



Mr Gary McIntosh

190 Old Heywood Road

Preliminary Risk Assessment



RSK GENERAL NOTES

Title: Preliminary Risk Assessment : 190 Old Heywood Road

Client: Mr Gary McIntosh

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Status: Rev 01

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1 INTRODUCTION

1.1 Commissioning

A Preliminary Risk Assessment (PRA) of the land 190 Old Heywood Road, Middleton was required by Mr Gary McIntosh. A PRA is required to satisfy Planning Condition 8 for the proposed development.

The site in question is being considered for development with a single detached dwelling.

1.2 Objectives

The objective of the work is:

- to identify any land contamination and/or geotechnical constraints to the proposed development and to support discharge of relevant planning conditions and relevant building control requirements
- to identify the need for any additional investigation or remediation works to demonstrate that the site is suitable for its proposed use

1.3 Scope of works

The scope of this assessment has been developed in accordance with relevant British Standards and authoritative technical guidance as referenced through the report. The assessment of the contamination status of the site is in line with the technical approach presented in Land Contamination Risk Management (LCRM) (Environment Agency, 2021) – which supersedes CLR11 Model Procedures for Land Contamination – and in general accordance with BS 10175: 2011 + A2 2017 (BSI, 2017). It is also compliant with relevant planning policy and guidance.

A brief summary of relevant legislation and policy relating to land contamination is given in Appendix A.

The scope of works for the assessment has included the following:

Desk Study:

- Review of existing site investigation reports for the site
- A study of local geology and hydrogeology, including historical BGS boreholes.
- The identification of potential geological hazards, including radon.
- A study of the land-use, development history and environmental data on and around the site and its surroundings from local authority correspondence, an environmental database report and archival Ordnance Survey mapping.
- The identification of aquifer vulnerability rating beneath the site and local water abstraction points from Environment Agency records.
- A site walk-over reconnaissance survey.
- The identification of potential targets at risk from possible contamination.

- Recommendations for further work, including outline intrusive investigation recommendations.

2 SITE DETAILS

2.1 Site location

Site location details are presented in Table 1 and a site location plan is provided on Figure 1.

Table 1 Site location details

Site name and address	190 Old Heywood Road, Middleton, M24 4GR.
National Grid reference (centre of site)	384550, 405920

2.2 Site description

The site boundary and current site layout are shown on Figure 2. The site covers an area of c. 0.05 hectares. The site comprises the rear garden to 190 Old Heywood Road, it contains a grassed area, some vegetation and general garden items such as plant pots.

2.3 Surrounding land uses

The site is located in Middleton, within a predominantly residential setting. Immediate surrounding land uses are described in Table 2.

Table 2 Surrounding land uses

North	Residential
East	Ellis Lane with fields beyond
South	Residential with fields beyond
West	Residential

2.4 Development plans

The proposed layout of the site, at the time of preparing this report, is shown in as Figure 3.

The proposed development comprises a single detached dwelling, with gardens and car parking area.

No details of the proposed ground levels have been provided therefore for the purpose of this report it has been assumed that the current levels will remain unchanged.

3 DESK-BASED ASSESSMENT

The desktop study was designed generally to meet the objectives of a preliminary (phase 1) investigation, as defined by BS 10175:2011 + A2 2017 (BSI, 2017) and this assessment relates to LCRM Stage 1, Tier 1 preliminary risk assessment. The "vicinity" of the site for the purposes of this report is defined as locations situated within an approximate 250 m radius of the site, although certain sources and/ or sensitive targets further than 250 m may also have been considered.

The study aims principally to identify and assess the potential risks and liabilities associated with contamination of the ground, on and in the vicinity of the site. While this includes consideration of current operations and housekeeping on the site, the report does not constitute a comprehensive environmental audit of the site, as covered under ISO 14001.

3.1 Site history

3.1.1 Historical development record

The development history of the site and surrounding area based upon assessment of historical plans and records is detailed in Table 3. The historical maps reviewed are shown within the environmental database report in Appendix B.

Table 3 Summary of historical development

Date from	Date to	Historical Land Use (on-site)	Area of site
1848	1955	Open Fields	All
1955	2022	Residential garden area	All
Date from	Date to	Historical Land Use (off-site)	Distance (m) and orientation
1848	2022	Sand pit and pond	200m NE
Relevant information sources: Historical OS maps ☒ Town plans ☐ Information from the Local Planning Authority ☐ Aerial photography ☒ Previous reports ☐			
<i>Note: Reference to published historical maps provides invaluable information regarding the land use history of the site, but historical evidence may be incomplete for the period pre-dating the first edition and between successive maps.</i>			

3.1.2 Unexploded ordnance

A review of publicly available unexploded ordnance (UXO) risk maps indicates that the site is located in an area with low potential for wartime bombs to be present (Zetica, 2022).

3.2 Information from environmental database report

Relevant environmental permits and incidents detailed within the environmental database report (see Appendix B) are summarised below in Table 4.

Table 4 Summary of environmental permits, landfills and incidents

Data type	Entries on-site	Entries <250m from site	Entries >250m from site of relevance	Details
Agency and hydrological				
Environmental permits – incorporating Integrated Pollution Prevention and Control, Integrated Pollution Controls, Local Authority Integrated Pollution Prevention and Control	0	0	0	None recorded
Enforcement and prohibition notices	0	0	0	None recorded.
Pollution incidents to controlled waters, Prosecutions relating to controlled waters, Substantiated pollution incident register, Water Industry Act referrals	0	2	0	Nearest is a minor Incident 171m SW
Discharge consents	0	1	2	Nearest 180m north of discharge of treated sewage in watercourse.
Registered radioactive substances	0	0	0	None recorded.
Landfill and waste				
Active landfills	0	0	0	None recorded.
Historic / closed landfills	0	0	1	459m north of the site.
Other waste management licences	0	0	0	None recorded.
Potentially in-filled land (pit, quarry, pond, marsh, river, stream, dock etc)	0	0	0	None recorded.

Data type	Entries on-site	Entries <250m from site	Entries >250m from site of relevance	Details
Hazardous substances/ industrial land uses				
Control of Major Accident Hazards (COMAH) sites	0	0	0	None recorded.
Explosives sites, Notification of Installations Handling Hazardous Substances (NIHHS), Planning hazardous substance consents/ enforcements	0	0	0	None recorded.
Contaminated land Part 2A register entries and notices	0	0	0	None recorded.
Contemporary trade directory entries	0	0	1	450m north – vehicle sales (inactive)
Fuel station entries	0	0	0	None recorded.
<i>Note: Entries have only been included within the table where they are located within a 250m radius of the site or, where they fall outside of this radius but are considered to comprise a significant entry.</i>				

3.3 Site geology

3.3.1 Anticipated geological sequence

Published records (British Geological Survey, 2022) for the area indicate the geology of the site to be characterised by the succession recorded in Table 5.

Table 5 Site geology

Strata	Description	Estimated thickness	Permeability
Till (superficial deposits)	Sandy gravelly clay	5-10 m	Mixed
Pennine Lower Coal Measures	Sandstone/Siltstone/Mudstone	>200 m	Mixed
Relevant information sources: BGS Geoindex ☒ BGS borehole logs ☐ Previous SI reports ☐			

3.3.2 Radon

The environmental database report indicates that the site is not located within an 'Affected Area'. An 'Affected Area' is one with 1% or more homes above the radon Action Level of 200 Bq m⁻³, and therefore the risk of significant ingress of radon into structures on-site is considered low and protection measures are not necessary in the construction of non-domestic buildings.

Although the radon data used in production of the ukradon indicative atlas comes from measurements in homes, the maps indicate the likely extent of the local radon hazard in all buildings.

3.4 Mining and quarrying

Evidence has been sought to identify any mining, quarrying, landfilling and land reclamation operations, past and present, which have taken place within 500m of the site.

3.4.1 Coal mining area

An initial site appraisal has been carried out based on the information provided on the Coal Authority Interactive Viewer of the UK Coalfield areas.

The site is located within the Development Low Risk Area, as defined by the Coal Authority.

3.5 Hydrogeology

A summary of the hydrogeological setting of the site, with respect to the anticipated geological sequence set out in Section 3.3 is presented below in Table 6.

Table 6 Summary of hydrogeological setting

Condition	Description
Aquifer characteristics	The site is underlain by a Secondary undifferentiated aquifer within the Till (superficial deposits). The site is also underlain by a Secondary A aquifer within the Lower Coal Measures.
Depth to groundwater and flow	The anticipated depth to the groundwater table is in the order of 5 m below ground level estimated from BGS Hydrogeological Maps and BGS logs.
Groundwater recharge/attenuation	Most of the site is currently unsurfaced and will therefore drain to ground.
Licensed groundwater abstractions	The environmental database report indicates that there are no current licensed groundwater abstractions.
Source protection zones	Site is not located within a source protection zone.

3.6 Hydrology

A summary of the hydrology within the site area is summarised in Table 7.

Table 7 Summary of hydrology in site area

Condition	Description
Surface watercourses/ features	Nearest surface water feature (unnamed) is located 137m south west.
Surface water abstractions	No surface water abstractions within 1000m.
Site drainage	Surface drainage from the site is likely to be to field drains and the balancing pond on site.

4 SITE RECONNAISSANCE FINDINGS

A site reconnaissance survey was completed on 19th December 2022. The weather was damp following rainfall. The characteristics of the site observed during the walkover and from current ordnance Survey maps are summarised in Table 8. During the site walkover RSK were accompanied by the site supervisor.

A site features plan is provided in Figure 2 with photographic records included in Appendix C detailing the main features identified below.

Whilst the walkover summary includes consideration of current operations and housekeeping on the site as potential sources of contamination, it does not constitute a comprehensive environmental audit of the site, as covered under ISO 14001.

Table 8 Site reconnaissance findings

Feature	Description
Physical characteristics	
Access constraints	The site is accessed off Ellis Lane to the East.
Site topography	The Site is essentially level.
Surface cover	The site is covered with grass and topsoil, some overgrown vegetation was present around the edges.
Site drainage	No site drainage.
Surface water	No surface water features on site.
Trees and hedges	Trees and hedges on the sites northern boundary.
Invasive species	Based upon the walkover survey obvious evidence of Japanese Knotweed or other invasive species has not been identified on-site. However, it should be noted that a detailed survey of the possible presence or absence of invasive species is outside of the scope of investigation and consideration should be given to commissioning a specialist survey, as necessary. Caveat for time of year (Oct-Apr) if applicable due to dieback.
Existing buildings on-site	No buildings on site
Retaining walls and adjacent buildings on or close to site boundary	None noted
Basements on-site	No evidence of existing or infilled basements was observed.
Made ground, earthworks and quarrying	No evidence of made ground.
Potentially unstable slopes on or close to site	None observed.

Feature	Description
Buried and overhead services present	No manholes on site. No overhead services are present on site.
Environmental characteristics	
Underground/above ground storage tanks and pipework	None observed
Potentially hazardous materials storage and use	None observed.
Asbestos-containing materials	No obvious asbestos construction materials were observed.
Waste storage	None observed.
Fly-tipping	None observed.
Electricity sub-stations/transformers	None observed.
Evidence of possible land contamination on-site	None observed.
Potential off-site sources of ground contamination	None observed.

No potentially significant land contamination or geotechnical issues were identified during the site reconnaissance survey.

5 INITIAL CONCEPTUAL SITE MODEL

In the UK land contamination is assessed using a risk-based approach taking account of the magnitude (severity of the hazard) and likelihood (probability) of occurrence. A 'receptor' is something that could be adversely affected by contamination (e.g. people, an ecological system, property or a water body). A 'pathway' is a route or means by which a receptor is or could be exposed to or affected by a contaminant. A 'contaminant source' is a hazard but it can only pose a risk to a receptor where a pathway is present. The relationship between sources, pathways and receptors are referred to as a conceptual site model. A risk can only be released where a contaminant source, pathway and receptor are all in place, referred to as a 'pollutant linkage'.

In line with LCRM (Environment Agency, 2021) and BS 10175: 2011 + A2 2017 (BSI, 2017), RSK has used information in the preceding sections to identify hazards (sources of contaminants), receptors that may be impacted and plausible linking pathways. Where all three are present this is termed a potentially complete contaminant linkage and a qualitative risk estimation is made.

5.1 Potential soil, soil vapour and groundwater linkages

5.1.1 Potential sources of contamination

No specific sources of contamination have been identified from the Envirocheck report or from the site reconnaissance.

Ground gas sources are addressed in the next section.

Please note that construction workers and future maintenance workers have not been identified in the conceptual model as receptors because risks are considered to be managed through health and safety procedures according to the CDM Regulations.

Ecological receptors are only considered within the conceptual model in the context of statutory protected sites.

5.2 Potential ground gas linkages

5.2.1 Ground gas generation potential

No significant potential sources of ground gas generation have been identified therefore this potential issue has not been taken forward.

5.3 Preliminary Risk Assessment

As no potentially significant pollutant linkages have been identified, no further risk assessment is undertaken.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Geo-environmental assessment

Based on the results of the Preliminary Risk Assessment no contaminant linkages have been identified.

The site has compromised a rear garden to 190 Heywood Old Road since the dwellings were constructed around 1955, previously being open farmland.

The established land uses are not considered to be potentially contaminative, and the risk to human and the environment is considered to be low.

The site setting is considered moderately sensitive due to the proposed residential use and underlying secondary aquifers.

Should unforeseen contamination be encountered during redevelopment then specialist advice should be sought to determine the appropriate course of action.

FIGURES



FIGURE 1 SITE LOCATION PLAN

The map shows the site location in Bowlee. The site is marked with a purple rectangle on ELLIST LANE. The map includes the following features:

- Roads:** HEYWOOD OLD ROAD (A6045), ELLIST LANE, SINISTER LANE, CROFT AVENUE, NUTT LANE, BOARDMAN LANE, ROWRAH CRESCENT, COPELAND CLOSE, BOWNESS ROAD, WHINFELL DR, DACTRE CL, TIRELHED ROAD, GATESGARTH ROAD, BRAYSTON FOLD, SCHWABE STREET, MOUNT PLEASANT, FOLL STREET, WELLS WAY, HILTON WALK, SCHOOLSIDE LA.
- Farms:** Rhodes Green Farm, Heaton Farm, Lower Droughts Farm, Wood Farm.
- Motorways:** M62, M50.
- Other Features:** PW (Public Works) markers, a lake, and a grid overlay.

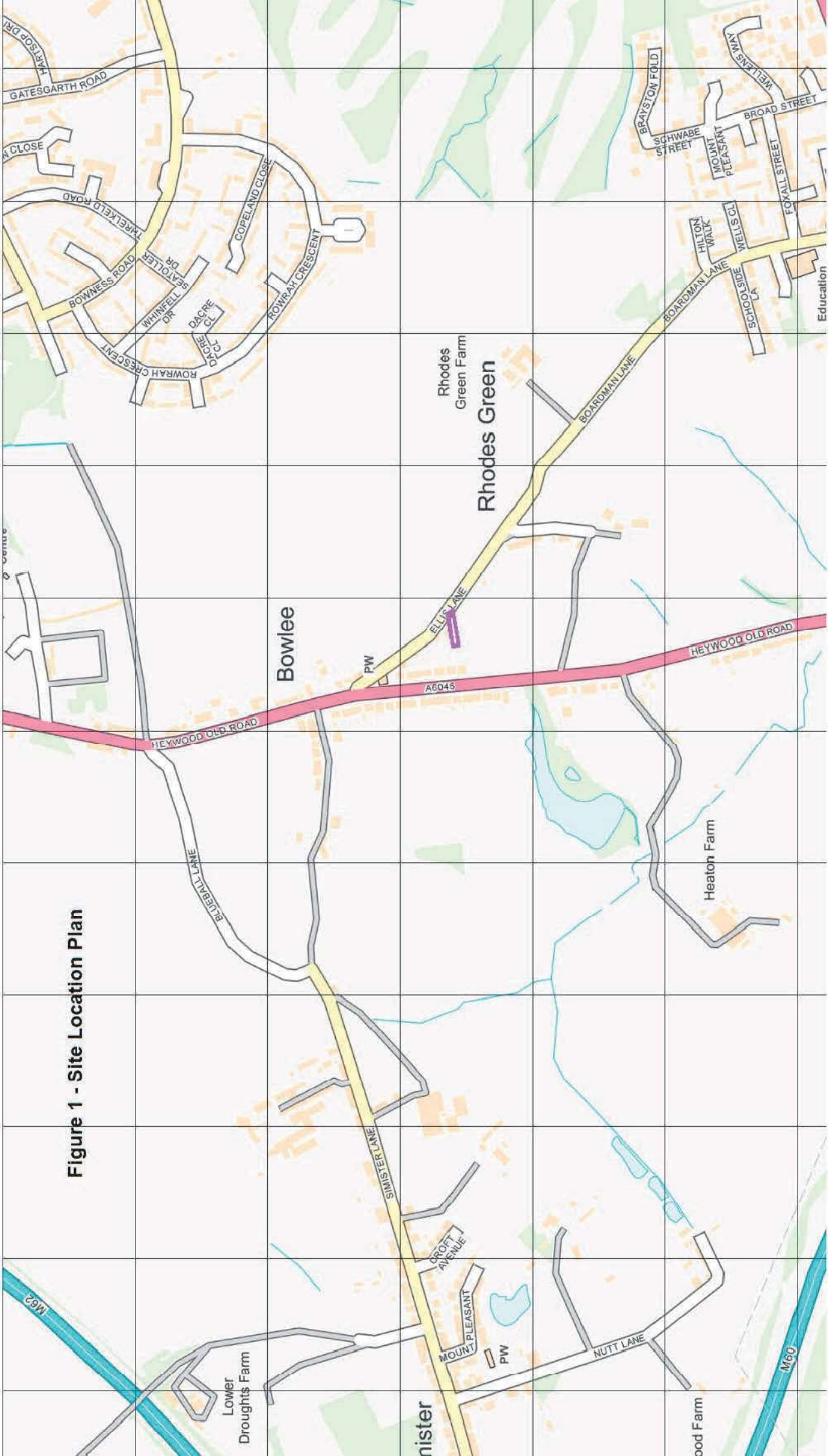
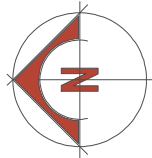




FIGURE 2 SITE LAYOUT PLAN



Figure 2 - Site Features



HEYWOOD OLD ROAD

110.1m

198

188

ELLIS LANE

The surface water in the main
drainage system is shown in
green. The surface water in the
main drainage system is shown
in green. The surface water in the
main drainage system is shown
in green.



Proposed Site Plan
190 Heywood Old Road,
Middleton. M24 4GR
1:100 scale at A1

APPENDICES

APPENDIX A SUMMARY OF LEGISLATION AND POLICY RELATING TO LAND CONTAMINATION

Part IIA of the Environmental Protection Act 1990

Part IIA of the Environmental Protection Act 1990 (Part IIA) and its associated Contaminated Land Regulations 2000 (SI 2000/227), which came into force in England on 1 April 2000, formed the basis for the current regulatory framework and the statutory regime for the identification and remediation of contaminated land. Part IIA of the EPA 1990 defines contaminated land as 'any land which appears to the Local Authority in whose area it is situated to be in such a condition by reason of substances in, on or under the land, that significant harm is being caused, or that there is significant possibility of significant harm being caused, or that pollution of controlled waters is being or is likely to be caused'. Controlled waters are considered to include all groundwater, inland waters and estuaries.

In August 2006, the Contaminated Land (England) Regulations 2006 (SI 2006/1380) were implemented, which extended the statutory regime to include Part IIA of the EPA as originally introduced on 1 April 2000, together with changes intended chiefly to address land that is contaminated by virtue of radioactivity. These have been replaced subsequently by the Contaminated Land (England) (Amendment) Regulations 2012, which now exclude land that is contaminated by virtue of radioactivity.

The intention of Part IIA is to deal with contaminated land issues that are considered to cause significant harm on land that is not undergoing development (see Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance, April 2012). This document replaces Annex III of Defra Circular 01/2006, published in September 2006 (the remainder of this document is now obsolete).

Planning Policy

Contaminated land is often dealt with through planning because of land redevelopment. This approach was documented in Planning Policy Statement: Planning and Pollution Control PPS23, which states that it remains the responsibility of the landowner and developer to identify land affected by contamination and carry out sufficient remediation to render the land suitable for use. PPS23 was withdrawn early in 2012 and has been replaced by much reduced guidance within the National Planning Policy Framework (NPPF), reference ISBN: 978-1-5286-1033-9, February 2019.

The new framework has only limited guidance on contaminated land, as follows:

Chapter 11. Making effective use of land

- 117 Planning policies and decisions should promote an effective use of land in meeting the need for homes and other uses, while safeguarding and improving the environment and ensuring safe and healthy living conditions. Strategic policies should set out a clear strategy for accommodating objectively assessed needs, in a way that makes as much use as possible of previously-developed or 'brownfield' land.
118. Planning policies and decisions should:
- c) give substantial weight to the value of using suitable brownfield land within settlements for homes and other identified needs, and support appropriate opportunities to remediate despoiled, degraded, derelict, contaminated or unstable land.

Chapter 15. Conserving and enhancing the natural environment

170. Planning policies and decisions should contribute to and enhance the natural and local environment by:

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Ground conditions and pollution

178. Planning policies and decisions should ensure that:

a) a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);

b) after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990; and

c) adequate site investigation information, prepared by a competent person, is available to inform these assessments.

179. Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.

Water Resources Act (WRA)

The Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009 updated the Water Resources Act 1991, which introduced the offence of causing or knowingly permitting pollution of controlled waters. The Act provides the Environment Agency with powers to implement remediation necessary to protect controlled waters and recover all reasonable costs of doing so.

Water Framework Directive (WFD)

The Water Framework Directive 2000/60/EC is designed to:

- enhance the status and prevent further deterioration of aquatic ecosystems and associated wetlands that depend on the aquatic ecosystems
- promote the sustainable use of water
- reduce pollution of water, especially by 'priority' and 'priority hazardous' substances
- ensure progressive reduction of groundwater pollution.

The WFD requires a management plan for each river basin be developed every six years.

Groundwater Directive (GWD)

The 1980 Groundwater Directive 80/68/EEC and the 2006 Groundwater Daughter Directive 2006/118/EC of the WFD are the main European legislation in place to protect groundwater. The 1980 Directive is due to be repealed in December 2013. The European legislation has been transposed into national legislation by regulations and directions to the Environment Agency.

Priority Substances Directive (PSD)

The Priority Substances Directive 2008/105/EC is a 'Daughter' Directive of the WFD, which sets out a priority list of substances posing a threat to or via the aquatic environment. The PSD establishes environmental quality standards for priority substances, which have been set at concentrations that are safe for the aquatic environment and for human health. In addition, there is a further aim of reducing (or eliminating) pollution of surface water (rivers, lakes, estuaries and coastal waters) by pollutants on the list. The WFD requires that countries establish a list of dangerous substances that are being discharged and EQS for them. In England and Wales, this list is provided in the River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010. In order to achieve the objectives of the WFD, classification schemes are used to describe where the water environment is of good quality and where it may require improvement.

Environmental Permitting Regulations (EPR)

The Environmental Permitting (England and Wales) Regulations 2016 (as amended) provide a single regulatory framework that streamlines and integrates waste management licensing, pollution prevention and control, water discharge consenting, groundwater authorisations, and radioactive substances regulation. Schedule 22, paragraph 6 of EPR 2016 states: 'the regulator must, in exercising its relevant functions, take all necessary measures - (a) to prevent the input of any hazardous substance to groundwater; and (b) to limit the input of non-hazardous pollutants to groundwater so as to ensure that such inputs do not cause pollution of groundwater.'

Notes:

1. *The above information is provided for background but does not constitute site-specific advice*
2. *The above summary applies to England only. Variations exist within other countries of the United Kingdom*