essential requirements in respect of the water environment are to:

- ensure there was no deterioration of water quality during remediation or construction works;
- remove as far as practicable the free phase hydrocarbons ("free product") detected in a number of the boreholes;
- limit the likelihood of off-site migration of free product and contaminated groundwater on the western boundary.

The works described in this report were all carried out in accordance with the *Proposed Remediation Scheme – Version 2* the "Method Statement" required by Condition 6(d) of the Planning Permission. The works are therefore compliant with Condition 7 of the planning permission.

No contamination was found not previously known about or not anticipated on the basis of earlier investigations as reported in the *Contamination Assessment* and the *Proposed Remediation Scheme – Version 2*, i.e. nothing was found requiring action under condition 8 and/or Condition 10 of the Planning Permission.

The additional investigations have not revealed any contamination of potential concern in respect human health or requiring revision of the human health risk assessment.

The additional investigations have not revealed anything requiring revision of the groundwater risk assessment.

The site-won crushed concrete used for infilling and to form the piling blanket was uncontaminated thereby meeting the requirements of Condition 11.

The principal works remaining are:

- Removal of any remaining service lines and other in-ground structures and the examination of all excavations for the presence of contamination (completed by end of January 2008 with the exception of the car wash and some old foundations).
- Selective removal of contaminated soil from around BH14 to at least 1.5 mbgl and SS1 to at least 0.5 mbgl.
- Verification testing of near-surface soils in the northern-most part of the site prior to completion of construction.
- Provision of the new buildings with a suitable protection system against methane, carbon dioxide and hydrocarbon vapours.
- Placement of uncontaminated top-soil in areas to be landscaped.
- Filling of Sumps 1 & 2
- Removal or filling of soakaway
- Logging and sampling where considered appropriate during installation of the CFA piles.
- Groundwater, gas and vapour monitoring using the existing and any new monitoring wells:
 - shortly before piling starts
 - on completion of piling
 - periodically until construction starts
 - during and on completion of construction, and
 - until such other time as is agreed with the Environment Agency.
- Preparation of a *Completion Report* as required by Condition 9 of the Planning Permission.

If the new planning application (ref. A/158/08) is granted, the following additional works will be required:

- formal review of the analytical data for all soil samples in relationship to criteria appropriate for a development where house will have individual gardens (see Appendix XV);
- placement of imported soil in garden areas;
- verification testing of all imported top-soil irrespective of whether it comes from a certified source.

**FORMER TEXACO SERVICE STATION,
STATION ROAD
ANGMERING, WEST SUSSEX, BN16 3RF:**

FIRST INTERIM COMPLETION REPORT

1. INTRODUCTION

Planning Permission has been granted by Arun District Council (Application No. A/5/07) for the redevelopment of the former Texaco service station at Station Road, Angmering. The planning application was supported by provision of a number of documents (see Box 1) including a detailed *Contamination Assessment*⁽¹⁾.

The Planning Permission includes Conditions relating to contamination (see Box 2). Subsequent to the permission being granted, agreement was reached with the Local Planning Authority that elements (a) (b) & (c) of Condition 6 had been satisfied by virtue of the information submitted with the planning application (see Box 1). Element (d) of Condition 6 was satisfied by submission of a revised version (Version 2) of the *Proposed Remediation Scheme* submitted with the planning application⁽²⁾ (see Appendix VIII).

This document is intended to partially satisfy Condition 9 which states:

“On completion of the remediation detailed in the Method Statement a report shall be submitted to the Local Planning Authority that provides verification that the required works have been carried out in accordance with the approved Method Statement(s). Post remediation sampling and monitoring works shall be included in the report to demonstrate that the required remediation has been fully met. If appropriate, future monitoring proposals and reporting shall also be detailed in the report.”

This First Interim Completion Report describes the works and monitoring carried out between July 2007 and June 2008. The full scope of the report is provided in Section 2.

As planned for this stage of the remediation and development process some elements of the Remediation Scheme remain to be completed (see Section 12).

The status with regard to Conditions 7, 8, 10 & 11 is described in Section 11.

The essential requirement in terms of protection of human health and safety is that the site is remediated to a condition in which it does not pose unacceptable risks to future site users or other human receptors taking into account the form of the residential development and the compliance criteria have been set accordingly.

The essential requirements in respect of the water environment are to:

- ensure there was no deterioration of water quality during remediation or construction works;
- remove as far as practicable the free phase hydrocarbons (“free product”) detected in a number of the boreholes;
- limit the likelihood of off-site migration of free product and contaminated groundwater on the western boundary.

"Contamination" is taken throughout the report to mean the "presence of one or more potentially harmful substances (PHSs) as a result of human activity". The use of the term in this way does not imply that harm is being caused, or might be caused, by the contamination. It should be noted that "contamination" can have different meanings under different regulatory regimes, for example, taxation, planning, building control and Part IIA of the Environmental Protection Act 1990 (see Boxes 3 and 4). Naturally elevated concentrations of potentially harmful substances (PHSs) may also be of concern (see Box 3).

The comments made in this report and the opinions expressed are based on the sources quoted. It should be noted that conditions can change, for example, as a result of fly tipping or vandalism, which clearly cannot be predicted, and that groundwater levels and quality may vary with seasonal and other effects

This report has been prepared for the use of JS Bloor (Newbury) Ltd. and its agents and should not be passed to others without the express consent of M A Smith.

Box 1: Documents submitted with the planning application

MAS-FL-151-1 Compilation of Factual Information⁽³⁾

MAS-FL-165-1 Contamination Assessment⁽¹⁾

MAS-FL-166-1 Proposed Remediation Scheme – Draft 1⁽⁴⁾

SLR Consulting Ltd: - Tier 3 Groundwater Risk Assessment⁽⁵⁾

Box 2: Planning Conditions Relating to Contamination Etc.

6.	<p>No development approved by this planning permission shall be commenced until:</p> <ul style="list-style-type: none">(a) A desktop study has been carried out which shall include the identification of previous site uses, potential contaminants that might reasonably be expected given those uses and other relevant information. And using this information a diagrammatical representation (Conceptual Model) for the site of all potential contamination sources, pathways and receptors has been produced.(b) A site investigation has been designed for the site using the information obtained from the desktop study and any diagrammatical representations (Conceptual Model). This should be submitted to and approved in writing by the Local Planning Authority prior to the investigation being carried out on the site. The investigation must be comprehensive enough to enable:<ul style="list-style-type: none">- A risk assessment to be undertaken relating to the potential impact of land contamination, and;- Refinement of the Conceptual Model, and;- The development of a Method Statement detailing the remediation requirements.(c) The site investigation has been undertaken in accordance with details approved by the Local Planning Authority and a risk assessment has been undertaken.(d) A Method Statement detailing the remediation requirements, including measures to minimise the impact on ground and surface waters, using information obtained from the Site Investigation has been submitted to the Local Planning Authority prior to that remediation being carried out on the site.
7.	<p>Development of the site shall be carried out in accordance with the approved Method Statement.</p>
8.	<p>If during development, contamination not previously identified, is found to be present at the site no further development (unless otherwise agreed with the Local Planning Authority) shall be carried out until the developer has submitted and obtained written approval from the Local Planning Authority for an addendum to the Method Statement. This addendum to the Method Statement must detail how this unexpected contamination shall be dealt with.</p>
9.	<p>On completion of the remediation detailed in the Method Statement a report shall be submitted to the Local Planning Authority that provides verification that the required works have been carried out in accordance with the approved Method Statement(s). Post remediation sampling and monitoring works shall be included in the report to demonstrate that the required remediation has been fully met. If appropriate, future monitoring proposals and reporting shall also be detailed in the report.</p>
10.	<p>If during remediation any visibly contaminated or odorous material not previously identified is found to be present on the site, then this should be investigated. The Planning Authority must be informed immediately of the nature and degree of contamination present. The developer shall submit a Method Statement detailing how this unsuspected contamination shall be dealt with.</p>
11.	<p>Clean, uncontaminated rock, subsoil, brick rubble, crushed concrete and ceramic only shall be permitted as in-fill material.</p>

Box 3: Contamination and contaminated land in a planning context

Annex 2 of Planning Policy Statement 23 ⁽⁶⁾ states that:

- To avoid confusion with the statutory term "contaminated land" and its definition [i.e. in Part IIA of the Environmental Protection Act 1990] and to reflect the different context of planning control, this Annex uses the wider term "land affected by contamination". This is intended to cover all cases where the actual or suspected presence of substances in, on or under the land may cause risks to people, property human activities, or the environment, regardless of whether or not the land meets the statutory definition in Part IIA.

Annex 2 also states:

- Potentially hazardous substances, such as radon, methane or elevated concentrations of metallic elements may also be present in the ground due to the underlying geology. Since these may pose a risk to human health or to the environment, their presence is a material consideration.

Box 4: The Building Regulations – Approved Document C⁽⁷⁾

Contamination is dealt with in requirement C1 which concerns 'Preparation of site and resistance to moisture'. C1(1) requires that:

The ground to be covered by the building shall be reasonably free from any material that might damage the building or affect its stability, including vegetable matter, top-soil and pre-existing foundations.

C1(2) requires that:

Reasonable precautions shall be taken to avoid danger to health and safety caused by contaminants on or in the ground covered, or to be covered by the building and any land associated with the building.

C1(3) requires that:

Adequate sub-soil drainage shall be provided if it is needed to avoid –

- (a) *the passage of ground moisture to the interior of the building;*
- (b) *damage to the building, including damage through the transport of water-borne contamination to the foundations of the building.*

Contaminant is defined as (C1(4)):

Any substance which is or may become harmful to persons or buildings, including substances which corrosive, explosive, flammable or radioactive or toxic.

The "building and land associated with the building" means:

The building and all land forming the site subject to building operations which includes land under the building and the land around it which may have an effect on the building or its users.

Requirement C1(2) applies to new construction and under Regulation 6, whenever there is a "material change of use" of the whole building. "Material change of use" is defined in Regulation 5

2. SCOPE

This report describes and provides the results relating to the following remediation and construction activities:

- (i) pre-works groundwater and gas monitoring in November 2007 (the results of this monitoring were reported to the Environment Agency and Arun District Council in December 2007 (see Appendix II and Section 9.3);
- (ii) demolition of the building and site clearance including the pre-demolition asbestos survey (see Appendix I & Section 9.2);
- (iii) installation of two deep geotechnical boreholes in January 2008 (see Section 9.4);
- (iv) intrusive investigation of the area where the water drainage system is to be installed (see Section 9.5);
- (v) intrusive investigation of the ground beneath the shop (see Section 9.5);
- (vi) grouting of six monitoring wells within the footprint of the building (see Section 9.6);
- (vii) preparation of method statement for filling two large diameter sumps and the old soakaway (see Section 9.12);
- (viii) installation and operation of three free phase removal sumps (see Sections 9.8 & 9.9);
- (ix) works related to the installation of piles (see Sections 9.10 & 9.11);
- (x) an assessment of the results of monitoring and the additional investigation in relation to agreed remediation targets and overall site conditions (see Sections 10 & 11).

The planned remediation works are listed in Table 1. Those activities that have been completed are highlighted.

Results relating to the various activities were reported to Arun District Council and to the Environment Agency as they were obtained as follows:

- pre-works groundwater and gas monitoring in November 2007 were reported in December 2007 (see Appendix II);
- additional investigations for contamination in April 2008 (see Appendix IV).

Table 1.1: Summary of Remediation Activities and Current Status (June 2008)

ACTIVITY	STATUS
Removal of free product in the vicinity of BHs 13 and 17.	COMPLETED – installation and operation of sumps (See Sections 9.8 & 9.9)
Construction of water control measures in the vicinity of BH13.	
Survey for asbestos before demolition of the building.	COMPLETED in July 2007 (See Section 9.2)
Demolition and removal of the building and remaining hard covering to the site.	COMPLETED by end of January 2008
Investigation of the ground beneath the building for contamination and the removal of any contaminated soil that is found.	COMPLETED in February 2008 (See Section 9.5)
Investigation, primarily in the form of soil sampling and analysis in the area where the permeable pavement, rainwater seepage pits and soakaways are to be provided.	COMPLETED IN January 2008 (See Section 9.5)
Removal of any remaining service lines and other in-ground structures and the examination of all excavations for the presence of contamination.	PARTLY COMPLETED Completed by the end of January 2008 with the exception of the car wash and some old foundations. Old foundations etc. likely to be left in place if they will not impede construction.
Selective removal of contaminated soil from around BH14 to at least 1.5 mbgl and SS1 to at least 0.5 mbgl.	
Removal of any additional material required to achieve formation levels.	NO ADDITIONAL REMOVAL REQUIRED
Removal of any material then exposed that is obviously contaminated with hydrocarbons.	NO HYDROCARBON CONTAMINATED MATERIAL REQUIRING REMOVAL FOUND
Verification testing of near-surface soils in advance of construction starting if deemed necessary.	None required other than at northern end of site – this to be investigated later during the construction process.
Provision of the new buildings with a suitable protection system against methane, carbon dioxide and hydrocarbon vapours.	
Placement of uncontaminated top-soil in areas to be landscaped.	
Sealing of wells located beneath the buildings or that cannot otherwise be retained in accordance with the Environment Agency booklet "Decommissioning Redundant Boreholes and Wells".	COMPLETED in January 2008 (See Section 9.6)

ACTIVITY	STATUS
Filling of Sumps 1 & 2	Method statement prepared but works not yet carried out.
Removal or filling of soakaway and remnants of forecourt interceptor	Forecourt interceptor removed in January 2008. Method statement prepared for filling soakaway but works not yet carried out.
Logging and sampling (where considered) appropriate during installation of the groundwater and free phase removal facilities and during installation of the CFA piles.	Installation of extraction sumps completed March/April 2008.
Groundwater, gas and vapour monitoring using the existing and any new monitoring wells:	
<ul style="list-style-type: none"> before any other site works are carried out; 	COMPLETED November 2007 (See Section 9.3).
<ul style="list-style-type: none"> on completion of piling 	
<ul style="list-style-type: none"> periodically until construction starts; 	Selected monitoring carried out in May & June 2008.
<ul style="list-style-type: none"> during and on completion of construction, and 	
<ul style="list-style-type: none"> until such other time as is agreed with the Environment Agency. 	
Preparation of a <i>Completion Report</i> as required by Condition 9 of the Planning Permission (see Box 2)	This report has been prepared to partly satisfy this requirement.

3. THE SITE

Only a brief summary is provided here. For a detailed description of the site see the Contamination Assessment⁽¹⁾.

The site is located in Station Road, Angmering, West Sussex BN16 3RB, at approximate map reference TQ 065031 (506530E, 103120N). The location of the site is shown in Figures 1 and 2. The layout of the site before closure is shown in Figure 3.

Photographs of the site following tank removal are included as Figures 17 to 25. Photographs taken in February and March 2008 are included as Figures 26 to 35.

The site is located at the junction of Station Road with Roundstone By-Pass Road (A259) in a predominately residential area. The site is essentially flat and at approximately 7.7 mAOD. The area of the site is about 1200 m².

The shop building remained standing when remediation and construction works started on the site in January 2008. All other above-ground structures were removed during the tank-removal works (see below). The areas affected by these earlier works were covered by granular fill. Elsewhere over-site concrete remained with small grassed areas on the eastern and southern boundaries (see Figures 23 & 25). The in-ground structures associated with the car wash remained present in the northern part of the site.

The site drained via an interceptor close to the Station Road boundary to a soakaway. The soakaway remained in place after the tank removal operations but the interceptor was partly destroyed during these works. There was a further intact but non-functioning interceptor in the northern part of the site serving the car wash (this was still present in June 2008). The site clearance works in early 2008 exposed old foundations assumed to be left over from early phases of the site use as a service station and garage.

Site History

There was probably a service station on the site by 1943. This appears to have been redeveloped sometime between 1962 and 1970. A 1966 drawing (Figure 4) and 1970 map shows buildings stretching away from the south-east corner of the site. A 1976 drawing (Figure 5) shows these buildings partly demolished with a shop and canopy placed more or less as at the time of closure (the shop building was possibly extended at some time). These works appear to have been carried out in about 1970. The retained building appears to have been demolished sometime between 1976 and 1981 (see Figure 6).

Following the initial 1970s redevelopment, fuel appears to have been initially stored in existing tanks in the forecourt area and four new tanks installed north of the shop. A large new tank is shown north of the shop on the 1976 drawing suggesting that the forecourt tanks were dispensed with at about this date.

Tank Removal

The six recently operational tanks and three old tanks found during the site works were removed in December 2005 together with contaminated ground from beneath and around them to depths of up to about 6.0 mbgl. The two areas of excavation (see Figure 10) were limited to some extent by the proximity of the Station Road boundary. Post remediation sampling of the sides and bases of the excavations showed that the residual concentrations were generally acceptable⁽⁸⁾. The excavations were backfilled with a combination of imported uncontaminated material and site-won material judged by inspection and vapour measurements to be suitable. Post-remediation sampling indicated that the latter material is not contaminated to an unacceptable degree.

Monitoring Wells etc.

Two 600 mm diameter sumps were constructed in the two main tanks excavations to permit pumping of contaminated groundwater should this prove necessary.

The locations of all exploratory holes prior to the start of the development are shown in Figure 7, the location of the monitoring wells prior to development and the two large diameter sumps in Figure 8 and surface sampling locations in Figure 9.

The locations of monitoring wells in June 2008 following the sealing of those within the footprint of the building in January 2008 and their replacement in June 2008 are shown in Figure 15.

Site Characteristics

Information regarding site characteristics is provided as follows:

Figure 11: Depths to base of Made Ground

Figure 12: Depths to the top of the chalk

4. THE NEW DEVELOPMENT

The development will comprise 21 flats in a single block up to 3-storeys high with associated surface car parking and landscaped areas. Ground levels will remain much as at present. The proposed layout is shown in Figure 13.

5. EXECUTION OF THE WORKS

5.1 Contractors

The principal contractors and sub-contractors are listed in Table 5.1. All monitoring and sampling was carried out by SLR Consulting Ltd. SLR also prepared the Piling Risk Assessment⁽⁹⁾, the design of the free product sumps⁽¹⁰⁾, a specification for decommissioning existing large diameter sumps and the soakaway⁽¹¹⁾, and some of the other detailed works and also supervised the execution of some of the works.

Table 5.1: Principal Contractors

ACTIVITY	CONTRACTOR	CONTACT(S)
Monitoring etc.	SLR Consulting Ltd 19 Hollingworth Court Turkey Mill Maidstone Kent ME14 5PP	Mr Dan Collins [REDACTED]
Asbestos Survey	Amiantus Environmental Consultants Unit C4 New Yatt Business Centre New Yatt Oxon OX29 6TJ	Mr Roy Pearce [REDACTED]
Demolition	Wessex Demolition Ltd Unit 13b Bury Farm Curbridge Nr Botley Southampton SO30 2HP	Mr Clint Sexton [REDACTED]
Groundworks (including construction of new free product sumps and selective excavation)	MLD Limited Marchwood Green Farm Main Road Marchwood Southampton SO40 4UA	Mr Dave Merrick [REDACTED]
Piling	Rock & Alluvium SBC House Restmor Way Wallington Surrey SM6 7AH	Mr Mark Berry [REDACTED]

5.2 Programme of Works

The programme of works to 30 June 2008 is listed in Table 5.2.

Table 5.2: Programme of Works to 30 June 2008.

ITEM	DESCRIPTION	APPROXIMATE DATE(s)	CONTRACTOR
1	Asbestos survey	July 2007	Amiantus Environmental Consultants
2	Demolition and site clearance		Wessex Demolition Ltd
3	Installation of deep geotechnical boreholes	January 2008	SLR Consulting Ltd.
4	Sealing of monitoring wells within the footprint of the building	January 2008	SLR Consulting Ltd.
5	Investigation of ground beneath building	February 2008	SLR Consulting Ltd.
6	Investigation of drainage areas	January 2008	SLR Consulting Ltd.
7	Preparation of free product sump protocol	December 2007	SLR Consulting Ltd.
8	Installation of free product sumps	March/April 2008	Supervised of SLR Consulting Ltd.
9	Extraction of water from free product sumps	April/May 2008	SLR Consulting Ltd.
10	Installation of replacement monitoring wells	June 2008	SLR Consulting Ltd.
11	Pre-piling ground investigation	April 2008	SLR Consulting Ltd.
12	Preparation of Piling Risk Assessment	May 2008	SLR Consulting Ltd.
13	Gas and groundwater monitoring	Various dates between November 2007 and June 2008.	SLR Consulting Ltd.

6. VERIFICATION PRINCIPLES

The *Proposed Remediation Scheme*⁽²⁾ states that:

“The objectives of the verification activities are to assure all interested parties that:

- the works have been carried out as planned;
- the site is in an acceptable condition following (i) remediation works, and (ii) construction works.

Verification will be based as appropriate on a combination of direct observation (e.g. removal of an easily identified material), physical measurement (e.g. depth of cover), measurement of vapour concentrations whilst the works are in progress, chemical analysis of soil samples, and chemical analysis of groundwater samples.

It is important to recognise that it is not the intention to produce a contamination-free site^[B]. Rather the aim is to produce a site that once developed will not pose unacceptable risks to users or other receptors. For example, the presence of the buildings and associated car parking areas will eliminate the contact and ingestion exposure routes in these areas, and the inhalation-of-indoor-air exposure route will not be present outside of the building footprint or within the buildings if a gas protection system is in place. Consequently leaving small amounts of contaminants in place will not pose unacceptable risks to the eventual users of the site. Similarly, small localised variations in the depths of any superimposed uncontaminated covering layers in landscaped areas will not pose unacceptable risks.”

[B] It should be noted that “contamination” here refers to the presence of potentially harmful substances above natural background concentrations as a result of human activity.

7. TARGET RESIDUAL CONCENTRATIONS ETC.

7.1 Human Health Criteria

The verification (target) criteria are provided in Table 7.1. They assume residual contamination will be exposed at or close to the surface. The methods for assessing the results are listed in Table 7.2 and the number of samples that it was suggested should be taken in Table 7.3. Both tables were intended to be indicative only with the final decisions regarding sampling density and the methods to be used in assessment of the results to be revised as necessary to ensure a robust assessment of the final condition of the site.

The target residual concentrations are intended to apply only to the top two metres or so of the site. It is not considered practical or necessarily prudent to remove contaminated soils from below these depths.

The *Proposed Remediation Scheme*⁽²⁾ states that:

"It should be noted that, whilst it is comparatively easy to ensure that the verification criteria for volatile compounds will not be exceeded by the use of on-site vapour measurement during excavation and sampling, the only practical on-site means of controlling the depth and extent of excavation when the contamination is non-volatile (e.g. metals, DRO) is visual observation. When residual contamination is found at shallow depths the area can be revisited once the analytical results are available and further excavation carried out. This is not practicable, when for example, contamination remains at the base of a tank excavation. It is usually impracticable for safety and other reasons to leave 3 to 4 metre deep excavations open whilst awaiting the analytical results. Thus, it has to be accepted, that small amounts of non-volatile contamination may remain at depth. These will pose no risk to human receptors.

Where there is systematic sampling it is possible and sensible to determine compliance with an SGV or equivalent assessment criterion using the 95% UCL (upper confidence limit) of the measured values. However, this would not be statistically valid where the sampling cannot be systematic, for example in the case of sampling the base and sides of excavations. Hence a more ad-hoc approach is proposed in Table 7.2 that should result in overall acceptable residual concentrations whilst limiting the amount by which a criterion can be exceeded."

7.2 Criteria for Protection of the Groundwater

The primary purposes of the groundwater monitoring are to determine whether:

- there has been any deterioration in water quality compared to that before the commencement of site works;
- there is any evidence for unacceptable off-site migration;
- the groundwater treatment and free phase removal operations have achieved their objectives.

Thus, the initial comparison of groundwater monitoring results will be with the results obtained to date. Should any deterioration occur, the acceptability of the site conditions and what actions might be required will be assessed including whether or not there is likely to be unacceptable migration off-site initially using the criteria for organic substances listed in Table 7.4 but if necessary, also using a site-specific groundwater risk assessment using the Environment Agency's methodology.

No separate soil criteria relating to the potential to pollute groundwater are proposed.

Table 7.1: Target Residual Concentrations in Respect of Human Health

Determinand	Initial Assessment Criteria (mg/kg)	Target concentration (mg/kg)
Arsenic	20	20
Cadmium	30	30
Chromium	200	200
Copper	130/2080	200*/2080
Lead	450	450
Mercury	15	15
Nickel	75/5000	110*/5000
Selenium	260	260
Zinc	300/8250	300*/8250
Benzo(a)pyrene	1.3	1.3**
Naphthalene	6.94	7.0
Dibenzo(a,h)anthracene	1.3	1.3
Fluorene	2770	2770
DRO	400	400
GRO	50	50
Benzene	0.038	0.038
Ethyl benzene	16	16
Toluene	3	3
Xylenes	8	8
MTBE	430	430
ALIPHATIC		
EC5-6	2.11	2.11
EC>6-8	5.37	5.37
EC>8-10	1.46	1.46
EC>10-12	8.6	8.6
EC>12-16	42.1	42.1
EC>16-35	27600	27600
EC>35-44	27600	27600
AROMATIC		
EC5-6	0.613	0.613
EC>6-8	0.694	0.694
EC>8-10	2.39	2.39
EC>10-12	14.2	14.2
EC>12-16	72.7	72.7
EC>16-21	291	291
EC>21-35	417	417
EC>35-44	417	417
ALIPHATIC + AROMATIC		
EC>44-70	417	417
<p>* The lower value applied only to areas to be landscaped. Values are taken from BS3882 and apply if the pH is >7.0. Different, lower limits, apply if the pH is <7.0.</p> <p>** Although only four PAHs are listed, all PAH results will be taken into account.</p>		

Table 7.2: Basis of Assessment

LOCATION/AREA	REQUIREMENT
Areas of selective excavation	<p>Hydrocarbons:</p> <p>Average concentration in samples taken from the sides and base of the excavations shall not exceed the assessment criteria.</p> <p>Regard will also be paid to individual results having regard to the nature of the contaminant and the sampling location.</p> <p>Other determinands:</p> <p>Average concentration in samples taken from the sides and base of the excavations shall not exceed the assessment criteria.</p> <p>Regard will also be paid to individual results having regard to the nature of the contaminant and the sampling location.</p>
Areas to be landscaped	<p>(i) if sampling is systematic, the 95% UCL shall not exceed assessment criterion</p> <p>(ii) In the absence of systematic sampling, average concentrations shall not exceed the target criteria and no single value should be more than twice the relevant target criterion.</p>
Areas to be covered by buildings or hard standing	<p>(i) if sampling is systematic, the 95% UCL shall not exceed assessment criterion</p> <p>(ii) In the absence of systematic sampling, average concentrations shall not exceed the target criteria and no single value should be more than twice the relevant target criterion.</p>
<p>Notes:</p> <ol style="list-style-type: none"> 1. All surface samples (0.0-0.1m) are to be formed by combining small increments (about nine) taken over about 1 m². 2. The above table is indicative only 	

Table 7.3: Indicative Sampling Schedule

AREA	NUMBER AND METHOD OF SAMPLING
Areas of selective excavation	An appropriate number of samples from the sides and base taking into account the size of the excavation.
Areas to be landscaped	A minimum of 10 sampling locations. Samples to be taken from the exposed surface (0.0-0.1m) and from depths of up to 0.5 m where practicable (e.g. in exposed sides of excavations).
Areas to be covered by buildings or hard standing	A minimum of 16 sampling locations. Samples to be taken from the exposed surface (0.0-0.1m) and from depths of up to 0.5 m where practicable (e.g. in exposed sides of excavations).
Track of fuel lines etc.	To be inspected and sampled as seems appropriate.
Notes: <ol style="list-style-type: none">1. All surface samples (0.0-0.1m) are to be formed by combining small increments (about nine) taken over about 1 m².2.3. The above subject to adjustment in order to provide sufficient data to provide assurance that the proposed works have been properly carried out and that the site is in a "safe" condition.	

Table 7.4: Assessment Criteria for Petroleum Hydrocarbons in Groundwater

DETERMINAND	SITE-SPECIFIC ASSESSMENT CRITERIA (µg/L)	SOURCE/COMMENTS
EPH/DRO (C10-C40)*	350	New Zealand limit for C10-C14 compounds in drinking water. New Zealand guidance suggests that this is above the solubility limit for most aliphatic hydrocarbons in this range. The New Zealand guidance also indicates that the criterion for C15-C36 compounds (5300 µg/l) would exceed the solubility limit for most aliphatic hydrocarbons in the range.
PRO (C6-C10)* aliphatics	50	Arbitrary value – often quoted as EQS but not listed by the Environment Agency under the Dangerous Substances Directive.
Naphthalene	10	Environmental Quality Standard (all fresh waters)
Benzene	1 30	Drinking Water Regulations. Environmental Quality Standard
Toluene	50/700	Lower values are Environmental Quality Standards (EQSs) or draft EQSs Higher values are WHO limits for drinking water – cited in Environment Agency “ <i>R&D Report P12: Methodology to Derive Clean-up Standards, Volume 2</i> ”.
Ethyl benzene	20/300	
Xylenes	30/600	
MTBE	15	Taste threshold. Environment Agency “ <i>The fuel additive MTBE- A groundwater protection issue</i> ”. The limit in relation to toxicity is expected to be significantly higher than this.
Benzo(a)pyrene	0.01	Drinking Water Limit
PAHs (sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(1,2,3-cd)pyrene)	0.10	Drinking Water Limit
<ul style="list-style-type: none"> *Possibly to be replaced by criteria based on TPHCWG** fractions. ** Total petroleum hydrocarbons criteria working group 		

8. INSPECTION AND SAMPLING

8.1 SLR Consulting

SLR visited the site frequently, including to carry out or to supervise the works listed in Table 5.2.

8.2 M A Smith

M A Smith visited the site on 7 February when the trial pitting in the ground beneath the shop was carried out and 26 March 2008 when the first two of the three free phase extraction sumps were installed.

8.3 Site Observations

Photographs taken during the works are included as Figures 26 to 35.

9. RESULTS

9.1 General

Only brief descriptions of the works carried out are listed below. Where appropriate all results were reported to Arun District Council and the Environment Agency shortly after they were obtained. Detailed results and supporting are provided as appendices.

9.2 Pre-demolition Asbestos Survey

A pre-demolition asbestos survey was carried out for J S Bloor (Newbury) Ltd in July 2007. The report, which is included as Appendix I, was sent to Arun District Council in March 2008.

9.3 Groundwater and Gas Monitoring in November 2007

The results of pre-works groundwater and gas monitoring in November 2007 were reported to the Environment Agency and Arun District Council in December 2007 (see Appendix II). The results were incorporated into the *Proposed Remediation Scheme – Version 2⁽²⁾*.

9.4 Installation of Deep Geotechnical Boreholes

SLR Consulting installed two 20m deep geotechnical boreholes (SLR1 & SLR2) in January 2008 in the locations shown in Figure 15. The borehole logs are provided in Appendix III.

9.5 Additional Investigations for Contamination

Trial pits and trenches were dug by SLR Consulting in January and February 2008 in the locations indicated in Figure 14. The sampling locations were characterised as follows:

- the “car wash” sample was taken from fill material exposed in a trench in the vicinity of the car wash;
- the “incinerator trench” sample was taken from a trench dug across (i.e. at right angles) to the former location of the interceptor on the western boundary;
- TPs 1 to 5 were dug in locations where consideration was being given to the construction of soakaways or similar features;
- TPs 6 to 8 were dug beneath the northern end of the shop following the removal of the floor slab.

The results were reported to Arun District Council in April 2008 (see Appendix IV). It was concluded that the additional sampling had not revealed any contamination of potential concern in respect human health or requiring revision of the human health risk assessment. It was also concluded that the results did not indicate any need to modify the groundwater risk assessment.

9.6 Sealing of Redundant Monitoring Wells

Those monitoring wells that would be inevitably lost because they would be within the footprint of the building were sealed by grouting in January 2008. The wells that were sealed were: BH5, BH11, BH12, BH17, BH-SG1 & BH-SG2.

Replacements for BHs 5, 12 and 12 were installed in June 2008 together with a further well on the eastern boundary because, although BH19 is not within the footprint, it is in a location where it will be very vulnerable to damage whilst construction is in progress.

9.7 Groundwater Levels January 2008

A further set of groundwater levels were obtained from all available wells in January 2008 (see Appendix V). These results were reported to the Environment Agency shortly after they were obtained and were incorporated into the *Proposed Remediation Scheme – Version 2⁽²⁾*.

9.8 Design & Installation of Free Phase Removal Sumps

The Protocol for the Free Phase Removal Sumps⁽¹⁰⁾ was agreed with the Environment Agency prior to completion of the *Proposed Remediation Scheme – Version 2⁽²⁾*. The main text is included as Appendix VI.

The three sumps (PR1 to PR3) were installed in March 2008 in the locations shown in Figure 16.

Nothing inconsistent with the previous investigations of the site was observed during the installation of the sumps.

The analytical results obtained on soil samples taken during their installation are [provided in Appendix XIII. High concentrations of TPH (260 mg/kg and 300 mg/kg) were found in the samples from PR2 & PR3 but the sample from PR1 contained only 25 mg/kg. The TPH from PR2 and PR3 comprised mainly GRO (C4-C12).

9.9 Operation of Free Phase Removal Sumps

The car wash interceptor was found to be non-functional and so a large tank was brought to site to hold the arisings of potentially contaminated groundwater.

Four rounds of monitoring and pumping of the three "free product" sumps were carried out during April and May 2008. No free product was found in any of the wells. A total of about 10,000 litres of groundwater were withdrawn. These results were reported to the Environment Agency on 29 April 2008 (see Appendix VII). No free product was found following monitoring for a further two weeks and it was agreed with the Environment Agency that the sumps should be inspected periodically up until piling starts. SLR's report sheets for April are included as Appendix XII.

Inspection of the sumps on 20 June 2008 did not reveal any free product to be present.

Analytical samples were taken from the sumps and BH13 in June 2008. The Analytical Certificates are provided in Appendix XIV. Hydrocarbons were detected in the sample from BH13 and all three samples from the sumps. The hydrocarbons were mainly in the form of GRO.

9.10 Probing of Proposed Pile Locations

The proposed piling method is CFA (Continuous Flight Auger) concrete piles cast in-situ. Cast in-situ non-displacement piling usually involves extraction of a core of material and its subsequent replacement by a pile. The pile is formed by pumping concrete under positive pressure as the auger is removed. Displacement of soil surrounding the pile is minimised and there is minimal radial or vertical soil movement or densification. The main advantages of this method are that it can achieve high end bearing as a result of the driving stress at the base of the pile. Rock & Alluvium have undertaken pile design; this recommends hollow-stem CFA piles with a 300mm diameter to a depth of between 10.7 and 12.0m below ground level (bgl) reinforced with a 5.0m 40/16 cage. Piles will penetrate the chalk which is present from between 4.5-6.0m bgl; groundwater is present from 3.5-5.0m bgl.

Eighty-one piles will be installed^[A]. Dynamic probing was carried out by SLR Consulting in April 2008 at each proposed location to identify any obstructions. Dynamic Probing logs are included in Appendix B of the Piling Risk Assessment⁽⁹⁾.

As a result of this exercise risks associated with large obstructions such as boulders or timber that could potentially be pushed down to depth and create a void space within the substrata thus opening up pathways for both water and gas migration, have been mitigated as far as possible.

9.11 Piling Risk Assessment

The Piling Risk Assessment was prepared by SLR Consulting in May 2008⁽⁹⁾. Approval by the Environment Agency enabled clearance of Condition 6 of the Planning Permission by Arun District Council (see Appendix VIII).

9.12 Sealing of Redundant Wide Diameter Sumps and Soakaway

A specification⁽¹¹⁾ for these works was prepared by SLR consulting in May 2008 (included as Appendix XI). The works have not yet been carried out.

9.13 Installation of Replacement Monitoring Wells

Three new wells (BH5a, BH11a and BH12a) were installed to on 20 June 2008. The borehole logs were not available on 10 March 2009. The locations of the new wells (designations) are shown in Figure 15.

^[A] Foundation requirements for the revised development are not known at present but will clearly differ from those indicated here in view of the different layout.

10. ASSESSMENT

10.1 Human Health

The additional investigations have not revealed any contamination of potential concern in respect human health or requiring revision of the human health risk assessment. The summary risk assessment from the *Contamination Assessment*⁽¹⁾ as reproduced in the *Proposed Remediation Scheme – Version 2*⁽²⁾ is provided in Table 10.1.

10.2 The Water Environment

The additional investigations have not revealed anything requiring revision of the groundwater risk assessment.

Table 10.1: Summary Revised Risk Assessment

RECEPTOR	CONTAMINANT	EXPOSURE ROUTE	COMMENTS/ RESPONSE
HUMAN HEALTH			
Human Health - trespassers casual visitors	Hydrocarbons at various depths.	Ingestion, inhalation, contact	Risks are negligible.
Human Health - remediation workers	Petroleum hydrocarbons in soils Hydrocarbon vapours, methane, carbon dioxide, depleted oxygen atmospheres.	Ingestion and contact Inhalation	Appropriate PPE should be employed together with good personal hygiene standards. Smoking should not be permitted during tank removal or remediation works.
Human Health - construction workers	Petroleum hydrocarbons in soils Hydrocarbon vapours, methane, carbon dioxide, depleted oxygen atmospheres.	Ingestion and contact Inhalation	If the remediation is correctly carried out there should be no significant residual risks for subsequent construction workers working at shallow depths of above ground. Possibly significant risks in deep excavations.
Human health -neighbours whilst works are in progress	Contaminated dust Organic vapours	Inhalation, ingestion, contact	The concentrations found to date are not a cause for concern other than from a nuisance point of view. Good practice should be employed to avoid unnecessary generation of dust and vapours.

RECEPTOR	CONTAMINANT	EXPOSURE ROUTE	COMMENTS/ RESPONSE
Human health - occupants of nearby properties.	Hydrocarbon vapours from contaminated groundwater. Migrating vapours, methane and carbon dioxide.	Inhalation Fire and explosion	On present evidence the risks from vapour and ex-solved gas from migrating contaminated groundwater are very low. Migration of vapour, carbon dioxide and methane is considered unlikely. Free product should be removed.
Human Health -future site users -future services maintenance workers	Petroleum hydrocarbons in soils.	Ingestion, inhalation, contact.	Isolated occurrences of elevated hydrocarbon concentrations in near-surface soils should be dealt with by selective excavation.
Human Health -future site users	Methane, carbon dioxide and hydrocarbon vapours	Inhalation	Unacceptable concentrations of methane, carbon dioxide and petroleum vapours are present on the site. Further monitoring is required. A vapour and gas-resistant membrane should be incorporated into the design of the buildings. Consideration should be given to the need for controlled venting in the open parts of the site. Free product should be removed.
Human Health -future site users	Radon	Inhalation	Radon protection measures are NOT required under the Building Regulations.

RECEPTOR	CONTAMINANT	EXPOSURE ROUTE	COMMENTS/ RESPONSE
OTHER RECEPTORS			
Water Environment	Petroleum hydrocarbons	Translocation of contaminants from soil to groundwater. Presence of hydrocarbons in groundwater.	Hydrocarbons are present in the groundwater at high concentrations. Free product should be removed. Consideration should be given to the need or otherwise to impede/collect contamination on the western boundary.
Construction materials	Petroleum hydrocarbons. Other contaminants	Contact	Petroleum contaminated soil and groundwater, and hydrocarbon vapours, pose a potential threat to plastics and adhesives. The remediation works to deal with other hazards and risks should reduce any risks that there might be to acceptable levels. Risks to other materials from other contaminants (e.g. sulfate) have not been fully assessed but special measures are unlikely to be required.
Plants	Copper, nickel, zinc Depleted oxygen in the rooting zone.	Contact	There are no significant risks to plants.

11. CONCLUSIONS AND RECOMMENDATIONS

This report has been prepared in partial fulfilment of Condition 9 of the Planning Permission which requires that "On completion of the remediation detailed in the Method Statement a report shall be submitted to the Local Planning Authority that provides verification that the required works have been carried out in accordance with the Method Statement(s)....." (see Box 1 for full text of the Condition),

The works described in this report were all carried out in accordance with the *Proposed Remediation Scheme – Version 2* the "Method Statement" required by Condition 6(d) of the Planning Permission (see Box 2). The works are therefore compliant with Condition 7 of the planning permission.

No contamination was found not previously known about or not anticipated on the basis of earlier investigations as reported in the *Contamination Assessment* and the *Proposed Remediation Scheme – Version 2*, i.e. nothing was found requiring action under condition 8 and/or Condition 10 of the Planning Permission.

The additional investigations have not revealed any contamination of potential concern in respect human health or requiring revision of the human health risk assessment.

The additional investigations have not anything requiring revision of the groundwater risk assessment.

The site-won crushed concrete used for infilling and to form the piling blanket was uncontaminated thereby meeting the requirements of Condition 11.

The works still to be carried out are listed in Section 12.

12. WORKS TO BE COMPLETED

The principal works remaining are:

- Removal of any remaining service lines and other in-ground structures and the examination of all excavations for the presence of contamination (completed by end of January 2008 with the exception of the car wash and some old foundations).
- Selective removal of contaminated soil from around BH14 to at least 1.5 mbgl and SS1 to at least 0.5 mbgl.
- Verification testing of near-surface soils in the northern-most part of the site prior to completion of construction.
- Provision of the new buildings with a suitable protection system against methane, carbon dioxide and hydrocarbon vapours.
- Placement of uncontaminated top-soil in areas to be landscaped.
- Filling of Sumps 1 & 2
- Removal or filling of soakaway
- Logging and sampling (where considered appropriate) during installation of the CFA piles.
- Groundwater, gas and vapour monitoring using the existing and any new monitoring wells:
 - shortly before piling starts
 - on completion of piling
 - periodically until construction starts;
 - during and on completion of construction, and
 - until such other time as is agreed with the Environment Agency.
- Preparation of a *Completion Report* as required by Condition 9 of the Planning Permission .

If the new planning application (ref. A/158/08) is granted the following additional works will be required:

- formal review of the analytical data for all soil samples in relationship to criteria appropriate for a development where house will have individual gardens (see Appendix XV);
- placement of imported soil in garden areas;
- verification testing of all imported top-soil irrespective of whether it comes from a certified source.

14. REFERENCES

1. M A Smith Environmental Consultancy, *Report MAS-FL-165-1: Former Texaco Service Station, Station Road, Angmering: Contamination Assessment*, M A Smith (Hemel Hempstead) December 2006.
2. M A Smith, *MAS-FL-166-02: Former Texaco Service Station Road, Angmering: Proposed Remediation Scheme – Version 2*, M A Smith Environmental Consultancy (Hemel Hempstead) February 2008.
3. M A Smith, *MAS-FL-151-01: Former Texaco Service Station Road, Angmering: Compilation of Factual Information*, M A Smith Environmental Consultancy (Hemel Hempstead) May 2006.
4. M A Smith, *MAS-FL-166-01: Former Texaco Service Station Road, Angmering: Proposed Remediation Scheme – Draft 1*, M A Smith Environmental Consultancy (Hemel Hempstead) December 2006.
5. SLR Consulting Ltd., *Former Angmering Service Station- Groundwater Risk Assessment*, SLR (Shrewsbury) November 2006.
6. Office of the Deputy Prime Minister, *Building Regulations 2000, Approved Document C – Site Preparation and Resistance to Contaminants and Moisture*, The Stationery Office (London) 2004.
7. Office of the Deputy Prime Minister, *The Building Act 1984: The Building Regulations 2000: Proposals for amending Part C – Site preparation and resistance to contaminants and moisture*, ODPM (London) December 2002.
8. SLR Consulting Ltd; *Remediation Verification Report, Angmering Service Station*, (SLR, Redditch) March 2006.
9. SLR Consulting Ltd, *Former Texaco Service Station, Station road, Angmering: Piling Risk Assessment*, SLR (Maidstone) May 2008.
10. SLR Consulting Ltd, *Former Texaco Service Station, Station road, Angmering: Sump Installation Protocol Method Statement*, SLR (Maidstone) March 2008.
11. SLR Consulting Ltd, *Former Texaco Service Station, Station road, Angmering: Product Recovery Sump and Soakaway Decommissioning Specification Incorporating Health and Safety Plan*, SLR (Maidstone) May 2008.

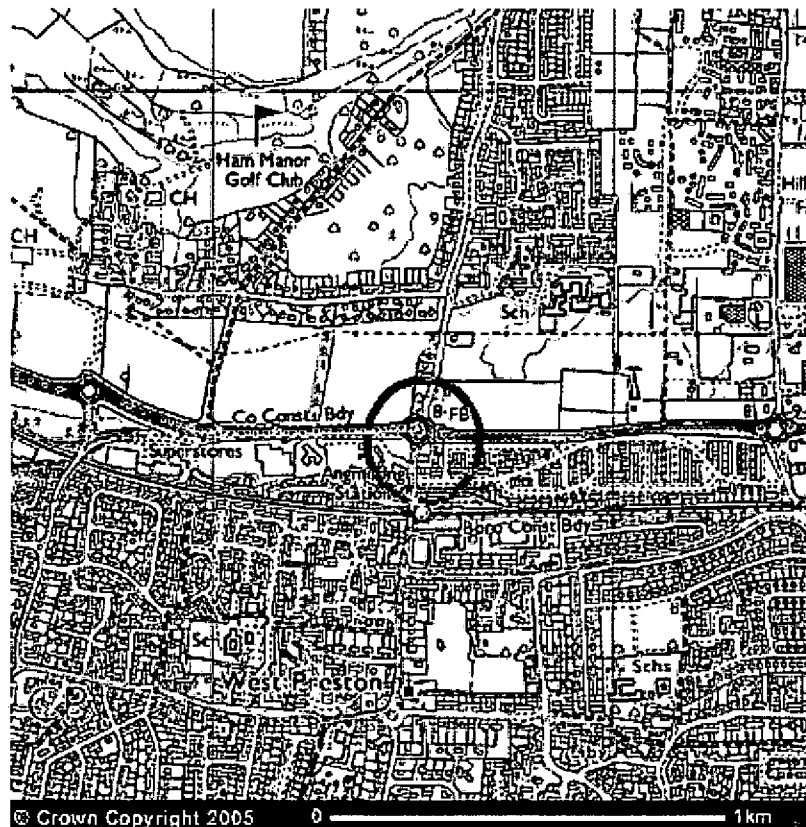


Figure 1: Location Map – 1
 (Crown Copyright 2009. All rights reserved. Licence No. 100015276)

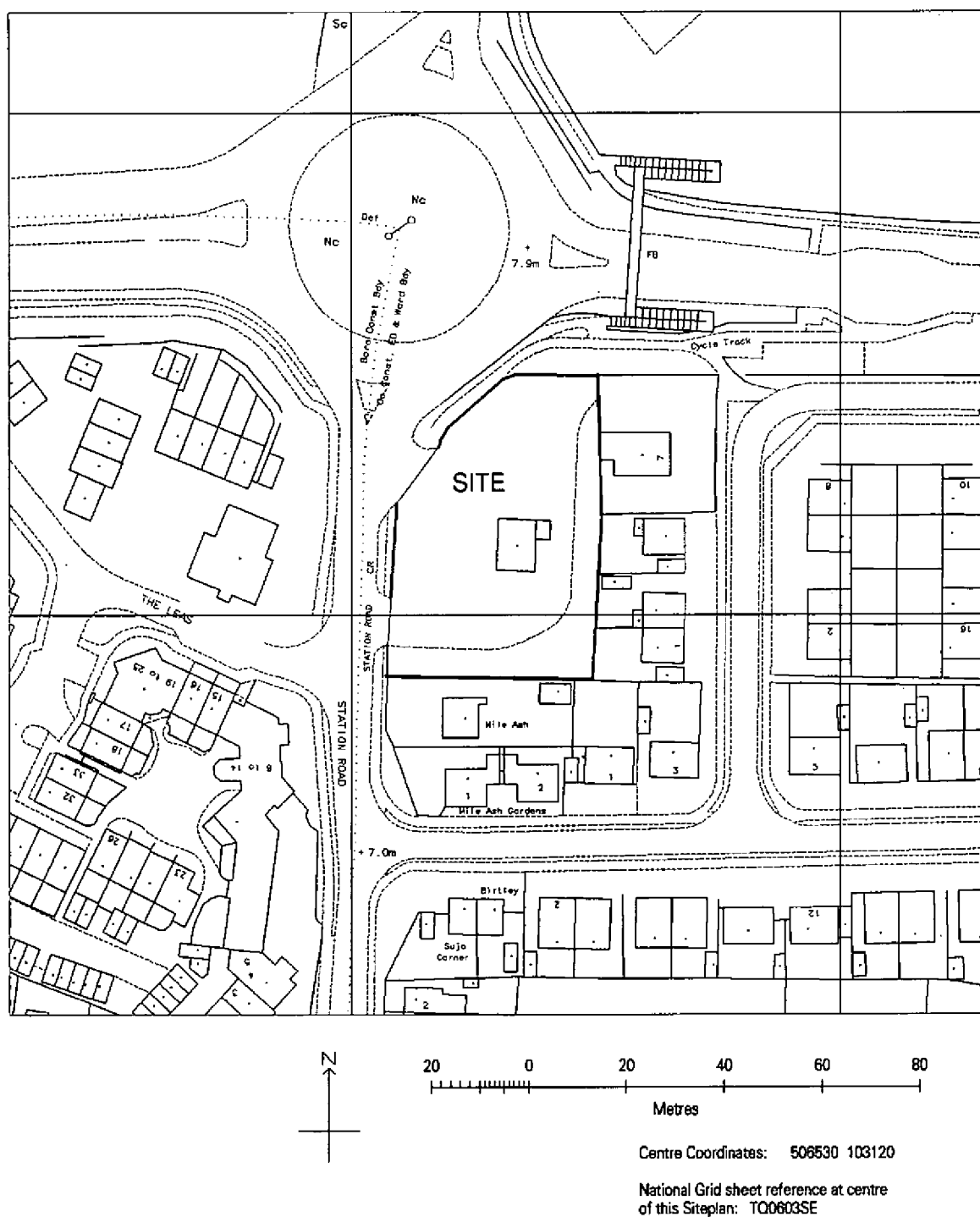


Figure 2: Location map – 2
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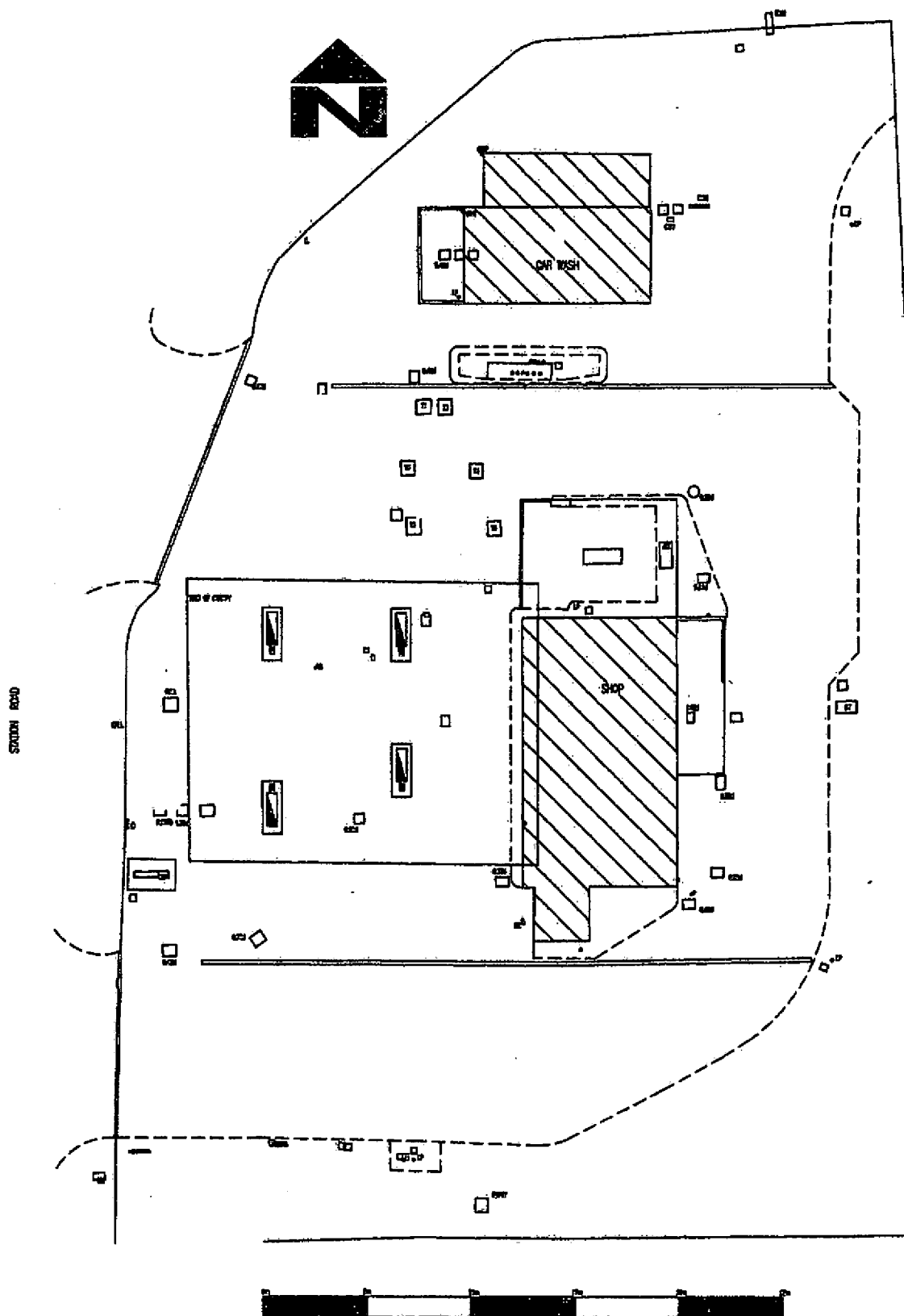


Figure 3: Layout prior to closure

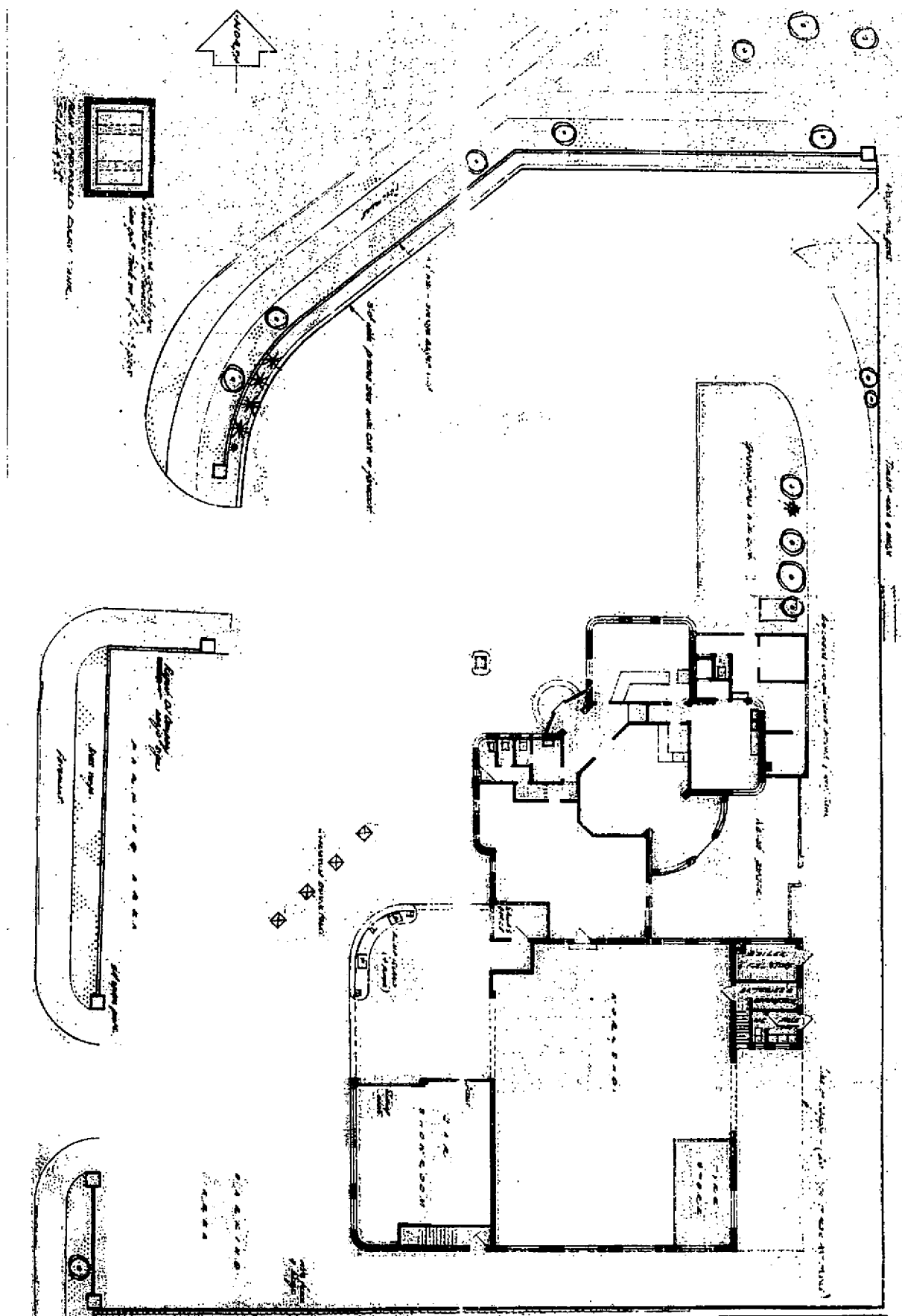


Figure 4: Extract from 1966 Drawing

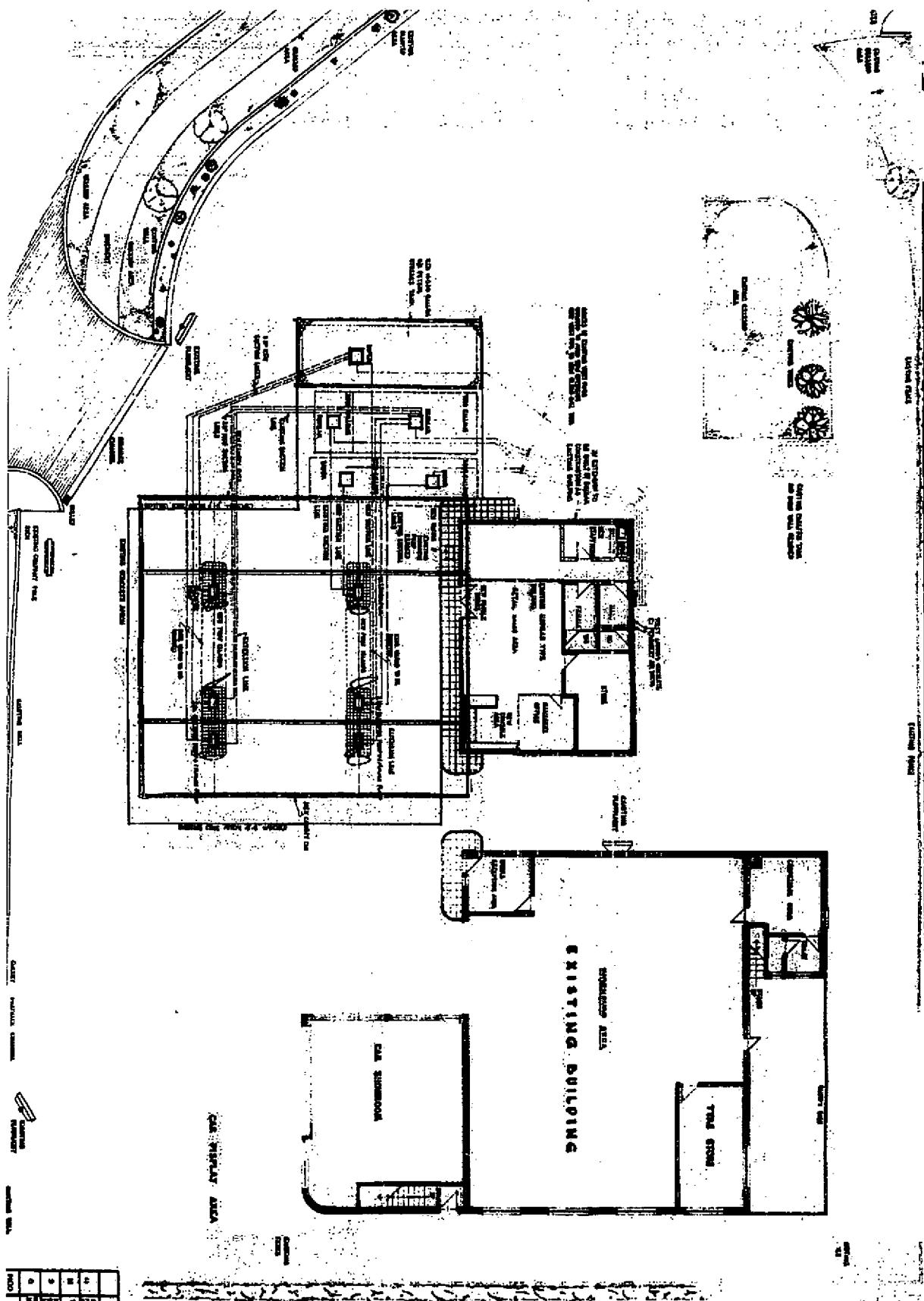


Figure 5: Extract from 1976 Drawing

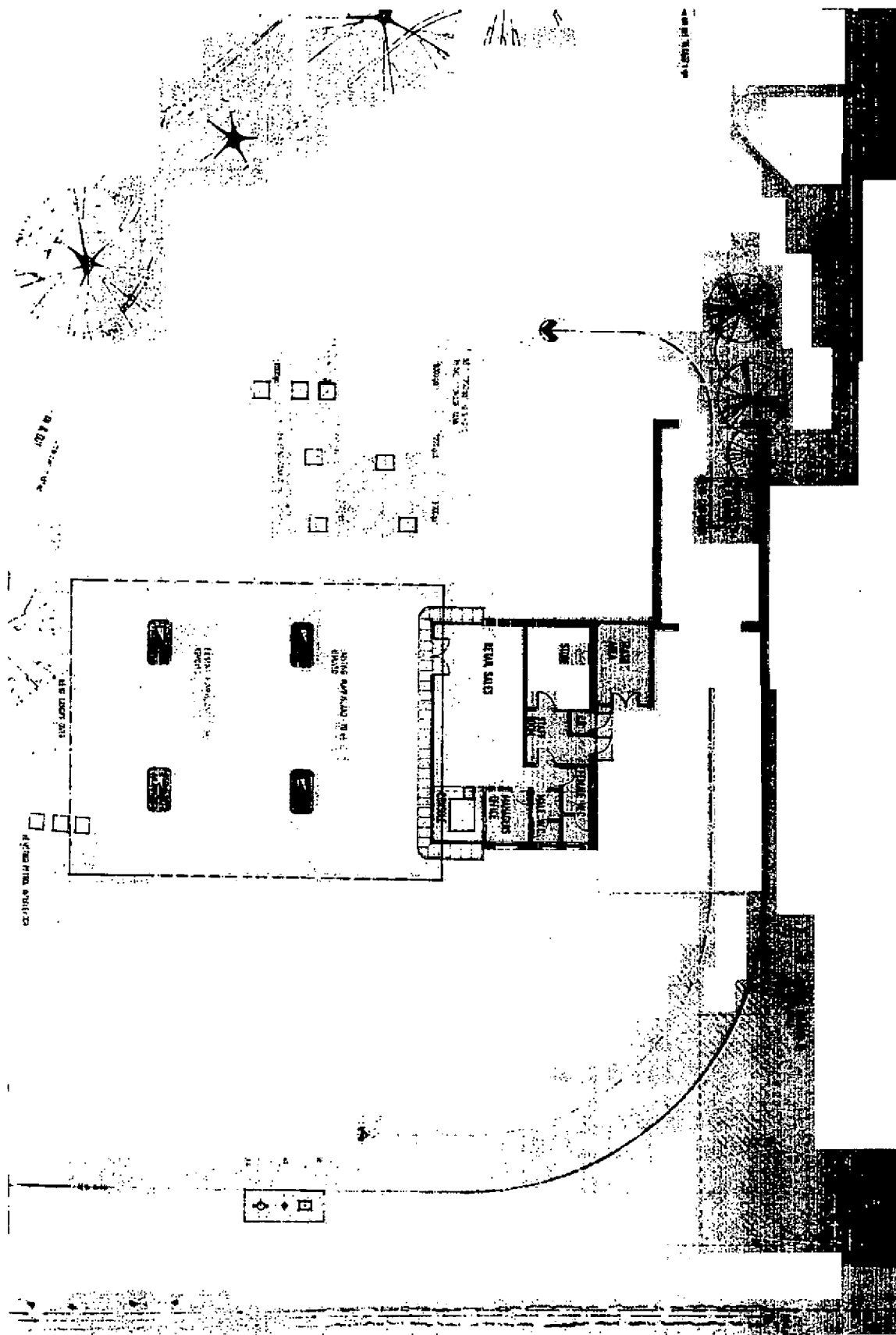


Figure 6: Extract from 1981 Drawing

- BH7** ● Pre-Feb 2006 Boreholes not completed as monitoring wells or destroyed during tank-removal
- BH3** ⊗ MONITORING WELLS (PRE-FEB 2006)
- BH13** ⊗ MONITORING WELLS (FEB 2006)
- BH21** ⊗ MONITORING WELLS (JULY 2006)
- SG1** ● SOIL GAS MONITORING POINTS
- SUMP1** ⊗ SUMPS

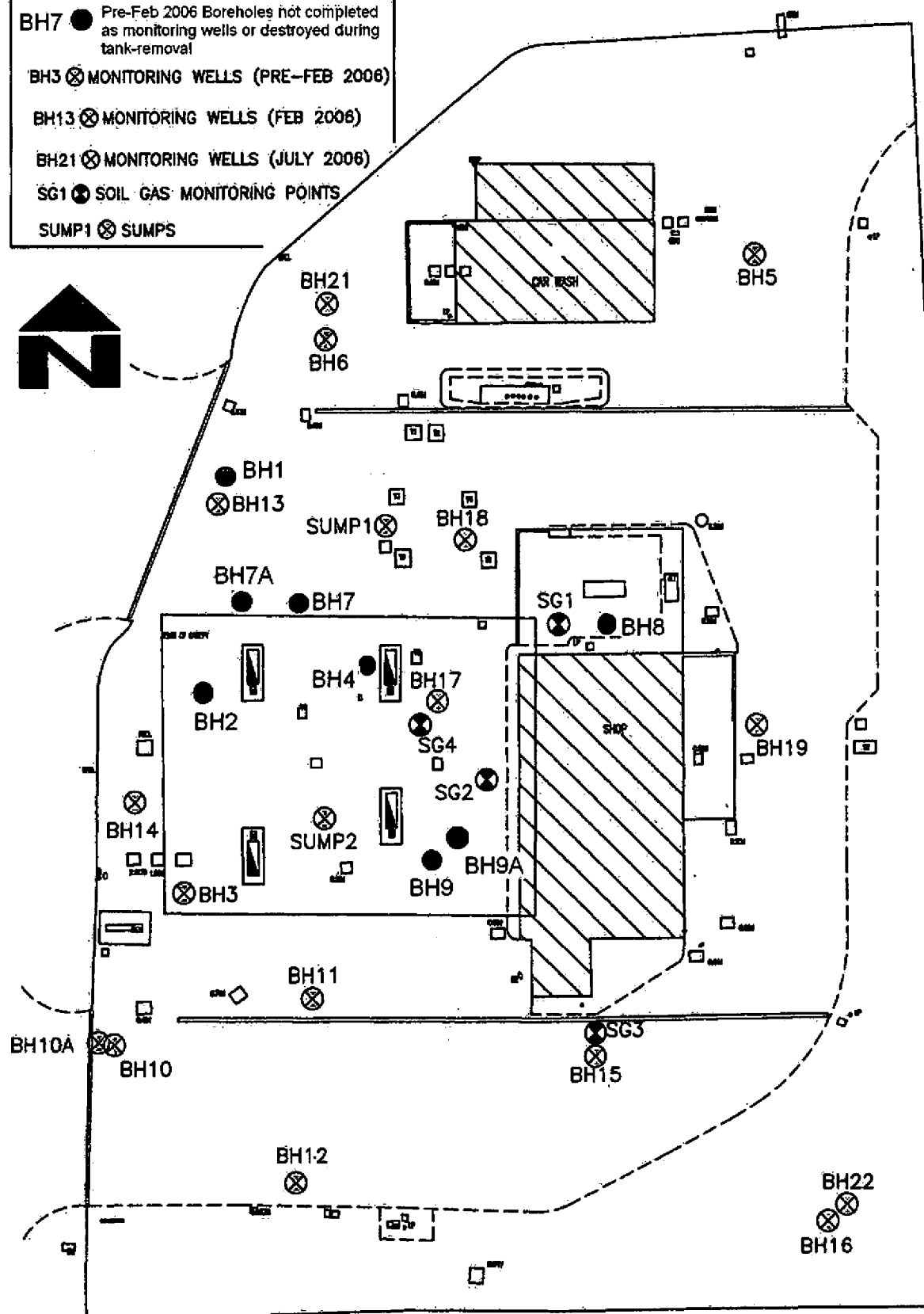


Figure 7: All Borehole Locations (to December 2007)

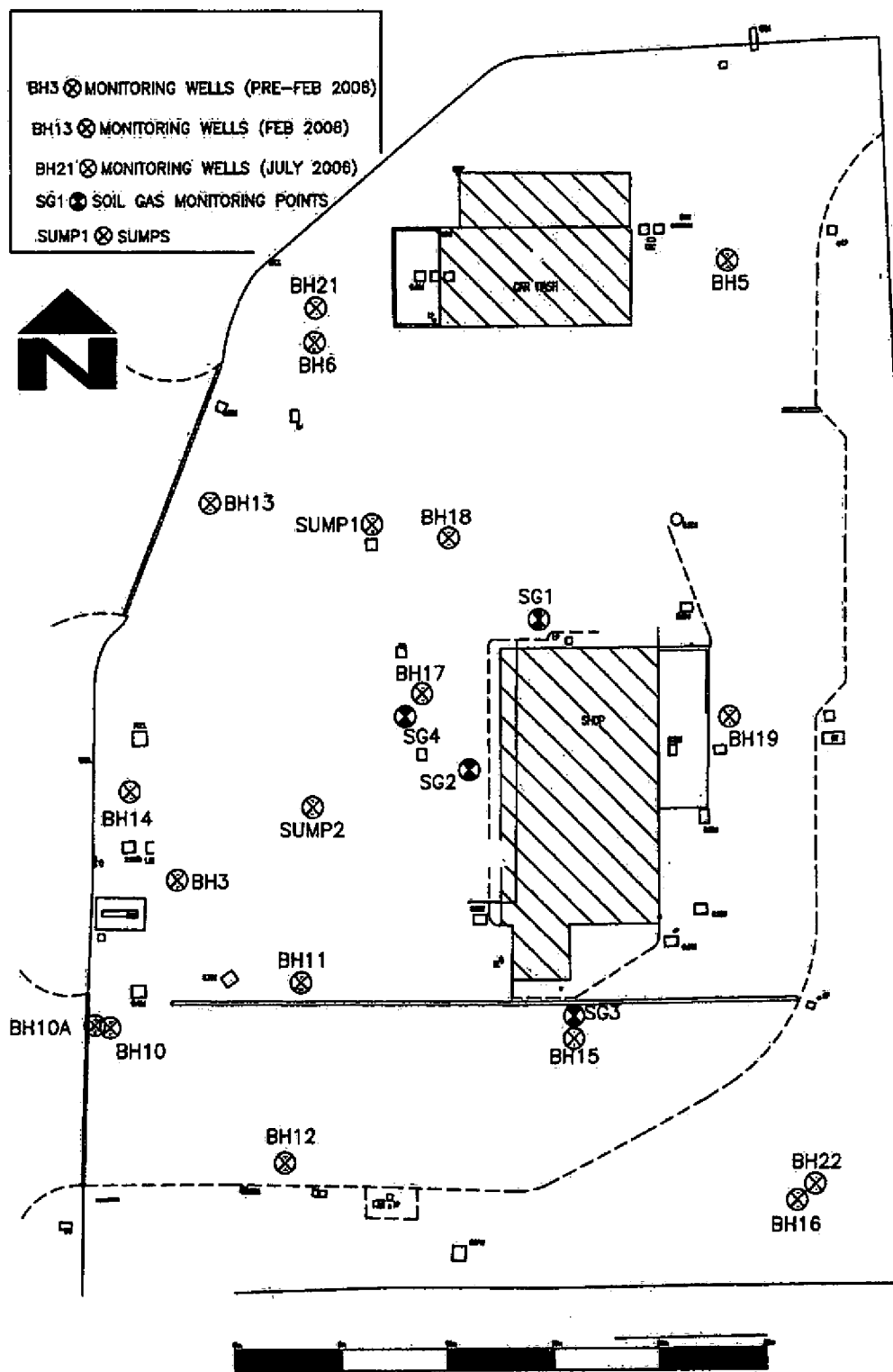


Figure 8: Monitoring Well Locations (to December 2007)

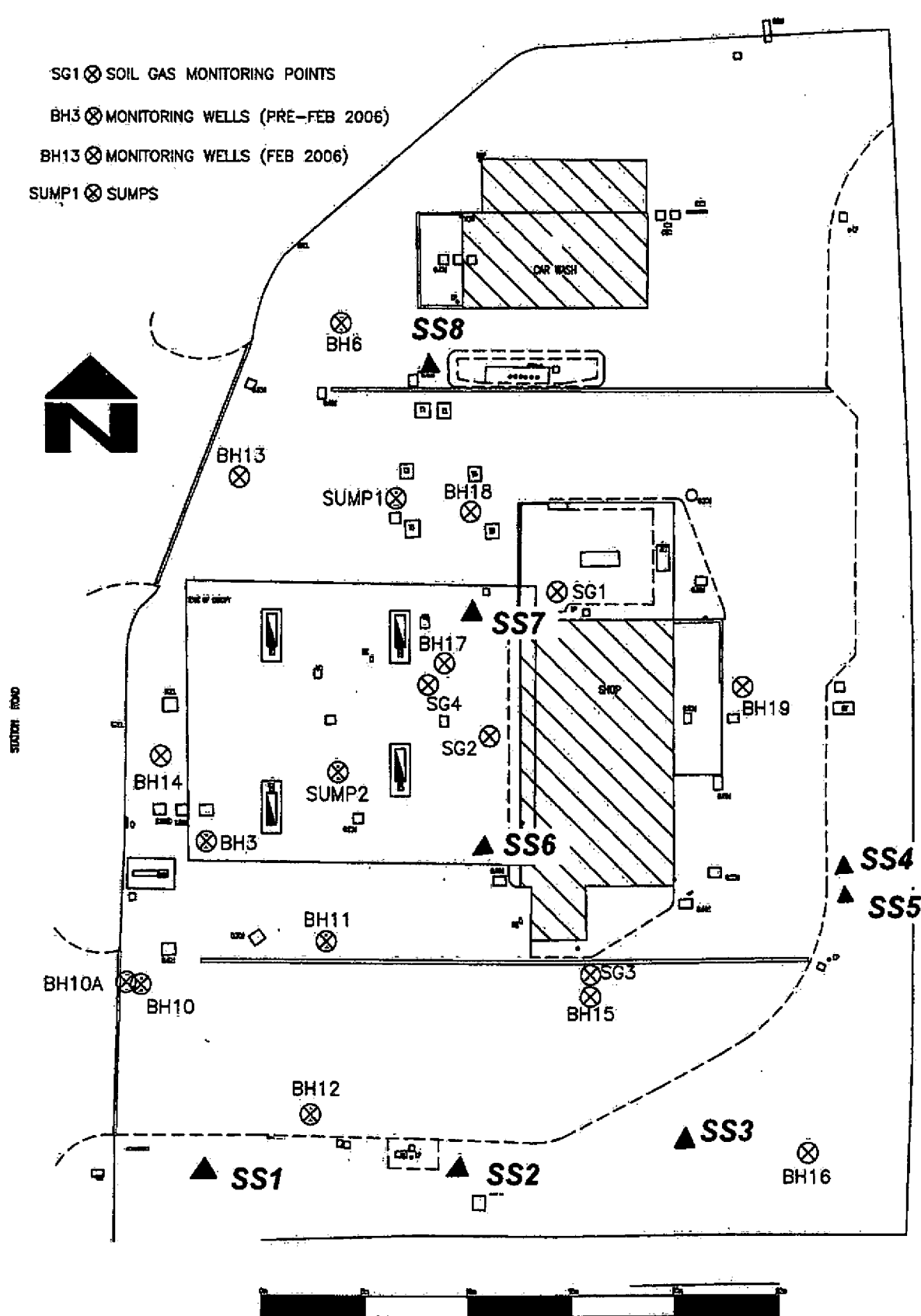


Figure 9: Surface Sampling Locations

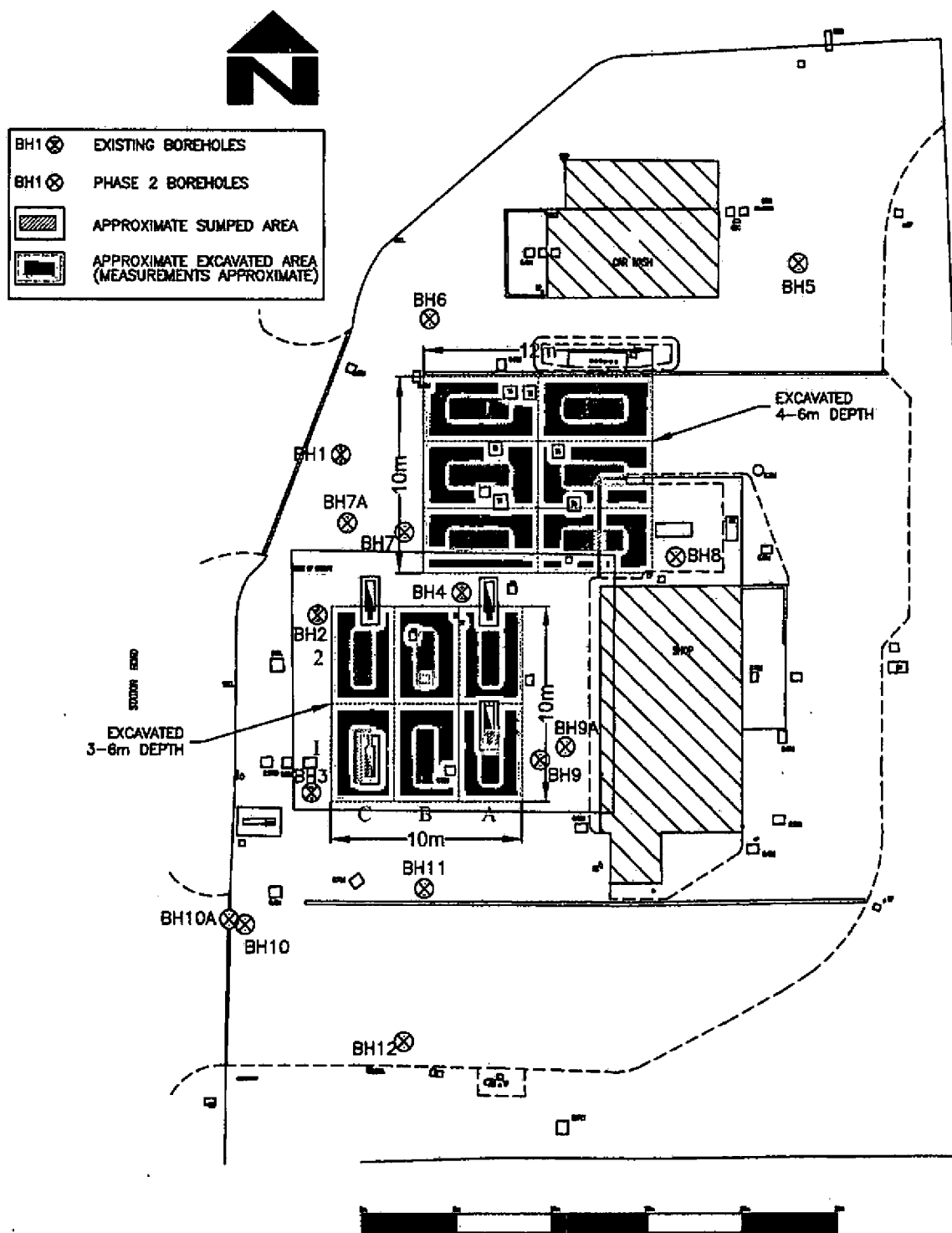


Figure 10: Approximate Extent of Tank-Removal Excavations

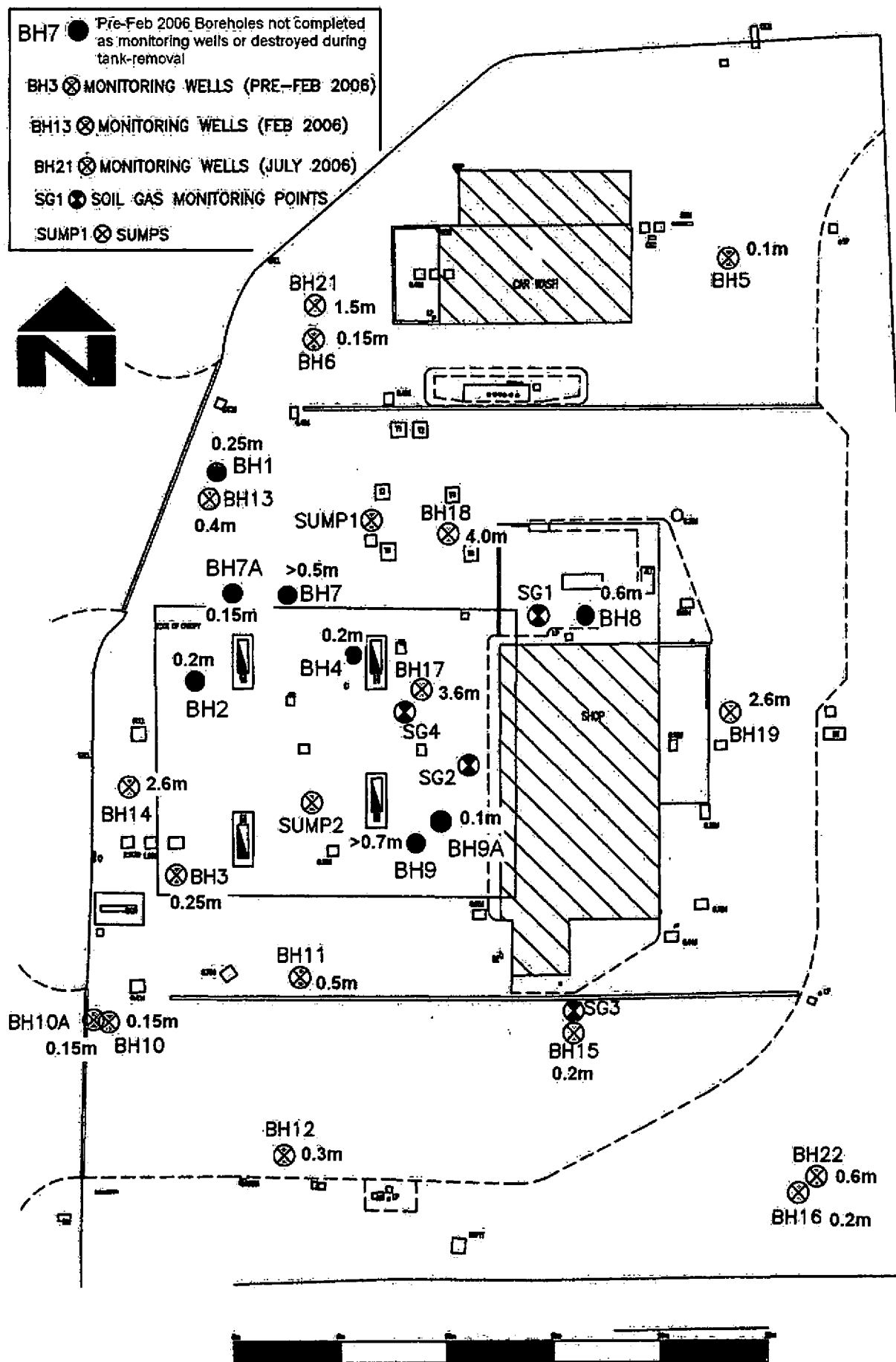


Figure 11: Depths to the base of Made Ground

- BH7 ● Pre-Feb 2006 Boreholes not completed as monitoring wells or destroyed during tank-removal
- BH3 ⊗ MONITORING WELLS (PRE-FEB 2006)
- BH13 ⊗ MONITORING WELLS (FEB 2006)
- BH21 ⊗ MONITORING WELLS (JULY 2006)
- SG1 ● SOIL GAS MONITORING POINTS
- SUMP1 ⊗ SUMPS

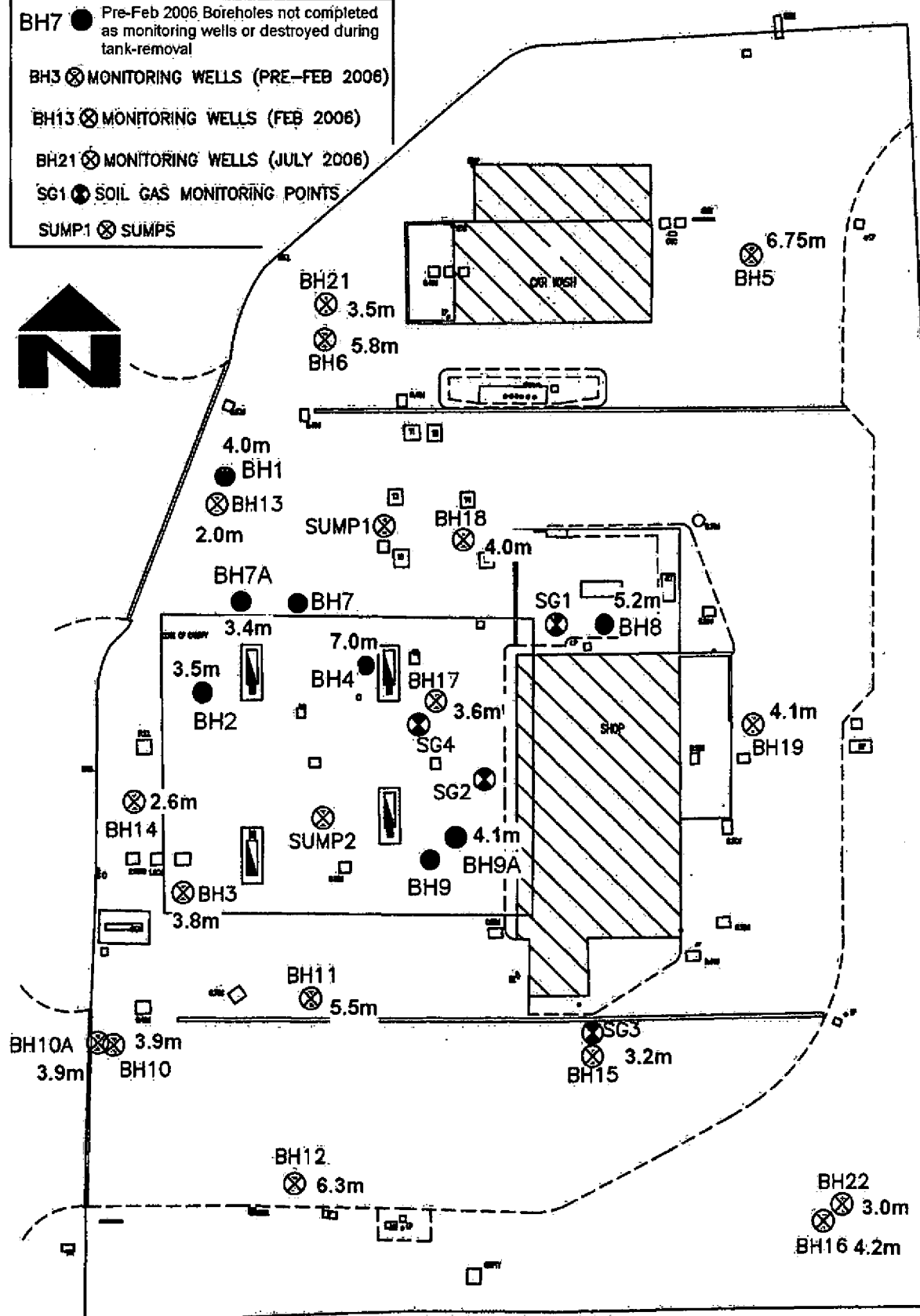


Figure 12: Depths to the top of the chalk

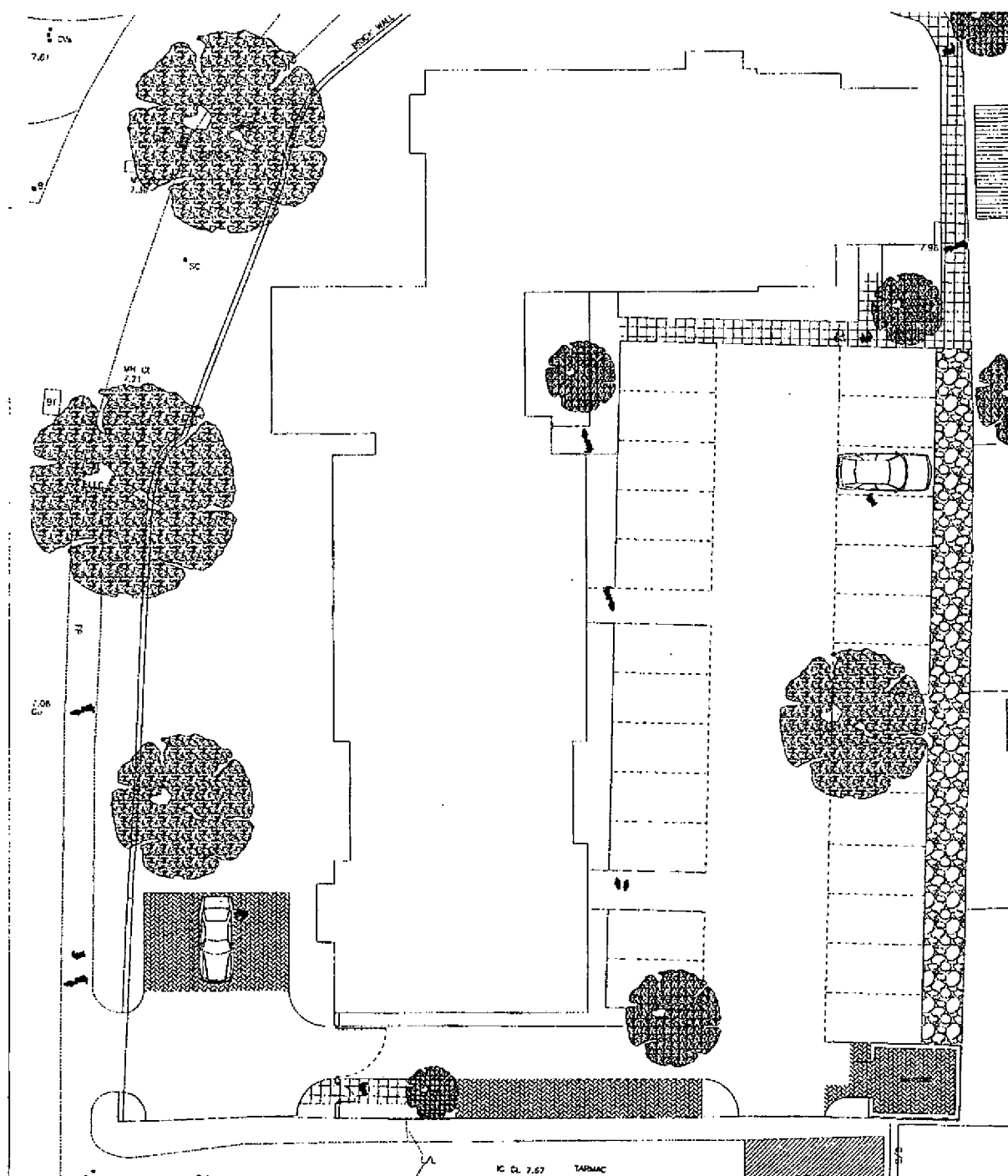


Figure 13: Proposed Layout

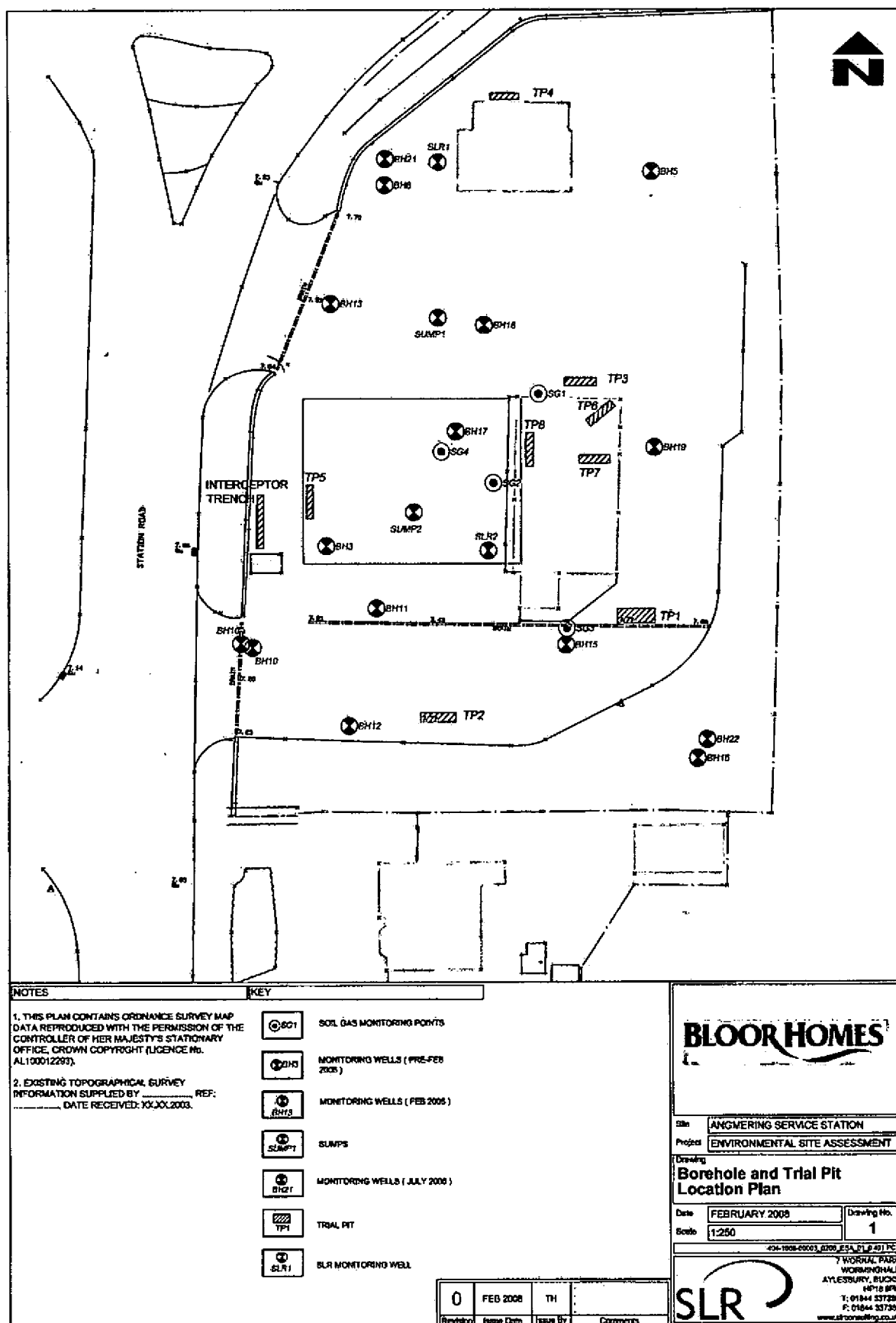


Figure 14: Plan showing locations of TP1 to 8, "interceptor trench" and the two geotechnical boreholes (SLR1 & SLR2).

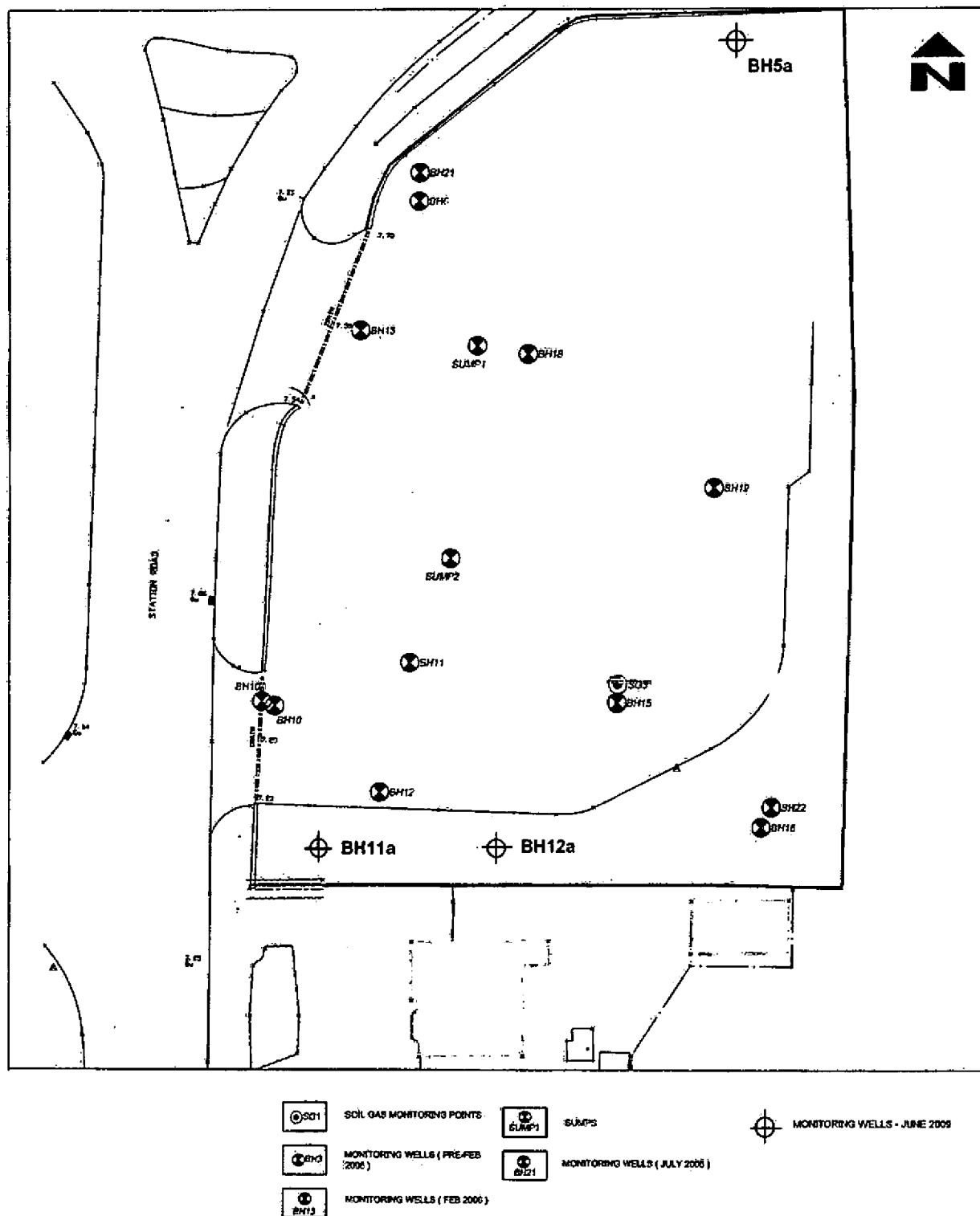


Figure 15: Location of Monitoring Wells (June 2008)

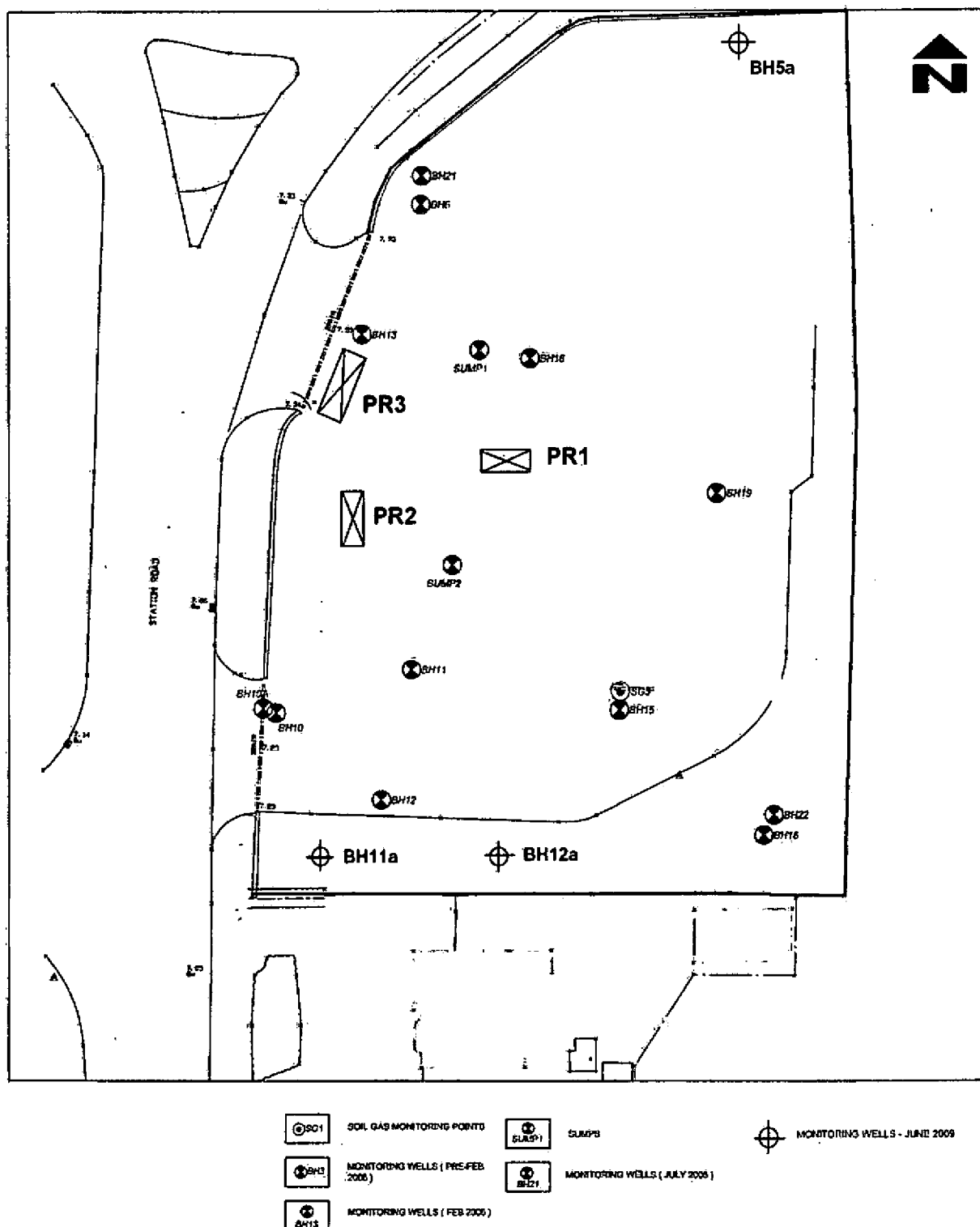


Figure 16: Approximate Locations of Free Phase Removal Sumps



Figure 17: View towards the south-west corner (Station Road in the right background).



Figure 20: View towards southern boundary.



Figure 18: View from western boundary



Figure 21: General view

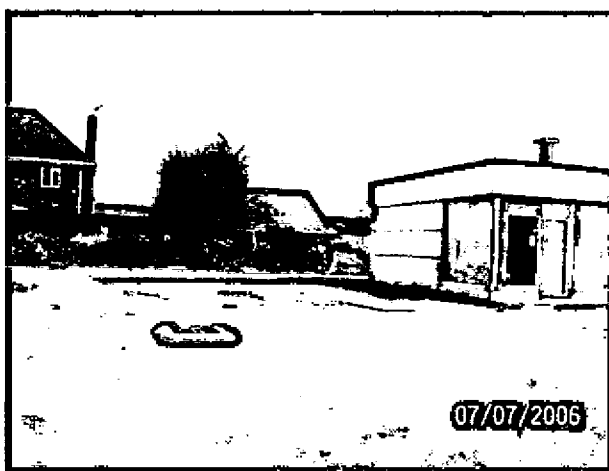


Figure 19: View towards eastern boundary



Figure 22: View towards north-east corner

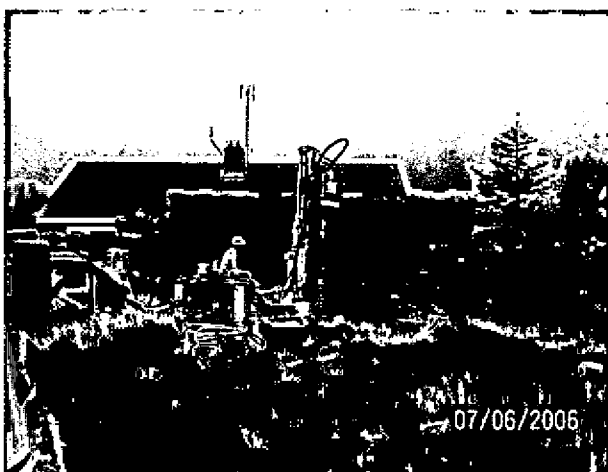


Figure 23: South-eastern corner (BH22 being drilled).



Figure 24: View northwards showing eastern boundary on the right.



Figure 25: The eastern boundary.



Figure 26: 7 February 2008 -General view towards north-east corner showing stockpiled crushed concrete.



Figure 27: 7 February 2008 - General view showing stockpiled crushed concrete.



Figure 28: 7 February 2008 - View towards south-west corner (Station Road in the right background).
The car wash excavation is in the right mid-ground



Figure 29: 7 February 2008 - South-west corner of the site (Station Road is on the right).



Figure 30: 7 February 2008 – View towards Station Road

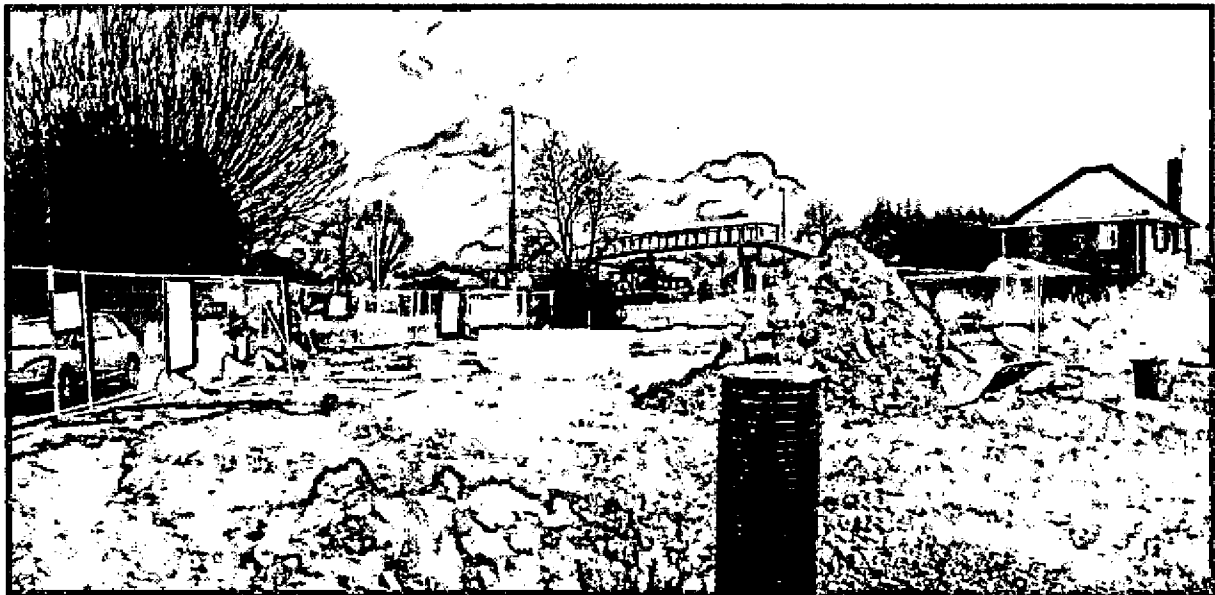


Figure 351: 26 March 2008 – View towards north-east corner (Station Road is on the left) with top of extraction sump in the foreground (a second sump is visible on the extreme right of the picture).

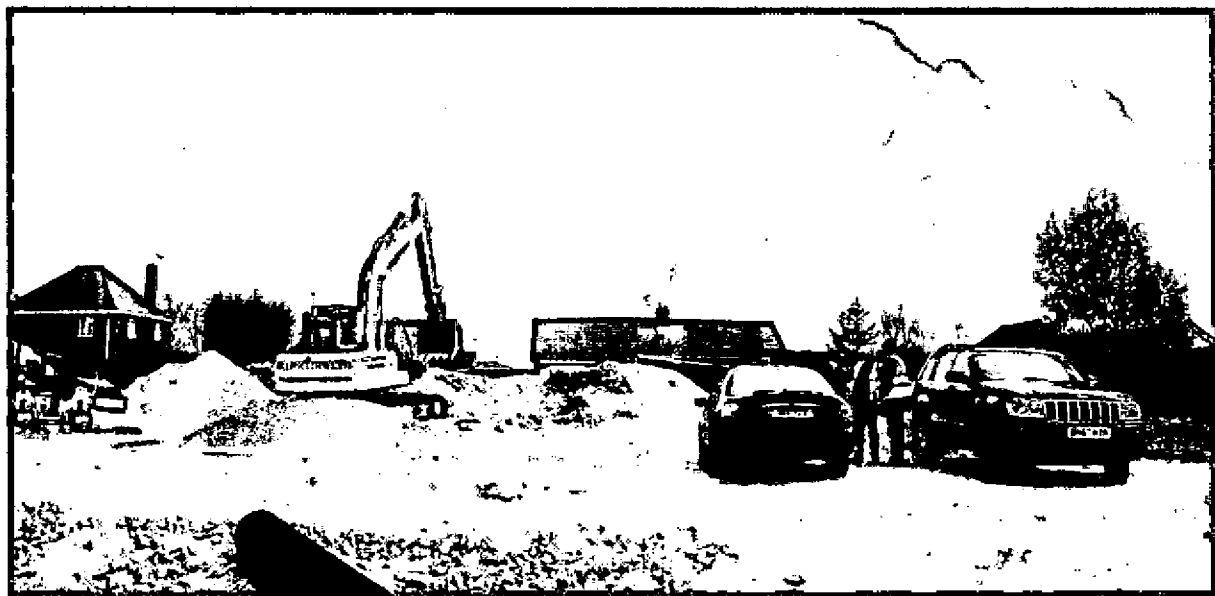


Figure 32: 26 March 2008 – General view East.



Figure 33: 26 March 2008 – extraction sump pipe



Figure 35: 26 March 2008



Figure 34: 26 March 2008

APPENDIX I:

Pre-demolition Asbestos Survey

(July 2007)

***Asbestos
Survey
for***

J S Bloor (Newbury) Ltd

at

***Fomer Petrol Station
Station Road
Angmering
West Sussex***

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R110_SURVEY_Title_G

SiteID:	TPS
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Names and Addresses

Fomer Petrol Station

Client Name:

J S Bloor (Newbury) Ltd

Unit 7, Votec Centre
Hambridge Lane
Newbury
RG14 5TN

Contact: Chris Mayo

Fax :

Site full name:

Fomer Petrol Station

Station Road
Angmering
West Sussex

Contact: Mr Tom Cole

Phone:

Fax:

Instructing Party :

J S Bloor (Newbury) Ltd

Unit 7, Votec Centre
Hambridge Lane
Newbury
RG14 5TN

Contact: Chris Mayo

Fax:

Report Author:

**Amiantus Environmental
Consultants**

Unit C4
New Yatt Business Centre, New Yatt
Oxfordshire
OX29 6TJ

Contact: Roy Pearce
Managing Director



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R200_SURVEY_NAMES_G

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Names & Addresses	Page 1 of 1

Objectives

Fomer Petrol Station

Objectives

- To carry out a type 3 survey of the following areas:

All areas to ground floor
Fomer Petrol Station
Station Road
Angmering
West Sussex

to ascertain the presence of asbestos based materials.

As instructed by the client

- Type 3: Full Access Sampling and Identification Survey (Pre-demolition / Major Refurbishment Surveys).
This type of survey is used to locate and describe, as far as reasonably practicable, all asbestos containing materials (ACMs) in the building and may involve destructive inspection, as necessary, to gain access to all areas. A full sampling programme is undertaken to identify possible ACMs and estimates of the volume and surface area of ACMs made. The survey is designed to be used as a basis for tendering the removal of ACMs from the building prior to demolition or major refurbishment works.
- To produce a report to identify areas of known or suspected / presumed asbestos materials.

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Objectives	Page 1 of 1

Analytical Techniques

- Each floor was viewed for suspect materials thought or known to contain asbestos and samples taken where it was considered necessary. Individual ceiling tiles were removed or existing access hatches used to gain access to the ceiling voids and soffit.
- Materials of a similar type were only occasionally sampled and it was assumed that other surfaces identical to where the sample was taken, was of a similar composition.
- Photographs were taken at all of the sample locations (unless otherwise stated).
- Asbestos Bulk Sample Analysis is conducted by using Polarised Light and Dispersion Staining Techniques. Dispersion Staining is used to describe the colour effects produced when a transparent colourless particle or fibre is immersed in a liquid having a refractive index near to that of the particle or fibre, and is viewed under a microscope using transmitted white light (based on HSE Publication MDHS 77).
-

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Analytical Techniques Page 1 of 1	

General Caveat

Fomer Petrol Station

General Caveat

Every effort has been made to identify all asbestos materials so far as was reasonably practical to do so within the scope of the survey and the attached report. Methods used to carry out the survey were agreed with the client prior to any works being commenced.

Survey techniques used involve trained and experienced surveyors using the combined approach with regard to visual examination and necessary bulk sampling. It is always possible after a survey that asbestos based materials of one sort or another may remain in the property or area covered by that survey, this could be due to various reasons.

Asbestos materials existing within areas not specifically covered by this report are therefore outside the scope of the survey.

Materials may be hidden or obscured by other items or cover finishes i.e. paint over boarding disguising etc. Where this is the case then its detection will be impaired.

Asbestos may well be hidden as part of the structure to a building and not visible until the structure is dismantled at a later date.

Debris from previous asbestos removal projects may well be present in some areas: general asbestos debris does not form part of this survey, however all good intentions are made for its discovery.

Where an area has been previously stripped of asbestos i.e. plant rooms, ducts etc. and new coverings added, it must be pointed out that asbestos removal techniques have improved steadily over the years since its introduction, most notably would be the control of asbestos at work regulation (1987) laying down certain enforceable guidelines. Asbestos removal prior to this regulation would not be of today's standard and therefore debris may be present below new coverings.

This survey will detail all areas accessed and all samples taken, where an area is not covered by this survey it will be due to No Access for one reason or other i.e. working operatives, sensitive location or just simply no access. It may have been necessary for the limits of the surveyor's authority to be confirmed prior to the survey.

Access for the survey may be restricted for many reasons beyond our control

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R600_SURVEY_Caveate_G

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General Caveat

Fomer Petrol Station

General Caveat

such as height, inconvenience to others, immovable obstacles or confined space. Where electrical equipment is present and presumed in the way of the survey no access will be attempted until proof of its safe state is given. Our operatives have a duty of care under the Health and Safety at Work act (1974) for both themselves and others.

In a building where asbestos has been located and it is clear that not all areas have been investigated, any material that is found to be suspicious and not detailed as part of this survey should be treated with caution and sampled accordingly.

Certain materials contain asbestos to varying degrees and some may be less densely contaminated at certain locations (Artex for example) Where this is the case the sample taken may not be representative of the whole product throughout.

Where a survey is carried out under the guidance of the owner of the property or his representative then the survey will be as per his instructions and guidance at that time.

Amiantus Environmental Consultants cannot accept any liability for loss, injury, damage or penalty issues due to errors or omissions within this report. Amiantus Environmental Consultants cannot be held responsible for any damage caused as part of this survey carried out on your behalf. Due to the nature and necessity of sampling for asbestos some damage is unavoidable and will be limited to just that necessary for the taking of the sample.

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Specific Notes

- Whilst every effort was made to locate the ceiling panels, wall partitions and other panels, which may have been constructed from asbestos boarding, none other than those detailed were found. Some may have been missed due to repairs, alterations etc, where false and other finishes have been applied or where different specifications (including a possible mixture of asbestos and non-asbestos) panels have been used in the same area. Only by sampling each panel would the composition of all the materials be known. This was clearly not practical in terms of cost or time.
- No air monitoring was carried out whilst the survey was undertaken and therefore care was taken not to cause disturbance of fibre or contamination of clean surfaces.
- This report has been written with reference to the various Guidance Notes etc, issued, and current at the date of this report and describes circumstances at the site on the date the investigation took place.
- Where similar items exist in the building, only one or two samples have been taken to ascertain the material content. It was assumed that similar products were of the same material. Only random sampling was carried out.
- The diagrams in the report are not to scale and are illustrative only to indicate approximate locations. The descriptions used are for location identification purposes.
- All the recommendations described in this report are based upon assumptions made after consideration of the type of material, condition of the material, its location, analysis result and type of use the area is thought to be subjected to. However, statutory authorities or others, could require amendments based on local knowledge, change in legislation, change in use or indeed, other conditions of criteria.
- Equipment, machinery, ducting etc were not moved, opened up or examined for the purpose of this investigation except in the odd occasion where hatches were available.

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Specific Notes

Fomer Petrol Station

Specific Notes

- Samples taken from floor tiles (or similar material) may include a bitumastic adhesive as part of the sample. It is known that some proprietary brands of bitumen have an asbestos content and this will be included as an integral part of the Bulk Sample unless otherwise stated.

Due to the inconsistency of the fibre content in vinyl floor material and its low percentage (generally less than 2% by volume) random sampling only, was carried out to establish the possible presence of asbestos in vinyl flooring. A more comprehensive sampling strategy would have to be implemented to establish the exact extent of asbestos based vinyl flooring. However, unless the material is subjected to vigorous abrasive action or fire, the possibility of fibre release will be minimal due to the matrix of the material.

●

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Survey Summary

Fomer Petrol Station

Survey Summary

Survey Details

Type 3 Survey works were undertaken by Roy Pearce on 3rd July 2007

Sample Details

During the course of the survey one sample was taken for analysis.

This was found NOT to contain asbestos fibres.

A further two locations were referenced back to the original sample taken and two other locations have been presumed to contain asbestos.

During the course of the survey no materials were found or suspected as containing asbestos.

It is strongly presumed that no asbestos containing materials were used in the current construction of the building. However if any suspect materials are uncovered during future works, then it is recommended that samples are taken for analysis.

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R800_SURVEY_SurvSumm_G

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Recommendations

Fomer Petrol Station

RISK ASSESSMENTS:

For each sample / inspection, a Risk Assessment should be compiled. A points score (weighting) is allocated on the basis of the examination of a number of parameters.

This system is based on the method as described in Specialist Module S301-Asbestos and Other Fibres, and has been adopted by many local authorities for their Asbestos Survey Assessments.

FRIABILITY:

Asbestos cement is usually of low friability except when in very poor condition. Asbestos insulation board when damaged or inadequately encapsulated can be extremely friable. Asbestos insulation can vary greatly in its friability. Asbestos spray coatings, if not adequately encapsulated, are extremely friable and hazardous.

Low = 0

Medium = 1

High = 4

SURFACE TREATMENT / DAMAGE :

The likelihood that the fibres contained within the asbestos product will become airborne. Sealed or encapsulated surfaces do not release fibres. Damaged or bare surfaces may.

None = 0

Sealed = 0

Poor Seal = 2

Unsealed = 4

ACCESSIBILITY:

A greater hazard is expected when persons have reason to be close to the asbestos product. The use of tools or machinery in the vicinity may give rise to greater concern.

No Access = 0

Difficult Access = 0

Medium Access = 1

Easy Access = 2

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R900_SURVEY_Recomms02_G

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Recommendations

Fomer Petrol Station

CONDITION:

The condition of the material is a good indicator of the risk / hazard.
Loose asbestos board or asbestos insulation can be extremely hazardous.

Unknown = 0
Good = 0
Fair = 1
Poor = 4
Debris = 6
Poor (Falling Debris) = 7

AIR MOVEMENT / POSITION:

Both of these factors may increase the likelihood of airborne fibre release.
Damage or disturbance in these circumstances may be particularly hazardous.
However, small amounts of airborne asbestos fibre released into a large volume of air are less hazardous than a similar release in a small area.

Internal/External = 0
External = 0
Internal = 1
Induced Vent = 2

ASBESTOS TYPE: Chrysotile = White Amosite = Brown Crocidolite = Blue Asbestos Fibres

No Asbestos Suspected = 0
Non Asbestos = 0
Unknown = 0
NADIS = 0
REMOVED = 0
No Asbestos = 0
Chrysotile = 1
Actinolite = 2
Amosite = 2
Chrysotile/ Amosite = 2
Asbestos = 2
Presumed Asbestos = 2
Anthophyllite = 2
Tremolite = 2
Amosite & Chrysotile = 2
Crocidolite = 3
Crocidolite/ Amosite = 3

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Recommendations

Fomer Petrol Station

Chrysotile/ Crocidolite = 3
Amosite/Crocidolite/Chrysotile = 3
Chrysotile/Amosite/Crocidolite = 3
Amosite/Chrysotile/Crocidolite = 3
Chrysotile/ Amosite/Crocidolite = 3

ANALYSIS CONTENT:

REMOVED = 0
No Sample Taken = 0
Non Asbestos = 0
Assumed Trace (<2%) = 1
Assumed Low (2-15%) = 1
Low (2-15%) = 1
Trace (<2%) = 1
Assumed Medium (15-50%) = 2
Medium (15-50%) = 2
Assumed High (>50%) = 3
High (>50%) = 3

Where the analysis is based upon the surveyors visual inspection rather than laboratory analysis, the values are prefixed "Assumed".

The hazard assessment system adopted must concentrate solely on the likelihood of fibre release from asbestos based materials into the breathing zone of persons at risk. This is the singular most important factor in assessing the likelihood of that person being exposed to fibre concentration injurious to their health.

Although recommendations which are issued will vary according to each individual situation, it is desirable that some standardisation of action is achieved to allow Property and Engineering Managers to identify areas that require immediate attention, and to instigate planned preventive maintenance and management of asbestos containing materials.

RISK BAND A:

18 Points or more

HIGH RISK MATERIAL REQUIRING URGENT ATTENTION:

The potential hazard arising from this category warrants urgent action. Immediate plans should be made for the removal of the asbestos containing material. If delay of removal is likely to occur the asbestos should be sealed / encapsulated and approved warning labels (A Labels) positioned to prevent accidental damage to the material.

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Recommendations

Fomer Petrol Station

RISK BAND B:

14-17 Points

MEDIUM RISK MATERIAL REQUIRING NEAR TERM ATTENTION:

This category indicates that deterioration in any of the contributory factors may result in fibre release. Therefore all asbestos should be removed on a programmed basis within a specified time scale - normally 12 months.

The condition of the asbestos material should be regularly monitored and, where necessary, sealed / re-encapsulated until removal takes place.

Approved warning labels (A Labels) should be positioned to prevent accidental damage to the material.

RISK BAND C:

9-13 Points

LOW RISK MATERIAL REQUIRING REGULAR INSPECTION:

This category indicates the need for regular monitoring. Although the current risk of fibre release is low, this material may suffer deterioration through age / accidental damage. It is recommended that asbestos in this category is visually inspected on a six monthly basis to ascertain any change in condition. Where such a change occurs re-prioritisation to Risk Band B will be necessary. Approved warning labels (A Labels) should be positioned to prevent accidental damage to the material.

RISK BAND D:

1-8 Points

MINOR RISK MATERIAL REQUIRING ANNUAL INSPECTION:

This category indicates Low Priority. Visual inspections should be made on an annual basis to ascertain any change in condition. Where such a change occurs re-prioritisation to Risk Band C or B will be necessary. Approved warning labels (A Labels) should be positioned to prevent accidental damage to the material.

RISK BAND E:

0 Points

NO ACTION REQUIRED

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Recommendations

Fomer Petrol Station

Recommendations Analysis

Risk Band E No action required

<i>Inspection Ref</i>	<i>Building</i>	<i>Floor</i>	<i>Contents</i>	<i>Component</i>	<i>Asbestos Y/N</i>	<i>Risk Factor</i>	<i>Remarks</i>	
TPS/01/030707 RP	Main Building	Ground floor	NADIS	Damp course	No	0	The Damp Proof lining to the external wall of the building is NON asbestos	No further action required
TPS/NON/01	Main Building	Ground floor	Non Asbestos	Ceiling tile	No	0	The ceiling tiles (lying as debris) to the toilet area are NON asbestos	No further action required
TPS/NON/02	Main Building	Ground floor	No Asbestos Suspected	None	No	0	No materials to the ceiling of the main building were suspected of containing asbestos fibres (insulation is Rocwool)	No further action required
TPS/NON/03	Main Building	Ground floor	No Asbestos Suspected	None	No	0	No materials to the internal walls of the main building were suspected of containing asbestos fibres.	No further action required
TPS/NON/04	Main Building	Ground floor	No Asbestos Suspected	None	No	0	No materials to the central beam of the main building were suspected of containing asbestos fibres.	No further action required
TPS/NON/05	Main Building	Ground floor	No Asbestos Suspected	None	No	0	No materials to the the main building were suspected of containing asbestos fibres.	No further action required
TPS/NON/06	Main Building	Ground floor	No Asbestos Suspected	None	No	0	No materials to the the store were suspected of containing asbestos fibres.	No further action required

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R900_SURVEY_Recomins02_G

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SAMPLE SUMMARY by Location

Fomer Petrol Station

<i>Sample Ref</i>	<i>Location</i>	<i>Asbestos</i>	<i>Remarks</i>
<i>Building:</i>	<u>Main Building</u>		
<i>Floor:</i>	<u>Ground floor</u>		
TPS/NON/05	Ground floor All	No Asbestos Suspected	No materials to the the main building were suspected of containing asbestos fibres. No further action required
TPS/01/03070 7RP	Ground floor External	NADIS	The Damp Proof lining to the external wall of the building is NON asbestos No further action required
TPS/NON/06	Ground floor Store	No Asbestos Suspected	No materials to the the store were suspected of containing asbestos fibres. No further action required
TPS/NON/01	Ground floor Toilets	Non Asbestos	The ceiling tiles (lying as debris) to the toilet area are NON asbestos No further action required
TPS/NON/04	Ground floor Trade Area	No Asbestos Suspected	No materials to the central beam of the main building were suspected of containing asbestos fibres. No further action required
TPS/NON/03	Ground floor Trade Area	No Asbestos Suspected	No materials to the internal walls of the main building were suspected of containing asbestos fibres. No further action required
TPS/NON/02	Ground floor Trade Area	No Asbestos Suspected	No materials to the ceiling of the main building were suspected of containing asbestos fibres (insulation is Rocwool) No further action required

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RD20_SAMPLE_SumLoc_G

<i>SiteID:</i>	TPS
<i>Survey Ref:</i>	2007312
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SAMPLE SUMMARY by Location

Fomer Petrol Station

<i>Sample Ref</i>	<i>Location</i>	<i>Asbestos</i>	<i>Remarks</i>
Building:	<u>Main Building</u>		
Floor:	<u>Ground floor</u>		
TPS/NON/05	Ground floor All	No Asbestos Suspected	No materials to the the main building were suspected of containing asbestos fibres. No further action required
TPS/01/03070 7RP	Ground floor External	NADIS	The Damp Proof lining to the external wall of the building is NON asbestos No further action required
TPS/NON/06	Ground floor Store	No Asbestos Suspected	No materials to the the store were suspected of containing asbestos fibres. No further action required
TPS/NON/01	Ground floor Toilets	Non Asbestos	The ceiling tiles (lying as debris) to the toilet area are NON asbestos No further action required
TPS/NON/04	Ground floor Trade Area	No Asbestos Suspected	No materials to the central beam of the main building were suspected of containing asbestos fibres. No further action required
TPS/NON/03	Ground floor Trade Area	No Asbestos Suspected	No materials to the internal walls of the main building were suspected of containing asbestos fibres. No further action required
TPS/NON/02	Ground floor Trade Area	No Asbestos Suspected	No materials to the ceiling of the main building were suspected of containing asbestos fibres (insulation is Rocwool) No further action required

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RD20_SAMPLE_SumLoc_G

SiteID:	TPS
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Last Survey:	03 July 2007
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Loc'n Sum'y	Page 1 of 1

***Environmental
Inspection Sheets
for
J S Bloor (Newbury) Ltd
at
Fomer Petrol Station
Station Road
Angmering
West Sussex***

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RB01_SAMPLE_InspRcd_G

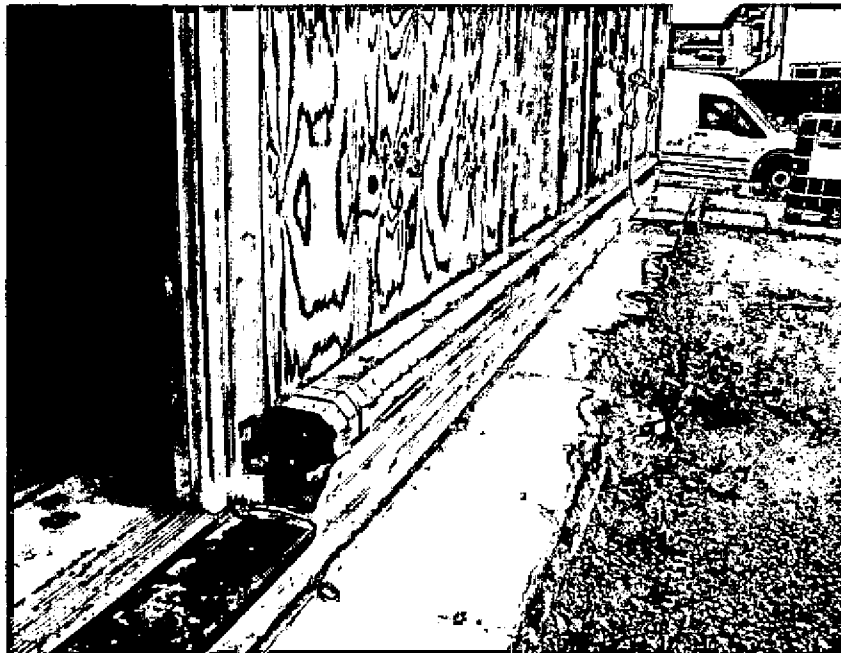
<i>SiteID:</i>	TPS
<i>Survey Ref:</i>	2007312
<i>Last Survey:</i>	03 July 2007
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<i>Sample Rcd</i>	Page 1 of 8

Environmental Inspection Record

Fomer Petrol Station

Location		Component:		Inspection Ref. Number	
Main Building Ground floor External WALL 0100		Damp course		TPS/01/030707RP	
				Survey Date	03/07/07
				Inspection Type	Type 3
				Surveyor:	Roy Pearce
Condition:	Fair	Access:	Easy Access	Asbestos ?	
				No	
Friability:	Low	Amount:	Typical	Type :	NADIS
Damage:	Sealed	Exposure:	Maintenance	Analysis:	Non Asbestos
Position:	External	Risk Factor:	0	Priority Assessment:	No action required
		Risk Band:	E		

The Damp Proof lining to the external wall of the building is NON asbestos



Recommended
Action:

No further action required

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RB01_SAMPLE_InspRcd_G

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Environmental Inspection Record

Fomer Petrol Station

Location		Component:		Inspection Ref. Number	
Main Building Ground floor Toilets CEILING 0100		Ceiling tile		TPS/NON/01	
				Survey Date	03/07/07
				Inspection Type	Type 3
				Surveyor:	Roy Pearce
Condition:	Debris	Access:	Medium Access	Asbestos ?	
				No	
Friability:	Medium	Amount:	6 Sq mt approx.	Type :	Non Asbestos
Damage:	Unsealed	Exposure:	Staff	Analysis:	No Sample Taken
Position:	Internal	Risk Factor:	0	Priority Assessment:	No action required
		Risk Band:	E		

The ceiling tiles (lying as debris) to the toilet area are NON asbestos

Recommended
Action:

No further action required

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RB01_SAMPLE_InspRcd_G

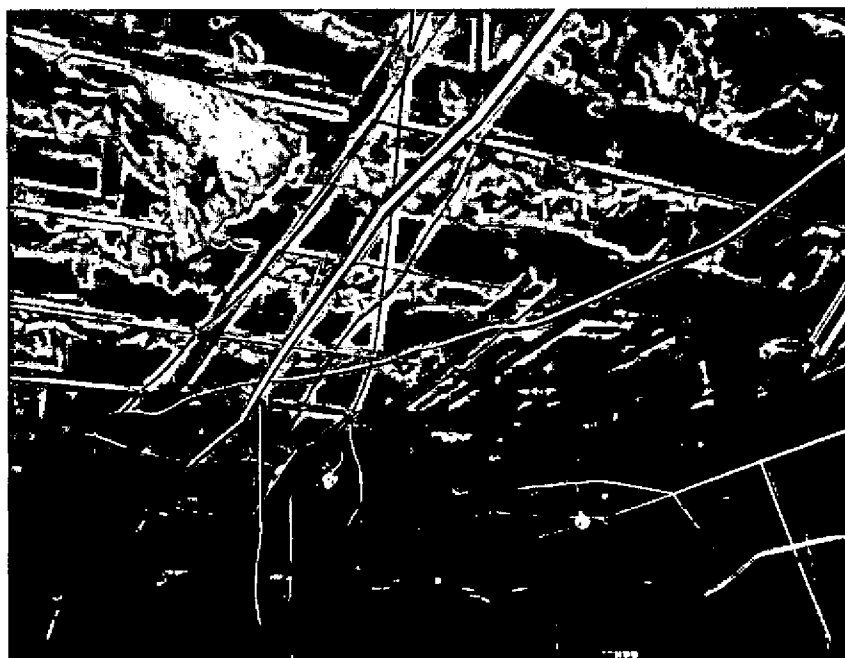
SiteID:	TPS
Survey Ref:	2007312
Last Survey:	03 July 2007
Printed on:	10 July 2007
Sample Rcd	Page 3 of 8

Environmental Inspection Record

Fomer Petrol Station

Location		Component:		Inspection Ref. Number	
Main Building Ground floor Trade Area CEILING 0100		None		TPS/NON/02	
				Survey Date	03/07/07
				Inspection Type	Type 3
				Surveyor:	Roy Pearce
Condition:		Access:	Medium Access	Asbestos ?	
				No	
Friability:		Amount:		Type :	No Asbestos Suspected
Damage:		Exposure:	Maintenance	Analysis:	No Sample Taken
Position:	Internal	Risk Factor:	0	Priority	No action required
		Risk Band:	E	Assessment:	

No materials to the ceiling of the main building were suspected of containing asbestos fibres (insulation is Rocwool)

**Recommended Action:**

No further action required

Amiantus Environmental Consultants

Printed using ENVACS

RB01_SAMPLE_InspRcd_G

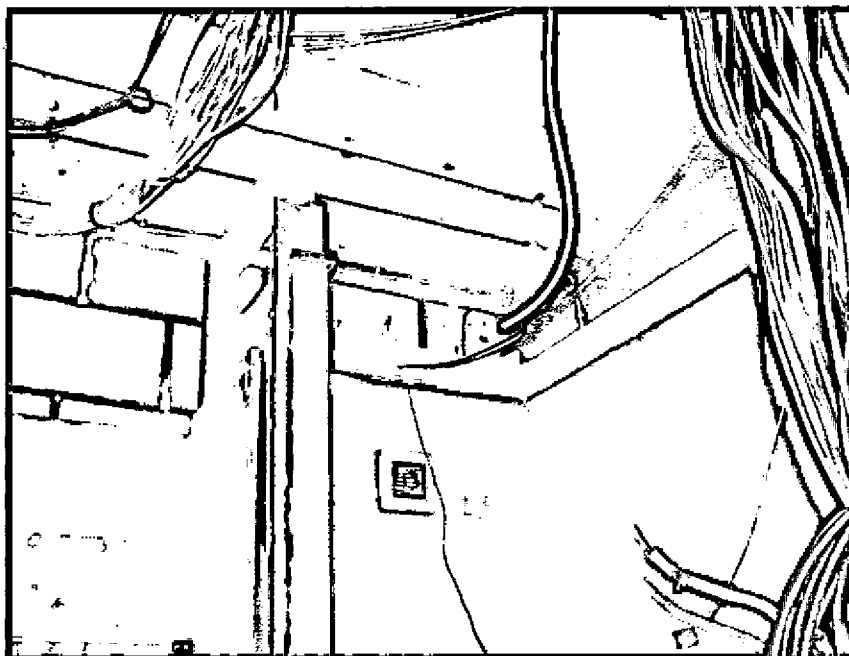
SiteID:	TPS
Survey Ref:	2007312
Last Survey:	03 July 2007
Printed on:	10 July 2007
Sample Rcd	Page 4 of 8

Environmental Inspection Record

Fomer Petrol Station

Location		Component:		Inspection Ref. Number	
Main Building Ground floor Trade Area WALLS 0100		None		TPS/NON/03	
				Survey Date	03/07/07
				Inspection Type	Type 3
				Surveyor:	Roy Pearce
Condition:		Access:	Easy Access	Asbestos ?	
Friability:		Amount:		Type :	No
Damage:		Exposure:	Maintenance	Analysis:	No Asbestos Suspected
Position:	Internal	Risk Factor:	0	Priority	No Sample Taken
		Risk Band:	E	Assessment:	No action required

No materials to the internal walls of the main building were suspected of containing asbestos fibres.



Recommended
Action:

No further action required

Amiantus Environmental Consultants

Printed using ENVACS

RB01_SAMPLE_InspRod_G

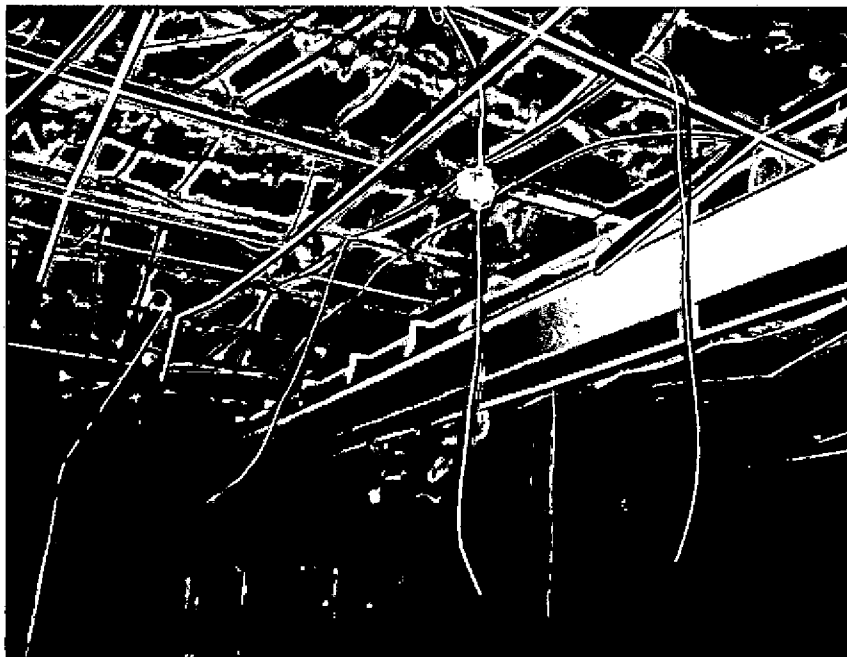
SiteID:	TPS
Survey Ref:	2007312
Last Survey:	03 July 2007
Printed on:	10 July 2007
Sample Rcd	Page 5 of 8

Environmental Inspection Record

Fomer Petrol Station

Location		Component:		Inspection Ref. Number	
Main Building Ground floor Trade Area BEAM 0100		None		TPS/NON/04	
				Survey Date	03/07/07
				Inspection Type	Type 3
				Surveyor:	Roy Pearce
Condition:		Access:	Medium Access	Asbestos ?	
				No	
Friability:		Amount:		Type :	No Asbestos Suspected
Damage:		Exposure:	Maintenance	Analysis:	No Sample Taken
Position:	Internal	Risk Factor:	0	Priority	No action required
		Risk Band:	E	Assessment:	

No materials to the central beam of the main building were suspected of containing asbestos fibres.



Recommended Action:

No further action required

Amiantus Environmental Consultants

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RB01_SAMPLE_InspRcd_G

SiteID:	TPS
Survey Ref:	2007312
Last Survey:	03 July 2007
Printed on:	10 July 2007
Sample Rcd	Page 6 of 8

Environmental Inspection Record

Fomer Petrol Station

Location		Component:		Inspection Ref. Number	
Main Building Ground floor All ALL 0100		None		TPS/NON/05	
				Survey Date	03/07/07
				Inspection Type	Type 3
				Surveyor:	Roy Pearce
Condition:		Access:	Easy Access	Asbestos ?	
				No	
Friability:		Amount:		Type :	No Asbestos Suspected
Damage:		Exposure:	Staff	Analysis:	No Sample Taken
Position:	Internal	Risk Factor:	0	Priority Assessment:	No action required
		Risk Band:	E		

No materials to the the main building were suspected of containing asbestos fibres.



Recommended
Action:

No further action required

Amiantus Environmental Consultants

Printed using ENVACS

RB01_SAMPLE_InspRcd_G

SiteID:	TPS
Survey Ref:	2007312
Last Survey:	03 July 2007
Printed on:	10 July 2007
Sample Rcd	Page 7 of 8

Environmental Inspection Record	Fomer Petrol Station
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Location		Component:		Inspection Ref. Number	
Main Building Ground floor Store ALL 0100		None		TPS/NON/06	
				Survey Date	03/07/07
				Inspection Type	Type 3
				Surveyor:	Roy Pearce
Condition:		Access:	Easy Access	Asbestos ?	
				No	
Friability:		Amount:		Type :	No Asbestos Suspected
Damage:		Exposure:	Staff	Analysis:	No Sample Taken
Position:	Internal	Risk Factor:	0	Priority Assessment:	No action required
		Risk Band:	E		

No materials to the the store were suspected of containing asbestos fibres.



Recommended Action:	No further action required
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Amiantus Environmental Consultants		SiteID:	TPS
		Survey Ref:	2007312
		Last Survey:	03 July 2007
		Printed on:	10 July 2007
Printed using ENVACS	RB01_SAMPLE_InspRcd_G	Sample Rcd	Page 8 of 8



CERTIFICATE FOR IDENTIFICATION OF ASBESTOS FIBRES

STANDARD ☐
PREMIUM ☐
EMERGENCY ☐

Client:	AMIANTUS ENVIRONMENTAL CONSULTANTS
Address:	UNIT C4, NEW YATT BUSINESS CENTRE NEW YATT, NR WITNEY OXFORDSHIRE, OX29 6TJ
Attention:	MR R PEARCE
Site Address:	STATION ROAD ANGMERING WEST SUSSEX
Date sample taken:	03/07/07
Date sample received:	05/07/07
Date of Analysis:	05/07/07

Analysis Report No.	SCO/07/1510
Report Date:	05/07/07
Site Ref No.	OX/RP/2007312
Page No:	1 Of 1
No. of Samples:	1
Obtained:	DELIVERED

Samples of material, referenced below, have been examined to determine the presence of asbestos fibres, using Scopes Asbestos Analysis "in house" method of transmitted/polarised light microscopy and centre stop dispersion staining, based on HSE's HSG248. If samples have been DELIVERED the site address and actual sample location is as given by the client at the time of delivery. Scopes Asbestos Analysis Services Limited are not responsible for the accuracy or competence of the sampling by third parties. Under these circumstances Scopes Asbestos Analysis Services Limited cannot be held responsible for the interpretation of the results shown. Samples shown as COLLECTED have been sampled using Scopes Asbestos Analysis Services Limited documented "In-house" method for sampling

SCOPE'S SAMPLE	CLIENT SAMPLE No.	Sample Location	Fibre Type Detected
1	TPS/01/030707/RP	WALL - DAMP PROOF COURSE	NADIS

KEY: NADIS - No Asbestos Detected in Sample

Note: All samples will be retained for a minimum of six months.

Analysed by:	B. HOPSON	Authorised signatory:	
		Print name:	B.HOPSON - COMPANY MANAGER

BULK 001-VER 4 22-NOV-05-QCM

2 Nobel Square, Courtauld Road, Burnt Mills Industrial Estate, Basildon, Essex SS13 1LS

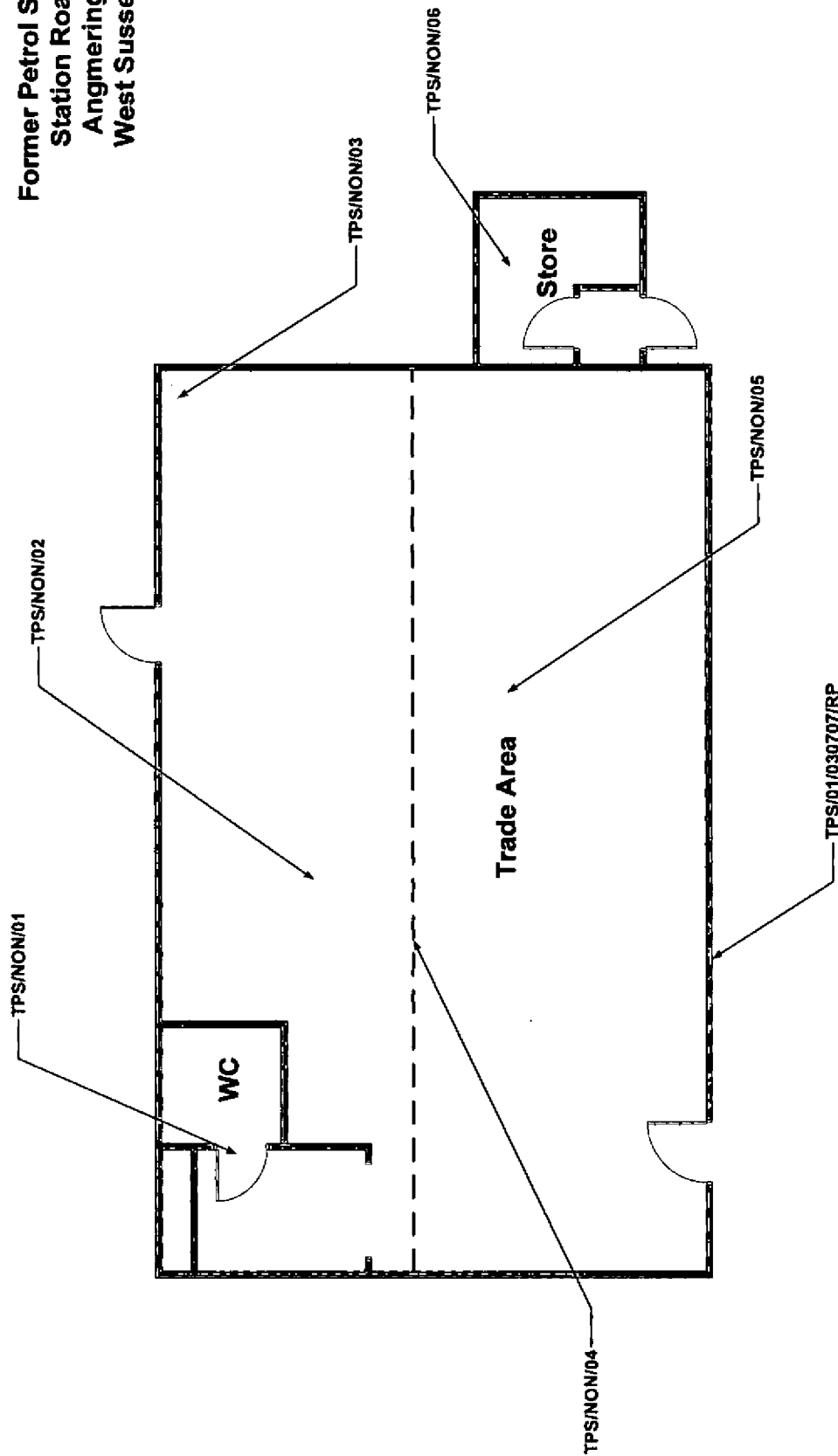
Company Reg No: 5191390 Reg Address: 164 Fairfax Drive Westcliff-on-Sea Essex SS0 9BE

Legend

— = Positive Sample Location

— = Negative Sample Location

Former Petrol Station
Station Road
Angmering
West Sussex



APPENDIX II:

Results of Groundwater and Gas Monitoring

November 2007

M A SMITH
*Environmental
Consultancy*

10A Moorland Road, Hemel Hempstead, Herts. HP1 1NQ



4 December 2007

Ms Amy Francis
Environment Agency
Saxon House
Little High Street
Worthing
West Sussex
BN11 1DH

Dear Ms Francis,

Agency Ref. SX/2006/017555/05
Planning Application A/85/06

**RESIDENTIAL DEVELOPMENT, TEXACO PETROL STATION, STATION ROAD,
ANGMERING**

Dear Ms Francis,

I enclose SLR Consulting's report on gas and groundwater monitoring and sampling carried out in November. The monitoring wells have been re-levelled and the groundwater levels are based on the revised levels.

The locations of the monitoring wells and sumps are shown in the attached Figure 1. The analytical hydrocarbon results to date are summarised in the attached tables.

Please contact me if you have any queries.

Yours sincerely,

M A Smith

cc (by e-mail):
Simon Vipond, Environment Agency
Matthew Kennett, Arun District Council
Mrs S Leeson, Arun DC, Planning Department
Jeff Kerton, MJA Consulting
Luke Wilkinson, SLR Consulting

Michael A Smith BSc, CChem, CGeol, FRSC, MCIWEM, FGS, MIMMM

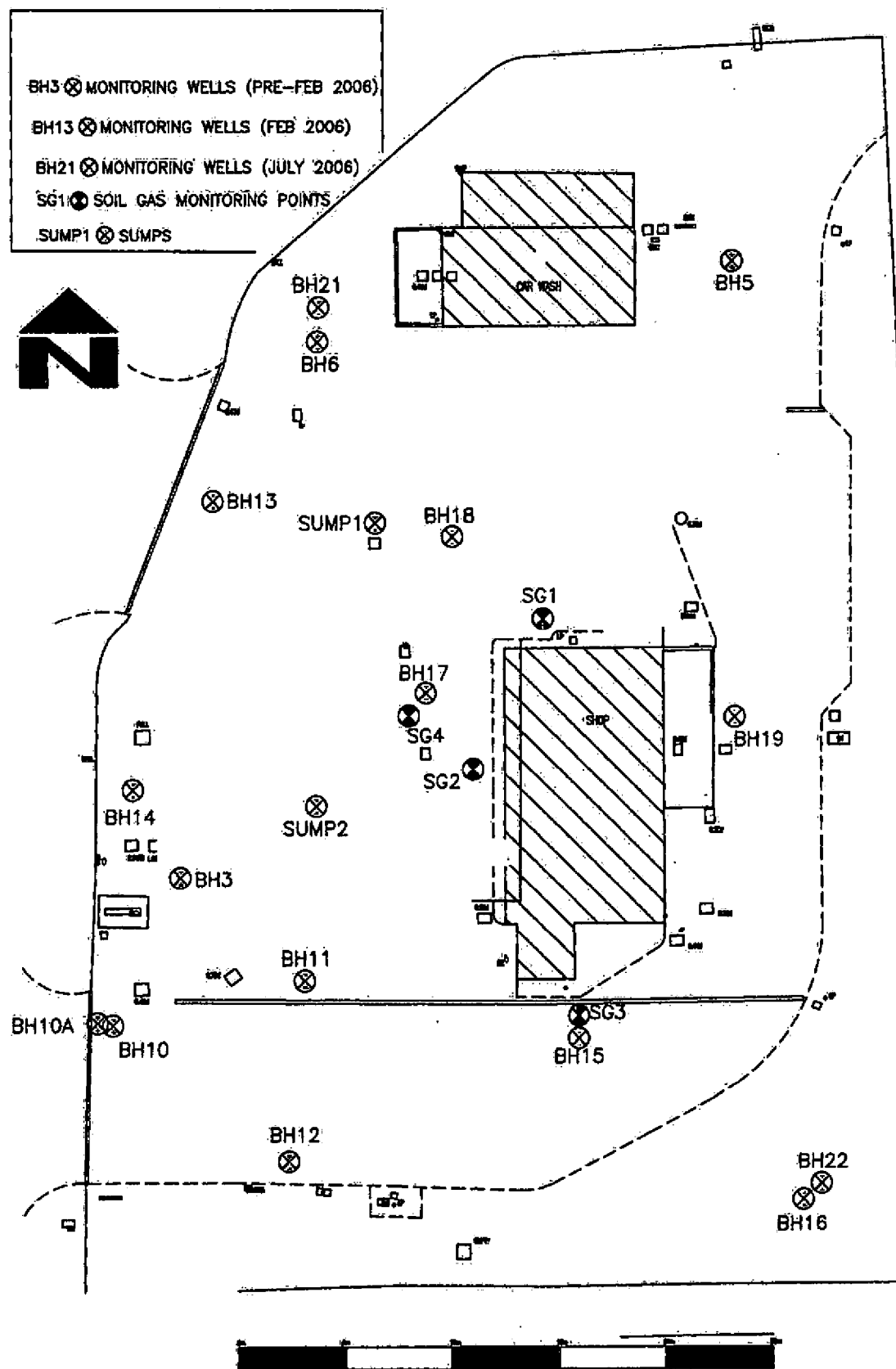


Figure 1

Michael A Smith BSc, CChem, CGeol, FRSC, MCIWEM, FGS, MIMMM

Sampling location	Initial Assessment Criteria	LoD/Units	BH3			BH5			BH6			BH10			BH10A							
			Feb-06	May-06	Jul-06	Jan-07	Nov-07	Feb-06	May-06	Jul-06	Jan-07	Nov-07	Feb-06	May-06	Jul-06	Jan-07	Nov-07	Feb-06	May-06	Jul-06	Jan-07	Nov-07
DBRO (mm C12-C15)	-	ug/l	18400	2370	10	-	22700	140	10	70	<10	<10	50	<10	30	<10	0	<10	<10	60	<10	<10
DBRO (C4-C12)	50	ug/l	65000	6500	6500	6500	6500	6500	6500	6500	6500	6500	<10	<10	2500	<10	1100	<10	<10	<10	<10	<10
MTBE	15	ug/l	2000	464	2390	-	<10	760	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Petrol	1	ug/l	120	117	130	3	30	40	<10	<10	<10	<10	<10	<10	120	<10	420	<10	<10	<10	<10	<10
Toluene	50	ug/l	800	77	620	-	210	<10	<10	<10	<10	<10	<10	<10	340	<10	30	<10	<10	<10	<10	<10
Ethyl benzene	50	ug/l	770	464	1310	-	390	330	<10	<10	<10	<10	<10	<10	70	<10	30	<10	<10	<10	<10	<10
m & p Xylene	30	ug/l	1800	1490	2500	-	1100	2170	640	40	<10	<10	<10	<10	410	<10	120	<10	<10	<10	<10	<10
o Xylene	30	ug/l	1440	103	890	-	190	30	<10	<10	<10	<10	<10	<10	190	<10	40	<10	<10	<10	<10	<10
Aliphatics C5-C6	-	ug/l	1680	809	2190	-	1400	710	970	170	<10	<10	<10	<10	680	<10	30	<10	<10	<10	<10	<10
Aliphatics >C6-C8	-	ug/l	24800	2095	2290	-	4500	1210	580	10	<10	<10	<10	<10	250	<10	370	<10	<10	<10	<10	<10
Aliphatics >C8-C10	-	ug/l	9230	845	6040	-	1700	950	650	300	<10	<10	<10	<10	170	<10	40	<10	<10	<10	<10	<10
Aliphatics >C10-C12	-	ug/l	4810	329	3690	-	650	320	260	250	<10	<10	<10	<10	10	<10	<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16	-	ug/l	4640	2274	<10	-	2500	30	<10	<10	<10	<10	<10	<10	<10	<10	20	<10	<10	20	<10	<10
Aliphatics >C16-C21	-	ug/l	4630	2091	10	-	2800	10	<10	<10	<10	<10	<10	<10	30	<10	20	<10	<10	30	<10	<10
Aliphatics >C21-C35	-	ug/l	1940	807	<10	-	1100	<10	<10	<10	<10	<10	<10	<10	<10	<10	13	<10	<10	<10	<10	<10
Total Aliphatics C5-C35	-	ug/l	51820	9250	38000	-	15000	3220	2800	730	<10	<10	50	<10	1100	<10	80	<10	<10	60	<10	<10
Aromatics C6-C7	-	ug/l	120	117	150	-	90	40	20	<10	<10	<10	<10	<10	120	<10	420	<10	<10	<10	<10	<10
Aromatics >C7-C8	-	ug/l	80	77	620	-	210	<10	<10	<10	<10	<10	<10	<10	340	<10	30	<10	<10	<10	<10	<10
Aromatics >C8-C10	-	ug/l	17860	3324	14160	-	4500	3960	1800.0	790	<10	<10	<10	<10	920	<10	230	<10	<10	<10	<10	<10
Aromatics >C10-C12	-	ug/l	7120	493	5540	-	910	480	390.0	370	<10	<10	<10	<10	20	<10	<10	<10	<10	<10	<10	<10
Aromatics >C12-C16	-	ug/l	2590	38	<10	-	700	90	10.0	70	<10	<10	<10	<10	30	<10	<10	<10	<10	<10	<10	<10
Aromatics >C16-EC21	-	ug/l	2690	97	<10	-	910	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Aromatics >EC21-EC35	-	ug/l	1910	53	<10	-	760	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aromatics C6-C35	-	ug/l	33180	4209	20470	-	7900	4380	2200	1200	<10	<10	<10	<10	1600	<10	600	<10	<10	<10	<10	<10
TPH (Aliphatics and Aromatics C5-C35)	-	ug/l	85910	13459	55560	-	22000	7900	4700	2000	<10	<10	100	<10	2500	<10	13	<10	<10	60.00	<10	<10

NOT SAMPLED

Sampling location	LeD/Units	Initial Assessment Criteria	BH11					BH12					BH13					BH14					BH15				
			Feb-06	May-06	Jul-06	Jan-07	Nov-07	Feb-06	May-06	Jul-06	Jan-07	Nov-07	Feb-06	May-06	Jul-06	Jan-07	Nov-07	Feb-06	May-06	Jul-06	Jan-07	Nov-07	Feb-06	May-06	Jul-06	Jan-07	Nov-07
DDRO (non C12-C15)	ug/l	350	40	<10	<10	50	70	<10	<10	60	<10	<10	2418	408	8600	-	1810	<10	<10	10	<10	<10	400	<10	150	20	
ORO (C4-C12)	ug/l	50	12070	15137	16460	18076	11866	258	1274	1080	330	20	27853	43354	260394	-	37000	<10	<10	3179	142	30	21130	23757	15356	6480	
MTBE	ug/l	15	1310	1047	820	<10	<10	89	127	140	40	<10	5808	2027	<10	-	<10	<10	209	<10	30	1000	<10	500	831	550	<10
Benzene	ug/l	1	360	335	400	690	3400	<10	<10	80	40	<10	832	1519	1660	-	540	<10	410	<10	<10	<10	1590	1220	1640	380	
Toluene	ug/l	50	109	<10	<10	30	480	<10	<10	<10	<10	<10	195	509	520	-	350	<10	<10	<10	<10	<10	2660	402	360	190	
Ethyl benzene	ug/l	50	280	83	<10	550	4700	<10	<10	<10	<10	<10	3112	2590	12340	-	1180	<10	<10	<10	<10	<10	1530	1015	110	270	
m & p Xylene	ug/l	30	2120	2672	1960	3700	15000	<10	<10	<10	50	<10	9305	7888	38910	-	3900	<10	<10	<10	<10	<10	5980	6286	4770	1500	
o Xylene	ug/l	30	570	679	500	210	7000	<10	<10	<10	20	<10	2081	1056	5490	-	230	<10	<10	<10	<10	<10	1670	1633	830	280	
Aliphatics C5-C6	ug/l	-	2570	1630	1580	3200	13000	80	193	180	50	20	9826	2822	13970	-	4900	<10	<10	<10	<10	<10	720	564	560	330	
Aliphatics >C6-C8	ug/l	-	6220	5117	3680	570	10000	90	569	480	50	<10	22685	10029	139800	-	14000	<10	<10	108	<10	<10	2040	3464	2500	880	
Aliphatics >C8-C10	ug/l	-	950	1095	520	1500	3100	<10	88	80	20	<10	7706	4584	54920	-	3600	<10	<10	14	<10	<10	1410	2490	1510	830	
Aliphatics >C10-C12	ug/l	-	430	370	70	460	1100	<10	<10	24	30	<10	2697	1174	13760	-	2000	<10	<10	60	<10	<10	390	500	340	250	
Aliphatics >C12-C16	ug/l	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	984	77	4220	-	570	<10	<10	<10	<10	<10	40	<10	30	<10	
Aliphatics >C16-C21	ug/l	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	627	156	2200	-	480	<10	<10	<10	<10	<10	110	<10	20	<10	
Aliphatics >C21-C35	ug/l	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	379	60	740	-	250	<10	<10	<10	<10	<10	250	<10	30	<10	
Total Aliphatics C5-C35	ug/l	-	10160	8212	5850	11000	27000	170	874	780	150	20	44904	19502	235300	-	26000	<10	<10	2990	122	<10	4980	7418	4980	2300	
Aromatics C6-C7	ug/l	-	360	315	400	490	3400	<10	<10	67	40	<10	832	1519	1660	-	540	<10	<10	410	<10	<10	1580	1220	1640	380	
Aromatics >C7-C8	ug/l	-	100	<10	<10	30	4800	<10	<10	<10	<10	<10	195	539	800	-	350	<10	<10	<10	<10	<10	2660	402	260	190	
Aromatics >C8-EC10	ug/l	-	4490	4987	3240	5700	31000	<10	<10	169	120	<10	26058	18100	139120	-	11000	<10	<10	310	20	<10	11330	12670	7490	3100	
Aromatics >EC10-EC12	ug/l	-	650	556	0	690	1700	<10	<10	37	<10	<10	4045	1760	20640	-	3000	<10	<10	90	<10	<10	580	750	510	370	
Aromatics >EC12-EC16	ug/l	-	40	<10	<10	50	70	<10	<10	<10	<10	<10	268	26	160	-	310	<10	<10	<10	<10	<10	<10	<10	60	20	
Aromatics >EC16-EC21	ug/l	-	<0.01	<10	<10	<10	<10	<10	<10	<10	<10	<10	95	53	890	-	130	<10	<10	<10	<10	<10	<10	<10	10	<10	
Aromatics >EC21-EC35	ug/l	-	<0.01	<10	<10	<10	<10	<10	<10	<10	<10	<10	63	28	390	-	70	<10	<10	<10	<10	<10	<10	<10	<10	<10	
Total Aromatics C6-C35	ug/l	-	5630	5978	3740	6900	85000	<10	273	220	180	<10	31554	22225	163600	-	15000	<10	<10	810	30	<10	16150	15042	9970	4200	
TPH (Aliphatics and Aromatics C5-C35)	ug/l	-	15800	14090	9580	18000	110000	170	1147	1000	330	20	76460	41727	398980	-	41000	<10	<10	2960	152	<10	31130	22460	14950	6400	

Sampling location	LoD/Units	Initial Assessment Criteria	BH16					BH17					BH18					BH19				
			Feb-06	May-06	Jul-06	Jan-07	Nov-07	Feb-06	May-06	Jul-06	Jan-07	Nov-07	Feb-06	May-06	Jul-06	Jan-07	Nov-07	Feb-06	May-06	Jul-06	Jan-07	Nov-07
DRD (sum C12-C15)	ug/l	350	59	153	60	<10	<10	219	42	2739	-	10000	26	<10	<10	<10	50	18	21	<10	90	60
GRO (C4-C12)	ug/l	50	46	<10	<10	<10	<10	3470	2296	8690	-	<10	599	-	16400	3000	6700	38715	34013	36449	25000	30000
MTBE	ug/l	15	<10	<10	<10	<10	<10	2814	2122	3440	-	3500	1584	-	890	<10	790	2418	1580	1470	740	<10
Benzene	ug/l	1	<10	<10	<10	<10	<10	30006	33135	42610	-	50000	2473	-	1920	100	1200	18638	2431	4330	2700	5790
Toluene	ug/l	50	13	<10	<10	<10	<10	3773	3248	4300	-	4800	849	-	1640	150	1200	2791	945	1000	1200	870
Biphenyls	ug/l	50	<10	<10	<10	<10	<10	11657	10709	14900	-	15000	2327	-	4280	500	1900	9471	6006	6530	6200	6900
m & p Xylene	ug/l	30	<10	<10	<10	<10	<10	5925	5312	6790	-	7100	901	-	1360	220	700	3552	2399	2540	2300	2700
o Xylene	ug/l		33	<10	<10	<10	<10	13744	6900	15380	-	13000	1861	-	2470	620	820.0	6407	2211	2190	1400	3500.0
Aliphatics C5-C6	ug/l	-	<10	<10	<10	<10	<10	11081	7734	25850	-	10000	1599	-	750	380	210.0	7050	3337	3000	2400	2900.0
Aliphatics >C6-C8	ug/l	-	<10	<10	<10	<10	<10	3821	5633	5470	-	2800	1350	-	1230	130	130.0	4577	2058	1190	2700	1500.0
Aliphatics >C8-C10	ug/l	-	<10	<10	<10	<10	<10	345	1911	1990	-	1100	208	-	40	50	20.0	314	444	180	440	370.00
Aliphatics >C10-C12	ug/l	-	<10	<10	<10	<10	<10	16	30	3020	-	130000	13	-	<10	<10	<10	<10	<10	30	<10	<10
Aliphatics >C12-C16	ug/l	-	<10	<10	20	<10	<10	74	<10	580	-	22000	13	-	<10	<10	30.0	<10	<10	30	<10	<10
Aliphatics >C16-C21	ug/l	-	<10	86	30	<10	<10	129	<10	310	-	8100	13	-	<10	<10	<10	<10	<10	60	<10	<10
Aliphatics >C21-C35	ug/l	-	<10	13	153	60	<10	31218	21808	52590	-	190000	5044	-	4480	1200	1200.0	18348	8060	6000	6900	8200.0
Total Aliphatics C5-C35	ug/l	-	<10	<10	<10	<10	<10	2814	3132	3440	-	5500	1584	-	1910	100	790.0	3954	850	1400	700	2600.0
Aromatics C4-C7	ug/l	-	<10	<10	<10	<10	<10	30006	33135	42610	-	50000	2473	-	1920	590	1200.0	10638	2431	4330	2700	5700.0
Aromatics >C7-C8	ug/l	-	<10	<10	<10	<10	<10	28586	27619	34200	-	31000	6102	-	9120	1100	3500.0	22870	12437	12210	14000	13000
Aromatics >C8-BC10	ug/l	-	<10	<10	<10	<10	<10	518	2866	2980	-	1600	312	-	60	80	40.0	471	665	280	660	560.00
Aromatics >BC10-BC12	ug/l	-	<10	<10	<10	<10	<10	<10	12	2620	-	11000	<10	<10	<10	<10	20.0	18	21	70	90	60.00
Aromatics >BC12-BC16	ug/l	-	<10	<10	<10	<10	<10	<10	<10	910	-	4400	<10	<10	<10	<10	<10	<10	<10	10	<10	<10
Aromatics >BC16-EC21	ug/l	-	<10	<10	<10	<10	<10	<10	<10	280	-	3300	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Aromatics >EC21-EC35	ug/l	-	<10	<10	<10	<10	<10	61924	66764	87920	-	110000	10473	-	12630	1800	5600.0	27971	14604	18310	18000	21000
Total Aromatics C6-C35	ug/l	-	92	<10	<10	<10	<10	93134	88572	137610	-	300000	15317	-	17520	3000	6800.0	56319	24454	25190	25000	30000
TPH (Aliphatics and Aromatics C3-C35)	ug/l	-	105	153	60	<10	<10															

Sampling location	Sampling date	LoD/Units	Initial Assessment Criteria	BH21			BH22			SUMP 1					SUMP2					
				Jul-06	Jan-07	Nov-07	Jul-06	Jan-07	Nov-07	Feb-06	May-06	Jul-06	Jan-07	Nov-07	Feb-06	May-06	Jul-06	Jan-07	Nov-07	
DRRO (mm C12-C35)		ug/l	350	<10	<10	<10	60	<10	<10	<10	10	<10	<10	<10	50	10	<10	<10	<10	<10
GRO (C4-C12)		ug/l	50	150	<10	<10	<10	<10	<10	<10	1270	1270	2000	3300	2100	30	<10	<10	<10	<10
MTBE		ug/l	15	70	<10	<10	<10	<10	<10	<10	90	140	140	<10	<10	20	<10	<10	<10	<10
Benzene		ug/l	1	30	<10	<10	<10	<10	<10	<10	170	420	420	350	180	20	<10	<10	<10	<10
Toluene		ug/l	50	<10	<10	<10	<10	<10	<10	<10	450	910	900	1100	810	110	<10	<10	<10	<10
Ethyl benzene		ug/l	50	<10	<10	<10	<10	<10	<10	<10	150	230	210	190	60	40	<10	<10	<10	<10
m & p Xylene		ug/l	30	<10	<10	<10	<10	<10	<10	<10	510	700	630	590	580	170	<10	<10	<10	<10
o Xylene		ug/l	30	<10	<10	<10	<10	<10	<10	<10	250	300	280	280	270	80	<10	<10	<10	<10
Aliphatics C5-C6		ug/l	-	50	<10	<10	<10	<10	<10	<10	260	341	130	400	5000	50	<10	<10	<10	<10
Aliphatics >C6-C8		ug/l	-	20	<10	<10	<10	<10	<10	<10	180	143	30	220	4000	10	<10	<10	<10	<10
Aliphatics >C8-C10		ug/l	-	<10	<10	<10	<10	<10	<10	<10	250	227	10	40	5000	40	<10	<10	<10	<10
Aliphatics >C10-C12		ug/l	-	<10	<10	<10	<10	<10	<10	<10	50	76	30	40	<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16		ug/l	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Aliphatics >C16-C21		ug/l	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35		ug/l	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aliphatics C5-C35		ug/l	-	70	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Aromatics C6-C7		ug/l	-	20	<10	<10	60	<10	<10	<10	720	787	220	690	140	100	<10	<10	<10	<10
Aromatics >C7-C8		ug/l	-	<10	<10	<10	<10	<10	<10	<10	170	420	420	350	180	20	<10	<10	<10	<10
Aromatics >C8-C10		ug/l	-	<10	<10	<10	<10	<10	<10	<10	450	910	900	1100	810	110	<10	<10	<10	<10
Aromatics >C10-EC12		ug/l	-	<10	<10	<10	<10	<10	<10	<10	1290	1588	1270	1100	980	350	<10	<10	<10	<10
Aromatics >EC12-EC16		ug/l	-	<10	<10	<10	<10	<10	<10	<10	70	114	40	60	<10	<10	<10	<10	<10	<10
Aromatics >EC16-EC21		ug/l	-	<10	<10	<10	<10	<10	<10	<10	10	<10	<10	<10	<10	10	<10	<10	<10	<10
Aromatics >EC21-EC35		ug/l	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aromatics C6-C35		ug/l	-	20	<10	<10	<10	<10	<10	<10	1980	3050	2620	2600	2600	490	<10	<10	<10	<10
TPH (Aliphatics and Aromatics C5-C35)		ug/l	-	90	<10	<10	60	<10	<10	<10	2700	3337	2940	3300	3200	590	<10	<10	<10	<10

APPENDIX III:

Logs for Geotechnical Boreholes SLR1 & SLR 2

BOREHOLE LOG				BOREHOLE No. SLR1	
Client: Bloor Homes				 SLR	
Project No: 404.1068.00003	Date: 08/01/08	Ground Level:	Co-ordinates:		
Project: Former Texaco Service Station, Angmering				Sheet: 1 of 3	

SAMPLES & TESTS				Water	STRATA			Instrument/ Backfill
Depth	Type No	Test Type	Test Result		Reduced Level	Legend	Depth (Thick-ness)	
0.50-1.00	B1					0.30	MADE GROUND: SAND and GRAVEL (sub-base).	
						(0.60)	MADE GROUND: SAND and GRAVEL of brick chalk and flint and COBBLES of concrete with lenses of brown sandy clay.	
						0.90		
1.20-1.65	B2	SPT	N=17			(0.90)	MADE GROUND: Brown very gravelly slightly silty fine to medium SAND. Gravel is fine to coarse brick concrete and flint.	
1.80	D3			1.80				
2.10-2.55	B4	SPT	N=5			(0.50)	MADE GROUND: Brown silty fine to medium SAND.	
2.80	D5					2.30		
3.00-3.45	D6	SPT	N=7			(1.40)	MADE GROUND: Firm brown and orange brown slightly gravelly cobbly CLAY. Gravel is brick concrete flint and chalk.	
3.80	D7					3.70		
4.00-4.45	B8	SPT	N=15			(0.60)	MADE GROUND: Firm brown slightly sandy CLAY with pockets of ash.	
4.50-5.00	B9					4.30		
5.00-5.45	B10	SPT	N=12			(0.70)	Green grey locally mottled black slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub-rounded to rounded flint.	
5.80	D9					5.00		
6.00	D10a					(1.00)	Medium dense green grey slightly gravelly slightly silty fine to medium SAND. Gravel is fine to medium sub-rounded flint.	
6.40	D11					6.00		
6.50-6.95	B12	SPT	N=9			(2.00)	Structureless CHALK composed of off-white gravelly sandy SILT. Gravel is weak off-white. (Grade Dc).	
7.50	D13					8.00		

Boring Progress and Water Observations				Casing		Chiselling			Water Added		General Remarks
Date	Time	Depth	Water Dpt	Depth	Dia. mm	From	To	Hours	From	To	
03-01-08	14.00		5.0								Aquifer protection measures used during drilling
03-01-08	14.30			6.40	200						
04-01-08	12.00		9.0								
04-01-08	12.05		7.6								
04-01-08	12.10		7.1								
04-01-08	12.15		7.0								
04-01-08	12.20		7.0								
07-01-08	10.00			16.50	150						

All dimensions in metres Scale 1:50	Contractor : DPR Drilling Plant: Dando 150	Method: Cable Percussion Hole Size: 200mm-150mm	Logged By: TH	Approved By:
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Form SLR AGS3 UK BH File 404.1068.00003 ANGEMERING.GPJ 18-01-08

BOREHOLE LOG				BOREHOLE No. SLR1	
Client: Bloor Homes					
Project No: 404.1068.00003	Date: 08/01/08	Ground Level:	Co-ordinates:		
Project: Former Texaco Service Station, Angmering				Sheet: 2 of 3	

SAMPLES & TESTS				Water	STRATA			Instrument/ Backfill
Depth	Type No	Test Type	Test Result		Reduced Level	Legend	Depth (Thickness)	
8.00-8.45	B14	SPT	N=17	<div>1</div> <div></div>				Structureless CHALK composed of off-white slightly sandy slightly silty subangular GRAVEL and COBBLES of weak to moderately strong white chalk. (Grade Dc).
9.00	D15							
9.50-9.95	B16	SPT	N=15					
10.00	D17							
10.50-10.50	B18	SPT	N=19					
11.00-11.45	B19	SPT	N=30					
11.50	D20							
12.50-12.95	B21	SPT	N=53					
13.00	D22							
14.00-14.30	B23	SPT	N=43/0.075				(12.00)	
14.50	D24							
15.50-15.65	B25	SPT	N=52/0.15					

IAGS3 UK BH File 404-1068-0003 AN

Boring Progress and Water Observations				Casing		Chiselling			Water Added		General Remarks
Date	Time	Depth	Water Dpt	Depth	Dia. mm	From	To	Hours	From	To	Aquifer protection measures used during drilling
03-01-08	14.00		5.0	6.40	200	15	19.5	2.25			
03-01-08	14.30										
04-01-08	12.00		9.0								
04-01-08	12.05		7.6								
04-01-08	12.10		7.1								
04-01-08	12.15		7.0								
04-01-08	12.20		7.0								
07-01-08	10.00			16.50	150						

All dimensions in metres Scale 1:50	Contractor : DPR Drilling Plant: Dando 150	Method: Cable Percussion Hole Size: 200mm-150mm	Logged By: TH	Approved By:
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Form SLR AGS1 UK BH File 404-1068-00003 ANGMERING.GPJ 18-01-08

BOREHOLE LOG				BOREHOLE No. SLR1	
Client: Bloor Homes					
Project No: 404.1068.00003		Date: 08/01/08	Ground Level:		Co-ordinates:
Project: Former Texaco Service Station, Angmering					Sheet: 3 of 3

SAMPLES & TESTS				Water	STRATA			Instrument/ Backfill
Depth	Type No	Test Type	Test Result		Reduced Level	Legend	Depth (Thick-ness)	
16.50	D26						Structureless CHALK composed of off-white slightly sandy slightly silty subangular GRAVEL and COBBLES of weak to moderately strong white chalk. (Grade Dc). (continued)	
17.00-17.15	D27	SPT	N=60/0.15					
18.00	D28							
18.50-18.63	D29	SPT	N=63/0.148					
19.00	D30							
19.50-19.64	D31	SPT	N=70/0.149					
20						20.00		
							Borehole complete at 20.00m	
21								
22								
23								

Boring Progress and Water Observations				Casing		Chiselling			Water Added		General Remarks
Date	Time	Depth	Water Dpt	Depth	Dia. mm	From	To	Hours	From	To	Aquifer protection measures used during drilling
03-01-08	14.00		5.0	6.40	200						
03-01-08	14.30										
04-01-08	12.00		9.0								
04-01-08	12.05		7.6								
04-01-08	12.10		7.1								
04-01-08	12.15		7.0								
04-01-08	12.20		7.0								
07-01-08	10.00			16.50	150						

All dimensions in metres Scale 1:50		Contractor : DPR Drilling Plant: Dando 150		Method: Cable Percussion Hole Size: 200mm-150mm		Logged By: TH	Approved By:
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Form SLR AGS3 UK BH File 404-1068-0003 ANGMERING.GPJ 18-01-08

BOREHOLE LOG				BOREHOLE No. SLR2	
Client: Bloor Homes					
Project No: 404.1068.00003		Date: 10/01/08	Ground Level:		Co-ordinates:
Project: Former Texaco Service Station, Angmering					Sheet 1 of 3

SAMPLES & TESTS				Water	STRATA			Instrument/ Backfill
Depth	Type No	Test Type	Test Result		Reduced Level	Legend	Depth (Thick-ness)	
							(0.40) 0.40	MADE GROUND: SAND and GRAVEL (sub-base).
0.50	B1						(0.40) 0.80	MADE GROUND: Firm brown and dark brown very gravelly CLAY. Gravel is brick, concrete, flint and crushed stone.
0.80	D2							
1.00	B3							
1.20-1.65	B4	SPT	N=9				(1.00)	MADE GROUND: Stiff to firm dark brown and orange brown sandy CLAY with occasional fine to medium brick and concrete gravel.
1.80	D5						1.80	
2.00-2.45	U1006						(0.90)	MADE GROUND: Stiff to firm dark brown and brown sandy CLAY with lenses of orange brown sand.
2.45-2.50	D7						2.70	
2.70-3.00	B8							
3.00-3.45	B9	SPT	N=6				(1.30)	Brown very sandy CLAY. Sand is fine to medium. Slight hydrocarbon odour noted throughout.
3.00	J8a							
3.50	J9a							
3.70	D10						4.00	
4.00-4.45	B11	SPT	N=10				(0.50)	Firm green grey slightly sandy gravelly CLAY. Gravel is medium to coarse of chalk and rare chalk cobbles. Slight hydrocarbon odour noted throughout.
4.00	J10a						4.50	
4.50-4.80	B12							
4.50	J11a							
4.50	J12a							
5.00-5.45	B13	SPT	N=17				(1.20)	Structureless CHALK composed of off-white slightly gravelly sandy SILT. Gravel is very weak and off white, grey discoloration noted and slight hydrocarbon odour noted to 5.7 m.
5.00	J13a							
5.00	W13b							
5.50	J14a						5.70	
5.70	D14							
6.00	D15	SPT	N=25					Structureless CHALK composed of off-white slightly sandy slightly silty sub angular GRAVEL and COBBLES of weak white chalk.
6.00-6.45	D16							
7.00-7.50	B17							
7.50-7.95	D18	SPT	N=31					
7.80	W18a							

Boring Progress and Water Observations				Casing		Chiselling			Water Added		General Remarks
Date	Time	Depth	Water Dpt	Depth	Dia. mm	From	To	Hours	From	To	
08-01-08	16.00			6.00	200						Aquifer protection measures used during drilling
09-01-08	10.00		7.8								
09-01-08	10.05		6.2								
09-01-08	10.10		4.10								
09-01-08	10.15		3.8								
09-01-08	10.20		3.9								
09-01-08	10.00			17.00	150						
10-01-08	10.00										

All dimensions in metres Scale 1:50		Contractor : DPR Drilling Plant: Dando 150		Method: Cable Percussion Hole Size: 200mm-150mm		Logged By: TH	Approved By:
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BOREHOLE LOG				BOREHOLE No. SLR2	
Client: Bloor Homes					
Project No: 404.1068.00003		Date: 10/01/08			
Project: Former Texaco Service Station, Angmering				Sheet: 2 of 3	

SAMPLES & TESTS				Water	STRATA			Instrument/ Backfill
Depth	Type No	Test Type	Test Result		Reduced Level	Legend	Depth (Thick-ness)	
8.50	D19						Structureless CHALK composed of off-white slightly sandy slightly silty sub angular GRAVEL and COBBLES of weak white chalk (continued)	
9.00-9.45	D20	SPT	N=75					
9.20	D21							
9.20	W21a							
9.50-10.00	B22							
10.00	W23							
10.50-10.95	D24	SPT	N=55					
11.00								
11.70	D25							
12.00-12.45	D26	SPT	N=62					
13.00	D27					(14.30)		
13.50-13.95	D28	SPT	N=65					
14.00								
14.50	D29							
15.00-15.45	D30	SPT	N=51/0.15					

Boring Progress and Water Observations				Casing		Chiselling			Water Added		General Remarks
Date	Time	Depth	Water Dpt	Depth	Dia. mm	From	To	Hours	From	To	
08-01-08	16.00			6.00	200						Aquifer protection measures used during drilling
09-01-08	10.00		7.8								
09-01-08	10.05		6.2								
09-01-08	10.10		4.10								
09-01-08	10.15		3.8								
09-01-08	10.20		3.9								
10-01-08	10.00			17.00	150						

All dimensions in metres Scale 1:50		Contractor : DPR Drilling Plant: Dando 150		Method: Cable Percussion Hole Size: 200mm-150mm		Logged By: TH	Approved By:
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Form SLR_AG33 UK BH File 404-1068-00003 ANGMERING.GPJ 18-01-08

BOREHOLE LOG				BOREHOLE No. SLR2	
Client: Bloor Homes					
Project No: 404.1068.00003		Date: 10/01/08	Ground Level:		Co-ordinates:
Project: Former Texaco Service Station, Angmering					Sheet: 3 of 3

SAMPLES & TESTS				Water	STRATA			Instrument/ Backfill
Depth	Type No	Test Type	Test Result		Reduced Level	Legend	Depth (Thick- ness)	
16.00	D31						Structureless CHALK composed of off-white slightly sandy slightly silty sub angular GRAVEL and COBBLES of weak white chalk (continued)	
16.50-16.95	D32	SPT	N=50/0.125					
17								
17.50	D33							
18.00-18.95	D34	SPT	N=60/0.15					
19								
19.00	D35						Borehole complete at 20.00m	
19.50-19.95	D36	SPT	N=30/0.05					
20						20.00		
21								
22								
23								

Boring Progress and Water Observations				Casing		Chiselling			Water Added		General Remarks
Date	Time	Depth	Water Dpt	Depth	Dia. mm	From	To	Hours	From	To	
08-01-08	16.00			6.00	200						Aquifer protection measures used during drilling
09-01-08	10.00		7.8								
09-01-08	10.05		6.2								
09-01-08	10.10		4.10								
09-01-08	10.15		3.8								
09-01-08	10.20		3.9								
10-01-08	10.00			17.00	150						

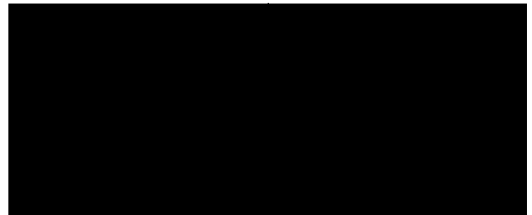
All dimensions in metres Scale 1:50		Contractor : DPR Drilling Plant: Dando 150		Method: Cable Percussion Hole Size: 200mm-150mm		Logged By: TH	Approved By:
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APPENDIX IV:

Results of Additional Investigations for Contamination

M A SMITH
***Environmental
Consultancy***

10A Moorland Road, Hemel Hempstead, Herts. HP1 1NQ



7 April 2008

Matthew Kennett
Environmental Health
Arun District Council
The Arun Civic Centre
Maltravers Road
Littlehampton
West Sussex
BN17 5LF

Dear Matthew,

Planning Application A/5/07
TEXACO PETROL STATION, STATION ROAD, ANGMERING
Residential development of 21 flats

Please find attached the analytical results obtained during additional investigations carried out prior to the start of construction. The trial pit locations are shown in Figure 1. The sampling locations are characterised as follows:

- the "car wash" sample was taken from fill material exposed in a trench in the vicinity of the car wash;
- the "incinerator trench" sample was taken from a trench dug across (i.e. at right angles) to the former location of the interceptor on the western boundary;
- TPs 1 to 5 were dug in locations where consideration was being given to the construction of soakaways or similar features;
- TPs 6 to 8 were dug beneath the northern end of the shop following the removal of the floor slab.

You will see that this additional sampling has not revealed any contamination of potential concern in respect human health or requiring revision of the human health risk assessment. Nor do the results indicate any need to modify the groundwater risk assessment.

The logs for two new deep geotechnical boreholes (SLR1 & SLR2) are also attached. The borehole locations are also shown in Figure 1.

Please contact me if you have any queries.

Yours sincerely,

M A Smith
cc: Mrs S Leeson, Arun District Council
David Reynolds, Planning Liaison Officer, Environment Agency

Michael A Smith BSc, CChem, CGeol, FRSC, MCIWEM, FGS, MIMMM

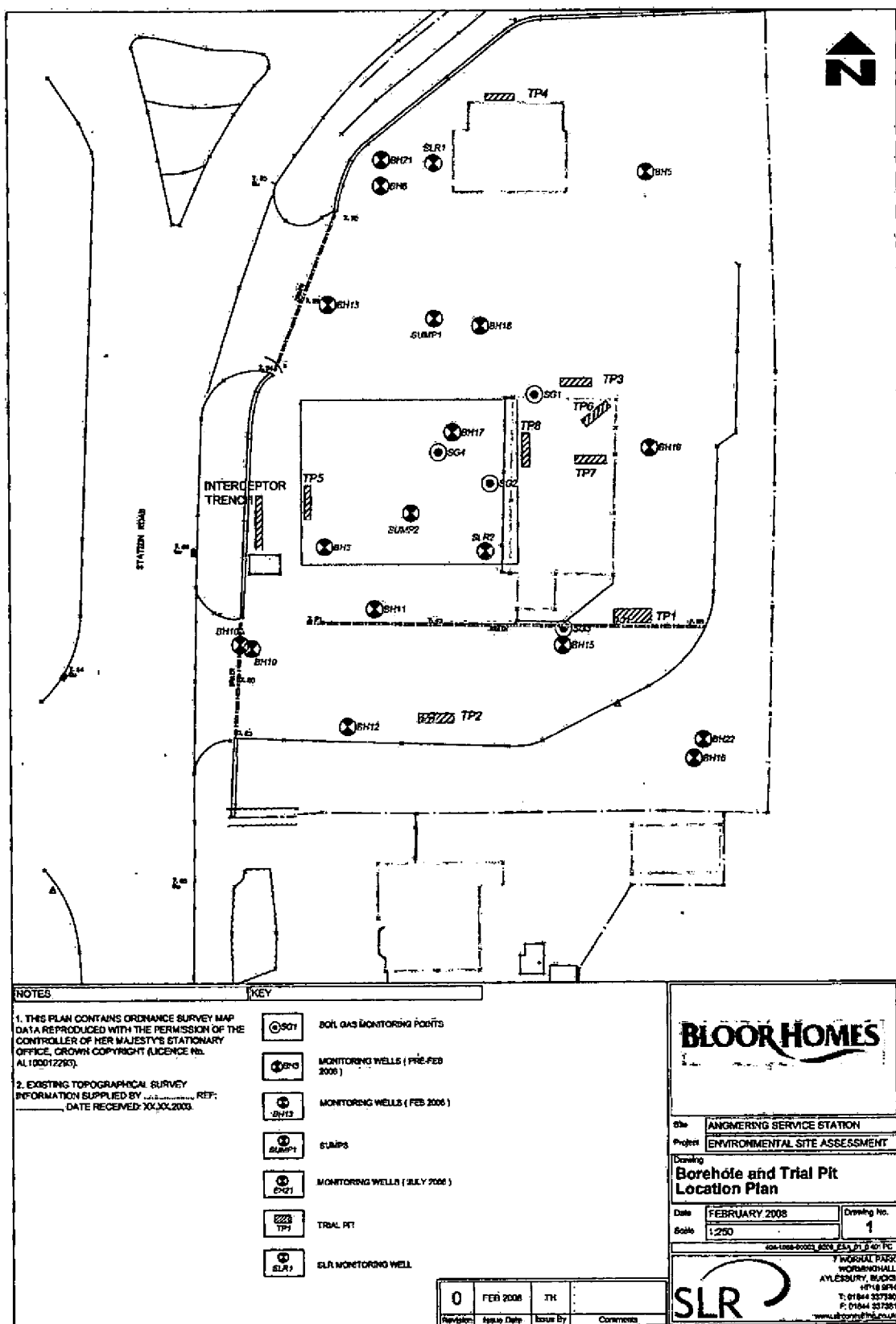


Figure 1: Plan showing locations of TPs 1 to 8, "interceptor trench and the two geotechnical boreholes (SLR 1 & SLR 2)

Michael A Smith BSc, CChem, CGeol, FRSC, MCIWEM, FGS, MIMMM

TABLE 1: INORGANICS															
Sampling location		Assessment Criteria (NO FOOD PLANTS)	CAR WASH	INTERCEPTOR TRENCH	TPI			TP2			TP3				
					0.25-0.35	1.30	3.00	1.40	2.10	3.00	0.20	2.60	4.10		
Depth (m)			0.80	1.30											
General Moisture Content Ratio	%	-	7.9	20	13	16	4.5	19	22	18	3.1	17	20		
pH Value	pH Units	-	9.85	7.85	9.31	6.94	8.41	7.02	8.30	8.16	8.59	10.63	7.62		
Total Sulphate	mg/kg	-	700	1500	2100	160	<100	160	300	360	540	1700	160		
Arsenic	mg/kg	20	8	11	12	7	<3	5	<3	<3	6	5	<3		
Cadmium	mg/kg	30	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.6	<0.3	<0.3		
Chromium	mg/kg	200	9.6	28	19	23	7.7	35	14	13	5.6	23	27		
Copper	mg/kg	2000	<5	9	11	12	<6	20	7	7	<5	10	12		
Lead	mg/kg	450	10	6	240	10	4	13	4	5	24	21	10		
Mercury	mg/kg	15	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6		
Nickel	mg/kg	75	8.3	20	13	20	7.1	28	12	11	2.6	16	23		
Selenium	mg/kg	260	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3		
Zinc	mg/kg	6200	39	61	120	54	14	66	39	35	40	68	31		

TABLE 1: INORGANICS													
Sampling location		TP4		TP5			TP6		TP7		TP8		
Depth (m)		1.70-1.80	3.10-3.20	0.20-0.40	2.90	3.90	0.50	1.60	1.00	1.80	0.50	1.50	
Natural Moisture Content Ratio	%	22	18	7.0	21	12	20	19	20	20	17	17	
pH Value	pH Unit	7.67	7.92	11.28	7.82	7.92	7.03	7.69	7.45	6.87	6.73	6.59	
Total Sulphate	mg/kg	140	560	1600	190	120	230	<100	210	200	440	170	
Arsenic	mg/kg	3	<3	6	10	8	9	9	12	13	8	12	
Cadmium	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	
Chromium	mg/kg	36	9.8	11	30	19	26	33	33	31	21	29	
Copper	mg/kg	14	<6	<6	10	<6	7	9	8	8	<6	7	
Lead	mg/kg	13	3	19	7	4	8	6	7	5	7	6	
Mercury	mg/kg	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	
Nickel	mg/kg	28	8.1	8.4	23	15	18	25	22	24	13	20	
Selenium	mg/kg	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Zinc	mg/kg	70	29	40	58	35	51	56	57	55	48	43	

TABLE 2: PAHs

Sampling location	Assessment Criteria (NO FOOD PLANTS)	CAR WASH	INTERCEPTOR TRENCH	TP1			TP2			TP3		
				0.25-0.35	1.30	3.00	1.40	2.10	3.00	0.20	2.60	4.10
Depth (m)		0.80	1.30									
Naphthalene	6.54	0.06	0.04	0.09	0.69	0.28	0.99	1.1	0.72	0.62	0.92	0.55
Acenaphthylene	-	<0.005	<0.005	0.017	0.006	<0.005	0.008	0.007	<0.005	0.009	0.093	<0.005
Acenaphthene	-	<0.014	<0.014	0.021	<0.014	<0.014	<0.014	<0.014	<0.014	0.020	0.12	<0.014
Fluorene	2770	0.013	<0.012	0.021	0.028	0.015	0.039	0.040	0.017	0.052	0.17	0.027
Phenanthrene	-	0.062	0.037	0.18	0.039	0.032	0.046	0.043	0.032	0.14	1.1	0.014
Anthracene	-	<0.009	<0.009	0.049	<0.009	<0.009	<0.009	<0.009	<0.009	0.010	0.30	<0.009
Fluoranthene	-	0.068	0.071	0.39	<0.023	0.032	<0.025	<0.025	0.013	0.075	2.0	<0.025
Pyrene	-	0.034	0.070	0.36	<0.022	0.027	<0.022	<0.022	0.011	0.072	1.8	<0.022
Benzo(a)anthracene	13	0.058	0.045	0.24	0.023	0.033	0.027	0.025	0.012	0.064	0.83	0.021
Chrysene	130	0.07	0.04	0.21	0.01	0.02	<0.01	<0.01	0.02	0.11	0.88	<0.01
Benzo(b)fluoranthene	13	0.066	0.041	0.41	<0.016	0.024	<0.016	<0.016	0.029	0.051	1.4	<0.016
Benzo(k)fluoranthene	130	0.033	<0.025	0.16	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.55	<0.025
Benzo(a)pyrene	13	0.044	0.026	0.30	<0.012	0.019	<0.012	<0.012	0.016	0.019	1.2	<0.012
Indeno(1,2,3-cd)pyrene	13	0.023	0.016	0.15	<0.011	<0.011	<0.011	<0.011	<0.011	0.015	0.58	<0.011
Dibenz(a,h)anthracene	13	<0.003	<0.003	0.042	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.13	<0.003
Benzo(ghi)perylene	-	0.04	0.01	0.26	<0.01	0.01	<0.01	<0.01	0.01	0.03	0.84	<0.01
PAH 16 Total	-	0.63	0.42	2.9	0.79	0.49	1.1	1.3	0.98	1.3	13	0.64

Sampling location		TP4		TP5		TP6		TP7		TP8		
Depth (m)		1.70-1.80	3.10-3.20	0.20-0.40	2.90	3.90	0.50	1.60	1.00	1.80	0.50	1.50
	mg/kg											
Naphthalene	mg/kg	0.56	0.55	0.04	0.05	<0.01	0.06	<0.01	0.02	<0.01	0.02	0.05
Acenaphthylene	mg/kg	0.009	0.005	0.018	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Acenaphthene	mg/kg	0.018	<0.014	0.031	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014
Fluorene	mg/kg	0.036	0.026	0.025	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012
Phenanthrene	mg/kg	0.082	0.071	0.44	0.029	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021
Anthracene	mg/kg	0.014	<0.009	0.12	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009
Fluoranthene	mg/kg	0.097	<0.025	1.4	0.043	<0.025	<0.025	<0.025	<0.025	<0.025	0.002	<0.025
Pyrene	mg/kg	0.089	<0.022	1.3	0.041	<0.022	<0.022	<0.022	<0.022	<0.022	0.007	<0.022
Benz(a)anthracene	mg/kg	0.063	0.027	0.74	0.049	0.026	0.020	0.019	0.025	0.019	0.034	0.017
Chrysene	mg/kg	0.05	<0.01	0.76	0.04	0.01	<0.01	<0.01	0.01	0.01	0.02	<0.01
Benz(a)fluoranthene	mg/kg	0.057	<0.016	1.1	0.045	<0.016	<0.016	<0.016	<0.016	<0.016	0.019	<0.016
Benz(a)phenanthrene	mg/kg	<0.025	<0.025	0.35	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Benz(b)pyrene	mg/kg	0.047	<0.012	0.95	0.036	<0.012	<0.012	<0.012	<0.012	<0.012	0.014	<0.012
Indeno(1,2,3-cd)pyrene	mg/kg	0.025	<0.011	0.55	0.016	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011
Dibenz(a,h)anthracene	mg/kg	<0.006	<0.008	0.12	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Benz(ghi)perylene	mg/kg	0.04	<0.01	0.78	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
PAH 16 Total		1.2	0.64	8.7	0.37	0.036	0.083	<0.025	0.060	0.033	0.18	0.062

TABLE 2: PAHs

TABLE 3: PETROLEUM HYDROCARBONS

TABLE 3: PETROLEUM HYDROCARBONS													
Sampling location	Asbestos Criteria (No Food Plants)	Car Wash	Interference (Fence)	TP1			TP2			TP3			
				0.80	1.30	0.25-0.35	1.30	3.00	1.40	2.10	3.00	0.20	2.60
Total Organic Carbon	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
PAH (C14-C21)	100	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
MTBE	100	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenol	0.0001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cresol	3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzofluorene	16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
m & p Xylene	8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
p Xylene	8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Alkylates C14-C16	3.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Alkylates C16-C18	5.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Alkylates C18-C20	1.46	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Alkylates C20-C22	0.47	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Alkylates C22-C24	0.1	0.2	12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alkylates C24-C27	0.01	7.6	12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alkylates C27-C31	21000	7.7	71	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Alkylates C14-C35	-	28	78	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Unsaturates C14-C17	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Unsaturates C17-C20	0.004	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Unsaturates C20-C21	1.39	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Unsaturates C21-C22	14.3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Unsaturates C22-C23	73.7	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Unsaturates C23-C24	791	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Unsaturates C24-C25	417	1.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Unsaturates C25-C26	52	5.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Alkylates and Unsaturates C14-C35	-	28	78	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Sampling location	TP4		TP5			TP6			TP7		TP8
	Depth (m)		0.20-0.40	2.00	3.90	0.50	1.60	1.00	1.80		
	1.70-1.80	3.10-3.20									
Total Organic Carbon	%										
ETHANE	ppb/g	<0.1	3.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
ETHANE	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Propane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isobutane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-Methylbutane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,3-Dimethylbutane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,4-Trimethylpentane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,5-Trimethylhexane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,6-Trimethylheptane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,7-Trimethyloctane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,8-Trimethylnonane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,9-Trimethyldecane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,10-Trimethylundecane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,11-Trimethyltridecane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,12-Trimethylpentadecane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,13-Trimethylheptadecane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,14-Trimethylnonadecane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,15-Trimethylheneicosane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,16-Trimethyltricosane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,17-Trimethyltriacontane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,18-Trimethyltriacontane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,19-Trimethyltriacontane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,20-Trimethyltriacontane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,21-Trimethyltriacontane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,22-Trimethyltriacontane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,23-Trimethyltriacontane	ppb/g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,24-Trimethyltriacontane	ppb/g	<0.1	<0.1	<0.1							

BOREHOLE LOG				BOREHOLE No. SLR1	
Client: Bloor Homes					
Project No: 404.1068.00003		Date: 08/01/08	Ground Level:		Co-ordinates:
Project: Former Texaco Service Station, Angmering					Sheet: 1 of 3

SAMPLES & TESTS				Water	STRATA			Instrument/ Backfill
Depth	Type No	Test Type	Test Result		Reduced Level	Legend	Depth (Thickness)	
0.50-1.00	B1						0.30	MADE GROUND: SAND and GRAVEL (sub-base).
							(0.60)	MADE GROUND: SAND and GRAVEL of brick chalk and flint and COBBLES of concrete with lenses of brown sandy clay.
							0.90	
1.20-1.65	B2	SPT	N=17			(0.90)	MADE GROUND: Brown very gravelly slightly silty fine to medium SAND. Gravel is fine to coarse brick concrete and flint.	
1.80	D3			1.80				
2.10-2.55	B4	SPT	N=5			(0.50)	MADE GROUND: Brown silty fine to medium SAND.	
2.80-3.45	D5 D6	SPT	N=7			(1.40)	2.30	MADE GROUND: Firm brown and orange brown slightly gravelly cobbly CLAY. Gravel is brick concrete flint and chalk.
							3.70	
3.80-4.45	D7 B8	SPT	N=15			(0.60)	MADE GROUND: Firm brown slightly sandy CLAY with pockets of ash.	
4.50-5.00	B9			4.30				
				(0.70)		Green grey locally mottled black slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub-rounded to rounded flint.		
5.00-5.45	B10	SPT	N=12			(1.00)	5.00	Medium dense green grey slightly gravelly slightly silty fine to medium SAND. Gravel is fine to medium sub-rounded flint.
				6.00				
6.00-6.95	D10a D11 B12	SPT	N=9			(2.00)		Structureless CHALK composed of off-white gravelly sandy SILT. Gravel is weak off-white. (Grade Dc).
7.50	D13							
							8.00	

Boring Progress and Water Observations				Casing		Chiselling			Water Added		General Remarks
Date	Time	Depth	Water Dpt	Depth	Dia. mm	From	To	Hours	From	To	
03-01-08	14.00		5.0								Aquifer protection measures used during drilling
03-01-08	14.30			6.40	200						
04-01-08	12.00		9.0								
04-01-08	12.05		7.6								
04-01-08	12.10		7.1								
04-01-08	12.15		7.0								
04-01-08	12.20		7.0								
07-01-08	10.00			16.50	150						

All dimensions in metres Scale 1:50		Contractor : DPR Drilling Plant: Dando 150		Method: Cable Percussion Hole Size: 200mm-150mm		Logged By: TH		Approved By:	
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Form SLR AGS1 UK BH File 404-1068-00003 ANGEMERING.GPJ 18-01-08

BOREHOLE LOG				BOREHOLE No. SLR1	
Client: Bloor Homes					
Project No: 404.1068.00003		Date: 08/01/08	Ground Level:	Co-ordinates:	
Project: Former Texaco Service Station, Angmering					Sheet: 2 of 3

SAMPLES & TESTS				Water	STRATA			Instrument/ Backfill
Depth	Type No.	Test Type	Test Result		Reduced Level	Legend	Depth (Thickness)	
8.00-8.45	B14	SPT	N=17				(12.00)	Structureless CHALK composed of off-white slightly sandy slightly silty subangular GRAVEL and COBBLES of weak to moderately strong white chalk. (Grade Dc).
9.00	D15							
9.50-9.95	B16	SPT	N=15					
10.00	D17							
10.50-10.50	B18	SPT	N=19					
11.00-11.45	B19	SPT	N=30					
11.50	D20							
12.00								
12.50-12.95	B21	SPT	N=53					
13.00	D22							
14.00-14.30	B23	SPT	N=43/0.075					
14.50	D24							
15.00								
15.50-15.65	B25	SPT	N=52/0.15					

Boring Progress and Water Observations				Casing		Chiselling			Water Added		General Remarks
Date	Time	Depth	Water Dpt	Depth	Dia. mm	From	To	Hours	From	To	
03-01-08	14.00		5.0	6.40	200	15	19.5	2.25			Aquifer protection measures used during drilling
03-01-08	14.30										
04-01-08	12.00		9.0								
04-01-08	12.05		7.6								
04-01-08	12.10		7.1								
04-01-08	12.15		7.0								
04-01-08	12.20		7.0								
07-01-08	10.00										
				16.50	150						

All dimensions in metres Scale 1:50	Contractor : DPR Drilling Plant: Dando 150	Method: Cable Percussion Hole Size: 200mm-150mm	Logged By: TH	Approved By:
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Form SLR AGS3 UK BH File 404-1068-00003 ANGMERING.OPJ 18-01-08

BOREHOLE LOG				BOREHOLE No. SLR1	
Client: Bloor Homes					
Project No: 404.1068.00003	Date: 08/01/08	Ground Level:	Co-ordinates:		
Project: Former Texaco Service Station, Angmering				Sheet: 3 of 3	

SAMPLES & TESTS				Water	STRATA			Instrument/ Backfill
Depth	Type No	Test Type	Test Result		Reduced Level	Legend	Depth (Thick-ness)	
16.50	D26						Structureless CHALK composed of off-white slightly sandy slightly silty subangular GRAVEL and COBBLES of weak to moderately strong white chalk. (Grade Dc). (continued)	
17.00-17.15	D27	SPT	N=60/0.15					
18.00	D28							
18.50-18.63	D29	SPT	N=63/0.148					
19.00	D30							
19.50-19.64	D31	SPT	N=70/0.149					
20						20.00		
							Borehole complete at 20.00m	
21								
22								
23								

Boring Progress and Water Observations				Casing		Chiselling			Water Added		General Remarks
Date	Time	Depth	Water Dpt	Depth	Dia. mm	From	To	Hours	From	To	
03-01-08	14.00		5.0								Aquifer protection measures used during drilling
03-01-08	14.30			6.40	200						
04-01-08	12.00		9.0								
04-01-08	12.05		7.6								
04-01-08	12.10		7.1								
04-01-08	12.15		7.0								
04-01-08	12.20		7.0								
07-01-08	10.00			16.50	150						

All dimensions in metres Scale 1:50	Contractor : DPR Drilling Plant: Dando 150	Method: Cable Percussion Hole Size: 200mm-150mm	Logged By: TH	Approved By:
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Form SLR AGS3 UK BH File 404-1068-00003 ANGEMERING.GPI 18-01-08

BOREHOLE LOG				BOREHOLE No. SLR2	
Client: Bloor Homes					
Project No: 404.1068.00003		Date: 10/01/08	Ground Level:	Co-ordinates:	
Project: Former Texaco Service Station, Angmering					
					Sheet: 1 of 3

SAMPLES & TESTS				Water	STRATA			Instrument/ Backfill
Depth	Type No	Test Type	Test Result		Reduced Level	Legend	Depth (Thickness)	
							(0.40) 0.40	MADE GROUND: SAND and GRAVEL (sub-base).
0.50	B1						(0.40) 0.80	MADE GROUND: Firm brown and dark brown very gravelly CLAY. Gravel is brick, concrete, flint and crushed stone.
0.80	D2							
1.00	B3							
1.20-1.65	B4	SPT	N=9				(1.00)	MADE GROUND: Stiff to firm dark brown and orange brown sandy CLAY with occasional fine to medium brick and concrete gravel.
							1.80	
1.80	D5							
2.00-2.45	U1006						(0.90)	MADE GROUND: Stiff to firm dark brown and brown sandy CLAY with lenses of orange brown sand.
							2.70	
2.45-2.50	D7							
2.70-3.00	B8							
3.00-3.45	B9	SPT	N=6				(1.30)	Brown very sandy CLAY. Sand is fine to medium. Slight hydrocarbon odour noted throughout.
3.00	J8a							
3.50	J9a							
3.70	D10						4.00	
4.00-4.45	B11	SPT	N=10				(0.50)	Firm green grey slightly sandy gravelly CLAY. Gravel is medium to coarse of chalk and rare chalk cobbles. Slight hydrocarbon odour noted throughout.
4.00	J10a						4.50	
4.50-4.80	B12							
4.50	J11a							
4.50	J12a							
5.00-5.45	B13	SPT	N=17				(1.20)	Structureless CHALK composed of off-white slightly gravelly sandy SILT. Gravel is very weak and off white, grey discoloration noted and slight hydrocarbon odour noted to 5.7 m.
5.00	J13a							
5.00	W13b							
5.50	J14a						5.70	
5.70	D14							
6.00	D15	SPT	N=25					Structureless CHALK composed of off-white slightly sandy slightly silty sub angular GRAVEL and COBBLES of weak white chalk.
6.00-6.45	D16							
								
7.00-7.50	B17							
								
7.50-7.95	D18	SPT	N=31					
								
7.80	W18a							

Boring Progress and Water Observations				Casing		Chiselling			Water Added		General Remarks
Date	Time	Depth	Water Dpt	Depth	Dia. mm	From	To	Hours	From	To	
08-01-08	16.00			6.00	200						Aquifer protection measures used during drilling
09-01-08	10.00		7.8								
09-01-08	10.05		6.2								
09-01-08	10.10		4.10								
09-01-08	10.15		3.8								
09-01-08	10.20		3.9								
10-01-08	10.00			17.00	150						
10-01-08	10.00										
All dimensions in metres Scale 1:50				Contractor : DPR Drilling Plant: Dando 150		Method: Cable Percussion Hole Size: 200mm-150mm			Logged By: TH		Approved By:

Form SLR AGS3 UK BH File 404-1068-0003 ANGMERING.GPJ 18-01-08

BOREHOLE LOG				BOREHOLE No. SLR2	
Client: Bloor Homes					
Project No: 404.1068.00003		Date: 10/01/08	Ground Level:		Co-ordinates:
Project: Former Texaco Service Station, Angmering					Sheet: 2 of 3

SAMPLES & TESTS				Water	STRATA			Instrument/ Backfill
Depth	Type No	Test Type	Test Result		Reduced Level	Legend	Depth (Thick-ness)	
8.50	D19						Structureless CHALK composed of off-white slightly sandy slightly silty sub angular GRAVEL and COBBLES of weak white chalk. (continued)	
9.00-9.45	D20	SPT	N=75					
9.20	D21							
9.20	W21a							
9.50-10.00	B22							
10.00	W23							
10.50-10.95	D24	SPT	N=55					
11.00								
11.70	D25							
12.00-12.45	D26	SPT	N=62					
13.00	D27					(14.30)		
13.50-13.95	D28	SPT	N=65					
14.00								
14.50	D29							
15.00-15.45	D30	SPT	N=51/0.15					

Boring Progress and Water Observations				Casing		Chiselling			Water Added		General Remarks
Date	Time	Depth	Water Dpt	Depth	Dia. mm	From	To	Hours	From	To	
08-01-08	16.00			6.00	200						Aquifer protection measures used during drilling
09-01-08	10.00		7.8								
09-01-08	10.05		6.2								
09-01-08	10.10		4.10								
09-01-08	10.15		3.8								
09-01-08	10.20		3.9								
10-01-08	10.00			17.00	150						

All dimensions in metres Scale 1:50		Contractor : DPR Drilling Plant: Dando 150		Method: Cable Percussion Hole Size: 200mm-150mm		Logged By: TH	Approved By:
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Form SLR AGS3 UK BH File 404-1068-00003 ANGMERING.OP1 18-01-08

BOREHOLE LOG				BOREHOLE No. SLR2	
Client: Bloor Homes					
Project No: 404.1068.00003		Date: 10/01/08	Ground Level:	Co-ordinates:	
Project: Former Texaco Service Station, Angmering					
					Sheet: 3 of 3

SAMPLES & TESTS				Water	STRATA			Instrument/ Backfill
Depth	Type No	Test Type	Test Result		Reduced Level	Legend	Depth (Thick-ness)	
16.00	D31						Structureless CHALK composed of off-white slightly sandy slightly silty sub angular GRAVEL and COBBLES of weak white chalk. (continued)	
16.50-16.95	D32	SPT	N=50/0.125					
17								
17.50	D33							
18								
18.00-18.95	D34	SPT	N=60/0.15					
19							Borehole complete at 20.00m	
19.00	D35							
19.50-19.95	D36	SPT	N=30/0.05					
20						20.00		
21								
22								
23								

Boring Progress and Water Observations				Casing		Chiselling			Water Added		General Remarks
Date	Time	Depth	Water Dpt	Depth	Dia. mm	From	To	Hours	From	To	
08-01-08	16.00			6.00	200						Aquifer protection measures used during drilling
09-01-08	10.00		7.8								
09-01-08	10.05		6.2								
09-01-08	10.10		4.10								
09-01-08	10.15		3.8								
09-01-08	10.20		3.9								
10-01-08	10.00			17.00	150						
All dimensions in metres Scale 1:50				Contractor : DPR Drilling Plant: Dando 150		Method: Cable Percussion Hole Size: 200mm-150mm			Logged By: TH		Approved By:

APPENDIX V:

Groundwater Levels January 2008

Groundwater Monitoring Sheet 2.9.1

SLR

Site Name : Former Texaco Service Station,
 Address: Station Road
Angmering

Job Number: 404-1058-00003
 Date: 23/01/2008
 Personnel: Louise Carman
 Equipment: Interface Meter, GMI gas pellister

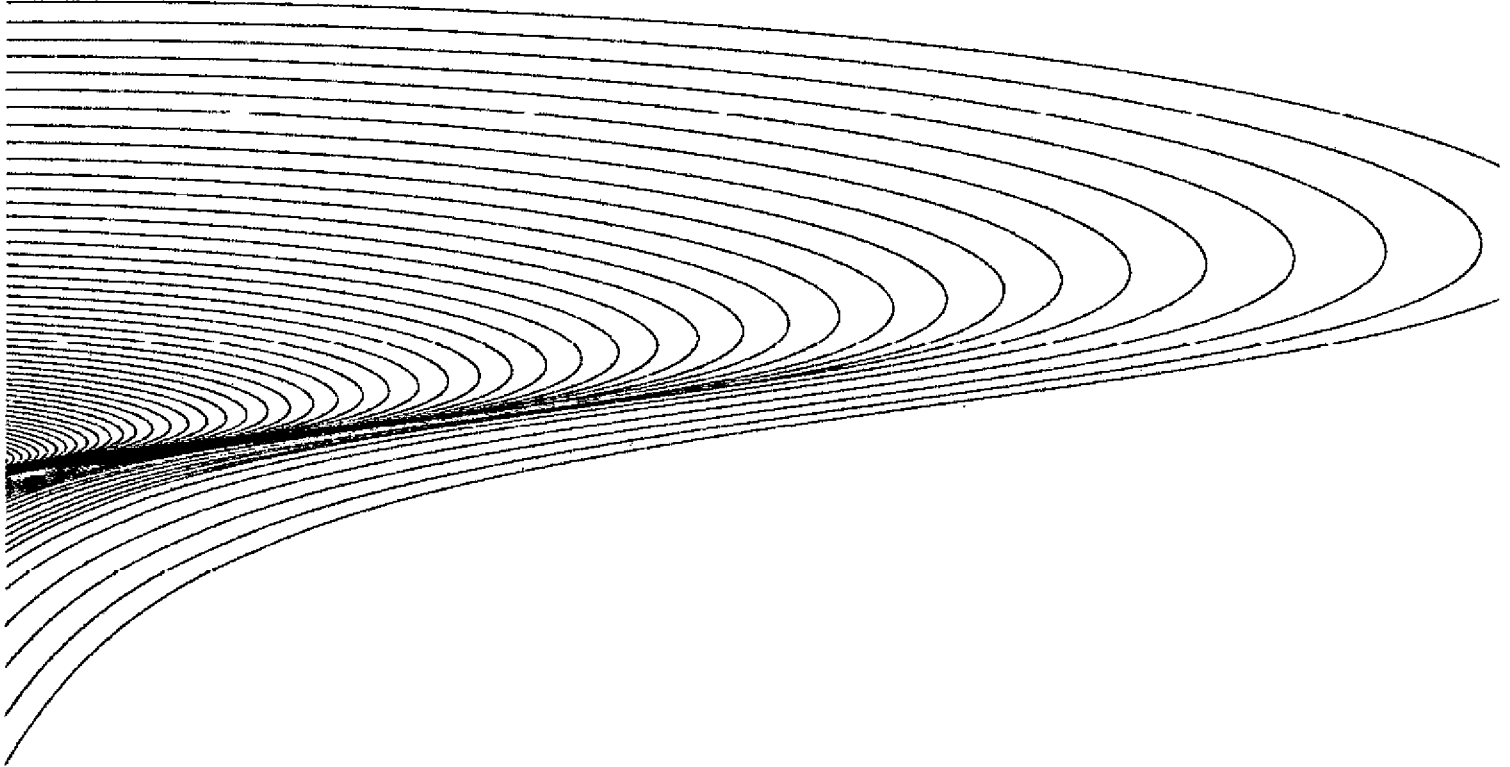
BH Ref.	Well Headspace (ppm)	Depth to SPH (m)	Depth to Water (m)	Depth to Base of Well (m)	SPH Thickness by Baller (mm)	BH Measuring point (GL / TOC / Cover Level)	BH Diameter (mm)	Purged Volume (L)	Notes (eg. presence of sheen, product description, turbidity, odour)
BH3	5	-	3.48	6.9	-	GL	50	-	
BH5									
BH8	35	-	3.68	7.18	-	GL	50	-	No bung present
BH10	-	-	3.38	7.92	-	GL	50	-	Battery dead on pellister
BH10A	-	-	2.88	11.85	-	GL	50	-	Battery dead on pellister
BH11									
BH12									
BH13	440	-	3.48	7	-	GL	50	-	Passive skimmer full of water - no free product - left in hole but raised above water table.
BH14	10		3.7	8.06	-	GL	50	-	
BH15	45	-	3.58	7.03	-	GL	50	-	
BH16	25	-	3.93	7.02	-	Cover Level	50	-	
BH17									
BH18	>1000	-	3.45	7	-	GL	50	-	
BH19	>1000	-	3.73	7.02	-	GL	50	-	
BH21	25	-	3.55	11.73	-	GL	50	-	
BH22	30	-	3.73	12.63	-	Cover Level	50	-	
SUMP 1	15	-	3.56	-	-	GL	50	-	
SUMP 2	25	-	3.24	-	-	GL	50	-	
SG1									
SG2									
SG3	10	-	DRY	1.1	-	GL	50	-	
SG4									

Comments:

Purging Guidance: 65mm well - 3 x Vol per m: 6 Litres per m 100mm well - 3 x Vol per m: 24 Litres per m

APPENDIX VI:

Free Product Remediation Protocol



**Former Texaco Service Station,
Station Road, Angmering**

**Sump Installation Protocol Method Statement
and Health and Safety Plan**

SLR ref.: 404.1068.00003

For Bloor Homes

March 2008



solutions for today's environment

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DRAWINGS

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Drawing 2	Sump Location Plan
Drawing 3	Proposed PSH Recovery trench Design

APPENDICES

Appendix A	SLR Health and Safety Policy Statement
Appendix B	Direction to nearest Accident and Emergency
Appendix C	System Description and Method Statements
Appendix D	Risk Assessment

1.0 SITE BACKGROUND AND KEY RESPONSIBILITIES

1.1 Introduction

This document comprises a protocol and Health and Safety Plan for the installation of Phase separate hydrocarbon recovery trenches at the Former Texaco Service Station, Station Road, Angmering, West Sussex.

1.2 Client

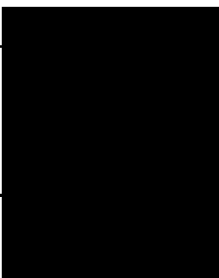
The client for the project is: Bloor Homes Southern

Contact: Adam Osborne
Bloor Homes Southern
Fulmar House Unit 7
Votec Centre
Hambridge Lane
Newbury
RG14 5TN

1.3 Specialist Contractor

The investigation works will be organised and carried out under the supervision of:

SLR Consulting Limited
19 Hollingworth Court,
Turkey Mill,
Ashford Road,
Maidstone,
ME14 5PP

Position	Name	Contact	Responsibilities
Project Manager	D. Collins		Overall management of the project
Project Co-ordinator	T. Hills		Overall running of the project including liaison with the Client regarding timing of the work programme, cost and contract.
Site Engineer	H. Gabriel		On site supervision of the works, environmental sampling and liaison

Position	Name	Contact	Responsibilities
			with client's representative.

1.4 Sub-contractors

The nominated sub-contractor is to be confirmed, but will be either KpH Environmental or Torex. The sub-contractor will be responsible for the provision of all plant, equipment and materials.

1.5 Location of Site

The site is immediately south east of a roundabout between New Road (A259) and Station Road, Angmering.

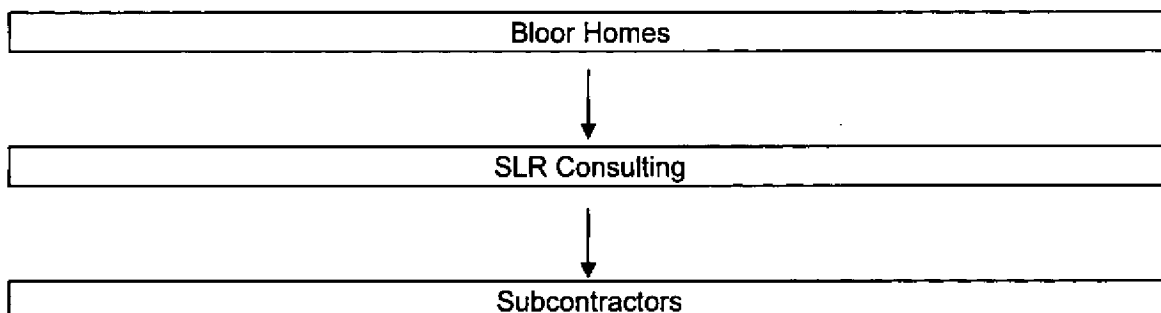
1.6 Timescale for Works

Commencement of the works is to be confirmed. The installation of PSH recovery trenches is likely to take in the region of one week to complete.

1.7 General Health and Safety

1.7.1 Health and safety Responsibilities

Responsibilities for Health and Safety are as outlined in the diagram below:



SLR Director responsible for Health and Safety: Alan Sheppard (+44 (0) 1225 309400)

SLR Local Health and Safety manager: Nigel Cronin (+44 (0) 7766 886160)

Each SLR office has a Health and Safety office representative. All personnel involved in working on this project will be instructed with regard to the appropriate safety procedures and will have received internal safety training.

SLR will maintain and implement all required Health and Safety requirements. A Health and Safety Policy Statement is contained in Appendix A.

SLR will inspect all works and provide a record of personnel, equipment and site progress on a daily basis.

SLR will provide flammable gas/vapour surveillance equipment on a permanent basis in conjunction with experienced personnel to monitor all activities.

All subcontractors will provide safety equipment and training for their field staff.

At least one member of the SLR site staff will be trained in basic First Aid (one day course) and will carry a first Aid Kit with them at all times whilst on site. The nearest hospitals to each site with accident and emergency facilities are presented in Appendix B.

1.7.2 Risk Assessment

A risk assessment will be produced for each site and the work being carried out on this site, identifying risks posed and any hazards that may arise during investigation works. In the event that additional hazards are identified during the works, the work will immediately cease and a review of investigation methodology and health and safety precautions will be undertaken.

A preliminary method statement with health and safety risk assessment is presented as Appendix C. This will be updated on site as required based on any additional hazards identified as the works progress.

1.7.3 Site Safety Requirements

The site will be notified at least two weeks prior to the commencement of works.

The supervising SLR engineer will complete clearance certificates and permits to dig prior to commencing any works on site as necessary – we understand however that all services will be disconnected from the site prior to the installation of PSH recovery trenches.

The supervising SLR engineer will carry out a site induction to all subcontractors prior to commencing any works on site.

All SLR site staff shall make themselves aware of the emergency procedures of the Client and will comply with these procedures. SLR site staff will make themselves aware of the location of the fire fighting equipment and the fire procedures of the Client will be adopted.

The requirements of the Client with regard to safe working practices on the site shall be adopted.

The SLR site staff will make themselves aware of the procedures of the Client for reporting incidents and will comply with these procedures. In addition, reporting of the incidents will be in accordance with Company standard procedures and the RIDDOR Regulations.

2.0 PHASE SEPARATED HYDROCARBON (PSH) REMOVAL

2.1 Background

Following several phases of site investigation (undertaken by others) PSH have been identified in two boreholes (BH13 and BH17). The following is a summary of groundwater conditions between 2006 and October 2007.

December 2006

- the groundwater was of generally good quality in terms of the inorganic parameters determined in February and May 2006 the exceptions being arsenic in BH13, nickel in BH11, Sump 1 and BH18 (one occasion) and lead on one occasion in BH10A ;
- pH values were generally about 8.0 with the high the exception of Sump 1 where the pH was 12.3 in May 2006 and 12.0 in July 2006 (the high pH values obtained from Sump 1 are probably attributable to lime leached from concrete used in its construction);
- naphthalene concentrations were above the drinking water limit (DWL) of 10 µg/l in BHs 11, 13, 17, 18 (one occasion), and 19 and Sump 1;
- benzo(a)pyrene concentrations were above the DWL of 0.01 µg/l BH13 (one occasion), and BH18 (one occasion);
- high BTEX and GRO concentrations were found on all measuring occasions between February and July 2006 in BH3, BH5, BH11, BH12, BH13, BH15, BH17, BH18, BH19, and Sump 1;
- high DRO was found in BH13 and BH17 with lower concentrations being found in BHs10, 10A, 12, 15 and 16;
- the highest concentrations of TPH (total petroleum hydrocarbons) were found in July 2006 in BH 13 (399 mg/l), BH17 (140 mg/l), BH3 (55.6 mg/l) and BH19 (25.2 mg/l), with high concentrations also being found in BH18 (17.5 mg/l), BH15 (15 mg/l), BH11 (9.6 mg/l and BH5 (7.8 mg/l);
- Phase separated hydrocarbons (PSH) were detected:
 - in May 2006 in BH13 (20 mm) and BH17 (140 mm),
 - in July 2006 in BH13 (380 mm), BH17 (150 mm) and BH11 (1 mm);
- analyses of samples of PSH taken in May 2006 were characterised as degraded gasoline & diesel residues (BH13) and as weathered gasoline with a possible trace of diesel (BH17).
- adjacent shallow and deep wells (6 & 21, 10 & 10A, and 16 & 22) gave similar results to one another (all six wells gave readings of 100 µg/l or less TPH).

The consistency of the results for inorganic parameters indicates that either highly localised contamination is present or that the groundwater is very static. The results for naphthalene and petroleum hydrocarbons are also generally similar between monitoring rounds lending support to the view that groundwater conditions are static within the low permeability strata.

BH13 is on the edge of the main tank excavation and BH17 within the excavated forecourt area where the old tanks were found. There is a strip of undisturbed ground between BHs 13 and 17. It is noteworthy that Sump 2 which is located within a triangular arrangement of wells (BHs 3, 13 and 17, two of which contained PSH, yielded no detectable hydrocarbons lending further evidence to the proposition that the mobility of the groundwater is very low. Sump 1 also contained a relatively low concentrations of TPH (2.9 mg/l) compared to the 399 mg/l in BH13 (also containing PSH) and 17.5 mg/l in nearby BH18.

January 2007

The results obtained in January 2007 were generally similar to those obtained in July 2006 except for higher concentrations of petroleum hydrocarbons in BH10 than previously. PSH was detected in three of the boreholes (BH 17 - 90mm, BH13 - 20mm and BH11 - 1mm).

October 2007

PSH were detected only in BH13 (0.03m) and BH17 (0.06m). The results also recorded concentrations of dissolved petrol range organics up to 110mg/l in BHs 11 and 17; exceeding residual saturation concentrations and thus consistent with the presence of liquid fuel in BH 17. BHs 3, 13 and 19 recorded dissolved petrol concentrations in excess of 10mg/l. Sump 1, BH5, BH6, BH10 and BH18 recorded petrol concentrations between 1 and 10 mg/l.

Benzene concentrations exceeded 1mg/l in BHs 11, 17 and 19 up to a maximum of 3.5mg/l in BH17. benzene concentrations exceeded 0.1mg/l in BHs 6, 10, 13, Sump 1 and 18 up to a maximum of 0.79mg/l in BH18. No MTBE was detected in any groundwater sample.

Elevated concentrations of aliphatic and aromatic hydrocarbons in the C12 - C35 range, indicative of diesel or heavier oils were recorded in BHs 3, 13 and 17. Concentrations in BHs 3 and 17 exceeded residual saturation concentrations.

SLR considers that the total dissolved concentrations recorded are only elevated in a limited number of boreholes and tends to concur with the field measurements of the relatively localised extent of residual PSH. In particular the relatively low concentrations of dissolved petrol impact in BHs 3, 10, 12 and 14 and to a lesser degree in BHs 5 and 6 and Sump 1 indicate that hydrocarbon impacts are attenuating towards the southwest part of the site which is most likely to be down-gradient of the impact.

January 2008

A final monitoring visit was undertaken in January 2008. No PSH was detected, although BH17 was unavailable.

2.2 Rationale

Given the results presented in Section 2.1 above it is considered that the relatively low permeability of the putty chalk beneath the site has limited the potential impact to off-site groundwater quality. Nevertheless, whilst passive baling of PSH from BHs 13 to 17 indicated that the mobility of the residual PSH was low, it has been agreed with the Environment Agency that a more active PSH recovery system should be installed to evaluate this matter.

If the proposed system does not recover more than a small quantity of PSH it will demonstrate that the hydrocarbons on the site are not mobile and that further active recovery measures are not required.

In order to evaluate the presence of PSH over a greater radius of influence, and thus provide more representative assessment of the mobility of the residual PSH and maximise its recovery, it is proposed to install 3 trench sumps in the vicinity of BHs 13 and 17 to draw in and recover any potentially mobile PSH. The following sections summarise the methodology and outline the close-out criteria for this remediation work.

2.3 Sump Location

The proposed locations of the PSH recovery sumps are shown in Drawing 2. The sumps are to be positioned immediately down-gradient of boreholes BH13 and BH17 in which PSH have been consistently identified.

2.4 Sump Construction

The sumps have been designed such that PSH can be removed from groundwater. The aim is to create a porous "block" of ground, or filter pack, surrounding a wide diameter standpipe. The filter pack is designed to have a high porosity and storage capacity to maximise PSH recovery.

The sumps will comprise rectangular trenches approximately 3.0m long and 0.6m wide. These will be excavated to a depth not exceeding 6.0m below ground level (bgl) using plant supplied by the Contractor. The minimum depth of the trenches will be determined by ground conditions encountered during the works, but is likely to be in the region of 5.0m bgl.

Into each trench a 300mm diameter standpipe, with perforated section to span the shallow groundwater table, will be installed. The trenches will then be backfilled using a suitable granular material. Specific details are provided below.

Preparatory Works

Depending on other activities being undertaken at the site during the installation of PSH recovery trenches space may be limited. Where this is the case the ground levels in the general area of each recovery trench will be reduced by 1.0m. This will be undertaken in order that a smaller excavator with a 5m reach can be used to install trenches to up to 6m bgl.

Excavation of Trenches

Trenches will be excavated using a tracked mechanical excavator. Trenches will be excavated in layers and logged by an attending environmental scientist. The stability of trenches will depend on the precise nature of the soils encountered. It may be necessary to support excavations by use of a trench box.

Trench boxes will be installed using the excavator due to size and weight. The first box installed has blade edge to underside (like a cutting shoe on clay cutter). Where deeper support is required 2nd & 3rd sectional boxes are stacked on top of the first.

The first box is dropped into an over dug open hole dug to a depth determined by site conditions. The excavation is then extended by digging out soil from inside the box and tapping down with digger arm. This gives the full face support. It effectively works like a "drill rig casing", tapped in. The open ends on short sides of excavation can be blocked with loose trench sheets but generally if the long walls of the excavation are supported with sheet boxes the short walls stand open for the length of the temporary works.

PSH recovery trenches will be approximately 3m long. This will allow for a reasonable size filter pack and cover a suitable lateral distance perpendicular to the anticipated movement of

PSH in shallow groundwater. The depth of the recovery trenches will be determined by groundwater level and thickness of the putty chalk. In the area of BH13 and BH17 groundwater levels fluctuate around 4.0m bgl. Trenches will therefore be constructed to a provisional depth of 6.0m bgl to allow for a 2.0m head of groundwater. This depth of the excavations will be closely monitored by the attending environmental scientist.

Sump Construction

Once the final depth of the excavation has been reached (provisionally 6.0m bgl) the PSH recovery well and surrounding filter pack will be constructed.

The well is to comprise 300mm diameter perforated pipe to maximise surface area for PSH recovery. The well will be held in place with a ladder mounted horizontally across the trench box or open excavation. The excavation will then be backfilled with a suitable filter pack, comprising 20-40mm washed aggregate.

Above the filter pack a plastic (polythene) sheet will be installed. This is to prevent the mixing of different sized aggregate. It provides an additional benefit such that, if the wells are ever required to be adapted for hydrocarbon vapour recovery, air is not drawn preferentially from the surface.

At surface level the trench will be reinstated with a larger grade of granular material (e.g. crushed concrete) or permanent hardstanding, depending on site requirements at the time. The wells will be finished with a 600mm by 450mm concrete manhole chamber with manhole cover.

A preliminary design for the PSH recovery trenches is included as Drawing 3.

2.5 PSH Recovery

PSH will subsequently be removed from the above constructed sumps. In the first instance PSH recovery will take place on a weekly basis (5 no. visits initially) by a mobile treatment plant operated by SLR. The treatment plant comprises air driven pumps that will extract a groundwater/PSH mixture from the sumps via flexible pipe. The usual operation of the mobile plant comprises pumping groundwater from the sumps and passing it through an oil/water separator tank (nominal capacity 200 litres) to skim off PSH. The water then passes through a drum of granular activated carbon to remove dissolved phase hydrocarbons before the treated water is appropriately discharged. In this case Southern Water have agreed to provide a temporary discharge consent to allow the discharge of waste water via the existing car wash interceptor.

It is anticipated, based on system performance on similar sites that the mobile trailer will remove between 2000 and 3000 litres of water per visit (i.e. up to 1000 litres per sump), quantities of fuel recovered will range from 1 to 100's of litres depending on the PSH mobility. The advantage of using the trailer over a vacuum tanker is the quantity of PSH recovered can be accurately measured.

Where the above is not fully successful (as determined in Section 2.6 below) and PSH remains consideration will be given to the continued operation of PSH recovery as above or the alternative use of PSH skimmer pumps. Where a marked reduction of PSH is reported after five site visits and additional 3 to 5 visits is likely. Where PSH recovery via this method is less successful, skimmer pumps may prove more effective. In this case dedicated equipment could be installed on site comprising down-hole PSH skimming pumps (set manually or on a float system) and a PSH containment system.

2.6 Remediation Criteria.

SLR anticipates that between 10 and 100 litres of PSH may be recovered in total from all three sumps as part of the first round of groundwater pumping. The lower value is based upon the quantity of relatively immobile liquid fuel that may be present within 1m of the sides of the sumps that migrates into the sumps due to the reduction in capillary forces in surrounding putty chalk created by the sumps installation.

In advance of commencement and following each pumping visit a round of groundwater monitoring will be undertaken at around one week after pumping to confirm that the PSH thicknesses were, in fact, being reduced and to assess whether PSH rebound is taking place post pumping.

SLR suggests that the following remediation criteria will constitute successful completion of remedial works:

- Groundwater monitoring in January 2008 found no PSH in nearby monitoring wells; therefore it is feasible (but unlikely) that no PSH will be found in the sumps; absence of PSH in the vicinity of the sumps would be proven by a minimum of three pumping visits using the mobile trailer.
- Residual PSH thickness of less than 10mm one week after pumping measured in the sumps; (following a minimum of three pumping visits using the mobile trailer); that is recorded over three weekly visits and / or
- Recovery of less than 0.1% volume of PSH per volume of water
- Samples of pumped groundwater should be collected towards the end of each pumping cycle from each sump and analysed for PRO/BTEX/MTBE in order to evaluate the trend in total dissolved petrol concentrations.

In other words, if pumping and drawdown of water within the sumps releases less than 1 litre of PSH per 1000 litres of water then PSH mobility is deemed to be low and remediation is complete.

In the event that these remedial criteria are not met, or appear unlikely to be met within the outlined timescale, the strategy will be reviewed and options to increase the number or intensity of fuel recovery works will be evaluated and implemented with the agreement of the site owner and regulators. As discussed in Section 2.5 the use of dedicated skimmer pumps has not been ruled out at this stage.

It is considered likely that an additional pumping round may be required post-foundation piling in the event that the ground improvement works disturb capillary forces in the putty chalk in the vicinity of the impacted wells and result in a further release of otherwise trapped PSH hydrocarbons.

2.7 Timescale

It is anticipated that the installation of PSH recovery trenches will take up to 1 week to complete. The following five weeks will then comprise PSH recovery and monitoring visits (five of each). The effectiveness of the removal of hydrocarbons will be assessed during Week 6 and the results presented to the Regulators.

3.0 HEALTH AND SAFETY

3.1 Existing Services

The presence of buried services is to be expected in all parts of the site. SLR has obtained a specialist services survey and since this time many buried services have been removed from the site. In addition the site is understood to have been disconnected from all services.

Before trial pitting begins in each location the SLR Engineer on site will survey in the location using a Cable Avoidance Tool (C.A.T). All manhole covers within the vicinity of proposed ground works will be lifted and inspected by the SLR Engineer on site.

3.2 Existing Traffic Systems

All vehicles, equipment, tools and materials will be kept clear of public highways and any access routes.

3.3 Site Access and Egress Points

Access to the site is via Station Road to the west of the site. Vehicle access must be maintained at all times except where access is blocked by works.

3.4 Working Hours

All site work will generally be carried out between the hours of 08.00 and 17.30, Monday to Friday, but work will be restricted to daylight hours to ensure safe working practices are adopted.

3.5 Site Rules

The site rules will be defined by SLR in conjunction with the client. The contractors are required to adhere to these rules and emergency procedures. Any additional site rules specifically for the safe operation of plant and machinery defined by the contractor must be made known and followed by everyone at, or visiting the site, including sub-contractors, suppliers and the public.

The principal contractor is also required to comply with SLR's "Health and Safety Policy", a copy of which is included as Appendix C. All visitors will be recorded within a register held on site.

All accidents and 'near misses' will be notified to SLR's health and safety manager to be dealt with appropriately.

3.6 Contamination Issues

Potential contaminants are likely to be associated with the subsurface ground conditions. All sites will be classified as amber (under the BDA classification scheme), however, the following procedures will be adopted to minimise the risks to health of site operatives.

3.7 Risk Assessment

The significant hazards which have so far been identified, which cannot be avoided, and which will be a risk to the health and safety of construction workers, visitors to the site and members of the public are listed below. This list excludes commonplace hazards which should be controlled by good site management and safe working practices.

- Excavation works in proximity to potentially contaminated materials.
- Excavation in close proximity to the general public.
- Excavation in close proximity to services assumed to live.

The means by which these and more commonplace hazards will be addressed are set out in the attached Risk Assessments and work procedures (Appendix D).

3.8 PPE/RPE

Health and safety equipment, to include the following is to be provided by SLR for its staff. Contractors will provide PPE for his staff:

- Hard hat.
- Steel toe/mid sole boots.
- High Visibility Jackets/Vests.
- Disposable coveralls (to be used as required/directed by the SLR Engineer).
- Rubber or chemical resistant gloves.
- Waterproof coats/trousers.
- Dust masks (half face variety) to be used as required/directed by the SLR Engineer.
- Half face vapour masks with spare filters to be used as required/directed by the SLR Engineer.

SLR will be responsible for the offsite disposal of all waste arisings from the works. All such waste is to be stored in bulk bags and skips and dispatched for landfill disposal under full Duty of Care requirements.

4.0 CONTINUING LIAISON

4.1 Updating This Plan

This plan has been prepared on the basis of current information and addresses hazards / risk assessments / control measures within the work operations to allow the contract to commence. Hazards/risk assessments/control measures for new or modified operations must be addressed as the work proceeds.

4.2 Unforeseen Eventualities

In the event of any unforeseen eventualities arising during the project resulting in significant design changes or affecting the resources required, SLR shall:

- Report the matter to the client as soon as possible.
- Advise the client of the Health and Safety issues arising from the eventuality as soon as possible.
- Update the Health and Safety plan before commencement of any further works according to the revised design.

SLR is responsible for providing any sub-contractor with such information.

The subcontractors must inform the SLR Site Engineer of any specific hazards which may arise from their proposed methods of working.

All staff involved in the investigation works shall be responsible for ensuring that all works comply with SLR's Safety Policy, together with the relevant health and safety guidelines:

- Health and Safety at Work etc act 1974
- Guidance note GS5 from the HSE: Entry into confined spaces
- Guidance note GS6 from the HSE: working around overhead electricity cables
- Guidance note EH 40/88 from the HSE: Occupational Exposure Limits 1989
- HSE: Management of Health and Safety at Work Regulations 1999
- HSE: Personal Protective Equipment at Work Regulations 1992
- HSE: Workplace (Health, Safety and Welfare) Regulations 1992
- HSE: Manual Handling Operations Regulations 1992
- HSE: Provision and Use of Work Equipment Regulations 1998

Drawings

SLR



KEY



Site Boundary



Site: STATION ROAD, ANGMERING

Project: FORMER TEXACO SERVICE STATION

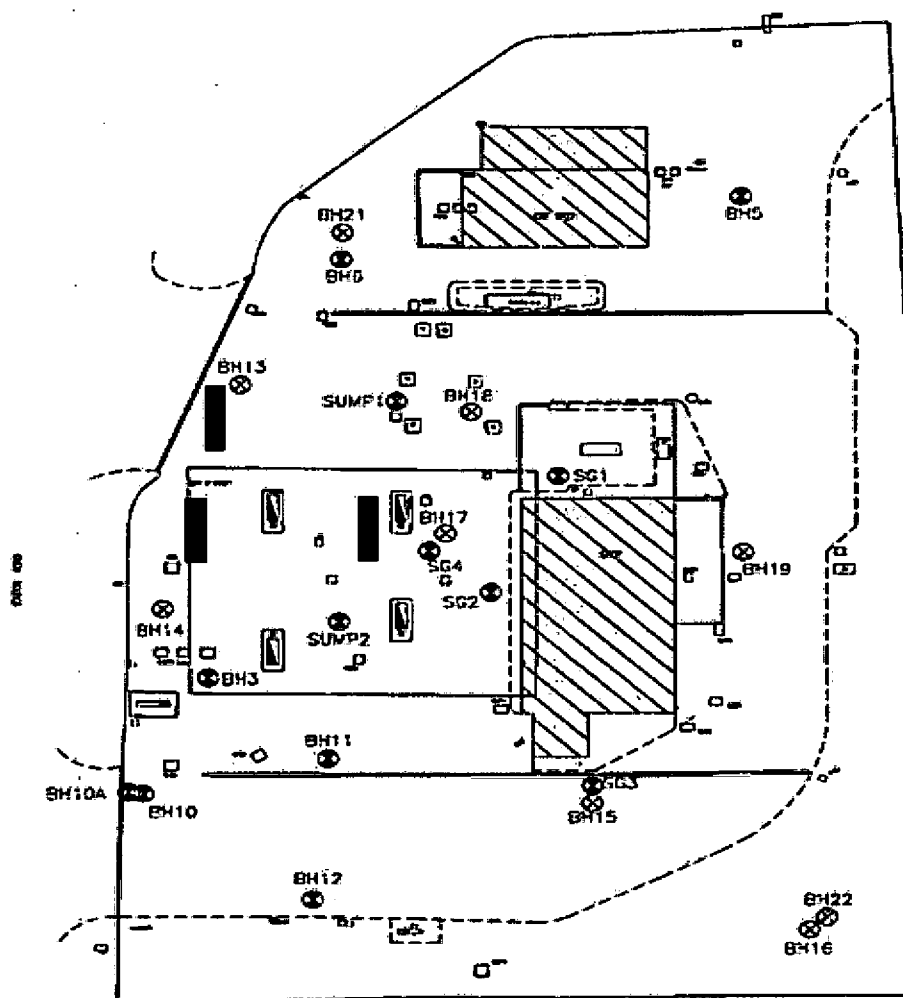
Date: JAN 2008

Scale: NTS

Drawing: Site Location Plan

Dwg. No. 1

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Proposed trench locations

SLR

Site: STATION ROAD, ANGMERING

Project: FORMER TEXACO SERVICE STATION

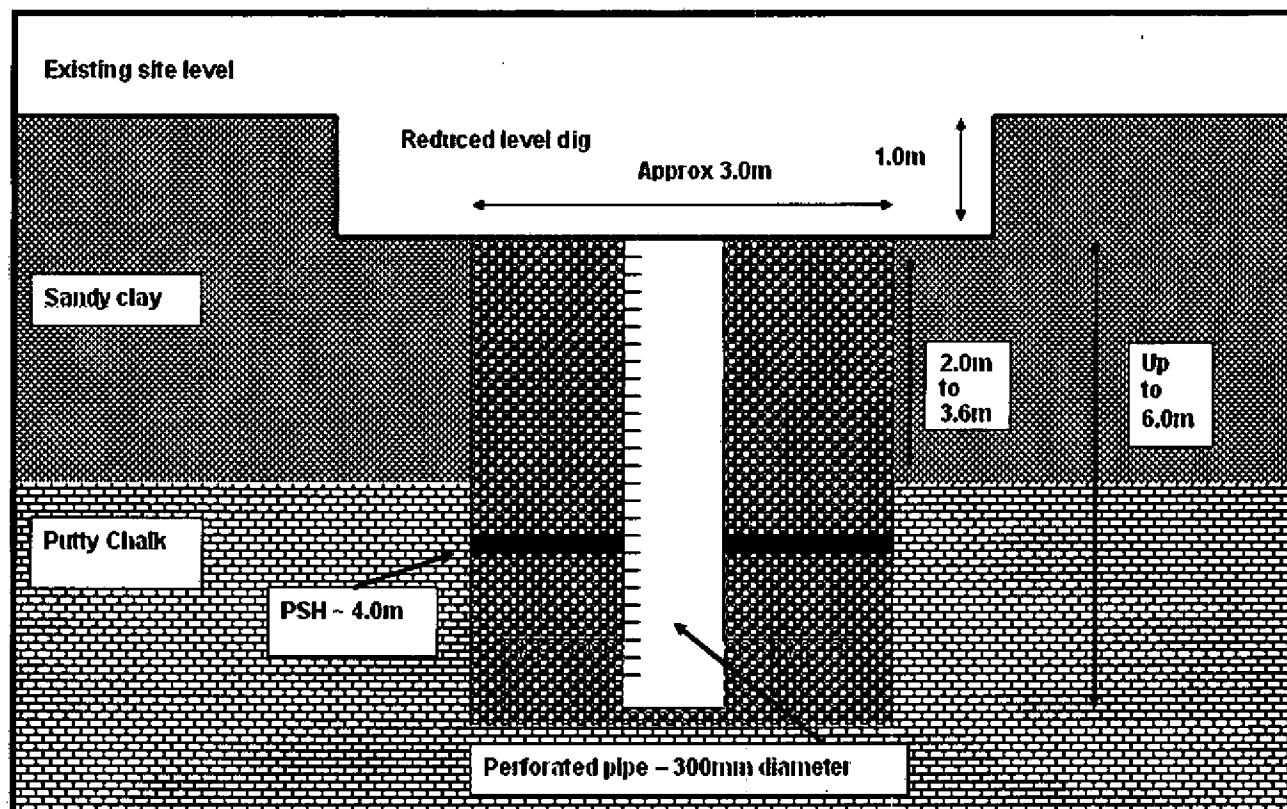
Date: JAN 2008

Scale: NTS

Drawing: Trench Location Plan

Dwg. No.
2

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Site:	STATION ROAD, ANGMERING		
Project:	FORMER TEXACO SERVICE STATION		
Date:	JAN 2008	Scale:	NTS
Drawing:	Proposed Trench Design		Dwg. No. 3

Appendix A

SLR Health & Safety Policy Statement

DEFINITIONS

'The Company' - SLR Consulting Limited.

'The Employees' - employees of SLR Consulting Limited.

'The Contractors' - all contractors, sub-contractors, advisers and consultants.

STATEMENT OF POLICY

Corporate responsibility: Overall control of the operation of SLR Consulting Limited (SLR) is vested in the Directors. Responsibility for the executive control and implementation of this Health and Safety Policy rests with the Managing Director and Health and Safety Director.

Responsibility for the workplace and working environment: The Directors recognise the importance of maintaining a safe place of work and a healthy working environment. The Company accepts its responsibilities to all its employees and others (e.g. contractors, clients and members of the public) who are affected by the Company's operations, for ensuring that safe and healthy working conditions and practices exist.

Purchasing: The Company Policy includes health and safety considerations in the purchase, maintenance and updating of equipment and supplies, with the requirements of health and safety legislation taken as the minimum requirements for the Company's own practices.

Office Safety Practices: It is the responsibility of the Office Safety Representative to ensure that all staff based within their office and contractors are made aware of the Policy and to ensure that the requirements of the Policy are carried out in their respective locations.

Site Safety Practices: It is the responsibility of Project Managers to ensure that safe working practices are in place for each type of site work and to conduct detailed, site specific risk assessments where necessary. It is also their responsibility to train, or to ensure that adequate training has been given to staff, relevant to the type of project being undertaken. Project Managers must ensure that site work is conducted by staff under their control in a manner which is safe and presents no significant risk to health.

GENERAL STATEMENT OF INTENT

The Company will ensure, so far as is reasonably practicable:

- The health, safety and welfare of all its employees while they are at work, in whatever operation or location, whether on site or in transit on authorised business, of visitors to company premises and operations, and of others who may be affected by its actions or omissions e.g. the general public, client, contractors
- The provision of safe systems of work, adequate welfare facilities and arrangements and a safe and healthy working environment with a safe means of access and egress
- The provision of equipment and vehicles, whether owned or hired, in conditions that are safe and without risks to health and to provide systems for inspections and preventative maintenance to ensure safe conditions
- That arrangements are in place for ensuring safety and absence of significant risks to health in connection with the use, handling, storage and transportation of articles and substances

- The provision of such information, instruction, training and supervision necessary to ensure the health and safety at work of employees, and information to contractors and others who may be affected by the Company's operations
- Cooperation with, and involvement of, employees in meeting health and safety objectives.

The necessary resources and input will be available to ensure compliance with the Policy, and to this end the Company will:

- Ensure compliance with the requirements of the Health and Safety at Work etc Act 1974 and associated Regulations and Approved Codes of Practice
- Provide the necessary management information and involvement, financial resources and safety engineering input, so far as it is reasonable and practical to do so, to achieve the standards laid down in this policy
- Maintain necessary up-to-date knowledge; maintain contact with relevant outside bodies, including health and safety advisory and specialist services; and keep up to date with developments in health and safety legislation, codes of practice and other technical or guidance material relating to the Company's operations
- Disseminate such information within the Company to employees, contractors and visitors, as such information affects them
- Ensure that health and safety factors are taken into account when new and revised systems of operation are planned and effected
- Provide all new employees, and those redeployed to different jobs and/or departments, with information on health and safety, welfare, fire precautions, first aid and medical matters, as appropriate to their occupation and location.

RESPONSIBILITIES

The Managing Director

The Managing Director has delegated authority for specific health and safety matters to Office Safety Representatives and/or Project Managers. They will be personally responsible for health, safety and welfare within their delegated sphere of operation as follows:

- ensuring that this policy is complied with,
- ensuring that all employees receive the correct training to allow them to work in a safe manner,
- ensuring job safety, reviewing the systems of work in their offices and/or projects,
- ensuring the use and wearing of safety protective equipment and clothing by employees, contractors and visitors, as appropriate.

Office Safety Representatives

An Office Safety Representative will be nominated at each SLR office to give employees a direct point of contact with the Health and Safety Management system. The Representative will attend Health and Safety Committee meetings and may be the Office Manager. Unless

advised otherwise, employees should assume that their Office Safety Representative is responsible for Health and Safety matters in all their areas of work, including site work. For specific major projects, the Project Manager will assume Health and Safety responsibility.

Health and Safety Manager

The company has appointed a Health and Safety Manager as a competent person to assist with health and safety matters. Standards of health, safety and welfare, and the compliance with this Policy Statement, will be monitored by the Health and Safety Manager.

Health and Safety Committee

A Health and Safety Committee has been established which will be chaired by the Health and Safety Director as the nominated representative of the Managing Director, together with the Health and Safety Manager and the Office Safety Representative, or his/her nominated representative. The Committee will meet every three months and minutes of the meetings will be displayed prominently in each SLR office location. Staff will be advised of forthcoming meetings and asked to put forward items for discussion.

All Employees

All Company employees have a responsibility to ensure that they work in a manner conducive to a healthy and safe environment. These general responsibilities extend towards their fellow employees, visitors and members of the public.

Specifically, SLR employees are expected to:

- Comply with health and safety legislation and Company health and safety rules and procedures
- Cooperate with Office Safety Representatives and Project Managers with regard to health and safety matters
- Be receptive to, and act on, health and safety training, instruction and information
- Report faults, hazards, non-injurious incidents and injuries to the Manager with specific responsibility for health and safety matters, i.e. either the Office Safety Representative or Project Manager
- Raise with their Manager, responsible for health and safety, any situation of conflict between health and safety requirements and the apparent demands of their job or task
- Wear and/or use personal protective equipment and clothing
- Not interfere with, abuse or remove anything provided, in the interests of health and safety, for them or their fellow employees
- Keep all access and egress routes and access to all fire doors and fire-fighting equipment clear at all times.

ARRANGEMENTS FOR THE OPERATION OF THE HEALTH AND SAFETY POLICY

Health and Safety Training

SLR is committed to providing all employees with adequate training in order to ensure that they work in a safe manner and can identify potential Health and Safety risks to themselves, and their fellow employees. To this end, all employees will be inducted during which the

respective Office Safety Representative will, in consultation with the employee, determine their training needs in respect of Health and Safety.

Records of any training courses, or information supplied, will be kept for each employee. It will be the Office Safety Representative's or Project Manager's responsibility to ensure that employees are trained in respect of the tasks which they are expected to carry out.

All employees who undertake fieldwork will be issued with the Field Health and Safety Handbook which provides advice and guidance on key issues and hazards associated with carrying out fieldwork.

Health and Safety Records

The Company will maintain accurate, and comprehensive, records at a central location relating to the following areas:

- Health monitoring of employees
- Health and Safety training records for employees
- COSHH assessments
- Details of reportable accidents or diseases
- Minutes of Health and Safety Committee meetings
- Records of Health and Safety Risk Assessments

The Control of Substances Hazardous to Health Regulations 2002

The Company is committed to complying with the requirements of the COSHH Regulations and will:

- Identify any substances used which may be defined as "a substance hazardous to health" within the COSHH regulations
- Determine the hazard associated with the substance
- Assess the risk associated with the use of the substance
- Maintain a register of all hazardous substances which are used
- Ensure that relevant employees are made aware of the risk associated with the substance.

The Company will ensure that exposure of its employees to substances hazardous to health is either prevented or adequately controlled.

Personal Protective Equipment

The Company will provide employees with all necessary personal protective equipment (PPE) and clothing to allow them to undertake their assigned tasks whilst maintaining healthy and safe working conditions. PPE will be issued to employees dependant upon the nature of their tasks, and records of PPE issued will be maintained centrally. It will be the responsibility of Office Safety Representatives and Project Managers, to ensure that all employees have the necessary PPE to carry out the tasks assigned to them.

It will be the responsibility of employees to ensure that their PPE is maintained and to bring any defects or loss to the attention of their Office Safety Representative, or Project Manager. Employees will acknowledge in writing the receipt of PPE and will be expected to use PPE in accordance with instructions.

Accident/Incident Reporting

The accident reporting procedure will be followed in all situations where an accident occurs or where there is a dangerous occurrence as defined by the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995. It is the responsibility of the Office Safety Representative to ensure that the appropriate forms are completed and forwarded to the relevant authorities. The Health and Safety Manager and Managing Director will be notified of all incidents requiring the completion of such documentation.

Following an accident or an incident requiring such documentation to be completed, the Office Safety Representative, Project Manager or Health and Safety Manager will produce a report for the Managing Director and other members of the Health and Safety Committee. Records relating to the incident or accident will be held centrally.

First Aid

The Company will provide First Aid kits at each office location and nominate a member of staff at each location to be responsible for maintaining the First Aid kit as appropriate. This member of staff will be trained in First Aid techniques where necessary. All members of staff engaged in site activities will be issued with a portable First Aid kit to be kept in the employee's vehicle. It will be the employee's responsibility to ensure that these kits are kept maintained and accessible.

Fire Equipment

SLR will ensure that fire extinguishers are maintained at its office locations. Office Representatives and/or Project Managers will be responsible for assessing whether fire fighting equipment should be provided for specific project work and for then ensuring that such equipment is made available. SLR operates a "no-smoking" policy in its offices and on clients' sites.

Welfare Facilities

SLR will provide, or arrange for, adequate welfare facilities (including washrooms, lavatories and eating areas) in its offices, and for site staff, ensuring that such facilities are maintained in a clean and hygienic condition.

Electrical Safety

SLR will not allow unauthorised personnel, or contractors, to carry out electrical work on office or site machinery and appliances. Office Safety Representatives will be responsible for ensuring that office equipment is inspected regularly for damage or faults.

Noise

SLR will determine whether it is necessary to carry out noise assessments on behalf of site staff working with, or close to, a source of noise likely to exceed the First Action Level as specified by the Noise at Work Regulations 1988, and will produce or obtain such assessments from clients or sub-contractors. Staff will be provided with appropriate hearing protection which they will be expected to utilise. Should noise levels exceed the Second Action Level the wearing of hearing protection will be compulsory.

VDU's

SLR will provide periodic eye-tests to habitual users of VDU's and will analyse workstations to assess and minimise risks of eye-strain or other injuries arising from VDU usage.

Asbestos

Company employees may be required to work in environments where asbestos materials and/or asbestos waste may be present. Where it is suspected that asbestos may be present, SLR will request assessments, under the Control of Asbestos at Work Regulations 2002, from its clients and will then advise employees, and contractors, accordingly. The Company will ensure that employees and contractors, observe the 'Guidelines for the Safe Investigation by Drilling of Landfills and Contaminated Land' where appropriate.

Other Hazardous Substances

SLR will request, from its clients, identification of and assessments relating to hazardous substances which are, or could be, present at sites where work is to be undertaken. Thereafter, safe working practices will be instigated, and appropriate training provided to staff to minimise any risks associated with such substances, in accordance with the Control of Substances Hazardous to Health Regulations 2002.

ASSOCIATED DOCUMENTS

Risk Assessments

Risk Assessments carried out under the Management of Health and Safety at Work Regulations 1999 will be treated as part of this policy.

Health and Safety Plans

Various site activities or projects carried out by SLR i.e. those falling under the CDM Regulations, will warrant the preparation of a specific Health and Safety Plan. These Plans will be treated as additional to this Health and Safety Policy.

POLICY REVIEW

This policy is effective from March 2005 and is subject to review annually or should there be a significant change to the operation of the company or the legislative requirements.

The policy is authorised by:

N PenhallManaging Director

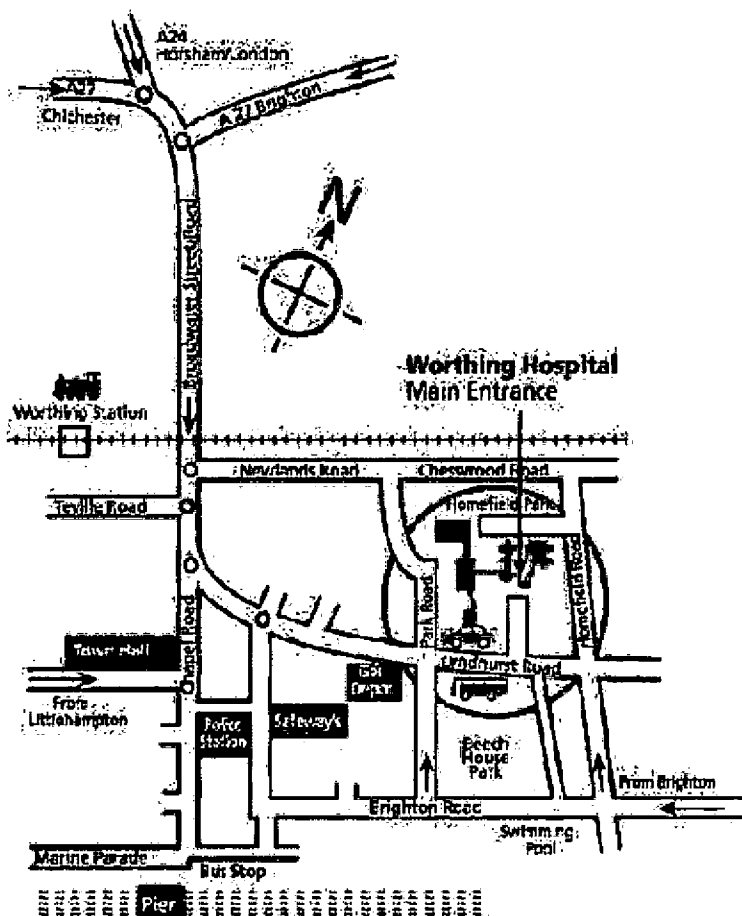
Appendix B

Nearest Accident and Emergency

Worthing Hospital

Lyndhurst Road,
Worthing,
West Sussex,
BN11 2DH

Tel: 01903 205111
Fax: 01903 285114



Appendix A

System Description and Method Statement

METHOD STATEMENT - PSH REMOVAL

Contract	Former Texaco Service Station, Angmering	Date: 04/03/08
Prepared By:	D Collins	Authorised By: L Wilkinson
Method Statement to be issued by: SLR Consulting Limited		
1. SCOPE OF WORKS Construction of 3 no. PSH recovery trenches to a maximum depth of 6.0m bgl. To go to site with remediation equipment to pump PSH from 3 no. PSH recovery trenches on the site, separate the PSH from water and treat the separated water via a carbon vessel before discharging it to the site drainage upstream of the separator. Accumulated fuel is to be retained on site for later disposal, max storage 205 litres. This would be repeated on a weekly basis for five weeks and over one day. No operations would take place overnight or the system run unattended.		
2. SYSTEMS BRIEFING SLR will ensure that all staff and contractors are briefed on any work permit and clearance certificate requirements and the SLR Method Statements on a regular/adequate basis.		
3. WORKPLACE SAFETY/PPE Outline Specification for Underground Service Detection The client will provide SLR with service plans before the commencement of any works. Each exploratory location must be confirmed to be clear of underground services prior to excavation works. Their approach should include the following. <ul style="list-style-type: none">• All available site service drawings will be assessed and safe investigation locations selected.• A specialist service trace will be undertaken prior to the drilling works and existing plans updated.• Liaison with SLR site staff will be undertaken at the start of the works to establish the presence and location of any buried services.• A Cable Avoidance Tool (CAT) scanner used at each location. An AutoCAD drawing is produced of the survey. The drawing includes a scale bar and contents, and a "notes" section identifying any limitations of the survey (for example, assumed routes).		

METHOD STATEMENT - PSH REMOVAL

Trench Excavation

Trial pits will be machine excavated by a JCB type excavator controlled by a trained operative. Excavation will be supervised by an SLR engineer at all times.

- All excavation working areas to be suitably cordoned off with appropriate signage and barriers, if required.
- All excavations will be preceded by a CAT scan.
- In situ tests may be carried out in pits excavated to a maximum hip-height depth, unless the pit is considered to be unstable. No person shall enter trial pits until the site engineer has made an assessment of the risks of collapse or the potential for collection of gases or vapours.
- No entry to excavations deeper than 1.2m will be permitted.
- No excavation will be left open unattended.

4. DOCUMENTATION

SLR Reports and Service plans, together with this document.

5. OPERATIVES

- Operatives shall be competent in the use of their designated plant and equipment.
- Plant will be supplied by the Contractor.
- The operating instructions of any plant will be obtained, read and complied with.
- No subcontractors for this portion of work will be used.

6. LABOUR & PLANT

- | | |
|---|---|
| <ul style="list-style-type: none">• Contractor (TBC) Personnel• Contractor Supplied mechanical excavator and trench boxes• 1 - 2 No. SLR Personnel• Van & 10ft x 5ft Remediation Box van trailer• Remediation Kit comprising<ul style="list-style-type: none">• A petrol driven air compressor• A galvanized steel separator• 3 No. Air driven diaphragm pumps• Carbon vessel• Gas monitoring equipment | <ul style="list-style-type: none">• Ancillary equipment comprising<ul style="list-style-type: none">• Hoses• Safety signs• Spill kit• Foam fire extinguisher• Safety Torch• Small Tools• Mobile Speed Ramps |
|---|---|

METHOD STATEMENT - PSH REMOVAL

- Plant requirements will be continually reviewed as work progresses

7. SUPERVISION

A fully trained experienced environmental engineer/geologist will be present on-site throughout the installation of PSH recovery trenches. This individual will abide to procedures given in British Standard 5930, and will supervise all site works. In addition to the logging of the boreholes, daily progress sheets will be produced. The information covered by these sheets will be the following:

1. Excavation Reference Number.
2. Depth of borehole at the end of each working day.
3. Plant in use.
4. Diameters and depths of all casings used.
5. Depths to each change of stratum.
6. Records of groundwater.
7. Brief descriptions of each stratum.
8. Brief descriptions of any visible or olfactory indications of contamination
9. The depths at which samples were taken or the limits between which bulk samples were obtained.
10. Any addition of water to the boring
11. Details of time spent on overcoming obstructions
12. Details of services or drains located
13. Details of standpipe installation
14. Details of standing time
15. Details of stability of the hole
16. Details of backfiring and grouting

Colour photographs will be taken of all representative materials and contamination. All photographs will be labelled with location, date and borehole number.

Dan Collins will be the Project Manager for the subsequent removal of PSH work and Phil Lane will carry out the work on site by himself or the help of one other.

METHOD STATEMENT – PSH REMOVAL

8. METHODOLOGY

PSH recovery trenches will be constructed as detailed elsewhere in this document.

The PSH recovery works will start with an induction on the work to take place that day including the method statements and any necessary work permit/ clearance certificate requirements.

The remediation equipment will be located within a 10ft x 5ft box van trailer with a door to the front and ramp doors to the rear. Both sets of doors will open during works causing a through draft and the trailer will be classified as a zone 2, i.e. where a flammable atmosphere is not likely to occur in normal operation and if it does will only exist for a short period. An additional exclusion zone of 1m will be setup around the trailer identified by cones and tape.

Vapour monitoring will be undertaken in the trenches to be pumped and vicinity of the works and trailer and the results logged prior to starting work on each day and at key points such as when removing the covers from the wells when using a hammer or at any time when an operation likely to be a hazard is taking place in the vicinity of the work.

The wells identified as having PSH would be identified and hoses laid out to the wells. A prefabricated rubber speed ramp will be installed to protect the hoses across the forecourt if required.

The remediation system utilises air driven diaphragm pumps that will be located within the box van trailer and will suck from the wells to the separator. The pumps will be driven by a petrol engined air compressor. The petrol engined compressor will only be operated with both trailer doors open to prevent the build up of exhaust fumes and provide a through draft for the release of any fuel vapours. The zone for the compressor and engine would be a zone 2 where a flammable atmosphere is not likely to occur in normal operation and if it occurs will exist only for a short period.

No other electrical equipment, naked flames or equipment likely to spark will be located within the trailer or the zone around the trailer. A safety torch will be provided specifically for use in the trailer if required. The trailer has an opaque roof that allows a lot of natural light through.

The separator is fitted with a weir system to retain PSH and a final chamber from which water without PSH will be pumped. The water in the final chamber will be pumped through an activated carbon vessel located within the trailer to remove any dissolved phase hydrocarbon, the discharged water will be led to the drainage system. The system will be continually monitored and adapted and the final pump in the third chamber of the separator will always operate at faster pace than the incoming pump.

Once the system has been operation and fuel has accumulated in the separator, the

METHOD/STATEMENT - PSH REMOVAL

pumping system will be adapted using the existing pumps to skim the fuel off the top of the water into a 25litre drum located within the trailer. If required the 25 litre drum will be used to transfer the fuel to a larger 205 litre fuel drum. The fuel drum will be secured and clearly labelled with the contents. The skimming process will also remove water such that the PSH will still be a fuel/ PSH mixture. A spill kit including pads and granules will be available in the trailer for use in the event of a spillage. Once the PSH is removed the remaining water in the separator will be pumped through the carbon vessel.

The final storage drum will be a secure drum appropriate for the type of PSH, a petrol specific drum for principally petrol PSH and standard containers for diesel contamination. The final fuel storage will depend on the amount of fuel recovered and the degree of contamination. It is proposed that either 25litre containers or a single 205 litre drum is used.

The final storage of the PSH will be under cover within a portable storage bund brought to site. The site does not have any external storage suitable for the PSH. The storage will be in 25 litre containers or a single drum in the covered storage container that has an integral drip tray. This would be constructed of either heavy duty polyethylene or galvanized steel.

The contents of the drums will be periodically lifted and the drum replaced as required by a licensed disposal contractor, this will depend on the quantity of PSH recovered at the specific site. Once one drum is full or there is approx 200 litres of storage no further operations would take place on the site until the drum/containers have been removed/replaced.

The pumping of the site will take place over one day and then removed from site at the end of the day. No equipment will be left running/operational overnight or unattended.

Appendix D
Risk Assessment

Definitions and Methodology

- HAZARD - Something with the potential to cause harm
- SEVERITY CATEGORY - Degree of harm which may be caused
- PROBABILITY LEVEL - Likelihood that an event will occur
- CURRENT RISK RATING - The severity of the risk after current controls have been taken into account. The following equation is used to establish the risk rating:

$$\text{RISK RATING} = \text{SEVERITY} \times \text{PROBABILITY}$$

- RESIDUAL RISK RATING - The severity of the remaining risk once mitigating measures have been put into place

Severity Categories

The risk severity can be assessed on a scale of 1 to 5 as follows:

1. Nil No risk of injury or disease
2. Low Causing a minor injury which would allow the person to continue work after first aid treatment on site or at a local surgery. The duration of the stoppage or treatment would be such that the normal flow of work is not seriously interrupted.
3. Medium Causing injury or disease capable of keeping a person off work more than 3 days and more and reportable under RIDDOR.
4. Major Causing a major injury reportable under RIDDOR.
5. High Causing death to one or more people.

Probability Levels

The probability of an accident occurring is assessed as follows:

5. Likely If the work continues as it is, there is almost a 100% certainty that an accident will happen eventually (e.g. broken rung on a ladder, bare exposed electrical conductor, defective brakes on a vehicle).
4. Probable The effects of humans or other factors could cause an accident but one is unlikely without this additional factor (e.g. ladder not secured properly, oil spilled on floor).
3. Possible The accident may happen if additional factors precipitate it, but unlikely to happen without them (e.g. leaving a vehicle with the engine running, obstructing fire exits).
2. Remote If other factors were present, the incident or illness might occur but the probability is low and the risk minimal.

1. **Improbable** There is no known hazard risk present. Only under **freak** conditions could there be any probability of an accident or illness. All reasonable precautions have been taken as far as is reasonably practicable. This should be the normal state of the workplace.

Classification of Risk

The current Risk Rating can be determined as the PSH of the severity category and the probability category. It can then be classified as follows:

Risk Rating	1 - 10	Low
Risk Rating	11 - 15	Medium
Risk Rating	16 - 25	High

Those tasks with a Medium or High risk rating should then be re-examined using the assessment sheets to determine what additional action is reasonably practicable to mitigate the risk rating

Bloor Homes

Former Texaco Service Station, Angmering - Health & Safety Plan

SLR ref.: 404.1068.00003

February 2008

ASSESSMENT SHEETS: 2		PROJECT: Former Texaco Filling Station, Angmering		PROJECT NO.: 404.1068.00003		CARRIED OUT BY: Toby Hills DATE: 6 th February 2008	
Task/ Activity	Personnel at Risk	Hazard Identification	Current Controls	Severity	Probability	Current Risk Rating	Risk Rating
1 Trench Excavations	ALL	Explosion caused by flammable atmosphere	<ul style="list-style-type: none"> Follow procedures set out in the Health & Safety Plan and appropriate Codes of Practice, etc. Locate services (electricity, gas water etc.) and any storage tanks (including disused tanks) below and above ground. Measure ambient vapours. Personnel trained in use of all equipment. If necessary, spark arrestors should be fitted to equipment. No smoking on site. 	5	2	10	Low
	ALL	Damage to underground services	<ul style="list-style-type: none"> Liaise with site owners/utility companies for information. Avoid risk areas, no works within limits set by authorities and Health & Safety statement. Follow statutory authorities guidelines if services encountered/or damaged. Services are understood to have been disconnected 	5	2	10	Low
	ALL	Soil/water arisings from trial pitting- risk of slipping, splashing, contamination	<ul style="list-style-type: none"> Clean work area to remove mud etc. quick and efficient clean up of spills/leaks. Dispose of waste in suitable way (see disposal of waste). Wear standard PPE including gloves, overalls, goggles etc. if necessary. Immediately rinse off any splashing esp. on face/hands. Minimise exposure to existing excavated or surface contamination. No eating, drinking, smoking in vicinity of work. Avoid excavation within zone of the former isotope Storage Pit as marked on Drawing 1. 	3	2	6	Low
	ALL	Instability of plant and ground when working near deep excavations	<ul style="list-style-type: none"> Personnel trained in the use of all equipment. Plant suitably supported during works. Regular visual inspection of excavation for signs of instability. 	5	2	10	Low

SLR

ASSESSMENT SHEETS: 2		PROJECT: Former Texaco Filling Station, Angmering		PROJECT NO.: 404.1068.00003		CARRIED OUT BY: Toby Hills DATE: 6 th February 2008		
Task/ Activity	Personnel at Risk	Hazard Identification	Current Controls	Severity	Probability	Current Risk Rating	Risk Rating	
2 All associated works on site	ALL	Movement of vehicles around site	<ul style="list-style-type: none"> All personnel to wear high visibility clothing at all times. Lighting to be used at night time (unlikely to be needed). Excavations to be securely covered within cordoned off area, if left unattended (e.g. overnight). Not permitted under normal circumstances. 	4	1	4	Low	
	ALL	Movement of site vehicles	<ul style="list-style-type: none"> All personnel to wear high visibility clothing. 	3	2	6	Low	
	ALL	Manhandling and use of equipment and materials	<ul style="list-style-type: none"> H&S guidelines on lifting to be followed Personnel to be fully trained in use of equipment and machinery. Machinery to be maintained and serviced as appropriate. Suitable tools for lifting manholes (manhole keys etc.). PPE i.e. overalls, gloves, safety boots etc. to be worn. COSHH guidelines to be followed. Working area to be suitably cordoned off using barriers/signage. 	4	3	12	Medium	
	ALL	Entry into confined spaces	<ul style="list-style-type: none"> No entry into confined space, which has contained flammable or toxic substances, is to be undertaken. 	5	1	5	Low	
	ALL	Tripping hazards	<ul style="list-style-type: none"> Restrict tools, equipment etc. to working areas. All cables, air hoses etc. to be laid flat 	3	3	9	Low	
3 Disposal of Waste	ALL	Contamination	<ul style="list-style-type: none"> PPE inc. overalls, gloves, safety boots etc. to be worn. All site personnel to be made aware of risks associated with soil/water contamination and landfill gas Avoid excavation within zone of the former Isotope Storage Pit as marked on Drawing 1. 	3	4	12	Medium	
	ALL	Risk of illness, disease if contact with contaminated soil/water arisings	<ul style="list-style-type: none"> All site personnel to be made aware of risks associated with soil/water contamination. Suitable PPE, gloves, overall, etc. to be worn by all site personnel. Adhere to duty of care requirements - all waste to remain at the site. 	3	2	6	Low	

APPENDIX VII:
Results of Free Product Removal Exercise

MICHAEL SMITH

From: "MICHAEL SMITH" [REDACTED]
To: "Simon Deacon" [REDACTED]
Cc: "Matthew Kennet" [REDACTED]; "Adam Osborne" <[REDACTED]>; "Paul Berrill" <[REDACTED]>; "Luke Wilkinson (SLR)" <[REDACTED]>
Sent: 29 April 2008 14:56
Subject: Former Texaco site, Station Road, Angmering

Simon,

Three rounds of monitoring and pumping of the three "free product" sumps have now been completed. No free product has been found in any of the wells. A total of about 10,000 litres of groundwater have been withdrawn. Groundwater samples will be taken from the sumps for chemical analysis this week.

The monitoring of the sumps will continue for at least a further two weeks as agreed and then until the start of piling. The sumps will be inspected again on completion of the piling when a further round of sampling from all the wells is due.

The developer (Bloor Homes) is naturally eager to start piling ASAP. I assume it will take a little while to mobilise the necessary plant so it would be helpful to be able to fix a firm date to commence work as soon as practicable.

Is it acceptable to the Agency for the work to begin once we have five weeks observations on the sumps?

Is there any other information that you require?

If you have any queries concerning what has been done in practice it would be best for you to talk to Dan Collins of SLR direct.

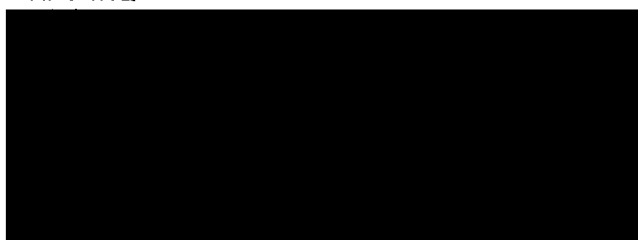
I shall be on holiday from 5 to 9 May inclusive.

Regards,

Mike Smith

+++++

M A Smith Environmental Consultancy
10A Moorland Road
Hemel Hempstead
Herts.
HP1 1NQ



18/06/2008

APPENDIX VIII:

**Arun DC letter dated 2 April 2008
(refers to Condition 6)**



Mr. Smith,
10A Moorland Road,
HEMEL HEMSTEAD,
Hertfordshire.
HP1 1NQ

Your Ref:

Our Ref: A/85/06/02APR01SL/JH

Arun District Council
Arun Civic Centre
Maltravers Road
Littlehampton
West Sussex, BN17 5LF
Tel: (01903) 737500
Fax: (01903) 716019
DX: 57406 Littlehampton
Minicom: (01903) 732765
e-mail: planning@arun.gov.uk



2nd April 2008

Please ask for:
Mrs. S. Leeson
Planning Department
Direct Line: (01903) 737529

Dear Mr. Smith,

Residential Development - Texaco Petrol Station, Station Road, Angmering.

Thank you for your proposed Mediation Scheme (MAS-BH-192-1). I have consulted both the Environment Agency and the Council's Environmental Health Section and the report is satisfactory. Therefore, this discharges Condition 6 (d) of the above approval. This in fact completely discharges Condition 6.

Yours sincerely,

Susan Leeson
Principal Planner

Ian Sumnall Chief Executive, Strategy Director • **Colin Rogers** Services Director • **Nigel Croad** Resources Director

www.arun.gov.uk



- Environmental Health
- Littlehampton and Bognor Regis Customer Services Help Points

APPENDIX IX:
Environment Agency
Letter 10 June 2008

Mr Mike Smith
M A Smith Environmental Consultancy
10 (A) Moorland Road
Hemel Hempstead
Hertfordshire
HP1 1NQ

Our ref: HA/2008/103906/01-L01
Your ref: A/5/07 (A/85/06)
Date: 10 June 2008

Dear Mr Smith

RESIDENTIAL DEVELOPMENT OF 21 FLATS (RE-SUBMISSION FOLLOWING APPLICATION A/85/06) TEXACO PETROL SATION, STATION ROAD, ANGMERING, WEST SUSSEX

Thank you for your consultation on the Piling Risk Assessment undertaken by SLR for the above proposal which we received on 22nd May 2008. Please quote our reference number on any further correspondence.

We have reviewed the document and we have the following comments to make:

The proposed piling method using CFA (Continuous Flight Auger) is the most appropriate method for piling on land that is contaminated as the "non displacement" method reduces the risk of contamination that is present from displacing, migrating and creating preferential pathways across the site laterally and vertically in the aquifer.

The Qualitative Risk Assessment is acceptable and the recommendations made in Section 5 of the report, "Quality Assurance" must be carried out.

In addition to the above, we strongly recommend that the groundwater sumps are regularly monitored over the period of piling works. Our concern as previously stated is that there is the potential of hydrocarbon mobilising more rapidly into the sumps over the period of piling works. If applicable the sumps should be pumped if "free phase" hydrocarbons are identified within them.

An analysis and trend of the water quality over the period before, during and after the piling works is also required. The results should be technically assessed and forwarded for review in due course.

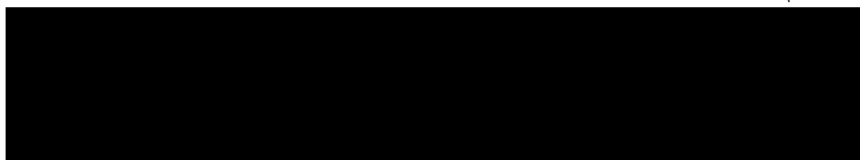
Environment Agency
Guildbourne House Chatsworth Road, Worthing, West Sussex, BN11 1LD.
Customer services line: 08708 506 506
Email: enquiries@environment-agency.gov.uk
www.environment-agency.gov.uk

Cont/d..

I trust that the above comments are useful. If you require any further information please do not hesitate to contact me in the first instance.

Yours sincerely

Hannah White
Senior Sustainable Development Planner



cc. Matthew Kennett, Arun DC; Susan Leeson, Arun DC.

End

2

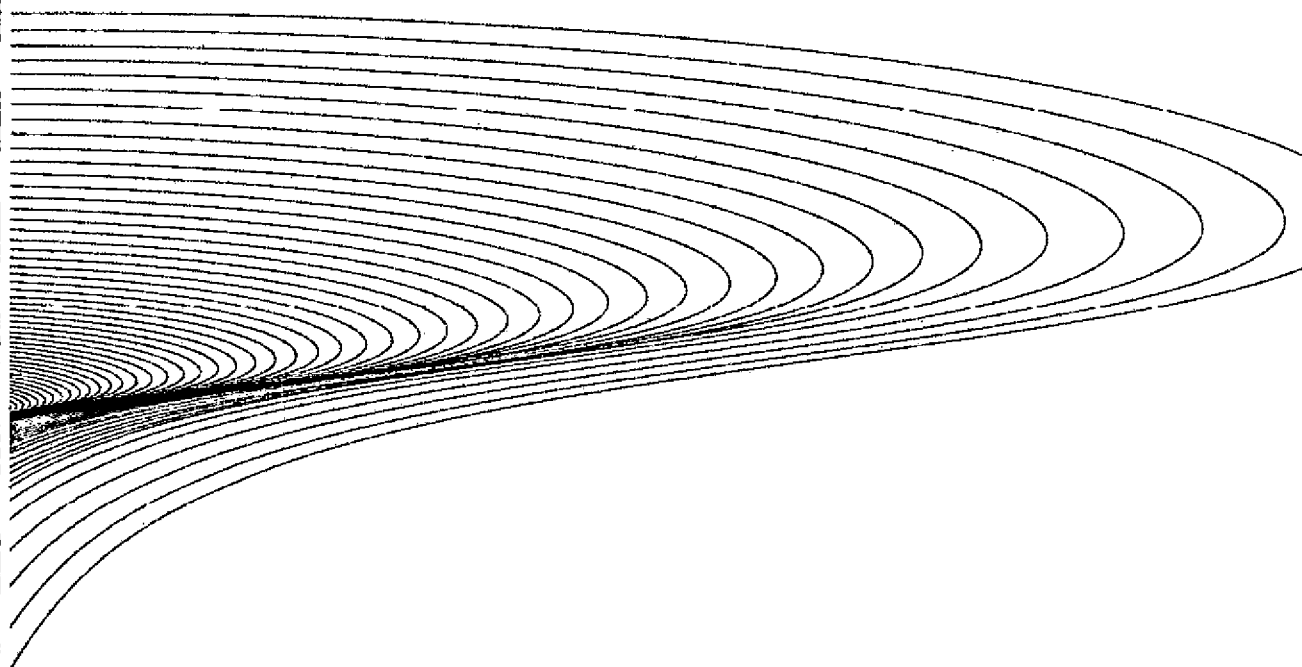
APPENDIX X:

Borehole Logs – June 2008

The logs for the boreholes drilled in June 2008 were not available
on 10 March 2009.

APPENDIX XI:

**Product Recovery Sump and Soakaway Decommissioning
Specification**



**Former Texaco Service Station,
Station Road, Angmering**

**Product Recovery Sump and Soakaway
Decommissioning Specification
Incorporating Health and Safety Plan.**

SLR ref.: 404.1068.00003

For Bloor Homes

May 2008



solutions for today's environment

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Drawing 2	Sump Location Plan
Drawing 3	Proposed Product Recovery trench Design

APPENDICES

Appendix A	SLR Health and Safety Policy Statement
Appendix B	Direction to nearest Accident and Emergency
Appendix C	Method Statements
Appendix D	Risk Assessment

1.0 SITE BACKGROUND AND KEY RESPONSIBILITIES

1.1 Introduction

This document comprises a specification and Health and Safety Plan for the decommissioning of two redundant product recovery sumps, interceptor and a disused soakaway located at the Former Texaco Service Station, Station Road, Angmering, West Sussex.

1.2 Client

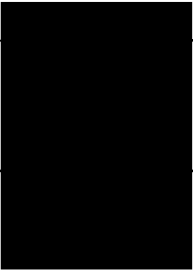
The client for the project is: Bloor Homes

Contact: Ashby Road
Measham
Swadlincote
Derbyshire
DE12 7JP

1.3 Specialist Contractor

The site works will be organised and carried out under the supervision of:

SLR Consulting Limited
19 Hollingworth Court,
Turkey Mill,
Ashford Road,
Maidstone,
ME14 5PP

Position	Name	Contact	Responsibilities
Project Manager	D. Collins		Overall management of the project
Project Co-ordinator	T. Hills		Overall running of the project including liaison with the Client regarding timing of the work programme, cost and contract.
Site Engineer	H. Gabriel		On site supervision of the works, environmental sampling and liaison with client's representative.

1.4 Sub-contractors

The sub-contractor will be MLD Limited, who are the groundworks contractor already on site and will be responsible for the provision of all plant, equipment and materials.

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1.5 The site

The site is immediately south east of a roundabout between New Road (A259) and Station Road, Angmering. The site is currently a small fenced construction site with limited vehicle movements. Large stockpiles of crushed concrete are present on site and a piling mat is in place ready for the commencement of piling. During the course of the works it is anticipated that a 360 excavator and lorry tanker will be the only mobile vehicles on the site.

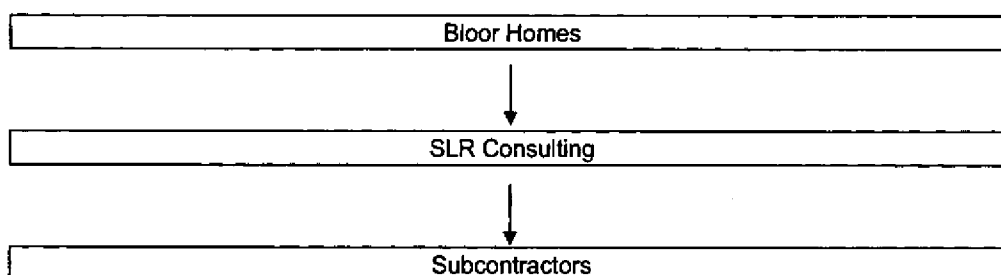
1.6 Timescale for Works

Commencement of the works is to be confirmed. It is anticipated that the decommissioning works should be complete within a single working day.

1.7 General Health and Safety

1.7.1 Health and safety Responsibilities

Responsibilities for Health and Safety are as outlined in the diagram below:



SLR Director responsible for Health and Safety: Alan Sheppard [REDACTED]

SLR Local Health and Safety manager: Nigel Cronin [REDACTED]

Each SLR office has a Health and Safety office representative. All personnel involved in working on this project will be instructed with regard to the appropriate safety procedures and will have received internal safety training.

SLR will maintain and implement all required Health and Safety requirements. A Health and Safety Policy Statement is contained in Appendix A.

SLR will inspect all works and provide a record of personnel, equipment and site progress on a daily basis.

SLR will provide flammable gas/vapour surveillance equipment on a permanent basis in conjunction with experienced personnel to monitor all activities.

All subcontractors will provide safety equipment and training for their field staff.

The SLR site supervisor will carry a first Aid Kit with them at all times whilst on site. The nearest hospitals to each site with accident and emergency facilities are presented in Appendix B.

SLR

1.7.2 Risk Assessment

A risk assessment will be produced for each site and the work being carried out on this site, identifying risks posed and any hazards that may arise during investigation works. In the event that additional hazards are identified during the works, the work will immediately cease and a review of investigation methodology and health and safety precautions will be undertaken.

A preliminary method statement with health and safety risk assessment is presented as Appendix C. This will be updated on site as required based on any additional hazards identified as the works progress.

1.7.3 Site Safety Requirements

The site will be given as much notice as possible prior to the commencement of works.

The supervising SLR engineer will complete clearance certificates and permits to dig prior to commencing any works on site as necessary.

The supervising SLR engineer will carry out a site induction to all subcontractors prior to commencing any works on site.

All SLR site staff shall make themselves aware of the emergency procedures of the Client and will comply with these procedures. SLR site staff will make themselves aware of the location of the fire fighting equipment and the fire procedures of the Client will be adopted.

The requirements of the Client with regard to safe working practices on the site shall be adopted.

The SLR site staff will make themselves aware of the procedures of the Client for reporting incidents and will comply with these procedures. In addition, reporting of the incidents will be in accordance with Company standard procedures and the RIDDOR Regulations.

SLR

2.0 SUMP AND SOAKAWAY DECOMMISSIONING

2.1 Background

Following demolition of the petrol filling station the two product recovery sumps, interceptor and soakaway are all now redundant and require decommissioning in a suitable manner such that they do not maintain an on-going pathway for any surface contaminants to groundwater. All of these redundant vessels contain water which will need removing prior to final decommissioning.

2.2 Water Removal

It is proposed to use a specialist waste contractor with a lorry mounted vacuum tanker to pump water from the product recovery sumps, all three chambers of the interceptor and the redundant soakaway. Once removed, the liquid will be disposed of in compliance with Duty of Care requirements at an appropriately licenced facility.

2.3 Product Recovery Sumps

Once the liquid has been removed the two 450mm diameter sumps should be backfilled with C30 grade concrete to 1.0m above static ground water level with the remainder of the hole backfilled with either the same grade of concrete or suitable imported/site won 'clean' material. Based on current site data the sumps should be backfilled with concrete to a minimum depth of 2.5m below ground level.

2.4 Interceptor

Once all three chambers are pumped dry the interceptor should be grubbed out using the mechanical excavator and disposed of off-site. Once the chambers have been removed any obviously hydrocarbon contaminated soils should also be removed and either loaded directly onto lorries or temporarily stockpiled for later disposal. It is anticipated that the contractor will arrange for the removal and disposal of any contaminated material.

The resulting excavation should be backfilled with suitable imported or site won 'clean' material in discrete compacted layers (250mm compacted to 200mm).

2.5 Soakaway

Upon completion of the draining of the soakaway and removal of any silt within the base of the chamber the empty chamber should be backfilled with C30 grade concrete to 1.0m above the static ground water level with the remainder of the chamber backfilled with the same grade of concrete or suitable imported/site won 'clean' material.

Based on current site data the sumps should be backfilled with concrete to a minimum depth of 2.5m below ground level.

3.0 HEALTH AND SAFETY

3.1 Existing Services

It is understood that the site is redundant and all services have been disconnected.

3.2 Existing Traffic Systems

All vehicles, equipment, tools and materials will be kept clear of public highways and any access routes.

3.3 Site Access and Egress Points

Access to the site is via Station Road to the west of the site. Vehicle access must be maintained at all times except where access is blocked by works.

3.4 Working Hours

All site work will generally be carried out between the hours of 08.00 and 17.30, Monday to Friday, but work will be restricted to daylight hours to ensure safe working practices are adopted.

3.5 Site Rules

The site rules will be defined by SLR in conjunction with the client. The contractors are required to adhere to these rules and emergency procedures. Any additional site rules specifically for the safe operation of plant and machinery defined by the contractor must be made known and followed by everyone at, or visiting the site, including sub-contractors, suppliers and the public.

The principal contractor is also required to comply with SLR's "Health and Safety Policy", a copy of which is included as Appendix C. All visitors will be recorded within a register held on site.

All accidents and 'near misses' will be notified to SLR's health and safety manager to be dealt with appropriately.

3.6 Contamination Issues

Potential contaminants are likely to be associated with the subsurface ground conditions. All sites will be classified as amber (under the BDA classification scheme), however, the following procedures will be adopted to minimise the risks to health of site operatives.

3.7 Risk Assessment

The significant hazards which have so far been identified, which cannot be avoided, and which will be a risk to the health and safety of construction workers, visitors to the site and members of the public are listed below. This list excludes commonplace hazards which should be controlled by good site management and safe working practices.

- Excavation works in proximity to potentially contaminated materials.
- Excavation in close proximity to the general public.
- Excavation in close proximity to services assumed to live.

SLR

The means by which these and more commonplace hazards will be addressed are set out in the attached Risk Assessments and work procedures (Appendix D).

3.8 PPE/RPE

Health and safety equipment, to include the following is to be provided by SLR for its staff. Contractors will provide PPE for his staff:

- Hard hat.
- Steel toe/mid sole boots.
- High Visibility Jackets/Vests.
- Disposable coveralls (to be used as required/directed by the SLR Engineer).
- Rubber or chemical resistant gloves.
- Waterproof coats/trousers.
- Dust masks (half face variety) to be used as required/directed by the SLR Engineer.

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4.0 CONTINUING LIAISON

4.1 Updating This Plan

This plan has been prepared on the basis of current information and addresses hazards / risk assessments / control measures within the work operations to allow the contract to commence. Hazards/risk assessments/control measures for new or modified operations must be addressed as the work proceeds.

4.2 Unforeseen Eventualities

In the event of any unforeseen eventualities arising during the project resulting in significant design changes or affecting the resources required, SLR shall:

- Report the matter to the client as soon as possible.
- Advise the client of the Health and Safety issues arising from the eventuality as soon as possible.
- Update the Health and Safety plan before commencement of any further works according to the revised design.

SLR is responsible for providing any sub-contractor with such information.

The subcontractors must inform the SLR Site Engineer of any specific hazards which may arise from their proposed methods of working.

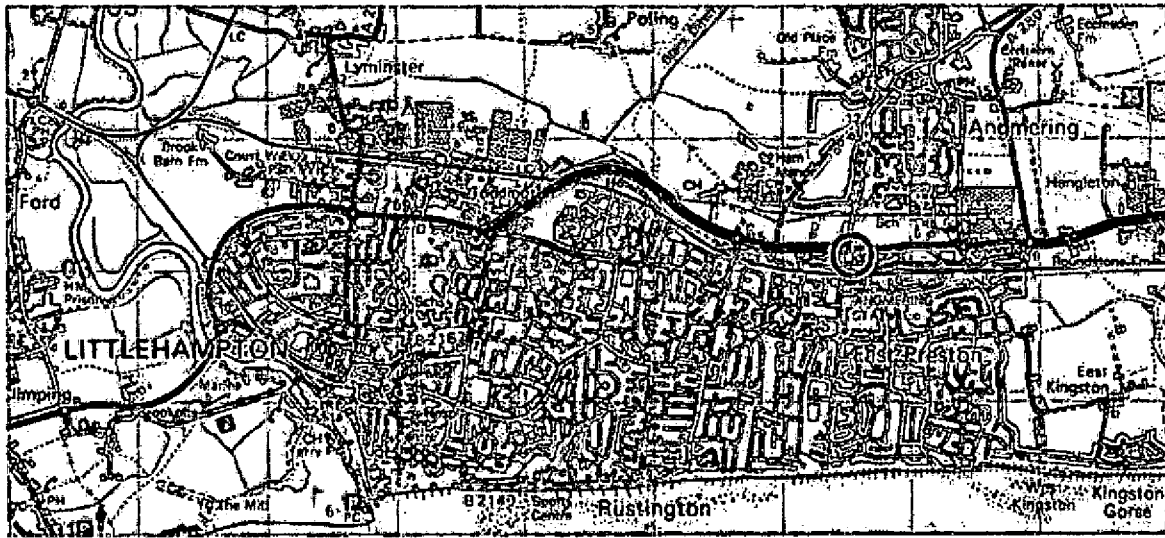
All staff involved in the investigation works shall be responsible for ensuring that all works comply with SLR's Safety Policy, together with the relevant health and safety guidelines:

- Health and Safety at Work etc act 1974
- Guidance note GS5 from the HSE: Entry into confined spaces
- Guidance note GS6 from the HSE: working around overhead electricity cables
- Guidance note EH 40/88 from the HSE: Occupational Exposure Limits 1989
- HSE: Management of Health and Safety at Work Regulations 1999
- HSE: Personal Protective Equipment at Work Regulations 1992
- HSE: Workplace (Health, Safety and Welfare) Regulations 1992
- HSE: Manual Handling Operations Regulations 1992
- HSE: Provision and Use of Work Equipment Regulations 1998

SLR

Drawings

SLR



KEY



Site Boundary



Site: STATION ROAD, ANGMERING

Project: FORMER TEXACO SERVICE STATION

Date: JAN 2008

Scale: NTS

Drawing: Site Location Plan

Dwg. No. 1

Appendix A

SLR Health & Safety Policy Statement

SLR

DEFINITIONS

'The Company' - SLR Consulting Limited.

'The Employees' - employees of SLR Consulting Limited.

'The Contractors' - all contractors, sub-contractors, advisers and consultants.

STATEMENT OF POLICY

Corporate responsibility: Overall control of the operation of SLR Consulting Limited (SLR) is vested in the Directors. Responsibility for the executive control and implementation of this Health and Safety Policy rests with the Managing Director and Health and Safety Director.

Responsibility for the workplace and working environment: The Directors recognise the importance of maintaining a safe place of work and a healthy working environment. The Company accepts its responsibilities to all its employees and others (e.g. contractors, clients and members of the public) who are affected by the Company's operations, for ensuring that safe and healthy working conditions and practices exist.

Purchasing: The Company Policy includes health and safety considerations in the purchase, maintenance and updating of equipment and supplies, with the requirements of health and safety legislation taken as the minimum requirements for the Company's own practices.

Office Safety Practices: It is the responsibility of the Office Safety Representative to ensure that all staff based within their office and contractors are made aware of the Policy and to ensure that the requirements of the Policy are carried out in their respective locations.

Site Safety Practices: It is the responsibility of Project Managers to ensure that safe working practices are in place for each type of site work and to conduct detailed, site specific risk assessments where necessary. It is also their responsibility to train, or to ensure that adequate training has been given to staff, relevant to the type of project being undertaken. Project Managers must ensure that site work is conducted by staff under their control in a manner which is safe and presents no significant risk to health.

GENERAL STATEMENT OF INTENT

The Company will ensure, so far as is reasonably practicable:

- The health, safety and welfare of all its employees while they are at work, in whatever operation or location, whether on site or in transit on authorised business, of visitors to company premises and operations, and of others who may be affected by its actions or omissions e.g. the general public, client, contractors
- The provision of safe systems of work, adequate welfare facilities and arrangements and a safe and healthy working environment with a safe means of access and egress
- The provision of equipment and vehicles, whether owned or hired, in conditions that are safe and without risks to health and to provide systems for inspections and preventative maintenance to ensure safe conditions
- That arrangements are in place for ensuring safety and absence of significant risks to health in connection with the use, handling, storage and transportation of articles and substances

SLR

- The provision of such information, instruction, training and supervision necessary to ensure the health and safety at work of employees, and information to contractors and others who may be affected by the Company's operations
- Cooperation with, and involvement of, employees in meeting health and safety objectives.

The necessary resources and input will be available to ensure compliance with the Policy, and to this end the Company will:

- Ensure compliance with the requirements of the Health and Safety at Work etc Act 1974 and associated Regulations and Approved Codes of Practice
- Provide the necessary management information and involvement, financial resources and safety engineering input, so far as it is reasonable and practical to do so, to achieve the standards laid down in this policy
- Maintain necessary up-to-date knowledge; maintain contact with relevant outside bodies, including health and safety advisory and specialist services; and keep up to date with developments in health and safety legislation, codes of practice and other technical or guidance material relating to the Company's operations
- Disseminate such information within the Company to employees, contractors and visitors, as such information affects them
- Ensure that health and safety factors are taken into account when new and revised systems of operation are planned and effected
- Provide all new employees, and those redeployed to different jobs and/or departments, with information on health and safety, welfare, fire precautions, first aid and medical matters, as appropriate to their occupation and location.

RESPONSIBILITIES

The Managing Director

The Managing Director has delegated authority for specific health and safety matters to Office Safety Representatives and/or Project Managers. They will be personally responsible for health, safety and welfare within their delegated sphere of operation as follows:

- ensuring that this policy is complied with,
- ensuring that all employees receive the correct training to allow them to work in a safe manner,
- ensuring job safety, reviewing the systems of work in their offices and/or projects,
- ensuring the use and wearing of safety protective equipment and clothing by employees, contractors and visitors, as appropriate.

Office Safety Representatives

An Office Safety Representative will be nominated at each SLR office to give employees a direct point of contact with the Health and Safety Management system. The Representative will attend Health and Safety Committee meetings and may be the Office Manager. Unless

advised otherwise, employees should assume that their Office Safety Representative is responsible for Health and Safety matters in all their areas of work, including site work. For specific major projects, the Project Manager will assume Health and Safety responsibility.

Health and Safety Manager

The company has appointed a Health and Safety Manager as a competent person to assist with health and safety matters. Standards of health, safety and welfare, and the compliance with this Policy Statement, will be monitored by the Health and Safety Manager.

Health and Safety Committee

A Health and Safety Committee has been established which will be chaired by the Health and Safety Director as the nominated representative of the Managing Director, together with the Health and Safety Manager and the Office Safety Representative, or his/her nominated representative. The Committee will meet every three months and minutes of the meetings will be displayed prominently in each SLR office location. Staff will be advised of forthcoming meetings and asked to put forward items for discussion.

All Employees

All Company employees have a responsibility to ensure that they work in a manner conducive to a healthy and safe environment. These general responsibilities extend towards their fellow employees, visitors and members of the public.

Specifically, SLR employees are expected to:

- Comply with health and safety legislation and Company health and safety rules and procedures
- Cooperate with Office Safety Representatives and Project Managers with regard to health and safety matters
- Be receptive to, and act on, health and safety training, instruction and information
- Report faults, hazards, non-injurious incidents and injuries to the Manager with specific responsibility for health and safety matters, i.e. either the Office Safety Representative or Project Manager
- Raise with their Manager, responsible for health and safety, any situation of conflict between health and safety requirements and the apparent demands of their job or task
- Wear and/or use personal protective equipment and clothing
- Not interfere with, abuse or remove anything provided, in the interests of health and safety, for them or their fellow employees
- Keep all access and egress routes and access to all fire doors and fire-fighting equipment clear at all times.

ARRANGEMENTS FOR THE OPERATION OF THE HEALTH AND SAFETY POLICY

Health and Safety Training

SLR is committed to providing all employees with adequate training in order to ensure that they work in a safe manner and can identify potential Health and Safety risks to themselves, and their fellow employees. To this end, all employees will be inducted during which the

SLR

respective Office Safety Representative will, in consultation with the employee, determine their training needs in respect of Health and Safety.

Records of any training courses, or information supplied, will be kept for each employee. It will be the Office Safety Representative's or Project Manager's responsibility to ensure that employees are trained in respect of the tasks which they are expected to carry out.

All employees who undertake fieldwork will be issued with the Field Health and Safety Handbook which provides advice and guidance on key issues and hazards associated with carrying out fieldwork.

Health and Safety Records

The Company will maintain accurate, and comprehensive, records at a central location relating to the following areas:

- Health monitoring of employees
- Health and Safety training records for employees
- COSHH assessments
- Details of reportable accidents or diseases
- Minutes of Health and Safety Committee meetings
- Records of Health and Safety Risk Assessments

The Control of Substances Hazardous to Health Regulations 2002

The Company is committed to complying with the requirements of the COSHH Regulations and will:

- Identify any substances used which may be defined as "a substance hazardous to health" within the COSHH regulations
- Determine the hazard associated with the substance
- Assess the risk associated with the use of the substance
- Maintain a register of all hazardous substances which are used
- Ensure that relevant employees are made aware of the risk associated with the substance.

The Company will ensure that exposure of its employees to substances hazardous to health is either prevented or adequately controlled.

Personal Protective Equipment

The Company will provide employees with all necessary personal protective equipment (PPE) and clothing to allow them to undertake their assigned tasks whilst maintaining healthy and safe working conditions. PPE will be issued to employees dependant upon the nature of their tasks, and records of PPE issued will be maintained centrally. It will be the responsibility of Office Safety Representatives and Project Managers, to ensure that all employees have the necessary PPE to carry out the tasks assigned to them.

It will be the responsibility of employees to ensure that their PPE is maintained and to bring any defects or loss to the attention of their Office Safety Representative, or Project Manager. Employees will acknowledge in writing the receipt of PPE and will be expected to use PPE in accordance with instructions.

Accident/Incident Reporting

The accident reporting procedure will be followed in all situations where an accident occurs or where there is a dangerous occurrence as defined by the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995. It is the responsibility of the Office Safety Representative to ensure that the appropriate forms are completed and forwarded to the relevant authorities. The Health and Safety Manager and Managing Director will be notified of all incidents requiring the completion of such documentation.

Following an accident or an incident requiring such documentation to be completed, the Office Safety Representative, Project Manager or Health and Safety Manager will produce a report for the Managing Director and other members of the Health and Safety Committee. Records relating to the incident or accident will be held centrally.

First Aid

The Company will provide First Aid kits at each office location and nominate a member of staff at each location to be responsible for maintaining the First Aid kit as appropriate. This member of staff will be trained in First Aid techniques where necessary. All members of staff engaged in site activities will be issued with a portable First Aid kit to be kept in the employee's vehicle. It will be the employee's responsibility to ensure that these kits are kept maintained and accessible.

Fire Equipment

SLR will ensure that fire extinguishers are maintained at its office locations. Office Representatives and/or Project Managers will be responsible for assessing whether fire fighting equipment should be provided for specific project work and for then ensuring that such equipment is made available. SLR operates a "no-smoking" policy in its offices and on clients' sites.

Welfare Facilities

SLR will provide, or arrange for, adequate welfare facilities (including washrooms, lavatories and eating areas) in its offices, and for site staff, ensuring that such facilities are maintained in a clean and hygienic condition.

Electrical Safety

SLR will not allow unauthorised personnel, or contractors, to carry out electrical work on office or site machinery and appliances. Office Safety Representatives will be responsible for ensuring that office equipment is inspected regularly for damage or faults.

Noise

SLR will determine whether it is necessary to carry out noise assessments on behalf of site staff working with, or close to, a source of noise likely to exceed the First Action Level as specified by the Noise at Work Regulations 1988, and will produce or obtain such assessments from clients or sub-contractors. Staff will be provided with appropriate hearing protection which they will be expected to utilise. Should noise levels exceed the Second Action Level the wearing of hearing protection will be compulsory.

VDU's

SLR will provide periodic eye-tests to habitual users of VDU's and will analyse workstations to assess and minimise risks of eye-strain or other injuries arising from VDU usage.

Asbestos

Company employees may be required to work in environments where asbestos materials and/or asbestos waste may be present. Where it is suspected that asbestos may be present, SLR will request assessments, under the Control of Asbestos at Work Regulations 2002, from its clients and will then advise employees, and contractors, accordingly. The Company will ensure that employees and contractors, observe the 'Guidelines for the Safe Investigation by Drilling of Landfills and Contaminated Land' where appropriate.

Other Hazardous Substances

SLR will request, from its clients, identification of and assessments relating to hazardous substances which are, or could be, present at sites where work is to be undertaken. Thereafter, safe working practices will be instigated, and appropriate training provided to staff to minimise any risks associated with such substances, in accordance with the Control of Substances Hazardous to Health Regulations 2002.

ASSOCIATED DOCUMENTS

Risk Assessments

Risk Assessments carried out under the Management of Health and Safety at Work Regulations 1999 will be treated as part of this policy.

Health and Safety Plans

Various site activities or projects carried out by SLR i.e. those falling under the CDM Regulations, will warrant the preparation of a specific Health and Safety Plan. These Plans will be treated as additional to this Health and Safety Policy.

POLICY REVIEW

This policy is effective from March 2005 and is subject to review annually or should there be a significant change to the operation of the company or the legislative requirements.

The policy is authorised by:

N PenhallManaging Director

SLR

Appendix B

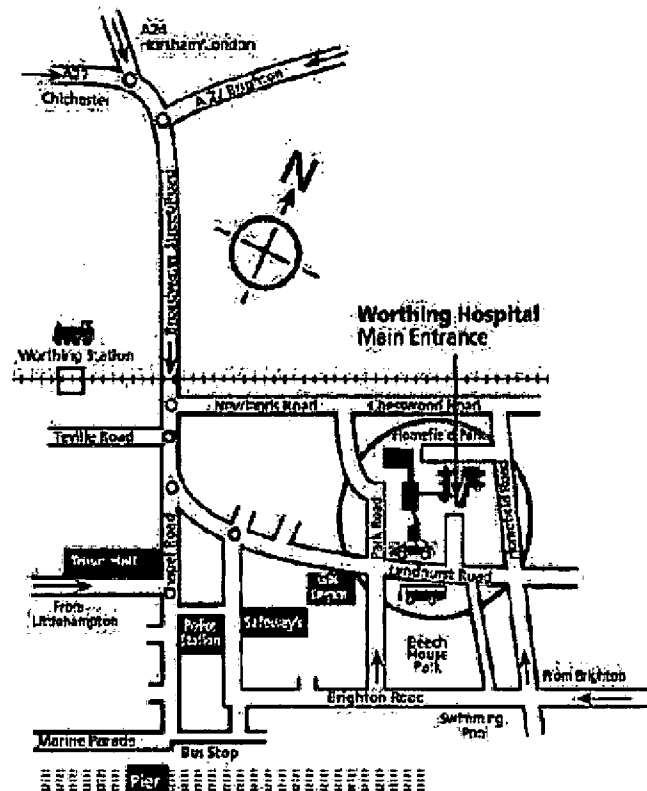
Nearest Accident and Emergency

SLR

Worthing Hospital

Lyndhurst Road,
Worthing,
West Sussex,
BN11 2DH

Tel: 01903 205111
Fax: 01903 285114



SLR

Appendix A
Method Statements

SLR

METHOD STATEMENTS

A fully trained experienced environmental engineer/geologist will be present on-site throughout all investigation works. This individual will abide to procedures given in British Standard 5930, and will supervise all site works. In addition to the logging of the boreholes, daily progress sheets will be produced. The information covered by these sheets will be the following:

1. Excavation Reference Number.
2. Depth of borehole at the end of each working day.
3. Plant in use.
4. Diameters and depths of all casings used.
5. Depths to each change of stratum.
6. Records of groundwater.
7. Brief descriptions of each stratum.
8. Brief descriptions of any visible or olfactory indications of contamination
9. The depths at which samples were taken or the limits between which bulk samples were obtained.
10. Any addition of water to the boring
11. Details of time spent on overcoming obstructions
12. Details of services or drains located
13. Details of standpipe installation
14. Details of standing time
15. Details of stability of the hole
16. Details of backfilling and grouting

Colour photographs will be taken of all representative materials and contamination. All photographs will be labelled with location, date and borehole number.

Liquid Removal

Liquid removal from the redundant vessels will be undertaken by a trained specialist contractor using a lorry mounted vacuum tanker. No entry to any of the structures will be required or permitted.

Trial Pitting

Trial pits will be machine excavated by a mechanical excavator controlled by a trained operative. Excavation will be supervised by an SLR engineer at all times.

- All excavation working areas to be suitably cordoned off with appropriate signage and barriers, if required.
- No entry to excavations deeper than 1.2m will be permitted.
- No excavation will be left open unattended.

Concrete Backfilling

Concrete backfilling will be undertaken using the chutes supplied with on the concrete delivery vehicle. No manual handling of the concrete is envisaged. Suitable PPE will be worn whilst the concrete is being poured.

Appendix D
Risk Assessment

SLR

Definitions and Methodology

- HAZARD** - Something with the potential to cause harm
- SEVERITY CATEGORY** - Degree of harm which may be caused
- PROBABILITY LEVEL** - Likelihood that an event will occur
- CURRENT RISK RATING** - The severity of the risk after current controls have been taken into account. The following equation is used to establish the risk rating:

$$\text{RISK RATING} = \text{SEVERITY} \times \text{PROBABILITY}$$

- RESIDUAL RISK RATING** - The severity of the remaining risk once mitigating measures have been put into place

Severity Categories

The risk severity can be assessed on a scale of 1 to 5 as follows:

1. Nil No risk of injury or disease
2. Low Causing a minor injury which would allow the person to continue work after first aid treatment on site or at a local surgery. The duration of the stoppage or treatment would be such that the normal flow of work is not seriously interrupted.
3. Medium Causing injury or disease capable of keeping a person off work more than 3 days and more and reportable under RIDDOR.
4. Major Causing a major injury reportable under RIDDOR.
5. High Causing death to one or more people.

Probability Levels

The probability of an accident occurring is assessed as follows;

5. Likely If the work continues as it is, there is almost a 100% certainty that an accident will happen eventually (e.g. broken rung on a ladder, bare exposed electrical conductor, defective brakes on a vehicle).
4. Probable The effects of humans or other factors could cause an accident but one is unlikely without this additional factor (e.g. ladder not secured properly, oil spilled on floor).
3. Possible The accident may happen if additional factors precipitate it, but unlikely to happen without them (e.g. leaving a vehicle with the engine running, obstructing fire exits).
2. Remote - If other factors were present; the incident or illness might occur but the probability is low and the risk minimal.

1. **Improbable** There is no known hazard risk present. Only under **freak** conditions could there be any probability of an accident or illness. All reasonable precautions have been taken as far as is reasonably practicable. This should be the normal state of the workplace.

Classification of Risk

The current Risk Rating can be determined as the product of the severity category and the probability category. It can then be classified as follows:

Risk Rating	1 - 10	Low
Risk Rating	11 - 15	Medium
Risk Rating	16 - 25	High

Those tasks with a Medium or High risk rating should then be re-examined using the assessment sheets to determine what additional action is reasonably practicable to mitigate the risk rating

SLR

ASSESSMENT SHEETS: 2			PROJECT: Former Texaco Filling Station, Angmering		PROJECT NO.: 404.1068.00003		CARRIED OUT BY: Toby Hills DATE: 20 th May 2008		
Task/ Activity	Personnel at Risk	Hazard Identification	Current Controls	Severity	Probability	Current Risk Rating	Risk Rating		
Deep chambers and Excavations	ALL	Explosion caused by flammable atmosphere	<ul style="list-style-type: none">Follow procedures set out in the Health & Safety Plan and appropriate Codes of Practice, etc.Locate services (electricity, gas water etc.) and any storage tanks (including disused tanks) below and above ground.Measure ambient vapours.Personnel trained in use of all equipment.If necessary, spark arrestors should be fitted to equipment.No smoking on site.	5	1	5	Low		
	ALL	Damage to underground services	<ul style="list-style-type: none">Services are understood to have been disconnected	5	1	5	Low		
	ALL	Soil/water arisings from trial pitting- risk of slipping, splashing, contamination	<ul style="list-style-type: none">Clean work area to remove mud etc. quick and efficient clean up of spills/leaks.Dispose of waste in suitable way (see disposal of waste).Wear standard PPE including gloves, overalls, goggles etc. if necessary.Immediately rinse off any splashing esp. on face/hands.Minimise exposure to existing excavated or surface contamination.No eating, drinking, smoking in vicinity of work.	3	2	6	Low		
	ALL	Instability of plant and ground when working near deep excavations	<ul style="list-style-type: none">Personnel trained in the use of all equipment.Plant suitably supported during works.Regular visual inspection of excavation for signs of instability.	5	2	10	Low		

Formatted: Bullets and Numbering

SLR

ASSESSMENT SHEETS: 2		PROJECT: Former Texaco Filling Station, Angmering		PROJECT NO.: 404.1068.00003	CARRIED OUT BY: Toby Hills DATE: 6 th February 2008		
Task/ Activity	Personnel at Risk	Hazard Identification	Current Controls	Severity	Probability	Current Risk Rating	Risk Rating
2 All associated works on site	ALL	Movement of vehicles around site	<ul style="list-style-type: none"> All personnel to wear high visibility clothing at all times. Lighting to be used at night time (unlikely to be needed). Excavations to be securely covered within cordoned off area, if left unattended (e.g. overnight). Not permitted under normal circumstances. 	4	1	4	Low
	ALL	Movement of site vehicles	<ul style="list-style-type: none"> All personnel to wear high visibility clothing. 	3	2	6	Low
	ALL	Manhandling and use of equipment and materials	<ul style="list-style-type: none"> H&S guidelines on lifting to be followed Personnel to be fully trained in use of equipment and machinery. Machinery to be maintained and serviced as appropriate. Suitable tools for lifting manholes (manhole keys etc.). PPE i.e. overalls, gloves, safety boots etc. to be worn. COSHH guidelines to be followed. Working area to be suitably cordoned off using barriers/signage. 	4	3	12	Medium
	ALL	Entry into confined spaces	<ul style="list-style-type: none"> No entry into confined space, which has contained flammable or toxic substances, is to be undertaken. 	5	1	5	Low
	ALL	Tripping hazards	<ul style="list-style-type: none"> Restrict tools, equipment etc. to working areas. All cables, air hoses etc. to be laid flat 	3	3	9	Low
3 Disposal of Waste	ALL	Contamination	<ul style="list-style-type: none"> PPE inc. overalls, gloves, safety boots etc. to be worn. All site personnel to be made aware of risks associated with soil/water contamination and landfill gas Avoid excavation within zone of the former Isotope Storage Pit as marked on Drawing 1. 	3	4	12	Medium
	ALL	Risk of illness, disease if contact with contaminated soil/water arisings	<ul style="list-style-type: none"> All site personnel to be made aware of risks associated with soil/water contamination. Suitable PPE: gloves, overall, etc. to be worn by all site personnel. Adhere to duty of care requirements – all waste to remain at the site. 	3	2	6	Low

SLR

APPENDIX XII:

SLR slump monitoring reports

SLR

Job Number:

Date: 25.04.08

Equipment:

[illegible]

Purging Guidance:

100mm well - 3 x Vol per m: 24 Litres per m

Groundwater Monitoring Sheet 2.9.1

Site Name : Angmeing

Address: _____

Job Number: _____

Date: 4 , 11 & 17 April

Personnel: P lane

Equipment: _____

SLR

BH Ref.	Well Headspace (ppm)	Depth to SPH (m)	Depth to Water (m)	Depth to Base of Well (m)	SPH Thickness by Bailer (mm)	BH Measuring point (G.L./T.O.C/ Cover Level)	BH Diameter (mm)	Purged Volume (L)	Notes (eg. presence of silt, product description, turbidity, odour)
sump 1	0		3.895	5.42		GL	250		Pumped 450litre from sump 3
sump 2	15		4.24	5.23		GL	250		put into Interceptor NO out fall from Interceptor
sump 3	430		4.095	6.08		GL	250		
11.4.08									
sump 1	0		3.822	5.42		GL	250		1000litrs of water
sump 2	0		3.708	5.23		GL	250		
sump 3	0		3.815	6.08		GL	250		
17.04.08									
sump 1	0		3.882	5.42		GL	250		1000litrs water
sump 2	145		3.775	5.23		GL	250		
sump 3	10		3.825	6.08		GL	250		

Comments:

Purging Guidance:

50mm well - 3 x Vol per m: 6 Litres per m

100mm well - 3 x Vol per m: 24 Litres per m

APPENDIX XIII:

Analytical results for soil samples from extraction sumps

ALcontrol Laboratories Analytical Services Sample Descriptions *

Job Number: 08/03906/02/01

Client: SLR Consulting

Client Ref : -

Grain sizes

<0.063mm Very Fine

0.1mm - 0.063mm Fine

0.1mm - 2mm Medium

2mm - 10mm Coarse

>10mm Very Coarse

[illegible]

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

¹ Sample Description supplied by client

☒

Table Of Results

» Shown on prev. report

Client Contact: Toby Hills

[illegible]

Date 07.04.2008

☒

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Matrix: SOLID
Location: ANGMERING
Client Contact: Toby Hills

All results expressed on a dry weight basis.

Date 07.04.2008

ALcontrol Laboratories Analytical Services

Table Of Results - Appendix

Job Number: 08/03906/02/01
 Client: SLR Consulting
 Client Ref. No.: -

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10⁻⁷

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	Accredited ISO 17025	Accredited MCERTS	Wet/Dry Sample ¹	Surrogate Corrected
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture content and description			WET	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓	✓	DRY	
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)			WET	
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)	✓		WET	
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)	✓	✓	WET	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer			DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓		DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓	✓	DRY	
TM132	In - house Method	ELTRA CS800 Operators Guide	✓	✓	DRY	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓	✓	WET	
TM173		Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID	✓		DRY	
TM61/89		see TM061 and TM089 for details			WET	

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Laboratories Analytical Services
Table Of Results - Appendix

Job Number: 08/03906/02/01
Client: SLR Consulting
Client Ref. No.: -

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
2	5.8

APPENDIX XIV:

Analytical results for water samples taken in June 2008

☒

7

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Matrix: LIQUID
Location: ANGMERING
Client Contact: Dan Collins

Date 11.09.2008

Table Of Results - Appendix

Job Number: 08/08182/02/01

Client: SLR Consulting

Client Ref. No.:

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP No Determination Possible

✱

Subcontracted test

NFD No Fibres Detected

»

Result previously reported (Incremental reports only)

ISO 17025 accredited

M

MCERTS Accredited

PFD Possible Fibres Detected

EC

Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

[illegible]

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Laboratories Analytical Services
Table Of Results - Appendix

Job Number: 08/08182/02/01

Client: SLR Consulting

Client Ref. No.:

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
2	16.4

APPENDIX XV:

Proposed remedial target concentrations for houses with gardens

The Environment Agency's guidance in respect of petroleum hydrocarbons states that regard must be paid to the potential additive effects of the range of hydrocarbons present. Accordingly Hazard Quotients (HQs) should be calculated in order to derive an overall Hazard Index (HI) using the formulas shown below.

$$HI = \sum_{F_i=1}^{16} HQ F_i = \frac{\text{Measured concentration } F_i \text{ (mg kg}^{-1}\text{)}}{SGV F_i \text{ (mg kg}^{-1}\text{)}}$$

where HI = Hazard Index
 HQ = Hazard Quotient
 F_i = Fraction
 SGV = Soil Guideline Value

Table A: Target Residual Concentrations in Respect of Human Health

Determinand	Target residual concentration	
	Residential – no gardens (mg/kg)	Residential with gardens (mg/kg)
Arsenic	20	20
Cadmium	30	2 (pH = 7)
Chromium	200	130
Copper	130/2080	200*/111
Lead	450	450
Mercury	15	8
Nickel	75/5000	110*/50
Selenium	260	35
Zinc	300/8250	300*/330
Benzo(a)pyrene	1.3	1.12**
Naphthalene	6.94	3.47
Dibenzo(a,h)anthracene	1.3	1.14
Fluorene	2770	38.4
DRO	400	400
GRO	50	50
Benzene	0.038	0.024
Ethyl benzene	16	9
Toluene	3	3
Xylenes	8	6
MTBE	430	100
ALIPHATIC		
EC5-6	2.11	2.11
EC>6-8	5.37	5.37
EC>8-10	1.46	1.46
EC>10-12	8.6	8.53
EC>12-16	42.1	40.7
EC>16-35	27600	16400
EC>35-44	27600	16400
AROMATIC		
EC5-6	0.613	0.575
EC>6-8	0.694	0.624
EC>8-10	2.39	1.09
EC>10-12	14.2	1.94
EC>12-16	72.7	2.19
EC>16-21	291	115
EC>21-35	417	157
EC>35-44	417	157
ALIPHATIC + AROMATIC		
EC>44-70	417	174
<p>* The lower value applied only to gardens and areas to be landscaped. Values are taken from BS3882 and apply if the pH is >7.0. Different, lower limits, apply if the pH is <7.0.</p> <p>** Although only four PAHs are listed, all PAH results will be taken into account.</p>		

MTBE

The SNIFFER methodology⁽²⁾ has been used to develop site-specific assessment criteria (SSACs) for methyl-tertiary-butyl ether (MTBE).

The SNIFFER methodology will yield similar values as the original CLEA model when used to derive criteria for non-volatile contaminants such as arsenic and cadmium when the same assumptions about contaminant and soil properties are employed. This is not necessarily the case for volatile contaminants. The derived values depend on such site-specific factors as the depth of the contamination beneath the surface, soil porosity, bulk density and soil temperature. In addition, the methods of calculation of vapour concentrations in buildings and outdoors differ between the updated-CLEA and the SNIFFER methodology. Certain other features of the CLEA model, e.g. the assumptions about the structures of buildings, have also been updated. It is thus impossible to align fully the assumptions used in the two methodologies and it is unrealistic to expect that criteria derived using the two methodologies will be numerically the same.

The physical properties for MTBE have been taken from a RBCA data base. Although the calculated SSACs will depend on the values for physical properties used the sensitivity to this has not been tested. The published SGVs are based on single values taken from the compilation of values and recommended for use with the CLEA model.

Site-specific assumptions made about ground conditions are set out in Table B together with their origin.

Table B: Baseline assumptions for ground properties

PROPERTY	VALUE	ORIGINS/COMMENTS
Bulk density	1750 kg/m ³	Typical value for dense sand
Depth to contamination	0.5 m	Atmospheric pumping is likely to ensure that most volatiles will have evaporated from exposed surface layers. The sensitivity of the calculated values to other assumptions is shown in Table 5.
Total porosity	0.38	Average for silt and sand (Freeze & Cherry) ⁽³⁾
Water filled porosity	0.1	Baseline assumption in SNIFFER spreadsheet
Exposed soil parallel to direction of wind movement	5 m	Realistic value for site
Wind speed	3m/sec	Baseline assumption in SNIFFER spreadsheet

Toxicological information has not been published in the UK for MTBE. The data for MTBE has been taken from a RBCA model.

Using the parameters listed above yields a SSAC of 86 mg/kg.

Using the CLEA Briefing Note 2 default properties results in an SSAC of **106 mg/kg**.

Using Dutch Toxicological data for the ingestion pathway with the Briefing Note 2 default values yields an SSAC of over 1000 mg/kg.

An SSAC of 100 mg/kg has been adopted.

MTBE is a C5 compound [MTBE = (CH₃)₃C-O(CH₃) = C₅H₁₂O] and is consequently included in the GRO (C5-C10) determinand. Consequently the suggested limit of 50 mg/kg set for GRO is below the SSAC for MTBE.

Despite the interest in MTBE no major jurisdiction appears to have set a criterion for MTBE in soils although a Dutch document from RIVM suggests an Intervention Value in respect of human health of 221 mg/kg. This value has been derived using the CSOIL model.

Toxicity to Plants (Phytotoxicity)

Copper, nickel and zinc are toxic to plants. The effects of copper, nickel and zinc are often regarded as additive.

The assessment criteria used for copper, nickel and zinc, are "pseudo total concentrations"^[1] are derived from BS3882:2007⁽⁴⁾ as follows:

**Limits for phytotoxic contaminants for "multipurpose" and "specific function" soils
(mg/kg air-dried soil)**

Phytotoxic contaminants	pH range		
	<6.0	6.0-7.0	>7.0
Zinc (nitric acid extractable)	<200	<200	<300
Copper (nitric acid extractable)	<100	<135	<200
Nickel (nitric acid extractable)	<60	<75	<110

It should be noted that BS3882 specifies the use of microwave extraction using 50% nitric acid on an air-dried sample passing a 0.5 mm sieve. In practice most routine investigations for contamination will use aqua regia as the extractant and more finely ground air-dried samples. BS ISO 11464⁽⁵⁾ for the pre-treatment of samples specifies that samples should be ground to pass a 150 µm sieve.

Where potential phytotoxicity due to the presence of elevated concentrations of copper, nickel and/or zinc is of particular concern, "plant available concentrations" may be determined and the assessment based on these. However, whilst higher concentrations than those cited in BS3882 may not be significantly injurious to plants, they may be injurious to soil microbiota and hence affect the long-term performance of the soil.

The original ICRL values were set in terms of "plant available concentrations" rather than "pseudo total concentrations" and also included provision for estimating the additive effects by use of the "zinc equivalent" concept [$ZE = (Zn) + 2(Cu) + 8(Ni)$].

A number of factors can influence the "availability" of copper, nickel and zinc for plant uptake including for example pH, and the organic matter and clay contents of the soil. Toxicity also depends on the plant type with grasses generally being more resistant than many other plant types.

There is a range of British Standard test methods to enable direct determination of toxicity should this be required (e.g. germination and root-elongation tests).

References

1. Chartered Institute of Environmental Health/Land Quality Management Ltd., *Generic Assessment Criteria for Human Health Risk Assessment*, LQM (Notttingham) November 2006.
2. *Method for Deriving Site-specific Human Health Assessment Criteria for Contaminants in Soil*, SNIFFER, 2003.
3. Freeze R A and Cherry J A, *Groundwater*, Prentice Hall (Englewood Cliffs, New Jersey) 1979.
4. British Standards Institution, *BS3882:2007- Specification for topsoil and requirements for use*, BSI (Chiswick) 2007.
5. British Standards Institution, *BS ISO 11464:2006 - Soil quality: Pretreatment of samples for physio-chemical analyses*, BSI (Chiswick) 2006.

[1] "Pseudo total concentrations" – the normal method of extracting soils samples with strong acids will not necessarily dissolve everything that is present (there may be an "insoluble residue" after the extraction. Thus, the reported concentration may be somewhat lower than the "true total". To achieve this total dissolution (e.g. in hydrofluoric acid) or an instrumental technique (e.g. X-ray fluorescence analysis is required).

