

Geo-Environmental Assessment Non-Technical Summary Report

Weldale Street, Reading

June 2019



FAIRHURST

CONTROL SHEET

CLIENT: Ropemaker Properties Limited

PROJECT TITLE: Weldale Street, Reading

REPORT TITLE: **PROJECT REFERENCE:** 112990

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1.0 INTRODUCTION AND OBJECTIVES

1.1 Background

This report has been produced for Ropemaker Properties Ltd (the Client) for a site at Weldale Street, Reading at approximate postcode RG1 7BZ. The location of the site is shown on [Figure A](#).

Development proposals for the site comprises the demolition of all existing buildings (including 3 retail units) and structures and the erection of new buildings ranging between lower ground & 4 storeys to lower ground & 11 storeys in height. The proposed development is understood to provide 427 (233x1, 182x2 & 12x3-bed) residential units (Class C3) and 1 flexible ground floor retail shop (Class A1) or restaurant and cafe (Class A3) unit, together with new public realm, landscaping, accesses, parking and associated works.

Foundation solutions are considered to include earthworks piling, with continuous flight auger (CFA) piling likely to be the most suitable piling technique for this site. Soft landscaping is proposed, concentrated in central, eastern and southern sections of the site. Proposed development plans are presented as part of [Figure B & C](#).

The Weldale Street development is subject to a number of planning conditions pertaining to contaminated land.

For ease of reference, the original wording of these planning conditions, namely conditions 19 to 22 are included as [Appendix A](#) to this document.

In order to address these planning conditions, the site has been subjected to a number of assessments (including three phases of site investigations) that are detailed in the following documents:

- CBRE. 2015. Phase I & II Geo-Environmental Assessment. Units 1-3, Weldale Street, Reading. December 2015 (ref 1).
- Fairhurst. Fairhurst. 2017. Geotechnical and Geo-Environmental Preliminary Risk Assessment. January 2017 (ref 2).
- Fairhurst. 2017. Phase II Geo-Environmental Ground Investigation Report, Weldale Reading. January 2017 (ref 3).
- Fairhurst. 2019 (ref 4). Geotechnical and Geo-Environmental Ground Investigation Report. June 2019.

1.2 Objectives

The purpose of this report is to summarise the findings of the above assessments in the context of the planning conditions contained as [Appendix A](#).

2.0 SUMMARY OF GEOENVIRONMENTAL ASSESSMENT

When completing geoenvironmental / contaminated land assessments the type of 'receptor' that could be impacted upon is commonly the prime differentiator.

For the proposed development site, receptors that can be impacted upon have been considered and can be placed into the following categories:

- Human health (i.e. future site users of the proposed development* and residents as well as site users of nearby properties),
- Controlled waters (i.e. the Chalk Principal aquifer with groundwater abstractions, the closest being a water abstraction point approximately 140 meters distant from the site operated by Primark Stores Limited)¹.

2.1 Human health

Receptor and pathways considered as part of the human health risk assessment

For the purpose of planning conditions, as part of the assessments listed in Section 1.1, risks to the following 'human health' receptors *that in the presence of pathways could potentially be impacted upon* have been considered:

Table 2-1: Human health (HH) receptor and pathways

Receptors*		Pathway**
Future site users	⇒	Direct contact in areas of soft landscaping Indoor & outdoor air inhalation of gas and vapour being generated
Residents and users of nearby residents	⇒	Fugitive / windblown dust generated during as part of the earthworks of the proposed development.

* For completeness, receptors also include construction and maintenance workers. However, rather than regulated by planning conditions, risks to construction and maintenance workers are commonly mitigated as detailed in the earthworks contractor's health and safety plans, advising on operational, technical and personal measures [e.g. adequate personal protection equipment (PPE)] suitable for the site. Based on contaminant concentrations found at shallow depths, risks to construction and maintenance workers were generally assessed as being low.

** In general, potential pathways also exist in the presence of contaminants that are capable of corroding and/or migrating through water supply pipes. However, rather than being regulated by planning conditions, risks to water supply pipes will be controlled by the requirements set out by the utility provider.

¹ The Chalk is underlain by the Taplow Gravel Member sands and gravels, which is classified as a Secondary A aquifer; However, underneath the site, groundwater levels were found at depths below that of the Taplow Gravel Member sands and gravels / in the Chalk Principal aquifer only. The closest surface water feature was assessed to be the Holy Brook, located approximately 550 meters to the south-east.

On that basis, for purpose of the assessment of risks to controlled water, the Chalk Principal aquifer in combination with water abstraction from this stratum is considered and is of prime concern.

Human health risk assessment

The assessment contained within the Geotechnical and Geo-Environmental Ground Investigation Report issued in June 2019 (ref 4) (see also Section 1.1) concluded the risk to human health receptors considered in the above Table 2-1 to be low.

On that basis it is concluded in terms of the planning conditions contained on Appendix A, no special measures are required to protect human health receptors (see Table 2-1); although, an inherent assumption for this assessment is the adoption of standard practise of dust control as part of the proposed development works and the import / placement of 'plant suitable' and 'clean' topsoil for any areas of proposed soft landscaping.

2.2 Controlled waters

Receptor and pathways considered as part of the controlled waters risk assessment

For the purpose of planning conditions, as part of the assessments listed in Section 1.1, risks to the following 'controlled waters' receptors *that in the presence of pathways could potentially be impacted upon* have been considered:

Table 2-2: Controlled waters (CW) receptor and pathways

Receptors	Pathway
Chalk Principal aquifer	Migration within the unsaturated zone (i.e. zone above the groundwater table)
	⇒ (A1) <i>vertical</i> - migration of 'free product' present in the unsaturated zone.
	⇒ (A2) <i>vertical</i> - migration of dissolved phase contaminants as a result of rainfall induced leaching.
Groundwater abstraction points	⇒ (B) <i>lateral</i> - migration of contaminants in groundwater hydraulic downstream direction from the source.

Controlled waters (CW) risk assessment

Based on details provided in assessments contained in Section 1.1, limited evidence for a leachable was found. Also no evidence for a free phase source above the groundwater table in the unsaturated zone was found.

However, contaminant concentrations in groundwater were found elevated as summarised in a technical assessment contained as [Appendix B](#), indicating the possibility for contaminants in groundwater to migrate, potentially resulting in groundwater concentration exceedances over distances in excess of the 50 metres default compliance point distance for hazardous substances in accordance with the 'land contamination groundwater compliance points for quantitative risk assessments guidance (ref 5).

Groundworks piling has the potential to increase the mobility of contaminants in groundwater, thereby at least temporarily increasing the risk to receptors in hydraulic downgradient direction from the site².

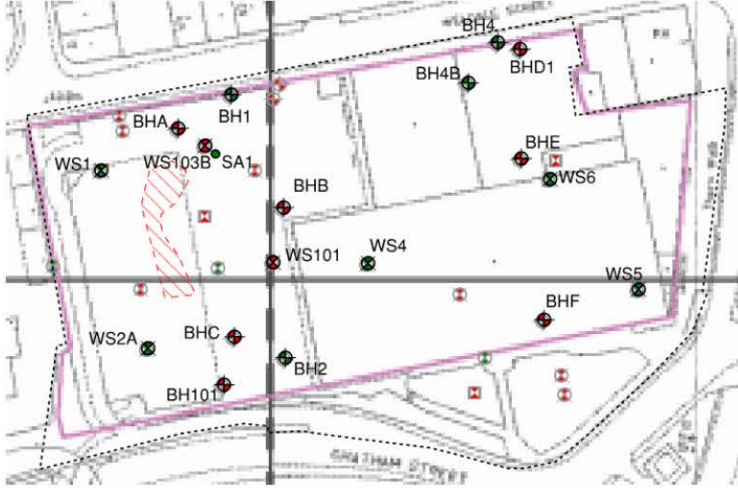
²Although, the closest groundwater abstraction is a water-well operated by Primark, situated approximately 140 meters to the southeast of the site, the prevailing groundwater flow was found to range between north-north-easterly and east-north-easterly directions. This closest groundwater abstraction from the site is therefore not on a direct path of the migration of contaminants in groundwater, should such migration occur over distances in excess of 100 meters.

3.0 CONCLUSIONS IN THE CONTEXT OF CONDITIONS

Fairhurst consider the above assessments for which further details are provided in the latest assessment contained in the Geotechnical and Geo-Environmental Ground Investigation Report (ref 4) to have the following implications on planning conditions.

Table 3-1: Summary of planning conditions pertaining to contaminated land

Planning condition*	Implication of findings on planning condition
18 & 19	Consideration should be given for the condition to be replaced or modified to specify measures that will serve the mitigation of risks to controlled waters as part of the piling works. <i>Reason: as part of the latest assessment contained in the Geotechnical and Geo-Environmental Ground Investigation Report issued by Fairhurst (ref 4), it was concluded that although petroleum hydrocarbons in groundwater are present locally, the completion of a formal remediation strategy and validation report as detailed in these conditions are not currently warranted.</i> <i>However, the following recommendations for further work were made:</i> <i>A foundations works risk assessment is required, specifying methods of piling is completed and to be agreed with the regulator,</i> <i>The foundations works risk assessment is to include a groundwater monitoring programme with monitoring to be carried out at different (pre-, during and post) stages of the piling operation.</i> <i>The pre-piling monitoring is to include an update to the risk assessment to be completed on the basis of the results from two further groundwater monitoring rounds from existing monitoring points. The foundation works risk assessment with the update to the risk assessment is to be agreed with the regulator, prior to the piling works commencing.</i> For potential risks from piling to controlled waters, reference is also being made to condition 36, which prior to piling or any other foundation designs using penetrative methods commencing requires express written consent of the local planning authority (LPA). Therefore, prior to piling (or any other foundation designs using penetrative methods commencing), any information and assessments provided as per the above will have to be submitted and assessed as being suitable to also address planning condition 36.
20	As the development/construction works on site have yet to start, the content of the condition is still relevant. As part of the Geotechnical and Geo-Environmental Ground Investigation Report issued in June 2019 (ref 4), it has been recommended that a watching brief is to commence as soon as the hardstanding, comprising of asphalt and footprints of existing buildings, is being removed. The watching brief is to emphasise on soil conditions / spots that can visually or olfactometrically be identified for their potential of being impacted by organic contaminants.

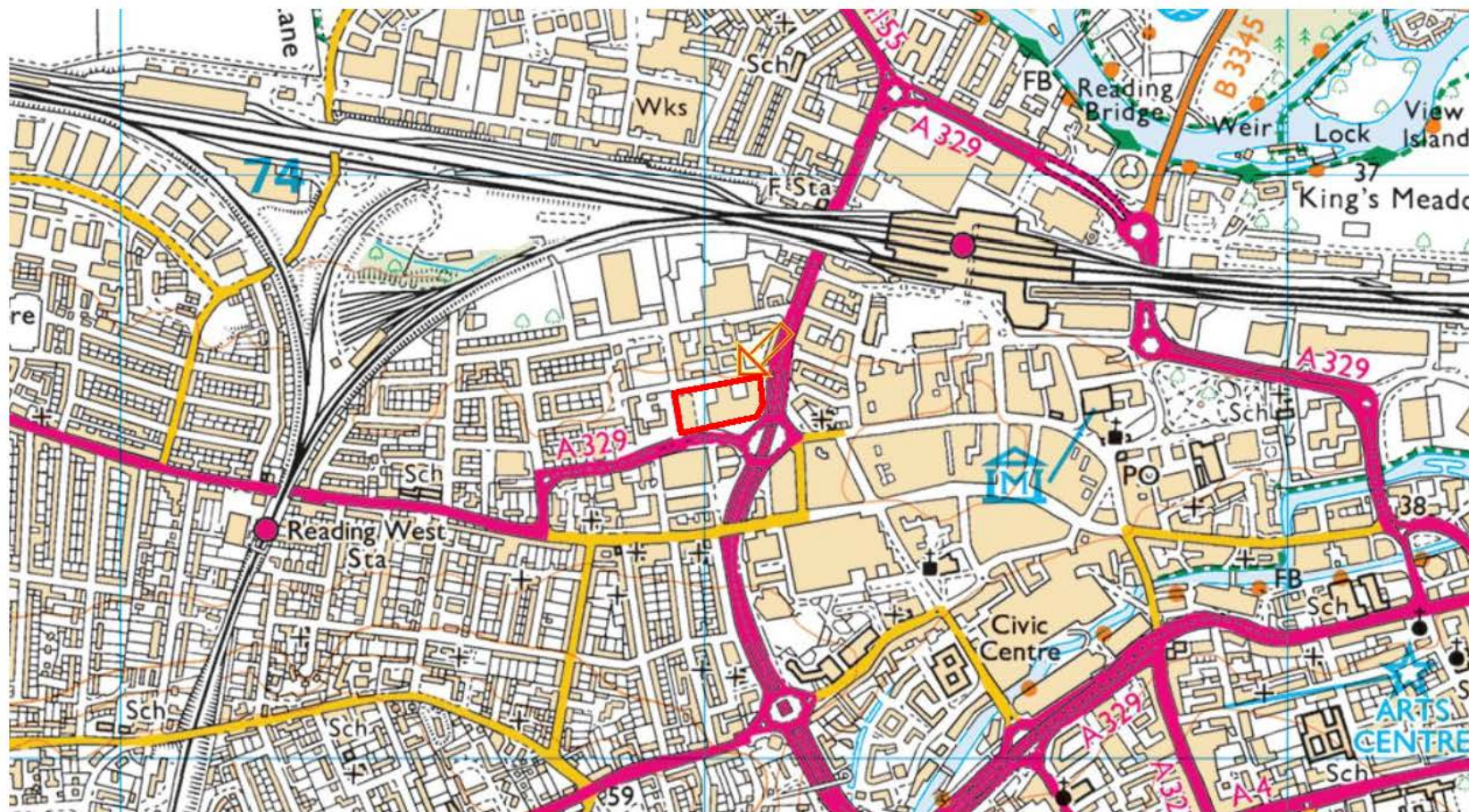
	In general, the watching brief will need to be completed by an appropriately qualified environmental consultant. Further details on the watching brief are detailed as Appendix C. Areas where there might be a greater chance of finding contaminated soil and/or water should be more specifically considered. On the basis of current findings and results such an area might be present between exploratory holes BH1, WS103B and WS101 (see Figure 3-1 below).  Figure 3-1: Location of exploratory holes [note: locations with labels (e.g. BH1) are such where standpipes for the purpose of groundwater monitoring are also present] However, there is little evidence for a contaminant source being present at shallow depths. Instead, at present, it appears more likely the groundwater contaminant source is exclusively present as a 'smear zone' near the groundwater table and/or at depths between depths of approximately 4.5 and 6.0 meters below ground levels (m bgl).
21, 22 & 23	Fairhurst consider that these conditions can be discharged. <i>Reason: as part of the latest assessment contained in the Geotechnical and Geo-Environmental Ground Investigation Report issued by Fairhurst (ref 4), risks from ground-gas and vapour were assessed low.</i>

*See [Appendix A](#) for details.

4.0 REFERENCES

- ref 1. CBRE. 2015. Phase I & II Geo-Environmental Assessment. Units 1-3, Weldale Street, Reading. December 2015.
- ref 2. Fairhurst. Fairhurst. 2017. Geotechnical and Geo-Environmental Preliminary Risk Assessment. January 2017.
- ref 3. Fairhurst. 2017. Phase II Geo-Environmental Ground Investigation Report, Weldale Reading. January 2017.
- ref 4. Fairhurst. 2019. Geotechnical and Geo-Environmental Ground Investigation Report. June 2019.
- ref 5. Environment Agency. 2017. Guidance: Land contamination groundwater compliance points: quantitative risk assessments [online] <https://www.gov.uk/guidance/land-contamination-groundwater-compliance-points-quantitative-risk-assessments>.
- ref 6. Environment Agency. 2006. Remedial Target Methodology. Hydrogeological Risk Assessment for Land Contamination. Environment Agency. Bristol.

FIGURE A – SITE LOCATION PLAN



— Approximate Site Boundary

FAIRHURST

Weldale Street
Reading

Site Location Plan
(Not to Scale)

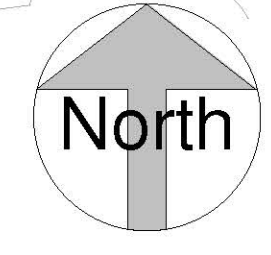
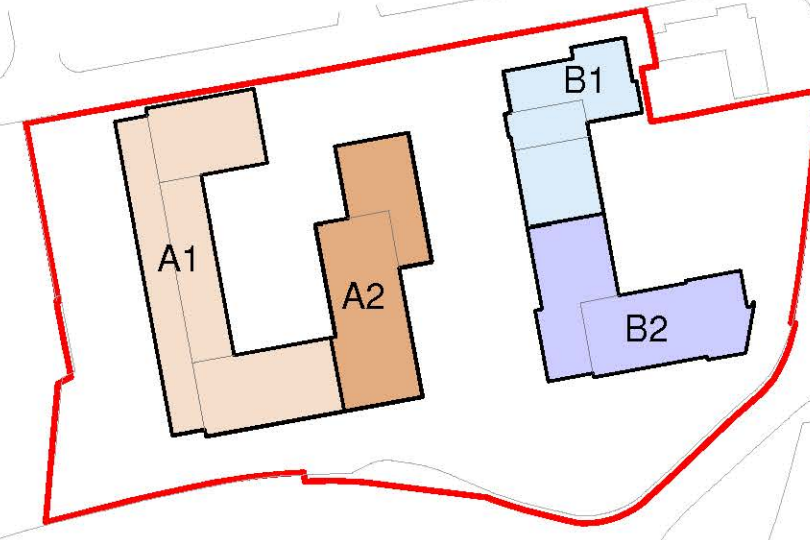
Ground Investigation Report

Date: 26/04/19 In tbr: HB Figure: 1

FIGURE B & C – PROPOSED DEVELOPMENT PLANS

Notes
This drawing may be scaled for the purposes of Planning Applications, Land
Rights and/or Local Plans when the scale has been stated, and where it applies.
The drawing is an original or an accurate copy. It may not be scaled for
other purposes.
Always refer to the legend dimensions. All dimensions are to be checked on site.
Dimensions and/or elevations shown on this drawing are intended to give
an indication of the proposed development. It is not to be used for any other
purpose. All drawings are to be read in conjunction with the specification and
all works to be carried out in accordance with the relevant Building Regulations.
Practice

Building Location Key



North Street

Weldale Street

Caversham Road / A329 IDR

Chatham Street

B1 *

* A1

* A2

B2 *

Buildings this side of the line have been measured from Weldale Street
Buildings this side of the line have been measured from Chatham Street

Buildings this side of the line have been measured from Weldale Street
Buildings this side of the line have been measured from Chatham Street

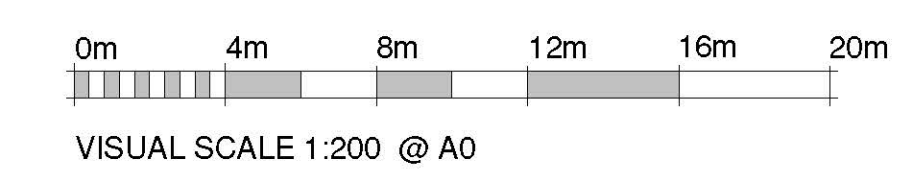
Buildings this side of the line have been measured from Weldale Street
Buildings this side of the line have been measured from Chatham Street

* Building Entrances

Storey Height Key

Storey heights for each block are taken from the nearest road

- 11 storeys
- 10 storeys
- 9 storeys
- 8 storeys
- 6 storeys
- 5 storeys
- 4 storeys



C	22/05/17	DB	Revised elevations and missing following comments from RSO	JC
B	30/05/17	JC	Minor amendments based on comments from DSE panel review	MAS
A	17/02/17	GO	ISSUED FOR PLANNING	JC
Rev Date	Rev	Notes	Check	

Client

Drawing Originator

AWW inspired environments
London - 7 Becket Lane, London, EC2V 8BW 020 7160 6000
Reading - Riverside House, Street, RG1 4LP 0118 220 0000
Plymouth - East Quay House, Plymouth, PL4 8JN 01752 251 252
RIBA Chartered Practice www.aww.co.uk

Project Title
**Weldale Street, Reading
Site Coordinated**

Drawing Title
Building Storey Height Diagram

Scale	Sheet	Drawn	Checked	Date
1:200	A0	JC	RS	20/02/2017
Status	Project No.	Revision		
PRELIMINARY	3622			
Drawing Reference	0224	C		



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2. It must not be copied or reproduced without written consent.

3. Do not scale from this drawing.

4. Check all dimensions on site before setting out.

HARD LANDSCAPE

Development Boundary Line

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PT3

PT4

PT5

PT6

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ET2

ET3

BT1

BT2

BT3

BT4

BT5

BT6

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APPENDIX A – PLANNING CONDITIONS PERTAINING TO CONTAMINATED LAND³

Condition 18 – No development shall take place until a detailed remediation scheme to bring the site to a condition suitable for intended use by removing unacceptable risks to human health, buildings and other property and the natural and historic environment. The scheme must include all works to be undertaken, proposed remediation objectives and remediation criteria, an appraisal of remedial options, and proposals of the preferred options and a timetable of works and site management procedures. The scheme must also ensure the site will not qualify as contaminated land in relation to the intended use of the land after remediation.

Condition 19 - The approved remediation scheme shall be implemented in accordance with the approved timetable of works. A validation report should also be submitted to and approved by the LPA prior to construction of the development.

Condition 20 - In the event of contamination is found at any time when carrying out the approved development not previously identified, development shall be halted on that part of the site the contamination reported in writing to the LPA.

An assessment of the nature and extent of the contamination shall be undertaken and where remediation is necessary a remediation scheme, together with a timetable for its implementation, shall be submitted to the LPA for its written approval.

The measures in the approved remediation scheme shall be implemented in accordance with the approved timetable. Halted works shall not be re-commenced until the measures identified in the approved remediation scheme have been completed and a validation report approved in writing by the LPA.

Condition 21 - No development shall take place until a detailed land gas site investigation has been carried out by a competent person to fully and effectively characterize the nature and extent of land gas and its implementation.

Condition 22 - No development shall take place until a scheme showing how the development is to be protected against the possibility of land gas has been submitted to and approved in writing by the LPA. The scheme as approved should be fully implemented and completed before the development is first occupied and those measures incorporated in other development is first occupied and those measures incorporated into the development shall thereafter be retained unless stated otherwise by the LPA in writing.

Condition 23 - The land gas remediation scheme shall be implemented in accordance with the approved timetable of works. A validation report (that demonstrates the effectiveness of the remediation carried out) must be submitted and approved by the LPA prior to any part of the accommodation hereby approved is occupied. Unless stated otherwise by LPA in writing.

³ For the site, other conditions with potential reference to 'contaminated land' but potentially also other issues (e.g. flooding, risk of introducing new contaminants) are present as follows:

Condition 35 - No infiltration of surface water drainage into the ground is permitted other than the written consent of the LPA. The development shall be carried out in accordance with the approved details.

Condition 36 - Piling or any other foundation designs using penetrative methods shall not be permitted other than with the express written consent of the LPA, which may be given for the part of the site that there is no resultant unacceptable risk to groundwater. The development shall be carried out in accordance with the approved details.

APPENDIX B – SUMMARY OF CONTROLLED WATERS TECHNICAL ASSESSMENT

The below contains a summary of key findings of the three site investigation phases undertaken on site. For the location of monitoring points and a full summary of groundwater contaminant concentrations found on site, see also [Figure B1](#) and [Table B1](#) respectively.

For further details, reference is being made to the CBRE (ref 1) and the Fairhurst reports (ref 2, ref 3 & ref 4).

CBRE 2015 (ref 1)

In 2015, the first of the three site investigations carried out on site was completed by CBRE. Groundwater monitoring that was completed as part of two monitoring rounds utilising six (6) locations (BH1, BH2, BH4B, WS2A, WS1 & SA1) at which standpipes suitable for groundwater sampling had been installed.

When compared to drinking water standards, marginal exceedances were found in locations BH1 and BH4B [i.e. concentrations of approximately 130 - 180 µg/l, marginally in excess of the 90 µg/l WHO drinking water guideline value for 'EC12 – EC16' and 'EC16 – EC21' aromatic hydrocarbons were found].

A benzo(a)pyrene concentration of 0.03 µg/l marginally exceeding the 0.01 µg/l drinking water standard was also found in a sample taken from a soakaway (SA1).

Chromium and nickel at respective concentrations of up to 191 µg/l and 32 µg/l above respective drinking water standards of 50 µg/l and 20 µg/l were also found in the aforementioned monitoring points BH1 and BH4B. However, these exceedances were encountered as part of the first of two monitoring visits only and therefore believed to be the result of insufficient standpipe purging during the first of the two monitoring visits.

Fairhurst 2016 (ref 3)

In 2016, a second site investigation phase was completed by Fairhurst. Groundwater monitoring completed as part of this second phase comprised groundwater sampling from ten (10) locations (BH1, BH2, BH4B, WS1, WS2A, BH101, WS101, WS103B, WS4, WS5).

For the monitoring, installations were utilised that had been installed as part of this (2016) as well as the previous (2015) site investigation as indicated below:

- CBRE 2015 installations: BH1, BH2, BH4B, WS1, WS2A, WS4* & WS5*,
- Fairhurst 2016 installations: BH101, WS101 & WS103B.

As part of the Fairhurst 2016 monitoring, samples were also taken from two standpipes (WS4 & WS5) that were installed by CBRE in 2015 but prior to the Fairhurst 2016 site investigation had not been sampled. *[Note: due to the base of the standpipes of WS4 & WS5 being relatively shallow, groundwater samples from these location can be taken at times of comparatively high groundwater levels only. This may be the reason why no sample was taken by CBRE, despite the fact that logs reported for these exploratory holes reported staining and hydrocarbon odours to be present at depths of approximately 5 – 6 meters below ground levels (m bgl)].*

Contaminant concentrations of samples from two (WS101 & WS103B) of the three newly installed standpipes (BH101, WS101 & WS103B) were found at higher levels.

Higher concentrations were also found in the two standpipes (WS4 & WS5) that were installed by CBRE in 2015 but prior to the Fairhurst 2016 site investigation had never been sampled.

For the 'EC12 – EC16' and 'EC16 – EC21 aromatic hydrocarbon' fractions, concentrations between approximately 5,600 µg/l and 17,000 µg/l (in excess of the WHO drinking water guideline value of 90 µg/l) were now found in standpipes WS101, WS103B and WS4.

WS4, WS5, WS101 and WS103B have in common that their standpipe depth is relatively shallow, with the base of their standpipe (<6.5 m bgl) generally being less than 1 or 1.5 meters below groundwater levels.

Note: concentrations of polycyclic aromatic hydrocarbons (PAHs) were also found in excess of drinking water standards. However, the exceedances were predominantly found in samples from newly installed standpipes (WS101 and WS103B). In addition, sampling and testing completed as part of the most recent

investigation phase (see below) (where particular emphasis was given towards standpipes being appropriately developed / purged prior to the first sampling round) did not reveal any elevated concentrations of PAH to be present. On this basis, the concentrations are believed to be the result of insufficient standpipe development / purging as part of this site investigation phase.

Fairhurst 2019 (ref 4)

In 2019, a third site investigation phase was completed by Fairhurst. Groundwater monitoring completed as part of this third phase comprised groundwater sampling from fifteen (15) locations (WS2A, BH101, BHC, BHB, WS1, BHA, WS101, WS103B, BHF, BHE, WS6, BH1, BH2, BH4B, BHD1).

For the monitoring, installations were utilised that had been installed as part of this (2019) as well as the previous (2015 & 2016) site investigation phases as indicated below:

- CBRE 2015 installations: BH1, BH2, BH4B, WS1, WS2A & WS6 (*),
- Fairhurst 2016 installations: BH101, WS101 & WS103B,
- Fairhurst 2019 installations: BHA, BHB, BHC, BHD1, BHE & BHF.

(*) At this time no water samples would be taken from WS4 and WS5 as the groundwater table was too deep for these standpipes installed with shallow bases (approx. 6 m bgl).

For the monitoring points WS101 in WS103B, monitoring that was completed as part of this site investigation phase indicated an approximate 80% reduction in concentrations of 'EC12 – EC16' and 'EC16 – EC21 aromatic hydrocarbon' fractions.

Concentrations found in the deeper standpipes, installed as part of the 2019 site investigation were also generally found at lower levels. Concentrations in these standpipes were generally not significantly above or below the aforementioned WHO drinking water guideline value. The exception to this are petroleum hydrocarbon concentrations in BHE and BHD1. Here, in standpipes installed with response zones at depths, concentrations of the 'EC12 – EC16 aromatic hydrocarbon' fraction for example in the order of 2,000 – 4000 µg/l (in excess of the 90 µg/l WHO drinking water guideline value) were identified.

In addition, in BH01, the monitoring point, where previous monitoring events revealed marginal exceedances of water quality standards only, concentrations of hydrocarbons were found elevated (e.g. for the 'EC12 – EC16 aromatic hydrocarbon' fraction a concentration of 50,000 µg/l was found. This is a 270-500-times increase, compared to the 100-180 µg/l concentrations that had previously been found).

Outline R&D P20 modelling (ref 6), assuming a 2,000 µg/l initial / source concentration, averaged over a 40 meters plume widths included as part of the Fairhurst 2019 Geotechnical and Geo-Environmental Ground Investigation Report suggests concentrations of the TPH CWG aromatic EC12-EC16 fraction to have the potential to result in exceedances of the respective 90 µg/l WHO guideline value for drinking water quality over a 100 - 200 meters distance from the site.

Whilst the Primark groundwater abstraction (see Section 2.0) is within this distance, the prevailing groundwater flow has been found to range between north-north-easterly and east-north-easterly directions. In contrast, the Primark groundwater abstraction is situated approximately 140 meters to the southeast. This closest groundwater abstraction from the site is therefore not on a direct path of contaminants migrating in groundwater, should such migration occur over distances in excess of 100 meters.

In addition, more detailed analysis revealed concentrations of volatile (VOC) and semi-volatile organic compounds (SVOC), including compounds that have been suggested to serve as constituents of potential concern (CoPC) for respective hydrocarbon fractions to be present at 'very low' levels (i.e. generally below detection limits).

FIGURE B1: GROUNDWATER MONITORING LOCATION PLAN

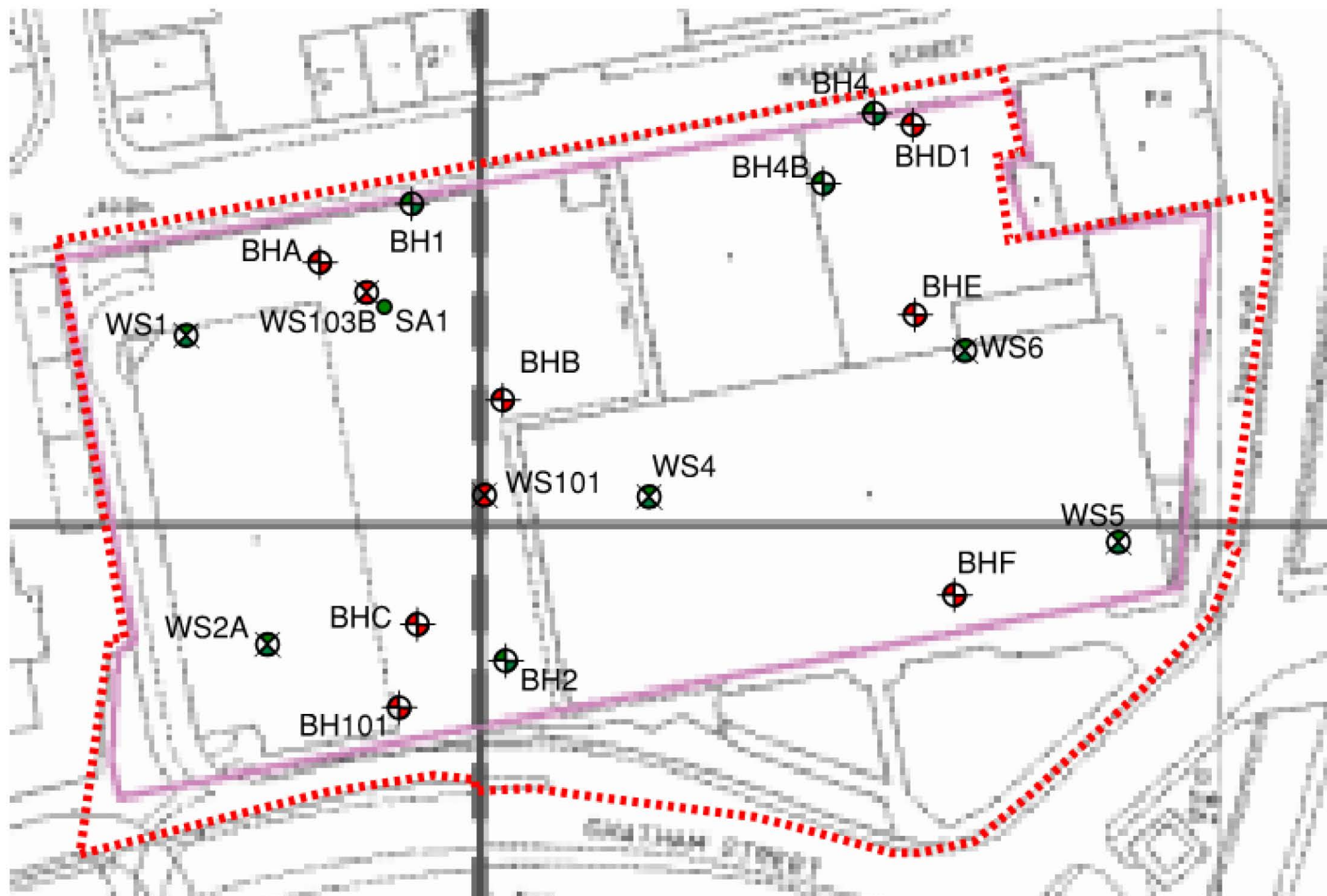


TABLE B1: CHEMICAL RESULTS VS WATER QUALITY STANDARDS

W0101		W0102		W0103		W0104		W0105		W0106		W0107		W0108		W0109		W0110		W0111		W0112		W0113		W0114		W0115		W0116		W0117		W0118		W0119		W0120		W0121		W0122		W0123		W0124		W0125		W0126		W0127		W0128		W0129		W0130		W0131		W0132		W0133		W0134		W0135		W0136		W0137		W0138		W0139		W0140		W0141		W0142		W0143		W0144		W0145		W0146		W0147		W0148		W0149		W0150		W0151		W0152		W0153		W0154		W0155		W0156		W0157		W0158		W0159		W0160		W0161		W0162		W0163		W0164		W0165		W0166		W0167		W0168		W0169		W0170		W0171		W0172		W0173		W0174		W0175		W0176		W0177		W0178		W0179		W0180		W0181		W0182		W0183		W0184		W0185		W0186		W0187		W0188		W0189		W0190		W0191		W0192		W0193		W0194		W0195		W0196		W0197		W0198		W0199		W0200		W0201		W0202		W0203		W0204		W0205		W0206		W0207		W0208		W0209		W0210		W0211		W0212		W0213		W0214		W0215		W0216		W0217		W0218		W0219		W0220		W0221		W0222		W0223		W0224		W0225		W0226		W0227		W0228		W0229		W0230		W0231		W0232		W0233		W0234		W0235		W0236		W0237		W0238		W0239		W0240		W0241		W0242		W0243		W0244		W0245		W0246		W0247		W0248		W0249		W0250		W0251		W0252		W0253		W0254		W0255		W0256		W0257		W0258		W0259		W0260		W0261		W0262		W0263		W0264		W0265		W0266		W0267		W0268		W0269		W0270		W0271		W0272		W0273		W0274		W0275		W0276		W0277		W0278		W0279		W0280		W0281		W0282		W0283		W0284		W0285		W0286		W0287		W0288		W0289		W0290		W0291		W0292		W0293		W0294		W0295		W0296		W0297		W0298		W0299		W0300		W0301		W0302		W0303		W0304		W0305		W0306		W0307		W0308		W0309		W0310		W0311		W0312		W0313		W0314		W0315		W0316		W0317		W0318		W0319		W0320		W0321		W0322		W0323		W0324		W0325		W0326		W0327		W0328		W0329		W0330		W0331		W0332		W0333		W0334		W0335		W0336		W0337		W0338		W0339		W0340		W0341		W0342		W0343		W0344		W0345		W0346		W0347		W0348		W0349		W0350		W0351		W0352		W0353		W0354		W0355		W0356		W0357		W0358		W0359		W0360		W0361		W0362		W0363		W0364		W0365		W0366		W0367		W0368		W0369		W0370		W0371		W0372		W0373		W0374		W0375		W0376		W0377		W0378		W0379		W0380		W0381		W0382		W0383		W0384		W0385		W0386		W0387		W0388		W0389		W0390		W0391		W0392		W0393		W0394		W0395		W0396		W0397		W0398		W0399		W0400		W0401		W0402		W0403		W0404		W0405		W0406		W0407		W0408		W0409		W0410		W0411		W0412		W0413		W0414		W0415		W0416		W0417		W0418		W0419		W0420		W0421		W0422		W0423		W0424		W0425		W0426		W0427		W0428		W0429		W0430		W0431		W0432		W0433		W0434		W0435		W0436		W0437		W0438		W0439		W0440		W0441		W0442		W0443		W0444		W0445		W0446		W0447		W0448		W0449		W0450		W0451		W0452		W0453		W0454		W0455		W0456		W0457		W0458		W0459		W0460		W0461		W0462		W0463		W0464		W0465		W0466		W0467		W0468		W0469		W0470		W0471		W0472		W0473		W0474		W0475		W0476		W0477		W0478		W0479		W0480		W0481		W0482		W0483		W0484		W0485		W0486		W0487		W0488		W0489		W0490		W0491		W0492		W0493		W0494		W0495		W0496		W0497		W0498		W0499		W0500		W0501		W0502		W0503		W0504		W0505		W0506		W0507		W0508		W0509		W0510		W0511		W0512		W0513		W0514		W0515		W0516		W0517		W0518		W0519		W0520		W0521		W0522		W0523		W0524		W0525		W0526		W0527		W0528		W0529		W0530		W0531		W0532		W0533		W0534		W0535		W0536		W0537		W0538		W0539		W0540		W0541		W0542		W0543		W0544		W0545		W0546		W0547		W0548		W0549		W0550		W0551		W0552		W0553		W0554		W0555		W0556		W0557		W0558		W0559		W0560		W0561		W0562		W0563		W0564		W0565		W0566		W0567		W0568		W0569		W0570		W0571		W0572		W0573		W0574		W0575		W0576		W0577		W0578		W0579		W0580		W0581		W0582		W0583		W0584		W0585		W0586		W0587		W0588		W0589		W0590		W0591		W0592		W0593		W0594		W0595		W0596		W0597		W0598		W0599		W0600		W0601		W0602		W0603		W0604		W0605		W0606		W0607		W0608		W0609		W0610		W0611		W0612		W0613		W0614		W0615		W0616		W0617		W0618		W0619		W0620		W0621		W0622		W0623		W0624		W0625		W0626		W0627		W0628		W0629		W0630		W0631		W0632		W0633		W0634		W0635		W0636		W0637		W0638		W0639		W0640		W0641		W0642		W0643		W0644		W0645		W0646		W0647		W0648		W0649		W0650		W0651		W0652		W0653		W0654		W0655		W0656		W0657		W0658		W0659		W0660		W0661		W0662		W0663		W0664		W0665		W0666		W0667		W0668		W0669		W0670		W0671		W0672		W0673		W0674		W0675		W0676		W0677		W0678		W0679		W0680		W0681		W0682		W0683		W0684		W0685		W0686		W0687		W0688		W0689		W0690		W0691		W0692		W0693		W0694		W0695		W0696		W0697		W0698		W0699		W0700		W0701		W0702		W0703		W0704		W0705		W0706		W0707		W0708		W0709		W0710		W0711		W0712		W0713		W0714		W0715		W0716		W0717		W0718		W0719		W0720		W0721		W0722		W0723		W0724		W0725		W0726		W0727		W0728		W0729		W0730		W0731		W0732		W0733		W0734		W0735		W0736		W0737		W0738		W0739		W0740		W0741		W0742		W0743		W0744		W0745		W0746		W0747		W0748		W0749		W0750		W0751		W0752		W0753		W0754		W0755		W0756		W0757		W0758		W0759		W0760		W0761		W0762		W0763		W0764		W0765		W0766		W0767		W0768		W0769		W0770		W0771		W0772		W0773		W0774		W0775		W0776		W0777		W0778		W0779		W0780		W0781		W0782		W0783		W0784		W0785		W0786		W0787		W0788		W0789		W0790		W0791		W0792		W0793		W0794		W0795		W0796		W0797		W0798		W0799		W0800		W0801		W0802		W0803		W0804		W0805		W0806		W0807		W0808		W0809		W0810		W0811		W0812		W0813		W0814		W0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APPENDIX C – WATCHING BRIEF & DISCOVERY STRATEGY

WATCHING BRIEF

During the course of the development, it will be the responsibility of the on-site manager to ensure watching briefs are kept. A watching brief consists of a record of:

- Any observations of contamination made during the course of development by any member of site staff, contractor, visitor and specifically the environmental consultant (the latter shall supervise the works on a part time basis),
- A photographic record of the key stages of development and key occurrences including any suspect material found during the course of the development, the formation levels of excavations, any reduced level dig/mass excavation, formation of landscaped areas etc.
- A record of samples that will have been taken in areas, where by visually or olfactometrically evidence soil material was found suspect, with certificates of their chemical analysis undertaken. This is also to include samples that will have been taken in areas of soft landscaping and analysed for their contaminant leachability.

In areas of the site, where there is a greater chance of finding contaminated soil, an area specific watching brief will need to be kept. Such a brief will need to be completed by an appropriately qualified environmental consultant. The following table provides an example for specific parts of the site to be targeted for a watching brief as part of different work activities.

Table C-1: Area specific watching brief

Area of site	Works to be observed	Person to observe works
E.g. area between exploratory holes BH1, WS103B and WS101 (see Figure 3-1 in Section 3.0)		

Upon the removal of the hardstanding, specifically in the area between exploratory holes BH1, WS103B and WS101, a written and signed statement will be made by the environmental consultant upon whether or not evidence of contamination was identified.

For the event that contamination is found not previously identified [e.g. at depths clearly above the groundwater table (<4.5 m bgl)], reference is being made to condition 20.

In this event, condition 20, requires the local planning authority (LPA) to be informed in writing and the development on that part of the site where contamination was found to be halted.

Then, “an assessment of the nature and extent of the contamination shall be undertaken and where remediation is necessary a remediation scheme, together with a timetable for its implementation” be submitted to the LPA for its written approval.

“The measures in the approved remediation scheme shall be implemented in accordance with the approved timetable. Halted works shall not be re-commenced until the measures identified in the approved remediation scheme have been completed and a validation report approved in writing by the LPA”.

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