KEYLAND DEVELOPMENTS LTD

Land at Cooper Bridge, Lower Brighouse

Phase I Environmental Assessment

December 2008

Wardell Armstrong
Engineering & Environmental Solutions

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KEYLAND DEVELOPMENTS LTD

Land at Cooper Bridge, Lower Brighouse
Phase I Environmental Assessment

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APPENDICES

DRAWINGS

1. INTRODUCTION

1.1 Instructions

This report is prepared in accordance with instructions from Mr Bill Lawson of Keyland Developments Limited dated 05 June 2008 and in accordance with our standard terms and conditions as attached at Appendix I. This follows a verbal proposal dated 05 June 2008 by Wardell Armstrong.

1.2 Site Location

The site is land at Cooper Bridge, Lower Brighouse, West Yorkshire, and is located as shown on the site location plan, Drawing No. SH10243/01 (1:50,000 scale) and more detailed site plan SH10243/02 (1:5,000 scale). The site comprises an active sewage treatment plant and is bound by Leeds Road and a timber mill to the north, the River Calder to the east, a railway line to the south and two residential properties to the west. The site is located approximately 2km north-west of Mirfield and approximately 6km north-east of Huddersfield town centre.

1.3 Purpose and Basis of Report

The purpose of this report is to identify and examine in broad terms the potential stability and contamination constraints and liabilities that may arise in connection with the present use or proposed use of the site. The report is designed generally in accordance with the first incremental stage of a Land Quality Statement as set out by the Royal Institution of Chartered Surveyors (RICS) in their publication "Land Contamination Guidance for Chartered Surveyors September 1995". The background to government guidance on contamination and the purpose and use of Land Quality Statements in assessing the risk of contamination at a site is described at Appendix II. The report does not constitute or contain a valuation nor is it a full rigorous environmental audit. In this instance, the report is prepared due to a proposed redevelopment of the site.

1.4 Proposed Use

It is proposed that the site is redeveloped for commercial land use.

2. SITE HISTORY AND PRESENT LAND USE

2.1 Data Sources

The history of the site and its immediate vicinity has been investigated by consultation with a range of archive sources and statutory bodies. The topographical and environmental data is primarily based on a Landmark Envirocheck report dated 09 June 2008.

Additional archives and statutory bodies contacted are given in Appendix III.

2.2 Site History

The site history has been primarily researched to identify previous land uses, including any significant potentially contaminative uses. Where other features that may have an effect on development of the site have been identified, they are described.

Table I summarises the history of the site and its immediate vicinity over the period from 1854 to the present day.

TABLE I
SUMMARY OF LAND USE

Date	Site Land Use	Adjacent Land Use
1854 - 1890's	The site is undeveloped greenfield land.	The surroundings are largely agricultural. The River Calder and a navigation canal trend through the site, broadly SW-NE. A railway line, with a station and sidings, is located adjacent to the S of the site and trends broadly NW-SE. The Nun Brook print works is located adjacent to the N of the site and several mills are situated approximately 50m E of the site. Several quarries are located within 1km of the site, the nearest being a pit 200m E and Hall Bank Quarry (sandstone) approximately 400m E. Several collieries are also located within 1km of the site, the closest being Helm Colliery (300m SE) and Nun Brook Colliery (300m NE). Several archaeologically important sites, including ancient earthworks, a priory and Robin Hood's grave are identified between 600m and 1km NW of the site.

TABLE I
SUMMARY OF LAND USE

Date	Site Land Use	Adjacent Land Use
1900 - 1920's	The 1922 Ordnance Survey plans indicate the site to have been developed into a sewage works, with a concentration of tanks and filters within the western portion of the site.	The Brighouse Corporation sewage works is now located between 400m and 600m NW of the site and a further small sewage works is situated 600m SW of the site. The Nun Brook Colliery is no longer identified and a new colliery 'Three Nuns Pit' is marked 300m N of the site. The mills approximately 50m NE of the site are initially labelled as flour mills and later as an oil works and a flock mill.
1930 - 1960's	No significant change.	The Heaton Lodge sewage works is now situated between 50m and 500m SW of the site. The Brighouse Corporation sewage works has expanded and is identified from 50m W to 600m NW. The majority of the collieries and quarries are now labelled as disused or are no longer present.
1970-1990's	The layout of the sewage works on site has changed. A pumping station, electricity substation and tanks are now identified.	Residential expansion of the nearby villages of Bradley and Mirfield is evident. A scrap yard is labelled as being present approximately 300m NW of site. An incinerator is identified approximately 250m W of the site.
2000-Present day	The SE portion of the site is identified as a marsh.	No significant change.

2.3 Present Site Use

The site was visited on 04 December 2008. During the site visit a Wardell Armstrong representative was accompanied by Neil Pinner, YWS and Peter Garrett, KDL. At the time of the visit the site comprised an active sewage treatment works and ancillary buildings. The following points are of note:

1) Filter beds cover approximately 4.7 hectares of the site and these were reported to be 4m deep. The filter media within the beds, reported to be slag, has an estimated volume in the order of 190,000m^3.
2) The site slopes gently towards the east and the River Calder with a fall of approximately 5m across the site.

3) The brick building adjacent to the site entrance was used as a laboratory and store. A prefabricated building to the west of this was marked with a pesticides warning sign. The remaining buildings on site were used as pumping stations.
4) Waste management on site appeared to be reasonably controlled with minor stockpiles of stone, timber and concrete rubble.
5) Mature trees are present around the perimeter of the site and dense vegetation is present along the banks of the River Calder.
6) Sewage treatment works occupy land to the south-east (Heaton Lodge Filter Beds), south (Lower Brighouse WwTW) and south-west (Calder Valley WwTW) of the site.
7) The eastern portion of the site to the east of the River Calder was not inspected as the access gate across a narrow pedestrian bridge was locked. Access to this area by vehicles is via a narrow road and locked gate to the east and north of the Heaton Lodge Filter Beds.

A site visit record is attached at Appendix IV.

3. ENVIRONMENTAL SETTING AND CONSULTATIONS

3.1 Statutory Sources

Information from various statutory sources has been summarised utilising the information received from the Landmark Information Group Ltd. This is summarised at Appendix V. The site sensitivity map and full copy of the Envirocheck data is available on request.

3.2 Waste Management

Information supplied has indicated the presence of the following landfills or waste management sites within potential influencing distance of the site boundary.

TABLE II

Location	Details
Historical Landfill Site: Colne Bridge Cutting, Helm Lane, Colne Bridge **Grid Ref:** 418410, 420325 **Distance from Site:** 231m SE	**Licence Number:** EAHLD35080 (Other references: WDL/101 & 45CABWAL) **Dates of Operation:** 01/01/1983 – 31/12/1988 **Specified Waste Type:** Deposited waste including industrial, commercial, household and liquid sludge **Licence Status:** Historical Landfill
Licensed Waste Management Facility: John Broadbent, Unit 17a, Knowles Street, Bradford **Grid Ref:** 418236, 420579 **Distance from Site:** 126m SE	**Licence Number:** 65429 **Authority:** Environment Agency – NE Region **Site Category:** End of Life Vehicles **Licence Status:** Issued (01/09/2005)
Registered Waste Treatment or Disposal Site: John Cotton (Mirfield) Ltd, Nunbrook Mills, Huddersfield Road, Mirfield **Grid Ref:** 418400, 421000 **Distance from Site:** 103m E	**Licence Number:** 111 & 112 **Authority:** Environment Agency – NE Region **Site Category:** Incineration **Licence Status:** Lapsed/cancelled

In addition to the recorded/licensed landfilling activities in the vicinity of the site, the possibility of there being unrecorded landfilling activities within influencing distance of the site cannot be entirely discounted. If at some time in the future, the presence of such an unrecorded landfill is revealed then its potential influence on the site may need to be investigated and dealt with as necessary.

3.3 Radon

Radon can accumulate in enclosed spaces within buildings and this has been identified as a risk to human health for many years. The Health Protection Agency and British Geological Survey document "Indicative Atlas of Radon in England and Wales" (2007) provides a summary of the number of homes in a

given area above the Action Level for radon. Although the radon atlas relates directly to measurements taken from homes or dwellings, it is also relevant to employers assessing risks for underground and ground-floor work places.

The BRE document "Radon: guidance on protective measures for new dwellings" (2007) provides guidance for reducing the concentration of radon in new dwellings and a two stage procedure using accompanying maps needed to determine the level of protection for a given site.

These documents have been consulted and the site is shown to lie in an area where no protection against radon is needed should development of residential dwellings or new structures of similar form of construction and compartmentation occur.

3.4 Environmental Issues

As a result of research mainly via the Landmark Envirocheck report, there are no records of any prosecutions or enforcements relating to authorised processes within influencing distance of the site.

3.4.1 Pollution Incidents to Controlled Waters

The Environment Agency data via the Landmark report records the following category one and two (significant and major) incidents at or in the vicinity of the site.

TABLE III

Incident	Details
Property Type: Sewage Treatment Works **Grid Ref:** 418200, 420900 **Distance from Site:** On site	**References:** 129849, 129850, 129851 & 130362 **Pollutant:** Not specified **Incident Date:** 23 January 1992 **Note:** Battyeford Bridge, Calder 04C **Incident Severity:** Category 2 (Significant)
Property Type: Textile Industry **Grid Ref:** 418200, 420995 **Distance from Site:** 4m NE	**Reference:** SL960956 **Pollutant:** Other chemicals **Incident Date:** 23 August 1996 **Note:** Pollution found; fish killed **Incident Severity:** Category 2 (Significant)
Property Type: Industrial Premises **Grid Ref:** 418200, 420800 **Distance from Site:** 12m SE	**Reference:** 115781 **Pollutant:** Chemicals – other organic **Incident Date:** 12 October 1990 **Note:** None specified **Incident Severity:** Category 2 (Significant)

TABLE III	
Incident	**Details**
Property Type: Industrial Premises **Grid Ref:** 418400, 421000 **Distance from Site:** 103m E	**Reference:** 111970 **Pollutant:** Not supplied **Incident Date:** 25 June 1990 **Note:** None specified **Incident Severity:** Category 2 (Significant)

3.4.2 Discharge Consents

The Environment Agency data via the Landmark report records the following current or past consents at or in the vicinity of the site.

TABLE IV	
Consent	**Details**
Operator: Yorkshire Water Services Ltd **Grid Ref:** 418210. 420890 **Distance from Site:** On site	**Location:** Huddersfield STW, Mirfield **Discharge Reference:** Wra7409 (Version 8) **Date Issued:** 07 March 2005 **Type:** Sewage Discharges – Final/Treated Effluent **Receiving Water:** River Calder & River Colne **Status:** Modified (7 previous permit versions)
Operator: Yorkshire Water Services Ltd **Grid Ref:** 418220, 420900 **Distance from Site:** On site	**Location:** Huddersfield STW, Mirfield **Discharge Reference:** Wra6610 (Version 5) **Date Issued:** 01 January 1998 **Type:** Sewage Discharges – Final/Treated Effluent **Receiving Water:** River Calder **Status:** Revoked (31 March 1999)
Operator: Johnston Construction Site **Grid Ref:** 418150, 420820 **Distance from Site:** On site	**Location:** Lower Brighouse STW, Cooper Bridge Road, Mirfield **Discharge Reference:** Wra7302 **Date Issued:** 12 February 1997 **Type:** Trade Effluent **Receiving Water:** River Calder **Status:** Revoked (05 December 1997)
Operator: Clugstone Construction **Grid Ref:** 418155, 420825 **Distance from Site:** On site	**Location:** Lower Brighouse STW, Cooper Bridge Road, Mirfield **Discharge Reference:** Wra7210 **Date Issued:** 24 January 1997 **Type:** Trade Discharges – Site Drainage **Receiving Water:** River Calder **Status:** Revoked (29 July 1997)

TABLE IV	
Consent	**Details**
Operator: Yorkshire Water Services Ltd **Grid Ref:** 418500, 420800 **Distance from Site:** 16m E	**Location:** Huddersfield STW, Mirfield **Discharge Reference:** 2535 (Version 2) **Date Issued:** 20 January 1986 **Type:** Sewage Discharges – Final/Treated Effluent **Receiving Water:** River Calder **Status:** Revoked (13 February 1992)
Operator: Three Nuns Colliery **Grid Ref:** 418100, 421200 **Distance from Site:** 101m N	**Location:** Not specified **Discharge Reference:** 44291595 **Date Issued:** 10 January 1985 **Type:** Not specified **Receiving Water:** Not specified **Status:** Not specified
Operator: Yorkshire Water Services Ltd **Grid Ref:** 417750, 420850 **Distance from Site:** 157m W	**Location:** Brighouse STW, Brighouse **Discharge Reference:** 2912 (or E1) **Date Issued:** 15 January 1999 **Type:** Sewage Discharges – Storm Overflow/Storm Tank **Receiving Water:** River Calder **Status:** Revoked
Operator: Yorkshire Water Services Ltd **Grid Ref:** 417900, 420700 **Distance from Site:** 210m SW	**Location:** Brighouse WPC Works – Storm Tank **Discharge Reference:** 2912 (or E1) (Permit Version 4) **Date Issued:** 01 January 1991 **Type:** Sewage Discharges – Final/Treated Effluent **Receiving Water:** River Calder **Status:** Revoked (15 January 1999)
Operator: Clugstone Construction **Grid Ref:** 417600, 421000 **Distance from Site:** 213m W	**Location:** Upper Brighouse STW, Cooper Bridge Road, Mirfield **Discharge Reference:** Wra7232 **Date Issued:** 23 October 1996 **Type:** Trade Discharges – Site Drainage **Receiving Water:** River Calder **Status:** Revoked (29 July 1997)

3.4.3 Integrated Pollution Prevention and Control

The Environment Agency data via the Landmark report records the following current or past IPPC permissions at or in the vicinity of the site.

TABLE V	
Operator	**Details**
Operator: Yorkshire Water Services Ltd **Grid Ref:** 418005, 420771 **Distance from Site:** 96m S	**Permit Reference:** KP3137LY **Effective Date:** 01 November 2006 **Description:** 5.1 A(1) (C) & 5.3 A(1) (C) II – Incineration of Non-Hazardous Waste Greater Than 1 T/Hr and Physico-Chemical Treatment **Status:** Effective (Original Permit Reference = Vp3639ps)
Operator: Yorkshire Water Services Ltd **Grid Ref:** 417584, 420985 **Distance from Site:** 229m W	**Permit Reference:** GP3636LB **Effective Date:** 21 May 2007 **Description:** 5.3 A(1) (C) II – Non-Hazardous Waste Treatment >50T/Hr By Physico-Chemical Treatment **Status:** Effective (including minor variation NP3637UR – 237m W)

3.4.4 Local Authority Pollution Prevention Controls

The Environment Agency data via the Landmark report records the following current or past Local Authority Pollution Prevention Controls at or in the vicinity of the site.

TABLE VI	
Operator and Location	**Details**
Operator: Three Nuns Service Station - Ay & Y Patel (Dewsbury) Ltd **Grid Ref:** 418152, 421174 **Distance from Site:** 73m NE	**Authority:** Kirklees Metropolitan Borough Council, Environmental Health Department **Reference:** PPC E 113 **Date:** Not specified **Description:** PG1/14 Petrol Filling Station **Status:** Permitted/Authorised

3.5 Ecology

3.5.1 Specific Ecological Issues

There are a number of legal or planning constraints relating to wildlife habitats and protected plant and animal species. Wildlife habitats and protected species can occur on or adjacent to a site. They can also be linked via surface or groundwater and can be affected by activities on the site such as noise, dust or pollution.

Reference to the Landmark Envirocheck report indicates that no National Nature Reserves, Marine Nature Reserves or Sites of Special Scientific Interest are present

within 1km of the site. The Landmark Envirocheck Report indicates that the site lies within an area of Adopted Green Belt as well as lying within a Nitrate Vulnerable Zone.

Although a site visit has been carried out, this was not specifically for ecological purposes. The site visit identified potentially sensitive ecology along the bank of the River Calder. Further information on this ecological feature should be obtained particularly in relation to designated sites of importance for nature conservation and protected species.

3.5.2 Japanese Knotweed, Himalayan Balsam and Giant Hogweed

Many foreign plants were introduced to Britain in the 19th Century, mainly for ornamental reasons. A few have become aggressively dominant, creating serious problems in some areas. Three such invasive plants are Japanese knotweed, Himalayan balsam and Giant hogweed. Their spread is primarily the result of human activities, which aid their dispersal along linear corridors such as railway tracks, rivers and road verges. By forming dense stands they can displace native species and reduce wildlife interest.

None of the above mentioned invasive plants were identified on site. However, the site visit was not specifically for ecological purposes and invasive species can be difficult to identify during their winter die-back period.

3.6 Environmental Management

The overall standard of housekeeping and environmental management was observed to be satisfactory.

3.7 Asbestos

The Health and Safety at Work Act requires that Employers provide safe places of work for their employees. The Control of Asbestos at Work Regulations (CAWR) place very heavy specific duties on those who commission and carry out work on asbestos containing materials. Construction work that is likely to involve exposure of workers to hazards associated with asbestos in existing buildings will be subject to the Construction (Design and Management) Regulations which impose duties upon Clients, Designers and the Contractors carrying out the work. Other health and safety and welfare regulations place duties on Employers to undertake risk assessments and prepare hazard management plans which, in the case of a building likely to contain asbestos, could involve the commissioning of surveys, hazardous materials location registers and proposals for remedial work.

A site walkover survey has been completed. However, the walkover survey does not constitute an asbestos survey and not all areas of the site may have been visited.

Asbestos has not been identified on site during our site walkover. However, asbestos may be present in buildings on the site and could be present in the made ground at the site associated with past historical use. In the event that any asbestos is identified in the future or if it is considered that there is a risk that asbestos exists in the building, a full asbestos survey should be carried out. Guidance on the need for asbestos surveys and the method of carrying them out are given in HSE Publication MDHS100.

3.8 Archaeology

Examination of historical maps indicates no features of significant archaeological interest in the near vicinity of the site (within 250m). Archaeologically important sites, including ancient earthworks, a priory and Robin Hood's grave are noted between 600m and 1km NW of the site.

3.9 Land Designation

The eastern portion of the site is designated as a Flood Water Storage Area by the following Environment Agency Designations: EA1231202701002R84 & EA1231202701002R85.

4. GEOLOGICAL AND HYDROGEOLOGICAL SETTING

4.1 Geology

The assessment of the geology of the site is based on the published British Geological Survey (BGS) mapping sheet (Sheet 77, Huddersfield, Solid & Drift Edition, 1:50,000 scale) supplemented by the geological memoir, topographical plans and site visit. A typical conjectured section of strata is provided in Table VII below along with other geological data.

TABLE VII

Strata	Description
Made ground.	Made ground of an unknown nature, thickness and extent has been identified on site by both a site walkover survey and a GroundSure Environmental Report. BGS data indicates that the southern edge and eastern half of the site is artificial ground.
Natural superficials.	Superficial deposits comprising Alluvium and possible River Terrace Deposits are identified on site.
Solid strata.	Solid strata comprise Lower Westphalian (mainly productive) Coal Measures.
Dip and dip direction.	The dip of solid strata in this area is complex due to the extensive faulting, though the general dip direction in the area is towards the SE.
Evidence of faulting.	Information from BGS and from a GroundSure Geological and Ground Stability report indicates that four faults trend across the site, two trending SW-NE across the site and downthrown to the NW, and two trending NW-SE across the site. All four are indicated to be normal faults.
Natural cavities.	None identified.
Landslides and other ground stability hazards.	British Geological Information Services via the Envirocheck data indicate a moderate potential for Compressible Ground stability hazards and a low to moderate potential for Shallow Mining hazards on site.

4.2 Hydrogeology

Hydrogeological information has been obtained from:

- a Landmark Envirocheck report,
- Groundwater Vulnerability maps published by the Environment Agency,
- Hydrogeological maps published by the British Geological Survey, and
- the Policy and Practice for the Protection of Groundwater (Environment Agency, 1998).

This information indicates the site to be underlain by superficial deposits and Lower Westphalian Coal Measures, which are classified as a minor aquifer.

Minor aquifers are generally fractured or potentially fractured formations and do not have a high primary permeability. Although not producing large quantities of water for abstraction, they are important for local supplies and in supplying base flow to rivers.

There is one active groundwater abstraction licence within a 2km radius of the site. It is 368m W (NGR: 417500, 420800) and is operated by E Bottomley & Sons Ltd, who are licensed to abstract 109,090m^3 of groundwater per year for boiler feed (textiles and leather) purposes. A further two groundwater abstraction licences are listed within 2km of the site but have been revoked.

The site does not lie within a source protection zone. The nearest public water supply abstraction licence is 1,844m SW of the site.

4.3 Soil Vulnerability Classification – Leaching Potential

The soil vulnerability classification groups the many different soil types of England and Wales into three soil vulnerability classes and six sub-classes. Each is based on the physical and chemical properties of the soil, which affect the downward passage of water and contaminants. This classification is not applied to soil above non-aquifers. Soil information for urban areas is based on fewer observations than elsewhere. A worst case vulnerability is therefore assumed until proved otherwise.

The soil has a High Leaching potential (HU) due the sites urban location and hence variability.

4.4 Hydrology

The nearest graded surface watercourse is the River Calder (Battyeford Cut to Huddersfield Outfall), which is on site. The Environment Agency has given the River Calder a General Quality Assessment (Chemistry) rating of C (Fairly Good).

The Environment Agency completed a national flood risk assessment in 2004, which used ground levels, predicted flood levels, information on flood defences, and local knowledge. The assessment predicts the likelihood of flooding in an area as low medium or high based on zones identified in Planning Policy Statement 25 Development and Floodrisk (2006).

The majority of the site lies within Flood Zone III and as such has a high probability of flooding. The chance of flooding each year is 1.0% (1 in 100) or

greater. The north-western corner of the site lies within Flood Zone II and has a medium probability of flooding, between 1.0% (1 in 100) and 0.1% (1 in 1,000). The eastern portion of the site is also a designated Flood Water Storage Area by the following Environment Agency Designations: EA1231202701002R84 & EA1231202701002R85.

There are 6 active surface water abstraction licences within 2km of the site. The closest is 5m east (NGR: 418300, 420900) and is operated by John Cotton (Mirfield) Ltd, who are licensed to abstract 54,552m^3 of surface water per year for general use (textiles and leather) purposes. No further surface water abstraction licences are listed within 2km of the site.

5. MINING AND QUARRYING

5.1 General

Research of the mining setting is based on examination of the published topographical and geological information as described in Section 2 and 4 of this report along with other mining archive information. A Coal Authority report for the site has been obtained, dated 12 June 2008 and is attached at Appendix VI. Examination has also been made of the Mining Instability Study of Great Britain for any evidence of past mining relating to workings other than coal.

5.2 Surface Workings

Research of topographical, geological and other archive mining records has indicated no evidence of surface extraction on site or within the near vicinity.

5.3 Shallow Underground Workings

From the enquiries made and examination of the geological information, there is no evidence of shallow underground mining activity on site or within the near vicinity.

5.4 Deep Mining

Deep mining is generally defined as that mining undertaken at depths greater than about 30m below rockhead. The Coal Authority report indicates that the property is in the likely zone of influence of past workings in one seam of coal at 100m to 120m depth, last worked in 1926.

Whilst ground movements would have occurred due to the mining of any deeper seams, surface subsidence effects should have been largely contemporaneous with the mining. The site is considered stable in respect of any past deep mining.

There are no current mining activities affecting the site and the site does not lie within influencing distance of any presently known planned future workings.

5.5 Mine Entries

The Coal Authority report has indicated that there are no recorded mine entries on or within influencing distance of the site.

6. CONCEPTUAL SITE MODEL

6.1 Environmental Issues

Conclusions are drawn from the preceding information in terms of potential sources of contamination, possible receptors that may be affected by any sources of contamination and the pathways that exist between source and receptor. This basic risk assessment allows identification of the suitability of the site for its current and future use and evaluation of any potential environmental liability that may attach to the site. A description of past or existing uses and their chemicals of potential concern is attached at Appendix VII. The issues can be broadly addressed as follows: land contamination, groundwater contamination, surface water contamination, ground gases and air pollution.

The land use history has identified the following potentially significant sources of contamination both on the site and adjacent to the site.

Potentially Significant Contamination Source On Site:

1. Chemical storage.
2. Electrical substation.
3. Sewage treatment works.
4. Made ground present across the site.
5. Potential asbestos containing material.
6. Filter media (slag).

Potentially Significant Contamination Source Off Site:

7. Adjacent wood mill and sewage treatment works.

As a result of the land use history presented in previous sections of this report the site may have a number of sources of contamination. For land or groundwater to be designated as polluted a linkage must exist between:

- a source of contamination capable of causing significant harm;
- human or environmental receptors; and
- a pathway by which the contamination can reach the receptor.

The conceptual site model presented in Table VIII details an initial assessment of all potential pollutant linkages.

TABLE VIII		
SOURCE (CONTAMINANT)	**PATHWAY**	**RECEPTOR**
No. 1 Chemical storage (various laboratory chemicals)	1. Inhalation. 2. Dermal contact. 3. Ingestion. 4. Surface runoff. 5. Groundwater migration. 6. Direct contact (aggressive attack).	1. Current occupiers. 2. Future occupiers. 3. Construction workers. 4. Groundwater. 5. Surface water. 6. Subsurface building materials and plastic service pipes. 7. Flora and Fauna.
No. 2 Cooling oil in old electrical sub-station. (Hydrocarbons, PCB)	1. Inhalation. 2. Dermal contact. 3. Ingestion. 4. Surface runoff. 5. Groundwater migration. 6. Direct contact (aggressive attack).	1. Current occupiers. 2. Future occupiers. 3. Construction workers. 4. Groundwater. 5. Surface water. 6. Subsurface building materials and plastic service pipes. 7. Flora and Fauna.
No. 3 Sewage treatment works. (hydrocarbons, PCB, metals, pathogens)	1. Inhalation. 2. Dermal contact. 3. Ingestion. 4. Surface runoff. 5. Groundwater migration. 6. Direct contact (aggressive attack).	1. Current occupiers. 2. Future occupiers. 3. Construction workers. 4. Groundwater. 5. Surface water. 6. Subsurface building materials and plastic service pipes. 7. Flora and Fauna.
No. 4 Made ground present across the site. (heavy and phytotoxic metals, PAH)	1. Inhalation. 2. Dermal contact. 3. Ingestion. 4. Surface runoff. 5. Groundwater migration. 6. Direct contact (aggressive attack).	1. Current occupiers. 2. Future occupiers. 3. Construction workers. 4. Groundwater. 5. Surface water. 6. Subsurface building materials and plastic service pipes. 7. Flora and Fauna.
No. 5 Historic building material and made ground. (asbestos)	1. Disturbance and inhalation.	1. Current occupiers. 2. Future occupiers. 3. Construction workers.
No. 6 Filter media (slag)	1. Inhalation. 2. Dermal contact. 3. Ingestion. 4. Surface runoff. 5. Groundwater migration.	2. Future occupiers. 3. Construction workers. 4. Groundwater. 5. Surface water. 7. Flora and Fauna.
No. 7 Surrounding industry including agriculture, mills and sewage works.	1. Inhalation. 2. Dermal contact. 3. Ingestion. 4. Surface runoff.	1. Current occupiers. 2. Future occupiers. 3. Construction workers. 4. Groundwater.

TABLE VIII		
SOURCE (CONTAMINANT)	**PATHWAY**	**RECEPTOR**
(hydrocarbons, solvents, metals, phenols)	5. Groundwater migration. 6. Direct contact (aggressive attack).	5. Surface water. 6. Subsurface building materials and plastic service pipes. 7. Flora and Fauna.

7. ENVIRONMENTAL RISK ASSESSMENT

7.1 Introduction

The main issues considered in the risk assessment are:

- The environmental risks identified, if any, that may have implications for the current use of the site.
- The environmental risks identified, if any, that may have implications for the proposed use of the site if different from its current use.
- How likely it is that the environmental risks identified may affect the site. This is considered against a background of continuation of the current use and potential for the site to be redeveloped in accordance with the proposed use.
- Other areas of primary concern from a ground engineering and environmental viewpoint that may have been revealed as a result of the research carried out. These features are limited to the scope of work/research carried out and may not cover such factors as the wider planning constraints, archaeology, ecology etc.

For ease of reference and understanding the risks are assessed against 3 possible levels/categories:

- **Low risk** - site considered suitable for use and environmental setting. Contaminants may be present but unlikely to have an unacceptable impact on key targets. Action unlikely to be needed;
- **Moderate risk** - site may not be suitable for use and environmental setting. Contaminants probably or certainly present and likely to have an unacceptable impact on key targets. Action may be needed in the medium term; and
- **High risk** - site probably or certainly not suitable for use and environmental setting. Contaminants probably or certainly present and very likely to have an unacceptable impact on key targets. Urgent action needed in short term.

Under each of the categories the environmental issues which have been identified have been assessed with regard to a wide range of topics including (where appropriate):

- the 'source-pathway-receptor' concept;
- the behaviour of potential contaminants within the environment;
- environmental processes;
- industrial operations and best practice;
- current environmental legislation;
- the views and practices of the environmental regulators;
- the likelihood of environmental notices, orders or other enforcement action;
- any requirements to remove waste, contaminated or hazardous materials;
- the health and safety of occupiers or neighbours;
- any redevelopment plans for the site;
- effects on the fabric of buildings caused by contamination; and

- financial and cost implications.

From the combination of the foregoing information a qualitative assessment of the contamination risk is provided in Table IX. Where indicated, these risks may need to be considered for any future redevelopment of the land.

The effect of the present site use on the surrounding area is assessed with regard to the possible contaminant migration from the site off site and with regard to the general environmental setting and land quality of the surrounding area in order to put the on site assessment in context.

Table IX

Issue	Summary	Risk Category	
		Humans	Property/ Environment
Contamination Potential:			
Present site use.	Sewage treatment works and open land.	Low – Mod.	Low – Mod.
Past site use.	Sewage treatment works.	Low – Mod.	Low – Mod.
Impact to site from past and present adjacent land uses.	Mills and works buildings, waste management facilities, sewage treatment works, railways and agricultural activity.	Low – Mod.	Low – Mod.
Mining history.	Minor historic deep underground mining. No mine entries within the vicinity.	Low	Low
Emissions, pollution incidents, discharges etc.	The following current or past environmental records are recorded on site or within the near vicinity: 3 waste management sites, 4 pollution incidents, 9 Discharge Consents, 2 Integrated Pollution and Prevention Controls and 1 Local Authority Pollution and Prevention Control.	Low - Mod.	Low - Mod.
Environmental Sensitivity:			
Geology.	Made ground overlying superficial alluvium overlying Lower Westphalian coal measures.	n/a	n/a
Groundwater vulnerability.	This site is situated on a minor aquifer. The closest active groundwater abstraction licence is 368m west.	Low	Low

Table IX			
Issue	**Summary**	**Risk Category**	
		Humans	Property/ Environment
Surface water vulnerability.	The nearest graded surface watercourse is the River Calder and navigation canal, which flows through the centre of the site. The closest surface water abstraction licence is 5m east.	Low – Mod.	Mod.
Geological constraints:			
Made ground / superficials / solid geology	The extent and thickness of made ground on site may present a constraint to potential future use, particularly regarding foundation design.	Low	Mod.
Mining setting	Minor historic underground mining. No mine entries within the vicinity.	Low	Low
Risks relating to other constraints:			
Flooding.	The majority of the site lies within Flood Zone III, with a high probability of flooding. The eastern portion of the site is largely designated as a Flood Water Storage Area.	Mod.	Mod. – High
Ecology.	A Phase I ecological assessment is recommended.	Low	Low
Liability Issues:			
Risk of liability with past use of site.	Sewage treatment works.	Low – Mod.	Low - Mod.
Risk of liability with current use of site.	Sewage treatment works.	Low	Low - Mod.
Risk of liability for proposed use of site.	Redevelopment for commercial land use	Low – Mod.	Mod.
Overall Risk for Site:	**Low to Moderate**		

8. CONCLUSIONS

The history of the site indicates a low to moderate potential for contamination from both on site past use and adjacent operations that may have impinged upon the site. The site is currently used as an active sewage treatment works and it is understood that it is proposed for commercial redevelopment. Therefore, it is considered that the site represents a relatively minor risk of hazard or environmental liability. However, if any redevelopment were proposed in the future we would anticipate that an investigation of the geological conditions will be required and it may be anticipated that some made ground and/or other unsuitable materials will be encountered. It is anticipated that some remedial measures would be necessary depending on the nature and extent of the made ground and any future more sensitive land use.

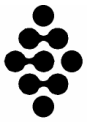
The majority of the site lies within Flood Zone III, with a high probability of flooding. In addition, the eastern portion of the site is largely designated as a Flood Water Storage Area. Therefore, flooding may present a major development constraint.

There is a very large volume of filter media, reported to be slag, present within the filter beds on site. An assessment of this material will be required to determine if it is suitable for reuse on site.

9. RECOMMENDATIONS

Based on the available information, it is recommended that further investigation of the site is completed. The scope of work is likely to comprise:

- A Phase II contamination assessment comprising sampling and testing of soil, groundwater and ground gas and a quantitative risk assessment;
- A detailed assessment of the filter media to determine if this is suitable for reuse on site;
- A phase I ecology/habitat assessment; and
- A flood risk assessment.



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Engineering & Environmental Solutions

APPENDIX I

Standard Terms and Conditions and Limitations to Reports

STANDARD TERMS AND CONDITIONS AND LIMITATIONS TO REPORTS

This report is provided for the stated purpose and for the sole use of the client. It is confidential to the client and his professional advisors and cannot be shown to any other party without prior written consent. Wardell Armstrong LLP accepts no responsibility whatsoever to any person other than the client.

The findings of this report are based upon information relating to the property supplied by the client or their agents. The information has been accepted and used in good faith and unless otherwise stated, no attempt has been made to verify the information supplied. Should any of these factors or information change then the conclusions of the report may need to be amended. The information supplied is detailed at Appendix III along with details of the other published and archive sources of information used in the preparation of the report.

The opinions and findings of this report are given without the benefit of any physical site investigation, sampling and testing. A walk over site visit has been carried out.

The findings and recommendations are considered to be valid and appropriate at the time of preparation and for the specific purpose or purposes intended. Wardell Armstrong LLP will not be liable if any findings are used by third parties, without the written agreement of the company, or if an interpretation is made and action taken without further consultation.

APPENDIX II

Guidance on Contamination and Land Quality Statements

CONTAMINATION

Background

In 1990 the Government published the Environmental Protection Act which amongst other matters introduced the concept of a public register of contaminated land. The relevant section (section 143) of the Act met with a great deal of criticism and concern and was not implemented. The possibility of such a register did however create and heighten concerns and awareness of contaminated land issues that remain to date.

In the following five years there was a great deal of discussion on this issue and in particular the Government issued a consultative paper entitled "Paying for the Past" in March 1994. The Government's conclusions from this exercise were published in November 1994 under the title "Framework for Contaminated Land". This document set out the Government's proposals for a machinery for dealing with contaminated land and liabilities. Many of the main elements of this proposal remain in the present strategy for assessing and solving contaminated land problems.

A number of important points were raised:

- there is a commitment to sustainable development and to the "polluter pays" principle.
- there is a commitment to the 'suitable for use' approach to the control and treatment of existing contamination. This approach identifies that remedial action should only be required where:
- the contamination poses unacceptable actual or potential risks to health or the environment; and
- there are appropriate and cost effective means available to do so, taking into account the actual or intended use of the site.

ENVIRONMENT AGENCY

In order to regulate and offer guidance on issues of contaminated land the Government established the "Environment Agency". The Agency took over all the functions of the former National Rivers Authority (NRA), the Waste Regulation Authorities and Her Majesty's Inspectorate of Pollution as well as some of the functions of the Secretary of State for the Environment. It is part of the role of the Environment Agency to provide technical research and guidance in matters concerning contaminated land.

Although the need for a public register of contaminated land as set out in section 143 of the EPA 1990 has been repealed there remains within the now enacted Environment Act 1995 a role for Borough and District Councils in identifying and acting on land contamination. This has now been further defined and is outlined in the following guidance notes.

Summary Guidance Notes on the Implementation of Part IIA of the Environmental Protection Act 1990 – Contaminated Land

Introduction

The following is intended as a general guide outlining the main issues that land and property owners and developers will have to consider with regards to the contaminated land regime, which came into force on 1 April 2000.

This is the first time that contaminated land issues in England have been brought under an integrated legislative framework. In addition to the Act it is also expected during the next few years to have clarification of such issues as specific guideline values for various contaminants along with mechanisms for quantitative risk assessment. The assessment techniques are likely to develop more clearly towards a health based risk assessment utilising the significance of toxicological and ecotoxicological parameters.

Government Policy and Objectives of New Regime

There are a number of important government policies and priorities underlying the Act. The first priority is to prevent the creation of new contamination by use of this Act and other controls such as Integrated Pollution Prevention and Control and Waste Management licensing. The second is to identify and remove unacceptable risks to human health and the environment. In addition there is a desire to bring contaminated land back into beneficial use whilst seeking to ensure that the cost burdens faced by individuals, companies and society as a whole are proportionate, manageable and economically sustainable. These policy objectives are also underlain by the "suitable for use" approach to the remediation of contaminated land, which the Government considers is the most appropriate approach to achieving sustainable development. In essence the approach is not aiming at a "Garden of Eden" but a removal of unacceptable risks and a long term goal of reduction and progressive improvement in land quality.

The main objective underlying the introduction of the Part IIA Contaminated Land regime is to provide an improved system for the identification and remediation of land where contamination is causing unacceptable risks to human health or the wider environment, assessed in the context of the current use and circumstances of the land.

The new regime broadly reflects the approaches already in place under the statutory nuisance regime and Part VII of the Water Resources Act 1991. The Government's primary objectives for introducing the new regime are:

1. to improve the focus and transparency of the controls, ensuring authorities take a strategic approach to problems of land contamination;
2. to enable all problems resulting from contamination to be handled as part of the same process; previously separate regulatory action was needed to protect human health and to protect the water environment;
3. to increase the consistency of approach taken by different authorities; and
4. to provide a more tailored regulatory mechanism, including liability rules, better able to reflect the complexity and range of circumstances found on individual sites.

In addition to providing a more secure basis for direct regulatory action, the Government considers that the improved clarity and consistency of the new regime, in comparison with its predecessors, is also likely to encourage voluntary remediation. This forms an important secondary objective for implementation of the Part IIA regime.

Companies who may be responsible for contamination, for example on land they currently own or on former production sites, will be able to assess the likely requirements of regulators acting under Part IIA. They will then be able to plan their own investment programmes to carry out remediation in advance of actual regulatory intervention.

Similarly, the Part IIA regime will assist in the recycling of previously developed land. The new regime cannot be used directly to require the redevelopment of land, only its remediation. However, the Government considers that implementation of the regime will assist developers by reducing uncertainties about so-called "residual liabilities", in particular the perceived risk of further regulatory intervention. In particular it will:

1. reinforce the "suitable for use" approach, enabling developers to design and implement appropriate and cost-effective remediation schemes as part of their redevelopment projects;
2. clarify the circumstances in which future regulatory intervention might be necessary (for example, if the initial remediation scheme proved not to be effective in the long term); and
3. set out the framework for statutory liabilities to pay for any further remediation, should that be necessary.

"Suitable for Use" Approach

This approach to dealing with contaminated land recognises that the risks presented by any given level of contamination will vary greatly on a site by site basis. The approach considers 3 elements:

1. ensuring that land is suitable for current use
2. (i.e. identifying unacceptable risks)
3. ensuring that land is made suitable for any new use, as planning permission is given for that new use (i.e. identify unacceptable risks to new use).

Limiting requirements for remediation to the work necessary to prevent unacceptable risks to human health or the environment in relation to current use or future use of the land for which planning permission is being sought (i.e. identify risk to specific uses)

Main Feature of Regime

There are two main players in the new regime with differing but complementary roles as set out in Table I below.

TABLE I

Local Authority Role	Environment Agency Role	Remarks
Enforcing Authorities for all contaminated land not designated as Special Sites.	Enforcing Authority for Special Sites.	Special Sites are to be designated by Local Authority Environment Agency based on descriptions in the regulations.
Identification and inspection of contaminated land.	Assist in identification of contaminated land particularly where water pollution is involved	A written strategy should have been published by July 2001 by each Local Authority.
Establish who should bear responsibility for remediation (appropriate person and proportion of costs).	Provide specific guidance e.g. toxicological data and assistance to Local Authorities	This is likely to be complex in some situations of multiple pollutants and multiple substances.

TABLE I - continued		
Local Authority Role	**Environment Agency Role**	**Remarks**
Issue remediation notices for contaminated sites.	Issue remediation notices for special sites.	
Hold a register of information.	Technical research.	
	Publish periodic reports on contaminated land.	

This definition is: A strategic approach is designed to enable a Local Authority to identify, in a rational, ordered and efficient manner, the land which merits detailed individual inspection, identifying the most pressing and serious problems first and concentrating resources on the areas where contaminated land is most likely to be found. In developing a strategy many factors will apply such as the history of the area and the geological and hydrogeological aspects of the area. The strategic approach has been likened to a "land MOT" picking up those features of most importance.

Definition of Contaminated Land/Risk Assessment

Contaminated land has been defined for the first time under Part 11A EPA 1990. This definition is: Contaminated land is land which appears to the local authority to be in such a condition, by reason of substances in, or under the land, that significant harm is being caused, or there is a significant possibility of such harm being caused, or that pollution of controlled waters is being, or is likely to be, caused.

The definition of contaminated land is based upon the principles of risk assessment. Risk is defined as the probability of frequency of occurrence of a defined hazard and the magnitude of the consequences.

The statutory guidance uses the concept of a POLLUTANT LINKAGE – that is a linkage between a CONTAMINANT (source) and a RECEPTOR, by means of a PATHWAY. Detailed definitions and guidance are given with regard to types of receptor and significance of harm. A Local Authority in assessing and identifying contaminated land must therefore identify A SIGNIFICANT POLLUTANT LINKAGE.

A contaminant is a substance which is in, on or under the land and which has the potential to cause harm to a receptor or to cause pollution of controlled waters. A receptor is a living organism, a group of living organisms, an ecological system, a piece of property or controlled water. A pathway is one or more routes or means by, or through, which a receptor is being or could be exposed to or affected by a contaminant.

A Local Authority will need to satisfy itself that both a pollutant linkage exists and that it is resulting in significant harm or there is significant possibility of significant harm to a receptor or pollution to controlled water is occurring or pollution may result. In assessing significance the Local Authority will look at the nature and degree of harm, susceptibility of the receptor and timescale associated with use.

A detailed definition of significant harm is provided which includes such areas as death, disease, birth defects, genetic mutation or serious injury to humans (Number of people, effect, intake and exposure to contaminant) irreversible adverse change to ecological systems (ecotoxicological properties), harm to species of special interest, crop damage, death and disease of livestock and pets, structural failure or substantial damage.

Provision for Payment

In general the responsibility for paying for remediation will, where feasible, follow the "polluter pays" principle. In the first instance, any person who caused or knowingly permitted the contaminating substance to be in, or under the land will be the appropriate person(s) to undertake the remediation and meet its costs. If it is not possible to find such a person, responsibility will pass to the current owner or occupier of the land (excluding water pollution sec 1.10).

Appropriate Person

Part 11A EPA defines two different categories (Class A and B) of Appropriate Person and sets out the circumstances in which persons may be responsible for remediation. The designation of the 'appropriate person' is classified as "any person, or any of the persons, who caused or knowingly permitted the substances, or any of the substances, by reason of which the contaminated land in question is such land to be in, on or under the land is an appropriate person. This person is a Class A person and as such the Polluter Pays. Where a Class A person cannot be found after reasonable enquiry then the owner or the occupier of the land (for the time being) becomes the appropriate person and is a Class B person.

Caused or Knowingly Permitted

The test of 'causing' will require that the person concerned was involved in some active operation, or series of operations, to which the presence of the pollutant is attributable. Such involvement may also take the form of a failure to act in certain circumstances. The meaning of the term "knowingly permit" is likely to require both knowledge that the substances in question were in, on or under the land and the possession of the power to prevent such a substance being there. In the Government's view, the test would be met only where the person had the ability to take steps to prevent or remove that presence and had a reasonable opportunity to do so. This situation is likely to become particularly complex in some instances with multiple past polluters, owners and substances perhaps with varying significance of harm.

Planning

Land contamination, or the possibility of it is a material consideration for the purposes of town and country planning. This means that the planning authority has to consider the potential implications of contamination both when it is developing structure or local plans and when it is considering individual applications for planning permission. Under the suitable for use approach, risks should be assessed and remediation requirements set, on the basis of both the current use and circumstances of the land and its proposed new use. It is intended, by DETR, to prepare further guidance on land contamination, which will amplify the guidance in PPG 23, explain the interface with Part IIA EPA from a planning perspective, and provide planning authorities with technical and practical advice on land contamination.

Water Resources Act 1991

Whilst not part of the EPA Part IIA this Act should not be forgotten. This allows an enforcement mechanism by way of a works notice served under section 161A. This is served on any person who has "caused or knowingly permitted" the potential pollutants to be in place from which it is likely to enter controlled water, or to have caused or knowingly permitted a pollutant to enter controlled waters. This is particularly appropriate for historic pollution of groundwater where the Part 11A regime does not apply. The first successful prosecution under section 161A has already occurred.

Other Matters

The importance of contamination and other environmental issues and liabilities may also need to be addressed with regard to such areas as Accountancy rules (FRS 12) which deals with provisions for contingent liabilities and also the regulations that will apply to Integrated Pollution Prevention and Control (IPPC) which will mean that baseline information regarding the status of land will be required with each permit application. Permit holders will not be able to pollute the land whilst the permit is in operation and will have to clean up to the state the land was in prior to the IPPC permit on cessation of works.

LAND QUALITY STATEMENTS

In February 1995 and in recognition of the growing need for some form of land assessment the RICS published guidance notes for Chartered Surveyors in dealing with land contamination. This guidance was further enhanced and widened with publication of "Contamination and its implications for Chartered Surveyors" in September 1997.

The RICS promoted the concept of Land Quality Statement (LQS) as the written output of an environmental risk assessment. Originally the LQS was used to identify the environmental characteristics of a site which was the subject of a planning application but its use has now expanded into a more generic role. The LQS is now routinely used by developers, purchasers, funding institutions and other professional advisers.

Wardell Armstrong produce the LQS as the first stage in the process of identifying the environmental and technical constraints affecting a site according to the proposed future use.

The LQS should generally fulfil the following:

- categorise the site according to its environmental risk;
- reassure potential purchasers about the environmental risk of a site;
- assist a vendor by removing or confirming concerns about the quality of land and its impact on sale;
- provide insurance companies with the information that is required to underwrite environmental risk;
- reassure lenders or investors about the environmental quality of land used for security or investment;
- assess the impact of environmental factors on development proposals; and
- where necessary, define the scope of a site investigation and risk assessment for the current or intended future use of the land.

The Wardell Armstrong LQS will typically assess the following:

- the current and former uses of the site and its environs in order to identify contaminative uses;
- the geological conditions pertaining to the site;
- the mining context of the site and standard Coal Authority Mining report (where applicable);
- natural cavities database search (where appropriate);
- the hydrogeological setting of the site;
- site walkover survey;
- enquiries to the Environment Agency concerning recorded landfills and water pollution incidents; and
- any other readily accessible information relevant to the context of the site.

The majority of site contamination has been caused since the beginning of the industrial revolution. A schedule of past uses which may have caused contamination is attached to the report as applicable.

APPENDIX III

Sources of Information

The following principal sources of information have been consulted in the preparation of this report:

- Landmark Envirocheck report 9th June 2008 (*a review of information provided by Landmark Information Group Ltd who were commissioned to provide an "Envirocheck" report consisting of published historical plans, environmental data sheets and environmental sensitivity plans)*;
- British Geological Survey published maps and memoirs;
- Environment Agency/NRA Groundwater Vulnerability Map Series;
- Coal Authority Report 12th June 2008;
- Ground Sure Report 9th June 2008.

APPENDIX IV

Site Visit Record

Wardell Armstrong
Engineering & Environmental Solutions

SITE VISIT RECORD

Date of Visit: 4 Dec 2008

Client: KDL

Site Name: Cooper Bridge WwTW

Refer to Drawing No: attached

Visited by: GPW

Job No: SH10243

Site Contact Name: Neil Pinner

Access (key required): Yes

Site Area (Ha):

GENERAL SITE DETAILS

Relevant Identification (*names of buildings, roads etc*): Cooper Bridge WwTW west of the Calder River. Heaton Lodge WwTW to SE & E of Calder River. Calder Valley WwTW & Lower Brighouse WwTW (under construction) to W.

Present Land Use: Active WwTw. Heaton Lodge, E of Calder, not inspected.

Adjacent Land Uses: WwTW (Calder Valley), commercial & agricultural. Industrial timber works adjacent to site (kitchen suppliers to MFI)

Adjacent public highways, roads leading to / crossing / servicing the site:

Access to main site of Leeds Rd via gravel road & padlocked double gate

Site Access (*main access points, dimensions, by rig/excavator etc, footpaths*):

Access to site on E of Calder via Heaton lodge WwTW

Site Boundary (*hedges, walls and fences open etc*):

Palisade fence & stone walls around entire site. Potential access to trespassers over pedestrian bridge

Topography (*general site setting, land gradients, slopes etc*):

Cooper Bridge WwTW slopes gently towards E with a fall of ~ 4m across the site. Land E of Calder not inspected.

EVIDENCE OF LAND USE:

Archaeology (*old buildings, monuments, mounds, ditches, artefacts in soil, pottery/glass*):

n/a

Site Relics (*evidence of past land use, building remains, roads, humps, bumps, hollows etc*):

n/a

Buildings (*general condition/construction, eg: brick/steel framed, asbestos, pits / basement, use*):

4 out buildings of brick construction & 1 prefab chemical store marked with a pesticide warning. Brick building adjacent to site entrance for stores & minor lab testing. Remaining buildings pumping stations.

Storage Facilities (*eg: tanks/drums/chemicals/ capacity/condition/bunding/containment*):
Filter beds & separation tanks / cover ~ 80% of site. There are ~ 5m deep & contain ~ 4m slag cobbles as filter media. * Sig. volume & contain issue.

Activities/Processes on Site (past and present/materials/equipment):
WwTW since at least early 1900's

Observable Environment (*noise/dust/odours/emissions*):
Minor odour

Waste Management (*fly tipping/waste disposal/fires*):
Minor inert waste evident comprising sandstone, timber & concrete

Underground Services (*evidence of manholes, grates, culverts, water supply, telephone*):
Numerous large manholes, inspections pits & pipeworks

Overhead Services (*overhead cables/pipes etc*):
none observed.

EVIDENCE OF GROUND CONDITIONS

Vegetation (*description and condition, tree, frequency and age, bare patches, saplings, new growth*):

Dense mature vegetation around perimeter of site & esp. along banks of Calder.

Ecology (*woodland, trees, hedges, ponds, running water, water loving plants, wild flowers, wildlife*):

as above

Soil Cover (*vegetated/unvegetated soil/made ground/hardstanding/condition/cracks/staining*):

site covered by grass, hardstanding & fitter beds.

Evidence of Geological Setting (*made ground, natural superficials and underlying rock*):

n/a

Groundwater and Drainage (*ponding, streams, springs, wells, marshes, tides, rivers, etc*):

n/a

Subsidence (*fissures, abrupt changes in slope, collapse, tilting trees/posts, property damage*):

none observed

Evidence of Mining (*surface features, shafts, trenches, tunnels, caves, wells, boreholes, gas, etc*):

n/a

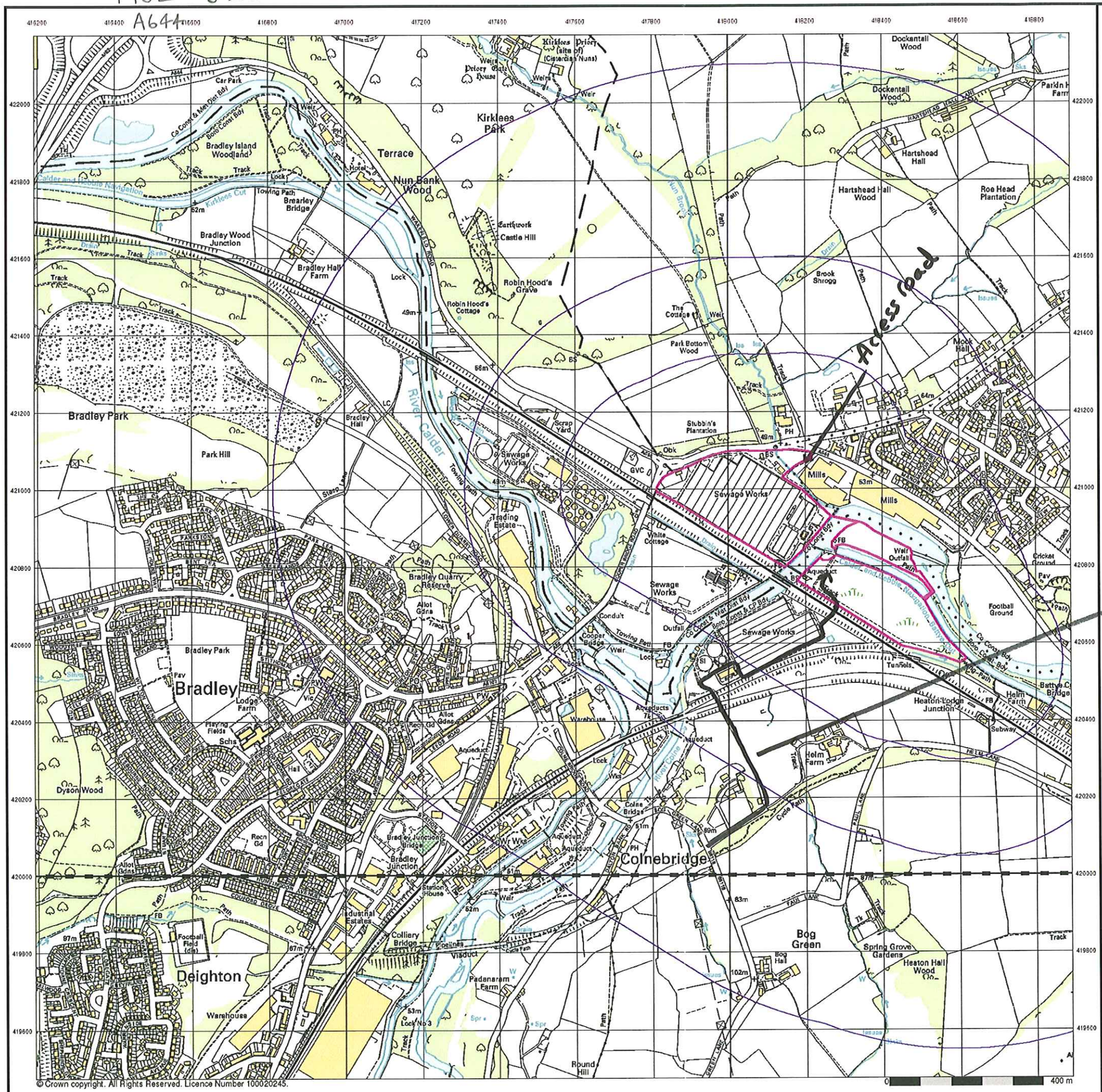
HAZARDS identified:

Additional Remarks: see attached plans

Photographs/Video:

M62 J25

A644



Envirocheck®

A Landmark service

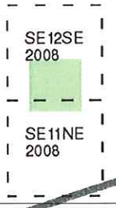
10K Raster Mapping

Published 2008

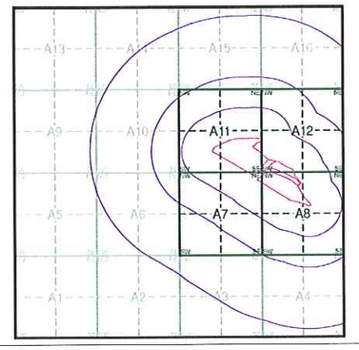
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	25554958_1_1
Customer Ref:	SH10243
National Grid Reference:	417980, 420890
Slice:	A
Site Area (Ha):	13.99
Search Buffer (m):	1000

Site Details

Land at Cooper Bridge, Lower Brighouse, West Yorkshire

LANDMARK Information Group

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

APPENDIX V

Data from Landmark Report

STATUTORY SOURCES OF INFORMATION

Information from the Landmark Information Group Ltd has been summarised in the Table below. The site sensitivity map and full copy of the Envirocheck data is available on request.

Distance from an Approximate Central Point on Site*				
Agency & Hydrological	**On Site**	**0 to 250m**	**251 to 500m**	**501 to 1000m (*up to 2000m)**
Contaminated Land Register Entries and Notices				
Discharge Consents	22	19	18	45
Enforcement and Prohibition Notices				
Integrated Pollution Controls				
Integrated Pollution Prevention and Control		5	5	
Local Authority Integrated Pollution Prevention and Control				
Local Authority Pollution Prevention and Controls		2	1	1
Local Authority Pollution Prevention and Control Enforcements				
Nearest Surface Water Feature	Yes			
Pollution Incidents to Controlled Waters	6	13	25	28
Prosecutions Relating to Authorised Processes				
Prosecutions Relating to Controlled Waters				
Registered Radioactive Substances				
River Quality	1	3	5	2
River Quality Biology Sampling Points	2	1	3	4
River Quality Chemistry Sampling Points			13	2
Substantiated Pollution Incident Register				2
Water Abstractions		1	12	(*3)
Water Industry Act Referrals				
Groundwater Vulnerability	Yes	n/a	n/a	n/a
Source Protection Zones				
Extreme Flooding from Rivers or Sea without Defences	Yes		n/a	n/a
Flooding from Rivers or Sea with Defences	Yes		n/a	n/a
Areas Benefiting from Flood Defences			n/a	n/a
Flood Water Storage Areas	Yes	Yes	n/a	n/a
Flood Defences		Yes	n/a	n/a
Waste	**On Site**	**0 to 250m**	**251 to 500m**	**501 to 1000m (*up to 2000m)**
BGS Recorded Landfill Sites				2
Integrated Pollution Control Registered Waste Sites			10	
Licensed Waste Management Facilities (Landfills Boundaries)				1
Licensed Waste Management Facilities (Locations)		1	1	2
Local Authority Recorded Landfill Sites				
Registered Landfill Sites			1	3
Registered Waste Transfer Sites				
Registered Waste Treatment or Disposal Sites		1	2	1
Hazardous Substances	**On Site**	**0 to 250m**	**251 to 500m**	**501 to 1000m (*up to 2000m)**
Control of Major Accident Hazards Sites (COMAH)				
Explosive Sites				
Notification of Installations Handling Hazardous Substances (NIHHS)				1
Planning Hazardous Substance Consents				1
Planning Hazardous Substance Enforcements				

Geological	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Brine Compensation Areas		n/a	n/a	n/a
Coal Mining Affected Areas	Yes	n/a	n/a	n/a
Mining Stability	Yes	n/a	n/a	n/a
Natural and Mining Cavities				
Potential for Collapsible Ground Stability Hazards		n/a	n/a	n/a
Potential for Compressible Ground Stability Hazards	Yes	Yes	n/a	n/a
Potential for Ground Dissolution Stability Hazards			n/a	n/a
Potential for Landslide Ground Stability Hazards	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	Yes		n/a	n/a
Radon Affected Areas	Yes	n/a	n/a	n/a
Radon Protection Measures		n/a	n/a	n/a
Shallow Mining Hazards	Yes	Yes	n/a	n/a
Industrial Land Use	**On Site**	**0 to 250m**	**251 to 500m**	**501 to 1000m (*up to 2000m)**
Contemporary Trade Directory Entries	1	5	13	14
Fuel Station Entries		1		1
Sensitive Land Use	**On Site**	**0 to 250m**	**251 to 500m**	**501 to 1000m (*up to 2000m)**
Areas of Adopted Green Belt	2	1	1	
Areas of Unadopted Green Belt	1			
Areas of Outstanding Natural Beauty				
Environmentally Sensitive Areas				
Forest Parks				
Local Nature Reserves				
Marine Nature Reserves				
National Nature Reserves				
National Parks				
National Sensitive Areas				
Nitrate Vulnerable Zones	1			
RAMSAR Sites				
Sites of Special Scientific Interest				
Special Areas of Conservation				
Special Protection Areas				

*The distances recorded are approximate and measured from the site boundary.

** Where 'Yes' and 'No' are referred to this indicates the presence or absence of data and does not imply a potential risk or hazard.

APPENDIX VI

Coal Authority Report

The Coal Authority

Issued by:
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Person dealing with this matter:	**Darren Moody**
Our reference:	**00042230-08**
Your reference:	25554958
Electronic Ref:	EME_00009727940001_005
RRUID:	005.00009727940001
Date of your enquiry:	**10 June 2008**
Date we received your enquiry:	**10 June 2008**
Date of issue:	**12 June 2008**

This report is for the property described in the address below and the attached plan.

Coal and Brine Report

Land At Cooper Bridge, Lower Brighouse, West Yorkshire

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Coal mining	Yes
Brine extraction	No

Information from the Coal Authority

Underground Coal Mining

Past

The property is in the likely zone of influence from workings in 1 seam of coal at 100m to 120m depth, and last worked in 1926.

Any ground movement from these coal workings should have stopped by now.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

However reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

Coal-mining geology

At the surface, there are no known faults or other lines of weakness due to coal mining that have made the property unstable.

Opencast Coal Mining

Past

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal-mining subsidence

The Coal Authority has not received a damage notice or claim for the property since 1 January 1984. There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority has not received a request to carry out preventive work before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of Support

The property is not in an area for which a notice of entitlement to withdraw support has been published.

The property is not in an area for which a notice has been given under section 41 of the Coal Industry Act 1994, revoking the entitlement to withdraw support.

Working Facilities Orders

The property is not in an area for which an Order has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

Payments to Owners of Former Copyhold Land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

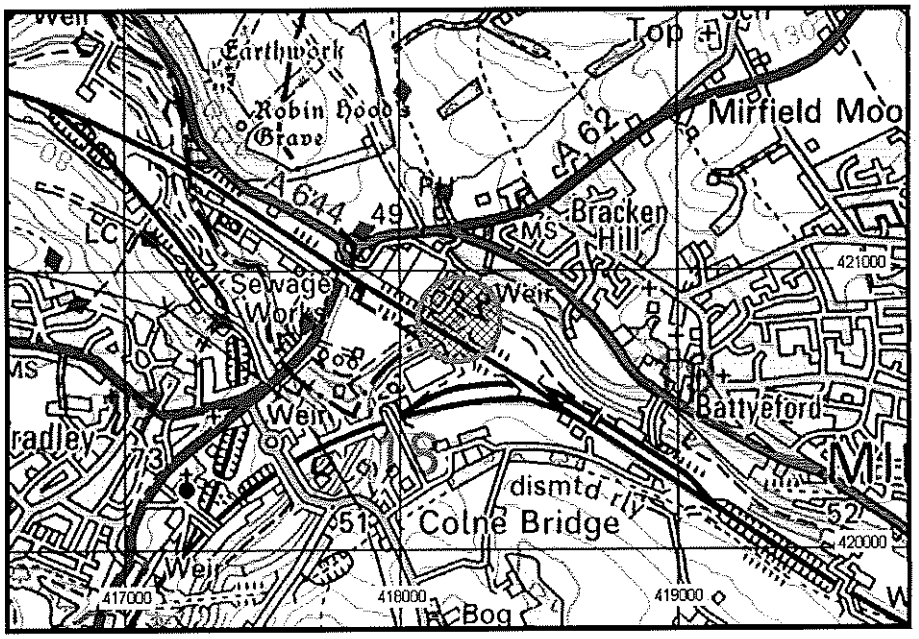
Additional remarks

This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions 2006. The report is compliant with Home Information Pack requirements.

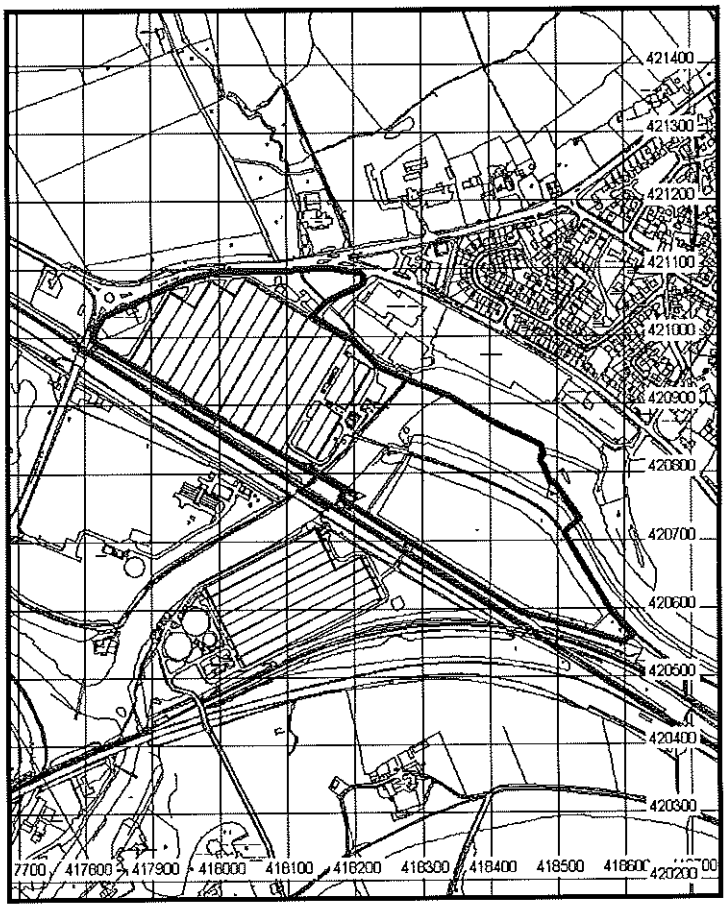
Ordnance Survey (OS) has carried out a Positional Accuracy Improvement Programme to make sure that the maps it produces are accurate. We have no control over who is using the improved information. In some cases, the position of surface features and mining features on the map may have changed. This is because we have updated our database in line with Ordnance Survey's improved maps.

Location map

Approximate position of property



Enquiry boundary



Key

Approximate position of enquiry boundary shown

Mapping sourced from Ordnance Survey

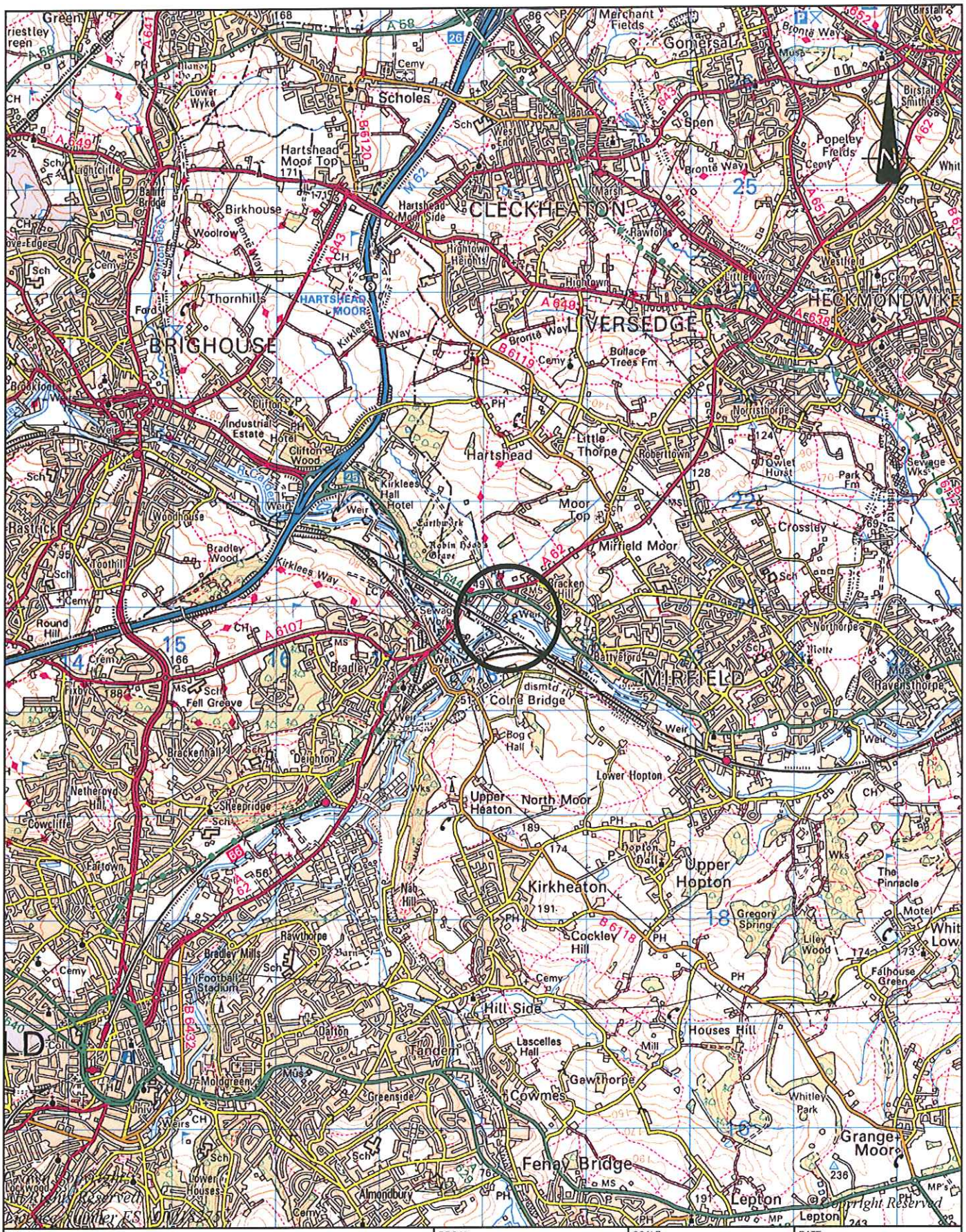
APPENDIX VII

List of Land Uses and Associated Chemicals of Potential Concern

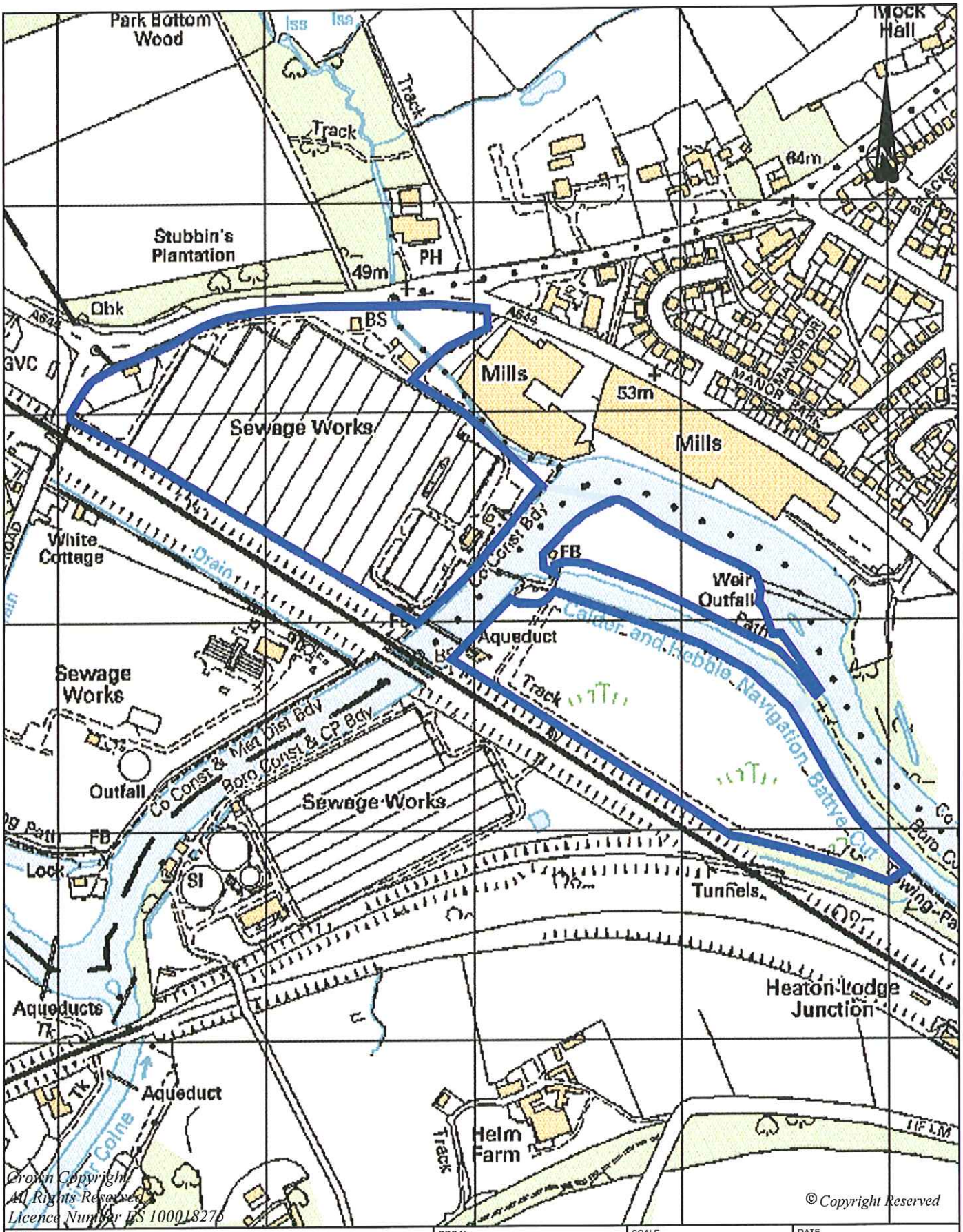
	Industry	Metals and non-metals					Inorganics					Organics						Other chemicals and compounds
		Common metal suite (Cd, Cr, Cu, Ni, Pb, Zn)	Hg	As	B	Se	CN	Nitrate	Sulphate	Asbestos	pH	Phenol	Acetone	Hydro-carbons	PAHs	Chlorinated hydro-carbons	PCBs	
	Airports	✓					✓			✓	✓		✓	✓		✓	✓	
	Animal and animal products processing works	✓		✓					✓			✓		✓	✓	✓		Dieldrin
	Asbestos manufacturing works	✓							✓	✓				✓	✓	✓	✓	
	Ceramics, cement and asphalt manufacturing works	✓	✓	✓					✓	✓	✓		✓	✓	✓		✓	
	Charcoal works	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	
Chemical works	coatings (paints and printing inks) manufacturing	✓							✓	✓	✓	✓		✓	✓	✓		Ba, S, organotin compounds
	cosmetics and toiletries manufacturing works	✓							✓	✓	✓		✓	✓	✓	✓		
	disinfectants manufacturing works	✓	✓						✓	✓	✓	✓		✓	✓	✓	✓	Ba, chloro-phenol, dioxins/furans
	explosives, propellants and pyrotechnics works	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	Ba
	fertiliser manufacturing works	✓								✓	✓			✓	✓		✓	
	fine chemical manufacturing works	✓	✓	✓				✓	✓	✓		✓	✓	✓	✓		✓	V, dioxins/furans
	inorganic chemicals manufacturing works	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓			Ba
	linoleum, vinyl and bitumen-based floor coverings	✓		✓					✓	✓	✓	✓		✓	✓	✓	✓	organotin compounds
	mastics, sealants, adhesives, roofing felt works.	✓	✓	✓					✓	✓	✓	✓		✓	✓	✓		Ba
	organic chemicals manufacturing works	✓		✓			✓		✓	✓	✓	✓	✓	✓		✓		V
	pesticides manufacturing works	✓	✓	✓						✓	✓	✓		✓		✓	✓	chloro-phenol, hexachloro-cyclohexane, Dieldrin, dioxins/furans, organotin
	pharmaceuticals manufacturing works	✓	✓	✓						✓	✓			✓	✓	✓	✓	
	rubber processing works (including tyres)								✓			✓		✓		✓	✓	S, Zn,
	soap and detergent manufacturing works										✓		✓	✓	✓			
	Dockyards and dockland	✓	✓	✓					✓	✓		✓		✓	✓	✓	✓	hexachloro-cyclohexane
	Dry cleaners	✓	✓	✓		✓	✓	✓	✓	✓	✓			✓		✓	✓	
Engineering works	aircraft manufacturing works	✓					✓	✓	✓	✓	✓		✓	✓		✓	✓	
	electrical and electronic equipment works	✓	✓	✓	✓			✓	✓	✓	✓			✓		✓	✓	
	mechanical engineering and ordnance works	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	V, Be
	railway engineering works	✓		✓					✓	✓	✓			✓	✓	✓	✓	S
	shipbuilding repair and shipbreaking	✓		✓			✓			✓	✓		✓	✓		✓		organotin compounds
	vehicle manufacturing works	✓				✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	
	Fibreglass and fibreglass resin manufacturing works	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	
	Gasworks, coke works and coal carbonisation plants	✓	✓	✓			✓		✓	✓	✓	✓		✓	✓			V, S
	Glass manufacturing works	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓		✓	✓	
Metal works	electroplating and other metal finishing works	✓			✓		✓	✓	✓	✓	✓	✓		✓		✓		
	iron and steelworks	✓		✓			✓		✓	✓	✓	✓		✓	✓		✓	V, S
	lead works	✓		✓					✓	✓	✓			✓	✓		✓	
	non-ferrous metals (excluding lead works)	✓	✓		✓				✓	✓				✓	✓		✓	V
	precious metal recovery works	✓	✓	✓				✓	✓	✓	✓			✓		✓	✓	
	Oil refineries and bulk storage	✓					✓		✓	✓	✓	✓	✓	✓			✓	organolead compounds
	Photographic processing industry	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	
	Power stations (excluding nuclear power stations)	✓	✓	✓		✓			✓	✓	✓			✓	✓	✓	✓	V, Ba, Be
	Printing and bookbinding works	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	
	Pulp and paper manufacturing works	✓							✓	✓	✓			✓		✓	✓	hexachloro-cyclohexane, dioxins/furans
	Railway land	✓							✓	✓					✓	✓	✓	V
	Road vehicle: garages and filling stations	✓								✓	✓			✓	✓	✓		organolead compounds
	Road vehicle: transport and haulage centres	✓								✓	✓		✓	✓	✓	✓		V, S, organolead compounds
	Sewage works and sewage farm	✓	✓	✓			✓	✓	✓	✓	✓			✓		✓	✓	
	Textile works and dye works	✓	✓		✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	Dieldrin
	Timber products and manufacturing works	✓		✓	✓				✓			✓	✓	✓	✓			
	Timber treatment works	✓		✓	✓				✓	✓	✓	✓		✓	✓	✓		chloro-phenol, hexachloro-cyclohexane, Dieldrin, organotin
Waste management	drum and tank cleaning and recyling plants								✓	✓			✓	✓			✓	
	hazardous waste treatment plants	✓	✓	✓		✓		✓		✓	✓	✓				✓	✓	V, Ba, hexachloro-cyclohexane, Dieldrin
	landfills and other waste treatment/disposal sites	✓		✓					✓	✓	✓			✓	✓	✓	✓	dioxins/furans
	solvent recovery works	✓									✓					✓		
	metal recyling sites	✓	✓	✓			✓		✓	✓	✓			✓		✓	✓	Ba

* The information in this table is indicative only and does not present a comprehensive review. The data is summarised from R&D Publication CLR 8, Potential Contaminants for the Assessment of Land, DEFRA and EA, 2002. Assessment of individual sites requires knowledge of historic land use and specific site processes. Irrespective of the information present above there are several contaminants of concern such as hydrocarbons and PCBs, that can be found on any industrial site of significant size.

DRAWINGS



CLIENT	DRG No	SCALE	DATE
KEYLAND DEVELOPMENTS LTD	SH10243/01	1:50,000	JULY 2008
PROJECT LAND AT COOPER BRIDGE, LOWER BRIGHOUSE	DRAWN BY DP	CHECKED BY GPW	APPROVED BY GPW
DRAWING TITLE SITE LOCATION PLAN	**Wardell Armstrong** Engineering & Environmental Solutions		



CLIENT	DRG No	SCALE	DATE
KEYLAND DEVELOPMENTS LTD	SH10243/02	1:5,000	JULY 2008
PROJECT LAND AT COOPER BRIDGE, LOWER BRIGHOUSE	DRAWN BY DP	CHECKED BY GPW	APPROVED BY GPW
DRAWING TITLE SITE PLAN	Wardell Armstrong Engineering & Environmental Solutions		