The Great Grid Upgrade

Sea Link

Sea Link

Volume 6: Environmental Statement

Document: 6.3.2.5.A
Part 2 Suffolk
Chapter 5 Appendix 2.5.A
Preliminary Contamination Risk Assessment

Planning Inspectorate Reference: EN020026

Version: A
March 2025

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(a)

nationalgrid

Page intentionally blank

Contents

Table of Tables

1. Introduction

1.1 Overview

1.1.1 This preliminary contamination risk assessment has been produced to inform **Application Document 6.2.2.5 Part 2 Suffolk Chapter 5 Geology and Hydrogeology** of the Environmental Statement. This appendix has been prepared to provide baseline information on potentially contaminated land within the study area for the Suffolk Onshore Scheme and provide a preliminary risk assessment.

1.1.2 As described in **Application Document 6.2.2.5 Part 2 Suffolk Chapter 5 Geology and Hydrogeology** of the Environmental Statement the study area for land contamination comprises the physical extents of the Order Limits plus a buffer zone of 250 m.

1.2 Structure of the Appendix

1.2.1 The structure of this assessment is as follows:

- **Chapter 1 Introduction** (this section) – provides an introduction of the assessment and sources of information consulted;

- **Chapter 2 Methodology** – which presents information on the methodology followed in this chapter and the accompanying classification table; and

- **Chapter 3 Preliminary Contamination Assessment** – which presents a desk-based review of readily available historical Ordnance Survey (OS) maps supplemented by reference to earlier maps where available and historical aerial photography. The chapter includes a qualitative Tier 1 preliminary contamination risk assessment using a Conceptual Site Model to identify 'source-pathway-receptor' linkages to assess the potential risk and hazards, if any, associated with existing contamination in the ground.

1.3 Sources of Information

1.3.1 The following primary sources of information were used in the compilation of this assessment:

- British Geological Survey (BGS) 1:50,000 scale geological mapping (British Geological Survey, 2024);

- BGS Geoindex Viewer (British Geological Survey, 2024);

- Defra mapped information, via the MAGIC website (Defra, 2024) for Source Protection Zones (SPZ), aquifer designations, hydrological features, groundwater vulnerability, drinking water safeguard zones and statutory designated sites;

- The Environment Agency datasets for the locations for historical landfills and permitted landfill and waste sites, and category 1 and 2 pollution incidents (Environment Agency, 2024);

- Georeferenced historical Ordnance Survey maps for the United Kingdom (National Library of Scotland, 2024);

- Google Earth Historical Aerial Imagery; and

- Historical aerial photography.

2. Methodology

2.1 Introduction

2.1.1 The assessment of land contamination within the study area has been undertaken following a staged approach as recommended by the guidance provided in Land Contamination Risk Management (LCRM) (Environment Agency, 2023). This presents a three-stage process to the management of contaminated land:

- Stage 1 – risk assessment;

- Stage 2 – options appraisal; and

- Stage 3 – remediation.

2.1.2 The Stage 1 risk assessment is undertaken in a phased manner comprising three tiers, as follows:

- Tier 1 – Preliminary Risk Assessment (PRA) – a qualitative assessment of historical and published information in order to develop a preliminary conceptual site model to inform a preliminary risk assessment;

- Tier 2 – Generic Risk Assessment – a quantitative assessment using published criteria to screen site specific ground condition data; and

- Tier 3 – Detailed Risk Assessment – a quantitative assessment involving the generation of site specific assessment criteria.

2.1.3 This appendix provides a PRA (Tier 1) of ground conditions within the Suffolk Onshore Scheme and identifies locations where there is the potential for significant sources of contamination to be present. The results of the PRA form the basis for the baseline conditions and assessment within **Application Document 6.2.2.5 Part 2 Suffolk Chapter 5 Geology and Hydrogeology**.

2.2 Preliminary Risk Assessment Methodology

Initial Assessment

2.2.1 The first stage of the PRA was to undertake an initial assessment to determine potential locations for existing sources of contamination within the study area. These were identified based on the historical and current land use information determined from a variety of information sources including historical ordnance survey mapping and aerial imagery.

2.2.2 The sites were then given a classification score representing their potential for generating contamination that could impact on identified receptors. The criteria used in this assessment for classifying hazards/potential for generating contamination is presented in Table 2.1 which has been developed using the guidance within LCRM (Environment Agency, 2023).

Table 2.1 Criteria for classifying the potential for generating contamination

Classification score	Potential for generating contamination
Very Low	Limited potential for generating contamination. Land use examples: residential, retail or office use, agricultural.
Low	Some potential for generating contamination. Land use examples: recent small scale industrial and light industry.
Moderate	Some potential for generating contamination with possible widespread slightly elevated contamination levels and/or locally elevated concentrations. Land use examples: railway yards, collieries, scrap yards, inert landfills.
High	Potential for widespread elevated contamination. Land use examples: heavy industry, non-hazardous landfills.
Very High	Highest risk of elevated contamination being present, likely widespread elevated concentrations. Land use examples: hazardous landfills, large gas works, chemical works.

2.2.1　Sites/areas that are classified as having a very low or low potential for generating contamination are scoped out of further assessment on the basis that there is no significant contamination source and therefore no source-pathway-receptor pollutant linkage which could result in significant effects.

2.2.2　Sites/areas that are identified as having a moderate or above potential for generating contamination have been taken forward for further assessment.

2.2.3　This approach has been undertaken as it is considered to be proportionate for the scale of the Proposed Project and the activities that will be undertaken and allows a targeted approach as required by EIA Regulations.

Further Assessment

2.2.4　The sites taken forward for further assessment have been assessed (in the initial assessment) as having a moderate or above potential for generating contamination which could result in a (source-pathway-receptor) pollutant linkage and therefore potential significant effects. The sites were taken forward to assess the potential pollutant linkage in order to evaluate whether the presence of a source of contamination could potentially lead to harmful consequences.

2.2.5　A pollutant linkage consists of the following three elements:

- a source of contamination or hazard that has the potential to cause harm or pollution;
- a pathway for the hazard to move along/generate exposure; and
- a receptor which is vulnerable to the potential adverse effects of the hazard.

2.2.6　Whilst the contamination may be a hazard it would not constitute a risk unless a pathway and receptor are also present and a pollutant linkage can be determined.

Therefore, in assessing the potential for contamination to cause a significant effect: the extent and nature of the potential source or sources of contamination must be assessed; any pathways present must be identified; and sensitive receptors or resources identified and appraised to determine their value and sensitivity to contamination related impacts.

2.2.7 Each tier of the Stage 1 risk assessment comprises the following four stages:

- Hazard Identification – involves identifying potential contaminant sources within the study area;

- Hazard Assessment – assessing the potential for unacceptable risks by identifying what pathways and receptors could be present, and what pollutant linkages could result (forming the Conceptual Site Model);

- Risk Estimation – predict what degree of harm or pollution might result and how likely); and

- Risk Evaluation – evaluating whether the risk is acceptable or whether further assessment, remediation or mitigation is required.

2.2.8 To determine the risk to the identified receptor, both the probability (Table 2.2) and the degree of harm to a receptor (Table 2.3 and Table 2.4) are used and the risk estimated for each pollutant linkage using the matrix in Table 2.5, which is based on standard industry guidance provided within the Construction Industry Research and Information Association (CIRIA) report C552, Contaminated Land Risk Assessment (CIRIA, 2001). The risk classifications are defined in Table 2.6. Definitions of receptor sensitivity are provided in **Application Document 6.2.2.5 Part 2 Suffolk Chapter 5 Geology and Hydrogeology** of the Environmental Statement.

Table 2.2 Classification of probability

Classification	Definition
High likelihood	There is a pollution linkage and an event either appears very likely in the short-term and almost inevitable over the long-term, or there is already evidence at the receptor of harm/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.

Table 2.3 Classification of consequence (combination of receptor sensitivity and potential for generating contamination)

Potential for Generating Contamination	Receptor Sensitivity				
	Very High	**High**	**Medium**	**Low**	**Negligible**
Very High	Severe	Severe	Medium	Medium	Mild
High	Severe	Medium	Medium	Mild	Minor
Moderate	Medium	Medium	Mild	Mild	Minor
Low	Medium	Mild	Mild	Minor	Minor
Very Low	Mild	Minor	Minor	Minor	Minor

Table 2.4 Classification of consequence

Classification	Examples
Severe	Human health effect – exposure likely to result in 'significant harm' as defined in the Environmental Protection Act 1990: Part 2A Statutory Guidance.
	Controlled water effect – short-term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource. Equivalent to Environment Agency Category 1 incident (persistent and/or extensive effects on water quality leading to closure of potable abstraction point or loss of amenity, agriculture or commercial value. Major fish kill.
	Ecological effect – short-term exposure likely to result in a substantial adverse effect.
	Catastrophic damage to crops, buildings or property.
Medium	Human health effect – exposure could result in 'significant harm'.
	Controlled water effect – equivalent to Environment Agency Category 2 incident requiring notification of abstractor.
	Ecological effect – short-term exposure may result in a substantial adverse effect.
	Damage to crops, buildings or property.
Mild	Human health effect – exposure may result in 'significant harm'.
	Controlled water effect – equivalent to Environment Agency Category 3 incident (short lived and/or minimal effects on water quality).
	Ecological effect – unlikely to result in a substantial adverse effect.
	Minor damage to crops, buildings or property. Damage to building rendering it unsafe to occupy (for example foundation damage resulting in instability).
Minor	No measurable effect on humans. Protective equipment is not required during site works.

Classification	Examples
	Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems.
	Repairable effects to crops, buildings or property. The loss of plants in a landscaping scheme. Discolouration of concrete.

Table 2.5 Classification of risk

		Consequence			
		Severe	**Medium**	**Mild**	**Minor**
Probability	**High Likelihood**	Very High	High	Moderate	Low
	Likely	High	Moderate	Moderate	Low
	Low Likelihood	Moderate	Moderate	Low	Very low
	Unlikely	Low	Low	Very low	Very low

Table 2.6 Risk rating definitions

Risk Classification	Description
Very high	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability.
High	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild.
Low	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very low	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

3.   Preliminary Contamination Risk Assessment

3.1   Initial Assessment

3.1.1   The majority of the Order Limits and study area appears to have remained as undeveloped agricultural land since the earliest reviewed historical mapping, dated 1885 (National Library of Scotland, 2024). In these areas it is considered that there is a very low risk of the potential for significant existing contamination and therefore they are not taken forward for further assessment on the basis that significant effects are not likely.

3.1.2   There are two areas/sites within the study area where historical or current land uses may have resulted in existing contamination. Where identified, readily available information relating to these sites and their associated Potential Sources of Contamination (PSC) has been gathered and is presented in the table below with a corresponding Classification Score for their potential for generating contamination.

Table 3.1 Potential sources of contamination

PSC Number	Name	Location	Description	Potential for generation contamination
PSC within Order Limits				
1	Historical Clay Pits	Located to the south of Snape Road (642463 E, 259900 N)	An Old Clay Pit is indicated to be present on the earliest reviewed mapping dated 1884. The site remains largely unchanged with Google Aerial imagery and street view confirming continued presence on the most recent imagery.	Low
PSCs within study area				
2	Historical Pits and Quarries	Various located within study area. Present since the earliest mapping dated 1884.	Former pits and quarries, typically limited in size. Most first recorded in the late 1800s / early 1900s and typically not recorded after 1950 and potentially infilled.	Low

3.1.3   The initial assessment has identified two areas with a low potential for generating significant widespread contamination and therefore these PSC's have been scoped out of further assessment on the basis that significant effects in relation to contamination are unlikely.

3.1.4   No sites have been identified with a moderate or above potential for generating contamination and therefore a further assessment has not been undertaken.

References

British Geological Survey. (2024). *BGS Geoindex Viewer*. Retrieved August 2024, from
    https://www.bgs.ac.uk/map-viewers/geoindex-onshore/

British Geological Survey. (2024). *Geological Survey of England and Wales 1:63,360/1:50,000 geological map
    series*. Retrieved August 2024, from BGS Maps Portal: https://webapps.bgs.ac.uk/data/MapsPortal/

CIRIA. (2001). *Contaminted land risk assessment: A guide to good practice (C552)*. Retrieved August 2024, from
    https://www.ciria.org/ProductExcerpts/C552.aspx

Defra. (2024). *Multi-Agency Geographic Information for the Countryside (MAGIC)*. Retrieved August 2024, from
    https://magic.defra.gov.uk/

Environment Agency. (2023). *Land Contamination Risk Management (LCRM)*. Retrieved August 2024, from
    https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm

Environment Agency. (2024). *Information regarding historical landfills and permitted landfill and waste sites, and
    category 1 and 2 pollution incidents*. Retrieved August 2024, from
    https://www.gov.uk/government/organisations/environment-agency

National Library of Scotland. (2024). *Map Images*. Retrieved August 2024, from https://maps.nls.uk/