



**Remediation
Strategy
Report**

**Plane Street, Huddersfield
For
Torpoint**

Carnoustie House, Kelvin Close, Birchwood, Warrington WA3 7PB

T: 01925 947 675 E: info@dbremediation.com

Registered No. 7666053

Quality Management

Issue/revision	Issue 1
Remarks	
Date	29 th March 2022
Prepared by	J Day
Checked by	J Day
Authorised by	D Rees
Report number	416.03.22.RS

LIMITATIONS

DB Remediation Ltd (DBR) has prepared this report with reasonable skill, care and diligence and taking account of the contract terms and conditions and manpower and resources devoted to it in agreement with the client. DBR disclaims any responsibility to the client and others in respect of any matters outside the scope of the above.

This report has been prepared based on the information received during the timescale available and all potential contamination; constraints or liabilities associated with the site may not necessarily have been revealed.

The report is only valid when it is used in its entirety.

This report is confidential to the client and DBR accepts no responsibility to third parties to whom the report, or any part thereof, is made known. Any such party using any information contained within the report does so at their own risk

Table of Contents

1	Introduction.....	5
1.1	Authorisation	5
1.2	Site Description and Setting	5
1.3	Objectives	5
1.4	Existing Reports and Information Sources	5
1.5	Planning Permission and Regulator Communication	5
1.6	Proposed Development	6
1.7	Background	6
2	Updated Conceptual Site Model	7
2.1	Receptor	7
2.2	Pathways.....	8
2.3	Sources	8
2.4	Source Pathway Receptor Linkages.....	10
3	Remediation Strategy	12
3.1	Introduction	12
3.2	Remediation Actions.....	12
4	Topsoil/Subsoil Validation Plan	13
4.1	Introduction.....	13
4.2	Build Phase Validation Reporting	15
5	References.....	16

Figures (in text)

Figure 1 – Proposed Development Layout	6
Figure 2 : PAH Source Signature Plot	9

Tables (in text)

Table 1 – Potential Receptors	7
Table 2 – Potential Critical Contaminants of Concern	8
Table 3 – Source-Pathway-Receptor Linkage	10
Table 4 – Chemical Limits for Subsoil/Topsoil for Gardens and Landscaping Areas	14

Appendices

APPENDIX A – DRAWINGS

APPENDIX B – REGULATOR CORRESPONDENCE

APPENDIX C - RISK CATEGORIES

APPENDIX D – DISCOVERY STRATEGY

1 Introduction

1.1 Authorisation

DB Remediation (DBR) have been instructed by Torpoint to produce a remediation strategy for an area of land located off Plane Street, Huddersfield. The works have been undertaken to assist with the redevelopment of the site for residential use. This strategy has been produced in accordance with Land Contamination Risk Management (LCRM).

This report has been undertaken to discharge Planning Condition 6 of Planning Application 2020/62/92067/W, requiring the submission of a remediation strategy prior to the start of development.

1.2 Site Description and Setting

The site is accessed off Plane Street, Huddersfield, HD4 3DF at National Grid reference 414580 415390. A site location plan is included in Appendix A.

The site comprises a square parcel of land circa. 0.82ha in area and comprises open grassy land. The site is bordered by a residential housing to north, east and west, with open land to the south.

A topographic survey of the site is included in Appendix A, produced by Met Geoenvironmental Drawing Ref P19-01316 Rev1. Ground levels fall from circa 123.83mAOD in the southeast to circa 111.2m AOD in the northeast adjacent to Plane Street.

1.3 Objectives

The objectives of this report are:

- Present a conceptual model in light of the current development layout and in light of site investigation information;
- To provide a strategy to mitigate remaining risks and facilitate future redevelopment.

1.4 Existing Reports and Information Sources

In preparation of this report, we have reviewed and summarised data from the following reports.

- Solmek. Phase 1 Desk Study. S190939. RT073. Issue 4. November 2019.
- Solmek. Phase 2 Site Investigation. S190939/SI. RT049 Issue 3. April 2020.
- Solmek. Ground Gas Risk Assessment. S190939/GAS. 20th September 2020

It is assumed the client has full reliance on the information from these reports. Where necessary DBR have referred to conclusions or recommendations from the above reports to produce this remediation strategy.

1.5 Planning Permission and Regulator Communication

Environmental Health have been consulted during the planning application, and a copy of their comments are included in Appendix B. In summary, the EHO have requested a remediation strategy for the site.

1.6 Proposed Development

The site is to be developed for 30No. houses with associated rear gardens, driveways, and access roads as shown on the Watson Batty Architects Drawings (PLNST-WBA-XX-ZZ-DR-A-TD02) included in Appendix A.

Figure 1 – Proposed Development Layout

1.7 Background

The site is first shown as a school in the late 1800's and remained as such until it was demolished around 10 years ago.

The BGS published maps show the site to be underlain by the Pennine Lower Coal Measures. These comprise mudstones, siltstones and sandstones with coal seams. The Coal Measures strata are classified as a Secondary A aquifer. It is understood that there are no drift deposits present. The nearest surface water feature is the River Holme located 228m south-east of the site.

The site investigations have encountered shallow Made Ground up to 0.7m bgl. Investigations have confirmed that natural ground, comprising clay was encountered between 0.3 and 3.0m bgl. The Made Ground was encountered as a sandy gravel with cobbles, The gravel consisting of ash, flint, concrete and brick.

The desk study identified the site is within an area at risk from historic coal mining. Further deep wells are proposed to confirm whether shallow mining took place. The results of these investigations were not available at the time of writing this report.

2 Updated Conceptual Site Model

The following Conceptual Site Model (CSM) is based on the available information. This section builds a detailed conceptual model using site specific information to estimate the risk to the proposed development and has been carried out in accordance with LCRM guidance as published on the Environment Agency website.

The conceptual model has been developed as a source-pathway-receptor approach to establish the presence of contaminant linkages in accordance with the guidance.

2.1 Receptor

The following table summarises the potential receptors as a result of development of the site.

Table 1 – Potential Receptors

Potential Receptor	Comments	Potential Severity of any Contaminant Impact (Minor, Mild, Medium or Severe)
Human Health Proposed Site Use	- Planning permission for the construction of new residential houses with private gardens	Human Health: Medium - Severe - The proposed residential development represents a sensitive receptor for any on-site contaminant sources.
Human Health Neighbouring Land Use	- Residential property surrounds the site	Human Health: Mild - Neighbouring properties are unlikely to be affected by ground contamination at the site.
Controlled Waters Groundwater	- Residential development at the site is considered unlikely to significantly affect the low vulnerability groundwater resources in the area.	Groundwater: Minor -The proposed development will not alter the risk to groundwater
Controlled Waters Surface water	- The nearest surface water receptor is 228m south and is therefore unlikely to be near enough to be at risk.	Surface Waters: Medium -The proposed development will not affect surface water
Property: Buildings, Building Materials and Services (BBM&S)	- Buildings, building materials and services will form part of the development.	BBM&S: Medium - The performance of BBM&S can be affected by some contaminants.
Ecological Systems Conservation Designations	- No important ecological systems have been identified around the site.	Ecological Systems: No receptor

Future sensitive receptors identified at this site have been confirmed to include:

- Future residential occupants;
- Construction workers;
- Future infrastructure and buildings/buried concrete;

2.2 Pathways

The plausible pathways are summarised below:

- Gas and vapour inhalation and migration to on-site receptors;
- Chemical attack of infrastructure (including water supply pipes) and buildings;
- Plant uptake;
- Dermal contact;
- Soil ingestion;
- Dust and fibre inhalation;

2.3 Sources

Potential sources of soil and groundwater contamination identified the history of the site are presented below.

Table 2 – Potential Critical Contaminants of Concern

Source	Comments	Critical contaminants of Concern
Made Ground	Limit inert Made Ground found from historic use as a school.	Metals, cyanides, phenols asbestos, pH, sulphates, PAHs, TPHCWG.
Ground Gas and Vapours	Limited degradable material. The site is in a coal mining reporting area and further deep wells are proposed to investigate whether mining has taken place. The shallowest seam is at 35m depth with the near surface ground comprising clay/cohesive strata therefore the risk of gas migration is considered low.	Methane, carbon dioxide, carbon monoxide and hydrogen sulphide,
The substances/hazards listed in Table 2 are those that may be present in the ground at the site. The selection of the potential specific substances and hazards of concern has been guided by our experience of brownfield sites, the primary sources present and information/guidance provided in published DOE industry profiles, CLR-8 (officially withdrawn, but still a valuable resource), EA publication R&D66:2008 and other relevant references. These documents have been used as an additional screening tool to help assess the significance of contaminants and contaminant/hazard groupings and help decide which contaminants/hazards warrant consideration by the environmental site assessment as potential substances and hazards of concern.		

Chemical testing has been undertaken by Solmek with circa 5 No. samples tested for metals, cyanides, phenols, sulphates, speciated PAHs, TPHCWG and asbestos. When compared against their relevant human health screening values the following elevated determinants have been encountered in the Made Ground:

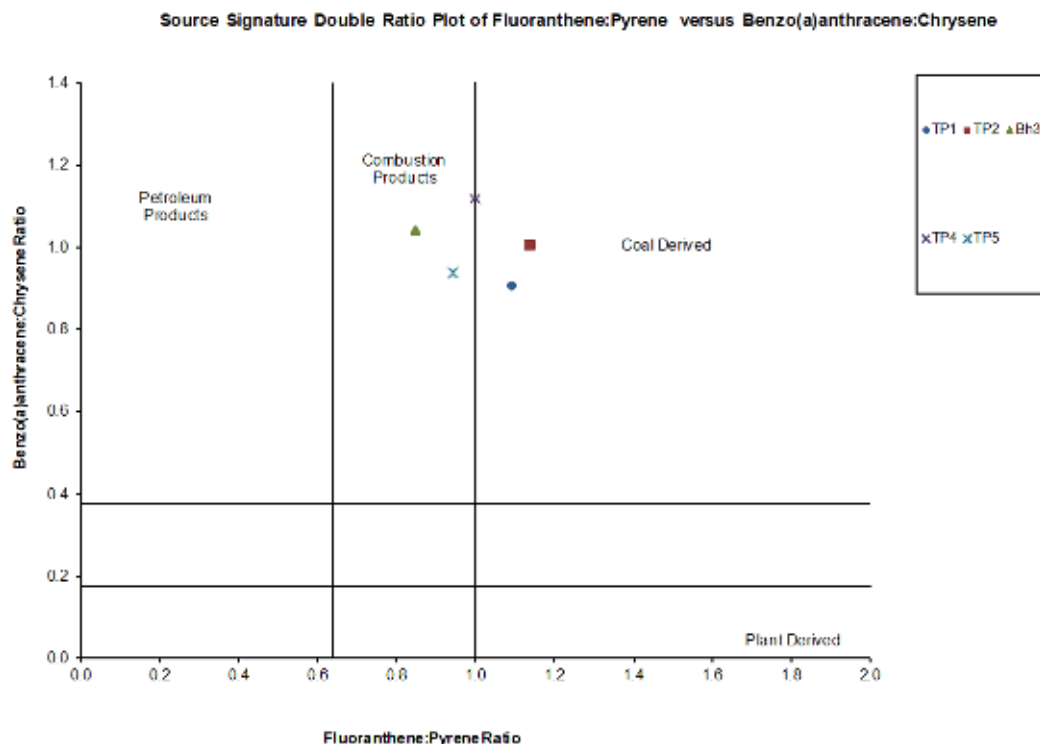
- Arsenic,
- Selected PAHs, and
- Heavy end TPH aromatics.

No asbestos was identified. Elevated results were identified in BH3, TP2 and TP4, all from samples taken from the Made Ground. The highest concentrations of PAH were identified in BH3 at 0.6m from a sample of Made Ground.

To determine the source of the elevated PAHs, a PAH ratio plot can aid understanding of the source of elevated PAHs. All five samples have been plotted to confirm the source, see Figure 2. The PAHs indicate the source to be either ash

or coal in the samples. Due to the elevated PAH (>3000mg/kg) this material would be unsuitable to form a garden material. It is therefore recommended that Made Ground is removed from gardens areas (within 600mm of finished surface) and replaced with a chemically suitable soil. Further details on suitability of the topsoil/subsoil is provided in Section 4 of this report.

Figure 2 : PAH Source Signature Plot



It is understood that ground gas risk assessment has been completed by Solmek and that the site has been classified as an NHBC green requiring no gas protection measures.

2.4 Source Pathway Receptor Linkages

The following table discusses the relevant source-pathway-receptor linkages.

Table 3 – Source-Pathway-Receptor Linkage

Potential Source	Potential Pathway	Potential Receptor	Probability	Consequences	Risk Category: Mitigation Required?	Final Risk Category
Made Ground	Leaching	Groundwater	Unlikely	Mild	Very Low: Low mobility of contaminants present in made ground and no groundwater encountered. No nearby abstractions.	Very Low
		Surface water	Unlikely	Mild	Very Low: Low mobility of contaminants present in Made Ground. No surface water nearby.	Very Low
	Dermal contact Plant uptake	Future residents and planting	Likely	Medium	Moderate: Elevated concentrations of Arsenic, speciated PAHs and localised TPH present in made ground and soils. Clean topsoil and subsoil to be provided to gardens.	Very Low
	Inhalation of dusts	Site workers during the enabling phase	Likely	Mild	Moderate/Low: H&S Risk assessment and provision of appropriate PPE. Dust suppression to be used in dry weather.	Very Low
		Future residents	Likely	Medium	Moderate: Elevated concentrations of Arsenic, speciated PAHs and localised TPH present in made ground and soils which may mobilize in dust. Clean topsoil and subsoil to be provided to gardens.	Very Low
		Off-site	Unlikely	Mild	Very Low: Dust suppression techniques to be used during construction.	Very Low
Made Ground/Aggressive	Direct contact	Water Supply Pipes	Low	Mild	Low: Consideration required. Formal assessment required and agreed with the water supply company.	Very Low

Ground sulphates, metals, etc.	Dermal contact, inhalation and ingestion	Construction Workers	Likely	Medium	Moderate: H&S Risk assessment and provision of appropriate PPE. Dust suppression required.	Very low
	Direct contact	Buried concrete and infrastructure	Low likelihood	Mild	Low: Consideration in engineering design. Concrete design class to be DS2 ACEC (Class AC-1a)	Very low
Ground gas e.g., carbon dioxide, methane, etc.	Migration into buildings	Proposed buildings	Unlikely	Medium	Low: Site has been classified as NHBC Green and therefore no gas protection required.	Very low

Note: See Appendix C for definition of risk category

The following remedial actions are required

- Protection of workforce from dust during enabling phase through PPE and dust suppression
- Ensure clean soil is provided for gardens and landscaping
- Ensure underground services (water supply pipes and buried concrete) are protected through selection of appropriate materials

3 Remediation Strategy

3.1 Introduction

The overall objectives for the remediation scheme are as follows:

- Fulfil regulatory requirements to satisfy Planning Conditions.
- To ensure the site condition is suitable for the proposed future use, in this case, residential housing with private gardens.
- To manage any remediation works such that operational risks including release of dust, odours, vapours and noise are controlled to protect 3rd parties and the wider environment.
- To ensure that post-remediation there are no residual unacceptable risks associated with the site, to human health via future excavation or development works.
- To provide a sustainable solution, maximising re-use of material, minimising waste generation and minimising offsite disposal.

Site investigations have only identified elevated concentrations within the Made Ground, the proposals to provide clean validated soil in gardens and landscaping areas provides a robust and sustainable approach to ensure a safe development.

3.2 Remediation Actions

The following remediation actions are to be undertaken

- Place clean soil in all landscaping and gardens, the design of which is addressed below in Section 4.
- Water supply pipe assessment to be undertaken for all water supply pipes;
- Sulphate resistant concrete design will be required.
- Provision of appropriate PPE and dust suppression measures during enabling phase works.

Throughout the works there is the potential for unidentified contamination or additional constraints to be identified. These may include:

- Evidence of unforeseen visual or olfactory contamination in soils;
- Localized pockets deleterious material;
- Asbestos hotspots;
- Unknown services; and,
- Unrecorded or unknown relic structures.

In the event of any significant unforeseen contamination / constraint being identified then works would be stopped and the wider project team informed. DBR's Discovery Strategy (see Appendix D) would then be implemented if applicable to enable works to progress. All works would be validated as required and records included within the verification plan.

4 Topsoil/Subsoil Validation Plan

4.1 Introduction

The following validation plan outlines the requirements to provide a clean, suitable soil for garden areas in the proposed development because the existing Made Ground is unsuitable physically, and locally chemically to form a suitable soil to be used in landscaping and garden areas.

Due to the requirement for regarding the site, it may be possible to win a suitable natural soil from the site, therefore the following validation plan outlines the testing and validation requirements to ensure that where soil is won from site or imported, it is suitable for re-use.

The proposed clean soil will be placed in all soft landscaping to include gardens and landscaping area. There is no requirement specific material to be placed beneath buildings or in areas of hardstanding.

Validation will be undertaken to the following depths,

- 600mm in back gardens/front gardens.
- 300mm in public open space/planted borders and communal green spaces

There is no requirement to validate the soil in the wooded area along the southern boundary as this is outside of the red line boundary of the site.

Confirmation of subsoil/topsoil will be provided in accordance with standard guidelines, and reference has been made to the YALPAG Verification Requirements for Cover Systems. 2021 Version 4.1 when specifying validation requirements.

All topsoil/subsoil used in the landscaping works should conform to the following criteria:-

- It should be a suitable growing medium e.g., stone content and size;
- It should contain less than 0.5% of foreign debris, building waste materials or contaminant which are defined as: metal, plastics, rubber, textile, treated wood and 'sharp' glass;
- The following constituents, although potentially anthropogenic in origin are acceptable provided, they are gravel sized or smaller: brick, stone, concrete, tile, ceramic, slate, rounded glass and coal;
- It has not come from areas where Japanese Knotweed or other invasive or injurious plants are suspected to have been growing;
- It is chemically suitable. Compliance criteria are outlined in Table 4.

Compliance criteria to determine suitability of soil are based on the following.

- LQM, 2015 values sourced from the LQM/CIEH Suitable (S4UL) 2015. Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3467. All rights reserved.
- C4SL, 2014 values sourced from DEFRA Research Project. Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. FINAL. SP1010. December 2013.
- British Standard. BS3882:2015. Specification for Topsoil.

All soils will be tested to ensure they are suitable for use. The frequency and suite of testing will be dependent on the origin of material. The testing suite will be determined based on the following: -

- Virgin quarried material: Soil samples will be analysed for metals, as a minimum As, Cd, Cr (III), Cr {VI}, Cu, Hg, Ni, Pb, Se and Zn, pH and SOM.
- Greenfield Source: Soil samples will be analysed for metals (As, Cd, Cr (III and VI), Cu, Pb, Hg, Ni, Se, B and Zn) speciated PAH, pH, SOM and asbestos screen.
- Site Won or Brownfield Source: As a minimum testing should be undertaken for metals, PAHs, pH, SOM and asbestos similar to site won above, however the suite of testing will be tailored based on the historic site use of

the donor site and additional determinands scheduled where suspected to have been used e.g. cyanide, Speciated TPHCWG. Desk study information to be referred to where possible.

Once tested, the results will be compared against the screening criteria in Table 4. These will ensure the material is suitable for use in a residential setting and poses either 'minimal' or 'low' risk to human health from the presence of chemical contaminants. These are applicable to both imported and site won material.

Table 4 – Chemical Limits for Subsoil/Topsoil for Gardens and Landscaping Areas

Determinand	Compliance	Comments
Arsenic	37	LQM S4UL, 2015
Cadmium	11	LQM S4UL, 2015
Chromium (VI)	6	LQM S4UL, 2015
Chromium (III)	910	LQM S4UL, 2015
Copper	2400	LQM S4UL, 2015
Lead	200	C4SL, 2014
Inorganic	40	LQM S4UL, 2015
Nickel	130	LQM S4UL, 2015
Selenium	250	LQM S4UL, 2015
Zinc	3700	LQM S4UL, 2015
Asbestos	No visible asbestos fragments <0.001%	
pH	3.5 to 9.0	Acceptable range for plant growth from BS3882:2015
Benzo(a)pyrene	5	C4SL, 2014 Benzo(a)pyrene assessment criteria has been developed on the basis that benzo(a)pyrene is a surrogate marker for genotoxic PAH. PAH profiling assessment to be carried out to confirm use of surrogate marker approach.
EC5-6 Aliphatic	42	LQM S4UL, 2015
EC6-8 Aliphatic	100	LQM S4UL, 2015
EC8-10	27	LQM S4UL, 2015
EC10-12	130	LQM S4UL, 2015
EC12-16	1100	LQM S4UL, 2015
EC16-35	65000	LQM S4UL, 2015
EC5-7 Aromatic	70	LQM S4UL, 2015
EC7-8 Aromatic	130	LQM S4UL, 2015
EC8-10	34	LQM S4UL, 2015
EC10-12	74	LQM S4UL, 2015
EC12-16	140	LQM S4UL, 2015
EC16-21	260	LQM S4UL, 2015
EC21-35	1100	LQM S4UL, 2015
Benzene	0.087	LQM S4UL, 2015

Notes

Criteria generally based on 1% SOM to be applicable to both subsoil and topsoil.

Compliance criteria based on assessment criteria for the protection of human health in a residential setting assuming plant uptake and vegetable consumption.

Compliance criteria are derived using CLEA Version 1.06 using published toxicological data and generic land use parameters. LQM, 2015 values sourced from the LQM/CIEH Suitable (S4UL) 2015, see references. Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3467. All rights reserved. C4SL, 2014 values sourced from DEFRA Research Project. Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. FINAL. SP1010. December 2013. British Standard. BS3882:2015. Specification for Topsoil.

All subsoil/topsoil will be tested at the following frequencies:

- 1 or 2 samples for virgin quarried material to confirm the inert nature of the material.
- Minimum 3 or 1 per 250m³ for Greenfield soils.
- Minimum 6 or 1 per 100m³ for Brownfield soils.

Testing should be undertaken once the soil has been brought to site and ideally once it has been placed to rule out any cross contamination during handling.

To ensure sufficient depth of soil has been placed, hand dug validation pits will be dug in the rear gardens at a frequency of 1 pit per 3 plots.

4.2 Build Phase Validation Reporting

Following completion of build phase works, garden verification certificates will be produced. The certificate will include photographs to including a levelling staff/board to provide visual evidence of the validation. Photographs will include the following aspects: -

- Confirmation of the placement of a hi-viz membrane
- Confirmation of the depth of soils;
- Inclusion of background features which will aid locating the photograph.

Each garden verification certificate will be compiled into a main report, which will include a complete record of the activities undertaken as part of the verification process, and includes all data, lab results etc. Where soils are sourced from a commercial provider, all suppliers' routine chemical test certificates and the delivery tickets to site will be included in the Verification Report, in addition to the independent testing undertaken.

The report will include the following: -

1. Details of the origin the subsoil/topsoil
2. Original Chemical Test Certificates
3. Capping Verification Certificate
4. Photographs of inspection pits/placement of material
5. Interpretation on the suitability of the material
6. Volume of imported/site won soil

5 References

- BS5930:2015. Code of Practice for Ground Investigations. BSI (London), 2015.
- Building Research Establishment Report 465 (BRE465), Cover systems for land regeneration: Thickness of cover systems for contaminated land. 2004
- BSI. Investigation of potentially contaminated sites. Code of Practice. BS 10175. BSI (London), 2001
- Environment Agency/DEFRA Guidance Document (CLR11), Model Procedures for the Management of Contaminated Land,
- BSI BS3882:2015. Specification for Topsoil.
- BSI. BS8601:2013. Specification for subsoil and requirements for use
- BRE 465. Cover Systems for Land Regeneration. Thickness design of cover systems for contaminated land. March 2004.
- CIRIA. 1996. Barriers Liners and Cover Systems. CIRIA Special Publication 124, CIRIA, London.
- DEFRA. 2009. Contaminated Land Exposure Assessment (CLEA) model. Soil Guideline Values.
- DEFRA and Environment Agency. 2004. Model Procedures for the Management of Land Contamination.
- Contaminated Land Research Report CLR 11. Environment Agency, Bristol Environment Agency R & D Publication 66, (2008) Guidance for the safe development of housing on land affected by contamination
- CIEH / Contaminated Land: Applications in Real Environments (CL: AIRE), 2008, Guidance on Comparing Soil Contamination Data with a Critical Concentration.
- DEFRA Research Project. Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. FINAL. SP1010. December 2013.
- Environment Agency. Verification of the Remediation of Contaminated Land. SC030114/R1. February 2010.
- YALPAG Verification Requirements for Cover Systems. 2021 Version 4.1
- LQM, 2015 values sourced from the LQM/CIEH Sutable (S4UL) 2015. Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3467. All rights reserved.
- C4SL, 2014 values sourced from DEFRA Research Project. Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. FINAL. SP1010. December 2013.

APPENDIX A – DRAWINGS



VISUAL SCALE 1:500

Materials Key

- TARMAC DRIVES
- BUFF PAVING SLABS
- TARMAC ROAD & PAVEMENT*
- * ALL ROADS TO BE ADOPTED

Boundary Key

- 1.8m High Close Boarded Fence
- 1.5m High Close Boarded Fence
- 1.8m High Garden Gate
- Timber Bin Store
- Rear Garden Retaining Walls

Refer to engineers information for retaining wall details / locations and Plot FFLs

Schedule of Accommodation	
2B4P HOUSE_79sq.m	09no.
3B5P HOUSE_93sq.m	06no.
3B5P UP-SPLITTER HOUSE_99sq.m	15no.
TOTAL	30no.

LEVELS SHOWN ON PLAN ARE SUBJECT TO FURTHER DETAILED DESIGN

Site Key

- EXISTING TREES
- REMOVED TREES (TO BE CONFIRMED)
- PROPOSED LOW LEVEL/MAINTENANCE HEDGE
- RETAINING WALL LOCATIONS (REFER TO ENGINEERS DETAILS)
- BANKING / PLANTING AREA
- PLOT ENTRANCES
- GARDEN SHED
- BINS
- ATTENUATION TANK LOCATION + EASEMENT



Rev:	Date:	Drawn:	Checked:	Description:
Suitability:	D2	Tender		

PLANE STREET

SITE PLAN

Location:							
PLANE STREET							
HUDDERSFIELD							
Client:							
UNITY HOUSING ASSOCIATION							
UPRN	Originator	Zone	Level	Type	Role	Series/Number	Revision:
PLNST-WBA-XX-ZZ-DR-A-TD02							
Date:	Drawn:	Checked:	Scale:	@A2	Int Job No:		
10/22/19	MAI	RPM	1 : 500	4039_06			

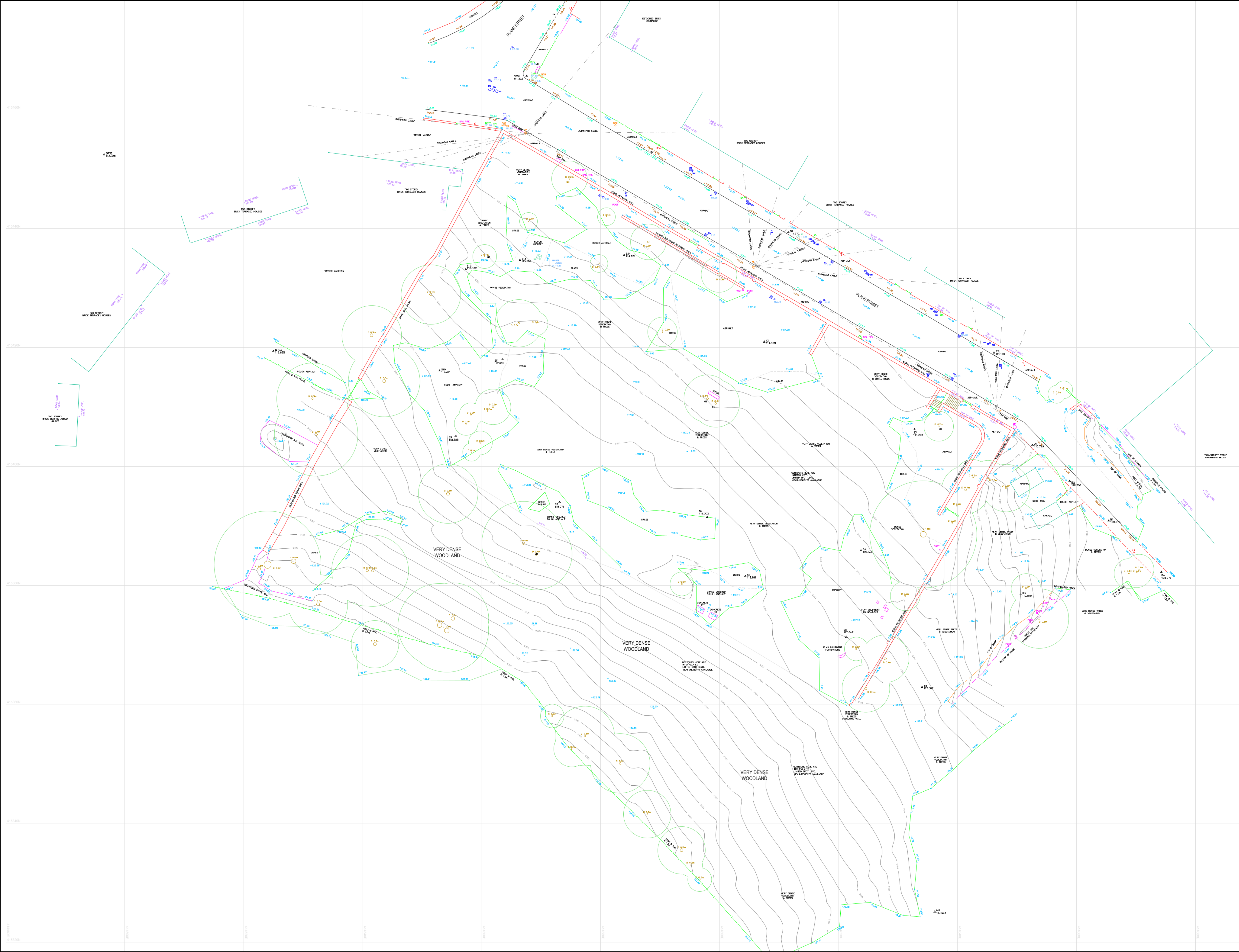
WATSON BATTY ARCHITECTS

Shires House, Shires Road
Guiseley, Leeds LS20 8EU
Leeds | Loughborough

T: 01943 876 665
E: enquiries@watsonbatty.com
W: www.watsonbatty.com

FUTURE BUILT

Note: Do not Scale from this drawing. All dimensions to be checked on site



Notes

This drawing and the information contained therein is issued in confidence and is the copyright of Met Geo Environmental Limited. Disclosure of this information to Third Parties and unauthorised copying or replication of this data without approval is forbidden.

Grid : OS National Grid.
Using the OS GPS Network and applying OSTN15 transformation and then removing the scale factor for true distances with a one-step transformation centred on GPS1

Datum : OS Level Datum.
Using the OS GPS Network and applying OSGM15 National Geoid Model to obtain local area corrections.

Station Listing

Station	Easting	Northing	Level
B1	414665.397	415380.862	109.573
B2	414658.548	415387.546	110.236
B3	414650.595	415378.488	112.515
B4	414674.282	415382.253	108.976
B5	414634.028	415382.823	117.562
GPS1	414567.564	415465.701	111.222
GPS2	414496.531	415452.470	115.085
GPS3	414524.978	415419.390	119.625
J1	414652.599	415403.801	110.799
M6	414636.156	415325.121	117.623
S1	414611.559	415439.384	111.972
S2	414646.124	415419.149	111.180
S3	414632.772	415406.255	114.295
S4	414623.771	415385.879	116.122
S5	414621.303	415371.356	117.547
S6	414604.323	415381.545	118.151
S7	414597.897	415391.480	118.302
S8	414573.098	415394.009	118.071
S9	414555.637	415405.142	118.325
S10	414552.904	415416.115	118.331
S11	414563.505	415417.599	117.601
S12	414557.338	415433.182	116.462
S13	414566.417	415434.753	115.616
S14	414583.962	415435.581	114.751

KEY

AIR VALVE	W	W	W
BENCH MARK	W	LAMP POST	W
BW	W	MANHOLE (CIRCULAR)	W
BOLLARD	W	MANHOLE (RECTANGULAR)	W
BONE HOLE	W	MANHOLE (TRIANGULAR)	W
BRITISH TELECOM COVER	W	MARKER POST	W
BUS STOP	W	W	W
CABLE TV COVER	W	POSSIBLE EYE	W
CABLE TV SUPPLY	W	SOFT POST	W
COLUMN	W	TELECOM COVER	W
DROPPED KERB	W	TELEGRAPH POLE	W
FLASHING POINT	W	THRESHOLD LEVEL	W
ELECTRICITY COVER	W	TRAFFIC LIGHT	W
ELECTRICITY POLE	W	TRAIL PIT	W
FIRE HYDRANT	W	WASH BAIT	W
GAS VALVE	W	WATER METER	W
GATE	W	WATER STOP COCK	W
INSPECTION COVER (CIRCULAR)	W	WATER STOP VALVE	W
INSPECTION COVER (RECTANGULAR)	W	W	W
COVER LEVEL	W	CHAMBER BASE LEVEL	W
PROPERTY LEVEL	W	WATER SURFACE LEVEL	W
UNABLE TO REASE	W	UNABLE TO REASURE	W
GIRTH OF TREE TRUNK	W	DIAMETER OF TREE TRUNK	W
HEIGHT TO TOP OF TREE CANOPY	W	WALKY BOLE TREE	W

Rev	Date	Drawn	Description	Check

Southgate House
Pontefrac Road
Stourton
Leeds
West Yorkshire
LS10 1SW

T: +44 (0) 1132 008 900
F: +44 (0) 1132 008 901
E: admin@metgeoenvironmental.com
W: www.metgeoenvironmental.com

Client

WATSON BATTY ARCHITECTS LTD

Site

LAND OFF PLANE STREET
HUDDERSFIELD, HD4 6DF

Title

TOPOGRAPHICAL
SURVEY

Surveyed	JM, MR, SB	Drawn	JM
Check	DBS	Date	29/10/2019
Scale	1:200	Job No	P19-01316
		Sheet Size	A0
		Rev	01

DWG Ref

Project Number	Origin	Zone	Level	Desc	Type	Role	Sheet
P19-01316	METEXT	XX	TOP	M2	G	001	

APPENDIX B – REGULATOR CORRESPONDENCE

Consultation Response from: KC Environmental Health (Pollution & Noise Control)		
2020/92067 - former, Stile Common Infant & Nursery School, Plane Street, Newsome, Huddersfield, HD4 6DF		
Erection of 30 dwellings		
Date Responded: 9th February 2021	Responding Officer: Natalie Heaney	Responding Ref: WK/202020474
Contaminated Land In our previous consultation response dated 14th October 2020, we recommended contaminated land conditions relating to the next phases of development (CLC2-5, CLC7) should remain. We have now received a Ground Gas Risk Assessment by Solmek, dated 29th September 2020 (ref: S190939/GAS). I have read the report supplied by the applicant. Six ground gas monitoring visits were completed between July and September 2020 from the 3 previously installed boreholes. Monitoring revealed a maximum carbon dioxide concentration of 1.2% v/v and a minimum oxygen concentration of 19.3% v/v with a peak flow of 0.1 litres/h. As such the gas screening value was calculated as 0.0012 l/hr for carbon dioxide. As such, the report classifies the site as green following the NHBC traffic light classification system. As such, no specific remediation will be required to protect against ground gases. Although the monitoring was taken over just over 2 months and is short of the agreed 6 visits over 3 months, the information provided demonstrates a negligible/low risk and I am satisfied with the gas monitoring data. A remediation strategy must now be prepared and submitted, detailing the remediation proposals to address the soil contamination as identified in the intrusive investigation. <u>Recommendations</u> I am satisfied the submitted information now meets the requirements for the originally recommended condition CLC2 which can therefore now be removed. The originally recommended contaminated land conditions CLC3, CLC4, CLC5 and CLC7 must remain until further notice. Recommendations relating to electric vehicle charging and nuisance from construction activities remain unchanged from our last response dated 14th October 2020.		

APPENDIX C - RISK CATEGORIES

Risk Assessment Methodology

The Environment Agency online guidance: Land Contamination: Risk management outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. Three stages of risk assessment exist: preliminary, generic quantitative and detailed quantitative. An outline conceptual model should be formed at the preliminary risk assessment stage that collates all the existing information pertaining to a site in text, tabular or diagrammatic form. The outline conceptual model identifies potentially complete (termed possible) contaminant linkages (contaminant–pathway–receptor) and is used as the basis for the design of the site investigation. The outline conceptual model is updated as further information becomes available, for example as a result of the site investigation.

Production of a conceptual model requires an assessment of risk to be made. Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the likelihood and the consequences of an event must be taken into account when assessing risk.

The likelihood of an event can be classified on a four-point system using the following terms and definitions based on CIRIA C552:

- highly likely: the event appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution
- likely: it is probable that an event will occur, or circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term
- low likelihood: circumstances are possible under which an event could occur, but it is not certain even in the long term that an event would occur, and it is less likely in the short term
- unlikely: circumstances are such that it is improbable the event would occur even in the long term.

The severity can be classified using a similar system also based on CIRIA C552. The terms and definitions relating to severity are:

- severe: short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. Short-term risk to an ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000)
- medium: chronic damage to human health ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000), pollution of sensitive water resources, significant change in an ecosystem or organism forming part of that ecosystem
- mild: pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures or the environment
- minor: harm, not necessarily significant, but that could result in financial loss or expenditure to resolve. Non-permanent human health effects easily prevented by use of personal protective clothing. Easily repairable damage to buildings, structures and services.

Once the probability of an event occurring and its consequences have been classified, a risk category can be assigned according to the table below.

		Consequences			
		Severe	Medium	Mild	Minor
Probability	Highly likely	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very low	Very low

Definitions of these risk categories are as follows together with an assessment of the further work that may be required:

- very high: there is a high probability that severe harm could occur or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability; urgent investigation and remediation are likely to be required
- high: harm is likely to occur. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required. Remedial works may be necessary in the short term and are likely over the long term
- moderate: it is possible that harm could arise, but it is unlikely that the harm would be severe, and it is more likely that the harm would be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term
- low: it is possible that harm could occur, but it is likely that if realised this harm would at worst normally be mild
- very low: there is a low possibility that harm could occur and if realised the harm is unlikely to be severe

APPENDIX D – DISCOVERY STRATEGY

HOW TO IDENTIFY POTENTIAL CONTAMINATED MATERIAL

- Soils that smell or are obviously impacted with oily/fuel.
- Man-made waste materials such as paint cans, car parts,
- Drainage channels or structures containing trapped oily water or fuels
- Asbestos cement/lagging/sheets or suspected asbestos containing materials
- Buried metallic structures e.g. tank, drums or suspected UXO

(Examples only – This list is not exhaustive. If in any doubt ask the Site Manager)

PROCEDURE

If unexpected evidence of contamination is found the following procedures shall be adhered, including:

1. All site works at the position of the suspected contamination should stop.
2. Site Personnel to inform the Site Manager/Agent, who shall contact DB Remediation.
3. Visual and olfactory observations of the condition of the ground and the extent of contamination should be made.
4. In the presence of a suitably qualified geo-environmental engineer, investigation works shall commence to recover samples for testing and, using visual and olfactory observations of the condition of the ground, delineate the area over which contaminated materials are present.
5. Should it be deemed appropriate, the affected material may be excavated and placed in a stockpile on a suitable impermeable surface. This should be suitably quarantined with no addition to, or removal of, the stockpile while chemical analysis is being undertaken. Alternatively, the material should remain *in situ* until laboratory test results have been obtained.
6. A photographic record should also be made of relevant observations.
7. DB Remediation will determine the testing suite based on visual and olfactory observations.
8. Test results will be compared against current assessment criteria suitable for the future use of the area of the site affected.
9. The Local Authority and EA shall be informed if any contamination is found that would alter the remediation strategy or provide a new source-pathway-receptor linkage, not previously addressed in the strategy. After consultation with the Local Authority and if necessary the Environment Agency, materials should either be removed for disposal to a licensed waste management facility or remediated to agreed clean-up criteria.