
Phase 1 Detailed Desk Top Study

ED40287 Oswald Road Primary School,
Manchester

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For and on behalf of **Curtins Consulting Ltd**

Planning Guidance: Contamination Statement

Does the site described herein involve any of the following:

- a. Land which is known to be contaminated? **No**
- b. Land where contamination is suspected for all or part of the site? **Yes**
- c. A proposed use that would be particularly vulnerable to the presence of contamination? **No**

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2.0 Phase 1 – Detailed Desk Top Study

In July 2012 Curtins Consulting Ltd were instructed by Manchester City Council to undertake a Phase 1 Geo-Environmental Desk Top Study on the site at Oswald Road Primary School, Oswald Road, Manchester. It is understood that the proposed development comprises the construction of extensions to the existing school buildings.

The site's boundaries are indicated on the location plan in Appendix A1. The site is approximately centred on National Grid Reference 381510, 394250 and is situated within Chorlton-cum-Hardy, Manchester.

1.1 Scope of Phase 1 Investigation – Detailed Desk Top Study

The desk top study is to be undertaken principally to provide an overview of the geo-environmental setting of the site of interest with a brief assessment of any risks that could be presented to site users and the wider environment.

Additionally the desk top study should provide information that could be used to ascertain the extent of any in-situ geo-environmental investigation required to confirm the site conceptual model developed in the desk top study. The desk top study provides an initial view in respect of the status of the site with regard to:

- The potential impact on the site of interest from surrounding land uses and other environmental factors.
- Potential contamination of the site strata by historical and or current use.
- The potential impact on the wider environment by historical and or current use of the site of interest.
- Potential problems associated with geological features such as faulting, mineral extraction, mining and land instability.
- The location of apparent sub-surface structures that may affect the proposed redevelopment.
- The location of above-surface features that may affect the proposed redevelopment.

2.0 Phase 1 – Detailed Desk Top Study

In accordance with the scope identified in Section 1.1, this desk top study has been undertaken using the following data sources and involves no intrusive investigations or testing.

- Envirocheck Report
- British Geological Society 1:50,000 map.
- Environment Agency website.
- Radon Atlas for England and Wales.

2.1 Previous Site Use

Early maps from the mid-19th Century indicate that the site is occupied by farmland with Marl Pits marked on the map. By the 1890's, the site is occupied by farmland. There are a number of ponds in the centre and northern half of the site, with a wooded area on the northern boundary. By 1907, the site is an open field and is a part of Redgate Farm, with no ponds or wooded areas marked.

This remains unchanged until the 1920's, when Redgate Farm is removed. From the 1920's, the site is occupied by Oswald Road Primary School. Up until the 1970's, the site contains two large school buildings and two small buildings in the southern half of the site. A school house occupies the north east corner. Extensions to the school and to the school house occur in the 1930's and the 1950's respectively.

In 1971, the large building at the southern end of the site has been demolished. A new small building has been added to the school, east of the building in the centre of the site which has been extended eastwards. The building is further extended during the 1980's. In 1992, a new building has been constructed in the south east corner of the site. The site remains this way up to the present day.

2.2 Surrounding Land Use

Early historical maps of the area surrounding the site show that the area is predominantly occupied by farmland. Brick Kiln Pits are located on the western boundary, with Redgate Farm to the east. Longford Brook and Chorlton Brook are located 200m north and 900m south of the site respectively, flowing in westerly directions. The village of Chorlton-cum-Hardy is located 750m south of the site.

From the end of the 19th Century, residential properties become the more prominent land-use in the area as the village of Chorlton-cum-Hardy expands. A railway line is located about 200m east of the site. Remaining farmland north and west of the site contain ponds, located at 150m south west and 200m north west of the site. A Goods Shed and small set of sidings are located 200m east of the site. In the 1920's, Redgate Farm is removed and a library established on the north east boundary of the site.

As the city of Manchester expands, residential housing slowly occupies the open fields and by the 1930's completely surrounds the site. While the site has predominantly been surrounded by a mixture of residential housing with recreational grounds and allotment gardens, some commercial/industrial works with contaminative end uses have existed in the surrounding area. These include a brick works with chimney, brick kiln, tanks, pond and refuse heap; electricity sub-stations, Thirlmere Aqueduct, public baths, miniature rifle range, builders yard, dairy, ice cream factory, depots and trading estates.

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2.3 Mapping Data Recorded in the Envirocheck Report

The Envirocheck report contains historical ordnance survey maps as identified below.

- 1:500 scale map provided for the survey publication of 1893.
- 1:1,250 scale maps provided for the survey publication of 1951 – 1955, 1955 – 1992, 1959 – 1974, 1979, 1981, 1984, 1990 and 1992.
- 1:2,500 scale maps provided for the survey publication of 1894, 1907, 1922 and 1952 – 1956.
- 1:10,000 scale maps provided for the survey publication of 1972, 1980 – 1981, 1985 – 1989, 1989, 1994, 1999 and 2012
- 1:10,560 scale maps provided for the survey publication of 1848, 1882, 1894 – 1896, 1899, 1908 – 1909, 1911, 1923, 1932 – 1934, 1938, 1955 – 1956 and 1966.
- 1:25,000 scale map provided for the survey publication of 1975

A summary of the map records is provided below; a copy of all maps obtained can be referred to in Appendix A2.

Date	Scale	Description
1848	1:10,560	The site is occupied by fields with hedgerows. Marl Pits are marked on site. Directly west of the site are Brick Kiln Pits, and Redgate Farm is east of the site. The surrounding area is predominantly occupied by farmland. Longford Brook and Chorlton Brook are located 200m north and 900m south of the site respectively, flowing in a westerly direction. The village of Chorlton-cum-Hardy is located 750m south of the site.
1882	1:10,560	The tiles of the historic map are blank
1893	1:500	The western and northern tiles of the historic map are blank The site has trees growing on the northeast corner of the site. Residential properties have established south and east of the site, with a railway line located about 200m east of the site. Redgate Farm is still on the eastern boundary of the site.
1894	1:2,500	The site is occupied by two ponds, a possible stream connecting the two, fields with hedgerows and a wooded area in the northern area of the site. North and west of the site is still farmland, with ponds located 150m south west and 200m north west of the site. A Goods Shed for the railway line is located 200m east of the site. The remaining residential areas remain the same as previous historic maps. East of the railway line, Longford Brook is named Canal Feeder
1894 - 1896	1:10,560	The site remains the same as previous historical maps The area surround the site has had residential development to the south, north east and north west. The site is bound by farmland on the western and northern sides, with Redgate Farm on the eastern boundary. Residential housing lies to the south and further east

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Date	Scale	Description
1899	1:10,560	The tiles of the historic map are blank
1907	1:2,500	The site is shown as an open field as part of Redgate Farm. No ponds, streams or woodland are marked. Residential estates have established north and west of the site, with farmland now only north west and south west of the site. A Brick Works with a chimney and associated buildings is located 200m north west of the site, replacing a pond previously in that area.
1908 - 1909	1:10,560	The site remains the same as previous historical maps. Further residential expansion is on-going in the area. An electricity sub-station is located 500m south west of the site. A Laundry is located 750m to the south. A reservoir is located 750m north west of the site.
1911	1:10,560	The site and surrounding area remains the same as previous historical maps
1922	1:2,500	The site is occupied by two large and two small school buildings in the southern half of the site. A school house is located in the north east corner, leaving the remainder of the site open. Further residential properties have been built to the west and north. A Library has replaced Redgate Farm on the north east boundary of the site. A pond is still located 150m south west of the site. Allotment Gardens are located 250m to the north west, north of the brick works. An aqueduct and subway shaft are located 200m north east of the site and are a part of the Thirlmere Aqueduct which runs across 750m north of the site and 300m east of the site.
1923	1:10,560	The site and surrounding area remains the same as previous historical maps.
1932 - 1934	1:10,560	The southern school building has extended eastwards, encompassing the small buildings on site. The area surrounding the site is now predominantly residential, with recreational grounds. The brick works 250m north west of the site has extended to the west and north, with a clay pit 500m from the site. A public baths is located 250m north east of the site. A miniature rifle range is located 600m south west of the site.
1938	1:10,560	The site and surrounding area remain the same as previous historical maps.
1951 - 1955	1:1,250	The school house has been extended to the south west. The brick works north west of the site is disused, and contains a brick kiln, tank, pond and refuse heap. 250m south east of the site is a Builder's Yard, a Dairy and an Ice Cream Factory. Two garages are located 120m north east of the site.
1952 - 1956	1:2,500	The site and surrounding area remain the same as previous historical maps
1955 - 1956	1:10,560	The site and surrounding area remain the same as previous historical maps
1966	1:10,560	The site and surrounding area remain the same as previous historical maps. The northern tiles of the historic map are blank. The miniature rifle range is no longer marked on the map.

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Date	Scale	Description
1972	1:10,000	The southern tiles of the historic map are blank. The area north of the site remains the same as previous historical maps
1975	1:25,000	The site and surrounding are remains the same as previous historical maps
1959 - 1974	1:1,250	The school building on the southern boundary has been demolished, while the second school building has extended eastwards. A new small building has been constructed in the centre of the site, east of this building. The disused brick works north west of the site has been replaced with a primary school. Allotment gardens have been replaced with residential housing. A warehouse is located 150m north east of the site
1979	1:1,250	The tiles on the historic map are blank
1955 - 1992	1:1,250	The main school building has extended slightly further towards the centre of the site. A Depot is located on the south eastern boundary of the site. Some residential housing north and south of the site has been replaced with government buildings to the south and a sports ground to the north. An electrical substation is located 90m north of the site and also 80m south east of the site. The Goods Shed and railway sidings 200m east of the site have been removed.
1980 - 1981	1:10,000	The site and surrounding area remain the same as previous historical maps
1981	1:1,250	The site remains the same as previous historical maps. The dairy and ice cream factory to the south east have been replaced by a Builder's Yard. Another builders yard is located 150m north east of the site. The western tiles of the historical map are blank
1984	1:1,250	The tiles of the historical map are blank
1985 - 1989	1:10,000	The site and surrounding area remain the same as previous historical maps.
1989	1:10,000	The southern tiles of the historical map are blank
1990	1:1,250	The tiles on the historical map are blank
1992	1:1,250	A new building has been constructed on the south eastern corner of the site. The remainder of the site remains the same as previous historical maps. The builder's yards have been replaced with trading estates.
1994	1:10,000	The southern tiles of the historical map are blank
1999	1:10,000	The site and surrounding area remain the same as previous historical maps
2012	1:10,000	The site and surrounding area remain the same as previous historical maps

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2.4 Geology

A study of the Envirocheck records and British Geological Survey (BGS) 1:50000 mapping records (Bedrock and Superficial Editions) Sheet 85 Manchester indicates the following geological succession underlying the site.

- | | | | |
|---|--------------------------|-------------|----------------|
| • | Till | (Diamicton) | (Devensian) |
| • | Sherwood Sandstone Group | (Sandstone) | (Late Permian) |

One fault is located within 1000m of the site, east of the site.

The Envirocheck report confirms that there is a low risk to no hazard from the following ground stability hazards on and around the site; collapsible, running sands, compressible, landslide, ground dissolution and shrinking or swelling clay.

Both the Radon Atlas for England and Wales and the Envirocheck report confirm that the site is not in a Radon Affected Area, with less than 1% properties above the action level. Consequently, no radon protection measures are necessary in the construction of new dwellings.

The Envirocheck report states the site is not within an area affected by coal mining activity. A Coal Authority report will not be required for the site.

2.5 Mining

The Envirocheck report states that the site is not in an area which is affected by coal mining activity.

There are two British Geological Survey (BGS) Recorded Mineral Sites within 500m of the site, both of which were opencast common clay and shale pits and have ceased operations. Both of these sites are the Longfield Brick Works and were located 316m and 468m north west of the site.

2.6 Hydrogeology and Hydrology

The 1:100000 Sheet 17 Derbyshire and North Staffordshire groundwater map indicates that the site is underlain by unproductive superficial deposits which overlie a Principal Aquifer.

An Unproductive Aquifer is classed as rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

A Principal Aquifer is a layer of rock or drift deposits that have high intergranular and/or fracture permeability – meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifers.

Soils overlying the site are classed as having a High Leaching Potential - Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) assumed, until proved otherwise

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The site is not located within a Source Protection Zone.

The nearest surface water feature, which is an unnamed drain, is located around 263m to the north east of the site.

There are no surface water abstractions within 1000m of the site.

There are no groundwater abstractions within 1000m of the site of interest.

There are no discharge consents or pollution incidents to controlled waters arising from the site.

The site is not within a flood risk area.

2.7 Landfill

One landfill and two historic landfills are recorded within 750m of the site of interest. Ivy Green Tip is located about 700m south west of the site, with the historic landfills at the same location, recorded at 689m and 699m south west of the site.

2.8 Public Utility Information

Public utility information is beyond the remit of this report.

2.9 Other Significant Features Potentially Affecting Re-Development

The site is a working school which may impact on site investigation and or construction works.

3.0 Conclusions

3.1 Conceptual Model

Early maps from the mid-19th Century indicate that the site is occupied by farmland with Marl Pits marked on the map. By the 1890's, the site is occupied by farmland. There are a number of ponds in the centre and northern half of the site, with a wooded area on the northern boundary. By 1907, the site is an open field and is a part of Redgate Farm, with no ponds or wooded areas marked.

This remains unchanged until the 1920's, when Redgate Farm is removed. From the 1920's, the site is occupied by Oswald Road Primary School. Up until the 1970's, the site contains two large school buildings and two small buildings in the southern half of the site. A school house occupies the north east corner. Extensions to the school and to the school house occur in the 1930's and the 1950's respectively.

In 1971, the large building at the southern end of the site has been demolished. A new small building has been added to the school, east of the building in the centre of the site which has been extended eastwards. The building is further extended during the 1980's. In 1992, a new building has been constructed in the south east corner of the site. The site remains this way up to the present day.

Early historical maps of the area surrounding the site show that the area is predominantly occupied by farmland. Brick Kiln Pits are located on the western boundary, with Redgate Farm to the east. Longford Brook and Chorlton Brook are located 200m north and 900m south of the site respectively, flowing in westerly directions. The village of Chorlton-cum-Hardy is located 750m south of the site.

From the end of the 19th Century, residential properties become the more prominent land-use in the area as the village of Chorlton-cum-Hardy expands. A railway line is located about 200m east of the site. Remaining farmland north and west of the site contain ponds, located at 150m south west and 200m north west of the site. A Goods Shed and small set of sidings are located 200m east of the site. In the 1920's, Redgate Farm is removed and a library established on the north east boundary of the site.

As the city of Manchester expands, residential housing slowly occupies the open fields and by the 1930's completely surrounds the site. While the site has predominantly been surrounded by a mixture of residential housing with recreational grounds and allotment gardens, some commercial/industrial works with contaminative end uses have existed in the surrounding area. These include a brick works with chimney, brick kiln, tanks, pond and refuse heap; electricity sub-stations, Thirlmere Aqueduct, public baths, miniature rifle range, builders yard, dairy, ice cream factory, depots and trading estates.

Corresponding with the underlying geology the site is underlain by unproductive superficial deposits which overly a Principal Aquifer, which has the potential to be vulnerable to contaminants present within the sub surface strata below the site.

The site is not located within a Source Protection Zone.

The nearest surface water feature, which is an unnamed drain, is located around 263m to the north east of the site.

There are no surface water abstractions within 1000m of the site.

3.0 Conclusions

There are no groundwater abstractions within 1000m of the site of interest.

There are no discharge consents or pollution incidents to controlled waters arising from the site.

The site is not within a flood risk area.

One landfill and two historic landfills are recorded within 750m of the site of interest. Ivy Green Tip is located about 700m south west of the site, with the historic landfills at the same location, recorded at 689m and 699m south west of the site.

The Envirocheck report states that the site is not in an area which is affected by coal mining activity.

There are two British Geological Survey (BGS) Recorded Mineral Sites within 500m of the site, both of which were opencast common clay and shale pits and have ceased operations. Both of these sites are the Longfield Brick Works and were located 316m and 468m north west of the site.

There is a low risk to no hazard from the following ground stability hazards on and around the site; collapsible, running sands, compressible, landslide, ground dissolution and shrinking or swelling clay.

Both the Radon Atlas for England and Wales and the Envirocheck report confirm that the site is not in a Radon Affected Area, with less than 1% properties above the action level. Consequently, no radon protection measures are necessary in the construction of new dwellings.

A diagrammatic conceptual model is provided in Appendix A3.

3.2 Qualitative Risk Assessment

A qualitative risk assessment, summarised below, is provided in Appendix A4.1 and details the source-pathway-receptor mechanisms that have been identified for potentially contaminating material that could be present on the site.

3.2.1 End User

Within the general site and immediate surrounding area there is a potential for contaminative materials to be present within the shallow sub soils. There may be some incidences of contamination due to the presence of heating oil or ash blinding from the past industry located on the site. It should be noted that poorly managed demolition can result in material such as asbestos being present in the sub soils. Whilst the exact nature of this potential contamination is unknown it may include, amongst others; hydrocarbons and inorganic species (including heavy metals).

The proposed development comprises the construction of a school extension. Given this the potential severity from this hazard is considered to be Medium (human health effects) given the sensitivity of this end user. The likelihood of occurrence is considered to be Low given the limited industrial use of the site determining a risk to human health of the proposed end user of **Moderate / Low**.

3.0 Conclusions

Historically there have been limited potentially contaminative industries / features in close proximity to the site. As such the potential hazard from off site contamination is classed as **Medium** given the sensitivity of this end user with a likelihood of occurrence of **Low** given the distance of potentially contaminative features to the site determining a risk to human health of the proposed user of **Moderate / Low**.

There is one landfill and two historic landfills located within 1000m of the site. These are all located at about 750m south west of the site of interest. Historically on site there were a number of ponds located in the northern half of the site which were back-filled prior to 1922. As such the hazard presented to site end users is classed as **Severe** with a likelihood of occurrence of **Likely**, giving a risk to human health of the proposed user of **High**.

3.2.2 Groundwater

Corresponding with the underlying geology the site is underlain by a Principal Aquifer which lies below unproductive superficial deposits. The Principal Aquifer has the potential to be vulnerable to contaminants present within the sub surface strata below the site.

There are no groundwater abstractions within 1000m of the site.

The consequence of onsite pollution of the groundwater is therefore considered to be **Medium** given the sensitivity of the underlying aquifers. The likelihood of occurrence is considered to be **Low** given the presence of non-productive superficial deposits on site giving an overall risk of **Moderate / Low**.

3.2.3 Surface Water

The nearest surface water feature, which is an unnamed drain, is located around 263m to the north east of the site. There are no surface water abstractions within 1000m of the site.

Consequently the considered hazard is **Mild** given the non-sensitive water resource. The probability of occurrence is considered to be **Low** due to proximity to the site. This gives an overall risk of **Low**.

3.2.4 Construction Workers

There is a possibility of construction workers coming into contact with contaminated soil while working in the proposed areas of potential contamination. With the correct use of personal protective equipment (PPE) the associated hazard is **Minor**.

Given the site and surrounding area's historical use the maximum likelihood of construction workers coming into contact with contaminative material is **Low**. Consequently the maximum overall risk to construction workers across the site will be **Negligible**.

3.0 Conclusions

3.3 Recommendations

The qualitative risk assessment determined an overall **Moderate / Low to High** level of risk from potential contaminants.

It is therefore recommended that an intrusive investigation is undertaken to confirm the findings of this desk study report.

It is envisaged that an intrusive investigation will comprise a number of window sample / light cable percussive boreholes undertaken to inspect the underlying ground conditions and to obtain soil samples for chemical analysis, in addition to allowing for the monitoring and sampling of ground water / gas.

Appendix A1 - Site Location Plan

Appendix A2 - Envirocheck Report

Appendix A3 - Diagrammatic Conceptual Model

Appendix A4 - Qualitative Risk Assessment

Table A4.1 shows a site-specific qualitative risk assessment of environmental harm; the principle being to establish connecting links between a hazardous source to a potential receptor via an exposure pathway.

The qualitative risk assessment corresponds with the total site area.

Risk assessment is the process of collating known information on a hazard or set of hazards in order to estimate actual or potential risk to receptors. The receptor may be humans, a water resource, a sensitive local ecosystem or future construction materials. Receptors can be connected to the hazardous source by one or several exposure pathways such as direct contact for example. Risks are generally managed by isolating the receptor or intercepting the exposure pathway or by isolating or removing the hazard.

Without the three essential components of a source, pathway and receptor there can be no risk. Therefore the presence of hazard on a site does not necessarily mean there is a risk.

By considering where a viable pathway exists which connects a source with a receptor the risk assessment in Table A4.1 will identify where pollutant linkage exists. If there is no pollutant linkage there is no risk and only where a pollutant linkage is established does the risk assessment consider the level of risk.

The risk assessment considers the likelihood of a particular event taking place (accounting for the presence of the hazard and receptor and the integrity of the exposure pathway) in conjunction with the severity of the potential consequence (accounting for the potential severity of the hazard and the sensitivity of the receptor).

In the risk assessment shown in Table A4.1 the consequence of the hazard has been classified as severe or medium or mild or minor. The probability (likelihood) of the circumstances actually occurring has been classified as high likelihood or likely or low likelihood or unlikely.

The above consequences and probabilities have been integrated to give a qualitative estimation of the risk using Department of the Environment risk classifications as referenced in CIRIA C552. The following categorisation has been used for this purpose as defined in the ensuing tables.

		Consequence			
		Severe	Medium	Mild	Minor
Probability (Likelihood)	High Likelihood	Very High Risk	High Risk	Moderate Risk	Negligible Risk
	Likely	High Risk	Moderate Risk	Moderate/Low Risk	Negligible Risk
	Low Likelihood	High/Moderate Risk	Moderate/Low Risk	Low Risk	Negligible Risk
	Unlikely	Moderate/Low Risk	Low Risk	Negligible Risk	Negligible Risk

Appendix A4 - Qualitative Risk Assessment

In accordance with DoE guidance, the following categorisation of **consequence** has been developed.

Classification	Definition	Examples
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 resource. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem or organisation forming part of such ecosystem.	High concentrations of cyanide on the surface of an informal recreation area. Major spillage of contaminants from site into controlled water. Explosion, causing building collapse (can also equate to a short-term human health risk if buildings are occupied).
Medium	Chronic damage to Human Health. Pollution of sensitive water resources. A significant change in a particular ecosystem or organism forming part of such ecosystem.	Concentration of a contaminant from site exceeds the generic or site-specific assessment criteria. Leaching of contaminants from a site to a Principal or Secondary A aquifer. Death of a species within a designated nature reserve. Lesser toxic and asphyxiate effects
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services. Damage to sensitive buildings/structures/services or the environment.	Pollution of non-classified groundwater (inc. Secondary B aquifers). Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor	Harm, although not necessarily significant harm, which may result in a financial loss or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as personal protective clothing, etc). Easily repairable effects of damage to buildings, structures and services.	The presence of contaminants at such concentrations that protective equipment is required during site works. The loss of plants in a landscaping scheme. Discoloration of concrete.

Appendix A4 - Qualitative Risk Assessment

In accordance with DoE guidance, the following categorisation of **probability** has been developed.

Classification	Definition
High Likelihood	There is a pollution linkage and an event that either 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	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

In accordance with DoE guidance, the following categorisation of **risk** has been developed.

Classification	Definition
Very High Risk	There is a <i>high probability</i> that <i>severe harm</i> could arise to a designated receptor from an identified hazard at the site without appropriate further action.
High Risk	<i>Harm is likely to arise</i> to a designated receptor from an identified hazard at the site without appropriate further action.
Moderate Risk	<i>It is possible</i> that without appropriate further action <i>harm could arise</i> to a designated receptor. It is relatively <i>unlikely</i> that any such harm would be <i>severe</i> , and if any harm were to occur it is <i>more likely</i> that such harm would be <i>relatively mild</i> .
Low Risk	<i>It is possible</i> that <i>harm could arise</i> to a designated receptor from an identified hazard. It is <i>likely</i> that, at worst, if any harm was realised any effects would be <i>mild</i> .
Negligible Risk	The presence of an identified hazard does not give rise to the potential to cause harm to a designated receptor.

The term 'risk' in this instance refers to the risk that the source, pathway, receptor linkage for a given source of contamination is complete. It does not refer to immediate risk to individuals or features present on the site from potential contaminants and is intended to be used as a tool to assess the necessity of further investigation.

Appendix A4.1 - Table and Summary of Potential Risks, Sheet 1

Conceptual Site Model				Qualitative Risk Assessment		
Contaminant	Location	Receptors	Pathways to Receptors	Associated Hazard (Potential Severity)	Likelihood of Occurrence	Risk*
On site contaminants from past and present land use.	Possibly within sub surface strata.	Ground water (Principal Aquifer)	Vertical percolation to groundwater	Groundwater (Medium – High Sensitivity receptor and no water abstractions within 1000m)	Low (Due to presence of non-productive superficial deposits)	Moderate / Low
		Surface Water (Unnamed drain)	Lateral percolation to surface water	Surface Water (Mild – non-sensitive water resource)	Low (Due to the proximity of the water course from the site)	Low
		End user of site (Educational)	Direct contact, Ingestion, Inhalation (Dust and Vapours)	Human Health (Medium – sensitivity of end user)	Low (Due to limited potentially contaminative historic site use)	Moderate / Low
		Construction workers if applicable	Direct contact, Ingestion, Inhalation (Dust and Vapours)	Human Health (Minor – Providing suitable PPE equipment is worn)	Low (Due to limited potentially contaminative historic site use)	Negligible

* Risk refers to the potential risk that the Source, Pathway, Receptor linkage is complete and is used to determine if any further investigation is required. It does not indicate immediate emergency risk to any individual or feature present on the site unless specifically noted.

Appendix A4.1 - Table and Summary of Potential Risks, Sheet 2

Conceptual Site Model				Qualitative Risk Assessment		
Contaminant	Location	Receptors	Pathways to Receptors	Associated Hazard (Potential Severity)	Likelihood of Occurrence	Risk*
Off site contaminants from surrounding land use including nearby industry	Possibly within made-ground surrounding site.	End user of site (Educational)	Direct contact, Ingestion, Inhalation (Dust and Vapours)	Human Health (Medium – sensitivity of end user)	Low (Limited potential contaminative historical industry within the near vicinity)	Moderate / Low
		Construction workers if applicable	Direct contact, Ingestion, Inhalation (Dust and Vapours)	Human Health (Minor – Providing suitable PPE equipment is worn)	Low (Potential contaminative historical industry within the near vicinity)	Negligible
Gas associated with landfills and back-filled ponds / opencast quarries	Possibly within strata beneath the site.	End user of site (Educational)	Migration through strata and accumulation under buildings of explosive and asphyxiating gases.	Human Health (Severe – acute damage)	Likely (Back-filled ponds on site)	High

* Risk refers to the potential risk that the Source, Pathway, Receptor linkage is complete and is used to determine if any further investigation is required. It does not indicate immediate emergency risk to any individual or feature present on the site unless specifically noted.