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HS2

# High Speed Rail (Crewe – Manchester) Environmental Statement

## Volume 5: Appendix LQ-001-0MA02

### Land quality

MA02: Wimboldsley to Lostock Gralam

Land quality report

M215

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Department for Transport

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High Speed Two (HS2) Limited,
Two Snowhill
Snow Hill Queensway
Birmingham B4 6GA

Telephone: 08081 434 434

General email enquiries: HS2enquiries@hs2.org.uk

Website: www.hs2.org.uk

A report prepared for High Speed Two (HS2) Limited:

ARUP+ ERM | FOSTER + PARTNERS | JACOBS
RAMBOLL | TYPSA | COSTAIN

MWJV
Mott MacDonald | WSP

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# Contents



## Tables

# 1 Introduction

1.1.1 This report is an appendix to the land quality assessment for the Wimboldsley to Lostock Gralam area, it comprises:

- a summary of engagement undertaken;
- details on committed developments relevant to land quality that form part of the future baseline; and
- detailed risk assessments associated with land contamination.

1.1.2 This appendix should be read in conjunction with:

- Volume 2, Community area reports;
- Volume 3, Route-wide effects;
- Volume 4, Off-route effects; and
- Background Information and Data (BID) (BID LQ-002)[1].

1.1.3 Maps referred to throughout this report are contained in the Volume 5, Land quality Map Book (Maps LQ-01-304b to LQ-01-309a). Sites carried through to assessment are given a reference number. In this report they are referred to as MA02-46 and on the maps they are referred to as 02-46.

1.1.4 Further information regarding receptors in relation to each site or group of sites is set out in the BID.

1.1.5 Minerals baseline data, information about Local Geological Sites and geological Sites of Special Scientific Interest (SSSI) and site visit records are set out in the BID document.

1.1.6 The Environmental Impact Assessment Scope and Methodology Report (SMR), (see Volume 5, Appendix CT-001-00001) should be referred to for details of the Land quality assessment.

[1] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Background and Information Data, Land quality baseline data.* BID LQ-002-0MA02. Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement.

# 2 Engagement

2.1.1 Table 1 sets out the organisations that have been engaged with during the preparation of the land quality section of the Environmental Statement (ES) for the Wimboldsley to Lostock Gralam area, the types of information that have been provided to the assessment team and any specific concerns raised.

**Table 1: Engagement on land quality issues undertaken for the Wimboldsley to Lostock Gralam area**

| Organisation | Method/dates of contact | Information provided and/or specific concerns |
|---|---|---|
| Cheshire East Council (CEC) | Meeting (15 May 2018) | Initial presentation on land quality assessment approach. |
| | Telephone call to Cheshire East Contaminated Land Officer (7 August 2018) | Discussion on the scope of requirements for land quality engagement. |
| | Email to CEC (8 August 2018) | Provision of example data and confirm scope of request. |
| | Email from CEC (14 September 2018) | Cheshire East sent requested data as shapefiles and excel document. |
| | Meeting (5 June 2019) | Presentation on land quality progress, scope of assessment in relation to salt working and Working Draft Environmental Statement (WDES) consultation responses. |
| | Email to CEC (15 October 2020) | Confirm scope of data request with larger study area. |
| | Meeting (22 October 2020) | Presentation and update on land quality progress following the scheme update. |
| | Telephone call to CEC minerals planner (29 October 2020) | Meeting to discuss minerals in the area and in particular salt extraction around Warmingham Brinefield. |
| | Email from CEC (30 October 2020) | CEC forwarded planning application data in relation to Warmingham Brinefield. |
| | Email from CEC (11 November 2020) | CEC supplied land contamination data. |
| Cheshire West and Chester (CWCC) | Meeting (24 September 2018) | Discussion on scope of requirements for land quality engagement and data request. |
| | Email from CWCC (28 November 2018) | Provision of minerals planning data. |
| | Meeting (5 June 2019) | Presentation on land quality progress, scope of assessment in relation to salt working and WDES consultation responses. |
| | Email to CWCC (15 October 2020) | Provision of updated study area and scope of data request. |

| Organisation | Method/dates of contact | Information provided and/or specific concerns |
|---|---|---|
| | Meeting (22 October 2020) | Presentation and update on land quality progress following the scheme update. |
| | Telephone call with CWCC environmental health officer (8 December 2020) | Discussion on scope of requests and timeline for delivery. |
| | Meeting (5 February 2021) | Discussion on minerals plans for Holford Brinefield and consented boundaries. |
| | Emails with CWCC environmental health department relating to landfill sites (26 April 2021) | Clarification on the presence of a landfill within the borough. |
| Cheshire Regionally Important Geological Sites (RIGS) | Email to Cheshire RIGS (15 October 2018) | Initial contact outlining proposed engagement. |
| | Telephone call (1 November 2018) | Discussion on local and regional geological sites in the Land Quality study area. |
| | Email from Cheshire RIGS (1 November 2018) | Transmittal of documents relating to geo-conservation in the area. |
| Animal and Plant Health Agency (APHA) | Email to APHA (24 April 2019) | Request for data on animal burials in the study area. |
| | Email from APHA | APHA detailed that there is no register of animal burials. |

# 3 Risk assessment

3.1.1 A four-stage process, comprising stages A to D, has been carried out in accordance with the methodology set out in the SMR. At each stage, professional judgement has been used to check that the screening and assessment process is highlighting significant sites.

3.1.2 Stage A highlights potentially contaminative sites based on their potential impact. Sites with a moderate to high potential impact move through to stage B where they are assessed based on receptor proximity.

3.1.3 Sites with a high potential impact pass through stage B to detailed assessment irrespective of receptor proximity. Sites with a moderate potential impact and moderate to high receptor proximity also go through to detailed assessment.

3.1.4 For those sites which pass through stage B, a further detailed risk assessment (stages C and D) has been carried out.

3.1.5 The results of stage C are presented in three conceptual site models (CSM) as qualitative risk assessments covering baseline, construction and post-construction scenarios. Stage D then compares the risk of impact at construction and post-construction stages with the baseline to determine the change in risk and hence the potential for a significant effect.

3.1.6 Sections 3.2 to 3.5 present assessments for potentially contaminated sites which have passed through the screening process within the study area. For each site the following data are presented:

- baseline risk assessment;
- construction risk assessment;
- post-construction risk assessment;
- assessment of temporary (construction) effects; and
- assessment of permanent (post-construction) effects.

3.1.7 The construction and post-construction risk assessments assume that appropriate mitigation has been undertaken and that the operation of the railway is in accordance with environmental legislation.

3.1.8 Where nearby sites present a similar contamination risk, they have been grouped and considered together. For example, in rural areas, small historical backfilled ponds and pits have been grouped together for assessment purposes.

3.1.9 Where sites have been grouped together, only one CSM has been prepared for those sites. The sites in the Wimboldsley to Lostock Gralam area have been listed as follows in Table 2.

3.1.10 For clarity, ‘on-site’ in this document means ‘within the land required for the construction of the Proposed Scheme’ and ‘off-site’ refers to ‘land beyond this boundary, but within the study area’.

**Table 2: Sites included in the risk assessment within the Wimboldsley to Lostock Gralam area**

| Site group | Site title (site ID) and land use class[2] |
|---|---|
| **On-site** | |
| Railway land | Current London and North-western Railway (MA02-46), Class 2 |
| Farms | Current Yew Tree Farm (MA02-82), Class 2<br>Current Higgins Lane Farm (MA02-141), Class 2 |
| Authorised disposal/deep storage facilities | Current Winsford Rock Salt Mine Waste Disposal Facility (MA02-124), Class 3<br>Current Holford Brinefield Landfill Site (MA02-181), Class 3 |
| Historical dredging silt lagoon | Historical dredging silt lagoon (anecdotal) (MA02-232), Class 2 |
| Historical localised shallow mineral extraction | Historical localised shallow mineral extraction (MA02-119), Class 1 |
| Cemetery | Historical burial ground (MA02-186), Class 2 |
| Former chemical works | Former chemical works (MA02-200), Class 3 |
| Electrical sub-station – large | Current electrical sub-station (MA02-193), Class 2 |
| Former RAF airfield | Former RAF Cranage (MA02-342), Class 3 |
| **Off-site** | |
| Historical landfill | Current Lostock lime beds and works tip (MA02-183), Class 3 |
| Farms | Current Bridge Farm (MA02-134), Class 1<br>Current Mill Farm (MA02-241), Class 2 |
| Historical infilled land | Historical mound associated with ammonia works (MA02-215), Class 2 |
| Former ammonia, soda and bleach works | Former ammonia soda works (MA02-211), Class 3<br>Former Lostock works/bleach works (MA02-262), Class 3 |
| Industrial estate | Current Winsford Industrial Estate (MA02-102), Class 2 |
| Former railway land | Former railway sidings (MA02-210), Class 2 |
| Power station | Current gas distribution station (MA02-298), Class 2 |

3.1.11 Contaminant types included within the risk assessments are based on the Department of the Environment, Farming and Rural Affairs (DEFRA) and Environment Agency (2002); Priority Contaminants Report CLR 8[3]. Although this report has been withdrawn by the Environment Agency, it remains technically valid and there has been no subsequent authoritative replacement.

3.1.12 The remainder of this section presents the risk assessment for the sites going through to stages C and D of the assessment. These sites are shown on Volume 5, Land Quality Map Book, LQ-01-304b to LQ-01-309a.

3.1.13 The following abbreviations are used in these tables:

- CoCP – Code of Construction Practice;
- PAH – polycyclic aromatic hydrocarbons;

[2] As defined by the SMR.

[3] Department for Environment, Food and Rural Affairs and Environment Agency (2002), *Potential Contaminants for the Assessment of Land.* R&D Publication CLR8.

- PCB – polychlorinated biphenyls;
- PPE – personal protective equipment;
- SSSI – Site of Special Scientific Interest;
- TPH – total petroleum hydrocarbons; and
- VOC – volatile organic compounds.

## 3.2 Baseline risk assessment

**Table 3: Baseline CSM and qualitative risk assessment for railway land (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| Potential contamination from Made Ground from former and current activities: contaminants primarily comprising PCB, PAH, chlorinated hydrocarbons- creosote, asbestos, fuel and lubricating oils, metals, herbicides and pesticides, ash, potentially low levels of ground gas (methane, carbon dioxide and VOC) | Existing site users – Railway staff | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – Residents, workers in commercial/industrial areas, farm workers, walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater<br>Secondary Undifferentiated Aquifer of the glacial till<br>Secondary B Aquifer of the Sidmouth Mudstone Formation | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| | Controlled waters – surface water<br>Shropshire Union Canal, the Dingle and a tributary of the River Weaver | Lateral migration through groundwater<br>Direct runoff from site | Unlikely to low likelihood | Minor | Very low to low |
| | | | | | |
| | Ecological designations – Wimboldsley Wood (SSSI) | Vertical and lateral migration, direct contact | Unlikely | Medium | Low |
| | Ecological designations - Woodland near Lea Hall and Shropshire Union Canal (Middlewich Branch) (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Minor | Very low |

*Notes/assumptions:*

- *site assessed without construction of the Proposed Scheme;*
- *see BID document Section 2 Table 1 for details of receptors relevant to the site; and*
- *existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed.*

**Table 4: Baseline CSM and qualitative risk assessment for farms (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| Potential contamination from former and current activities including | Existing site users – | Direct contact, ingestion, inhalation of dusts and vapours from | Low likelihood | Medium | Moderate/low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| potential tanks: contaminants primarily compromising petroleum and diesel range hydrocarbons, pesticides, asbestos, pathogens, aggressive ground conditions for concrete (sulphate/pH). Potential for low concentrations/flow rates of ground gases/vapours | Residents and farm workers | contaminated soils and waters | | | |
| | | Inhalation of ground gases | Low likelihood | Medium | Moderate/low |
| | Adjacent site users – resident and workers in the surrounding light industrial areas | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater<br>Secondary A Aquifers of the glaciofluvial sheet deposits. | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | Controlled waters – groundwater<br>Secondary Undifferentiated Aquifers of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water<br>Shropshire Union Canal and Trent and Mersey Canal and multiple nearby springs | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Medium | Moderate/low |
| | Ecological designations - Shropshire Union Canal (Middlewich Branch), | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| | Billinge Green Farm Pond, Whatcroft Lane Wetlands, and Pear Tree Farm (LWS) | | | | |
| | Property receptors - buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Low likelihood | Minor | Low |

*Notes/assumptions:*

- *sites assessed without construction of the Proposed Scheme;*
- *see BID document Section 2 Table 2 for details of receptors relevant to groups of sites;*
- *for groups of sites where different sensitivities of receptors have been identified, a risk range has been provided based on the least and most sensitive receptors;*
- *existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed;*
- *MA02-82 is located in close proximity to the Shropshire Union Canal surface water course and LWS, and multiple springs; and*
- *MA02-141 is located in close proximity to the Trent and Mersey Canal surface water course, and the Billinge Green Farm Pond, Whatcroft Lane Wetlands, and Pear Tree Farm LWS.*

**Table 5: Baseline CSM and qualitative risk assessment for authorised disposal/deep storage facilities (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| Deep storage of wastes, hazardous wastes and highly reactive/explosive substances in salt caverns | Current site users –<br>Workers in deep storage facilities | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Severe | Moderate/low |
| | Controlled waters – groundwater | Leaching, vertical and lateral migration from | Unlikely | Minor | Very low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| | Secondary B Aquifer of Sidmouth Mudstone Formation | contaminated soils and waters | | | |

*Notes/assumptions:*

- *sites assessed without construction of the Proposed Scheme;*
- *see BID document Section 2 Table 3 for details of receptors relevant to groups of sites;*
- *for groups of sites where different sensitivities of receptors have been identified, a risk range has been provided based on the least and most sensitive receptors;*
- *existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed;*
- *these sites are deep underground storage facilities making use of worked salt caverns at over 100m depth and managed under Control of Major Accident Hazards COMAH regulations, which aim to prevent major accidents involving dangerous substances and reduce the consequences should a major accident occur. Near surface receptors e.g. shallow groundwater or surface water, LWS, and property receptors have been discounted in the assessment of risk;*
- *MA02-124 used for underground storage of hazardous wastes;*
- *MA02-181 used for authorised disposal and storage of highly reactive substances and explosive substances;*
- *pollutant linkage relates to the workers in deep storage facilities who will be subject to Health and Safety requirements of the facility;*
- *Secondary B aquifer present at MA02-181 and unproductive strata at MA02-124; and*
- *people at the surface have been discounted in the assessment of risk.*

**Table 6: Baseline CSM and qualitative risk assessment for historical dredging silt lagoon (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| Potential contamination from former activities including metals, asbestos, residual hydrocarbons (TPH), potentially low levels of ground gas (methane and carbon dioxide) | Current site users – Farm workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – | Direct contact, ingestion, inhalation of dusts and vapours from | Unlikely | Medium | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| | Farm workers, walkers (along Trent and Mersey Canal) and residents | contaminated soils and waters | | | |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater<br>Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water<br>Trent and Mersey Canal | Lateral migration through groundwater<br>Direct runoff from site | Unlikely | Medium | Low |
| | Ecological designations - Billinge Green Farm Pond, Ash trees along Trent and Mersey Canal at Billinge Green, and Whatcroft Lane Wetlands (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors - buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Unlikely | Minor | Very low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

- *site assessed without construction of the Proposed Scheme;*
- *see BID document Section 2 Table 4 for details of receptors to the site; and*
- *existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed.*

**Table 7: Baseline CSM and qualitative risk assessment for historical localised shallow mineral extraction (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| Potential contamination from possible infilling activities. Composition of infill (if any) is unknown although much of the previous excavation appears not to have been infilled. Depending upon the source of the infill this could comprise inert materials or those that could include a range of organic and inorganic contaminants including: petroleum and diesel range hydrocarbons, PAH, metals and asbestos. Potentially low levels of ground gas (methane and carbon dioxide) if bio-degradable infill used. | Current site users – Walkers and farm workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – Walkers and farm workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – groundwater Secondary A Aquifer of the glaciofluvial deposits | Leaching, vertical and lateral migration from contaminated soils and waters | Low Likelihood | Medium | Moderate/low |
| | Ecological designations - River Dane at Bostock, and Bull's Wood and Meadow (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |

*Notes/assumptions:*

- *site assessed without construction of the Proposed Scheme;*

- *see BID document Section 2 Table 5 for details of receptors to the site;*
- *existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed;*
- *no existing properties are present on the site and so risks to them have not been assessed; and*
- *sand and gravel mineral resources were extracted from the site.*

**Table 8: Baseline CSM and qualitative risk assessment for cemetery (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| Residual contamination from former and current activities contaminants primarily comprising metals, semi-metals, pathogens, ammonia, formaldehyde, potentially low levels of ground gas (methane and carbon dioxide) | Existing site users - visitors/walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users - Residents and commercial industrial site workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters - groundwater Secondary Undifferentiated Aquifers of the glacial till Secondary B Aquifers of the Sidmouth Mudstone Formation | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| | Property receptors - buildings, foundations and services (adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to ground gases/vapours | Low likelihood | Minor | Low |

*Notes/assumptions:*

- *site assessed without construction of the Proposed Scheme;*
- *see BID document Section 2 Table 6 for details of receptors to the site; and*
- *existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed.*

**Table 9: Baseline CSM and qualitative risk assessment for former chemical works (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| Residual contamination from former activities – hydrocarbons including waste oils, heavy metals, ammoniacal nitrogen, solvents, inorganic compounds, PCB, explosive compounds and asbestos. Potentially low levels of ground gas (methane and carbon dioxide). | Existing site users – walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – residents, farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater | Leaching, vertical and lateral migration from contaminated soils and waters | Likely | Minor | Moderate/low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| | Secondary Undifferentiated Aquifer of the glacial till<br>Secondary B Aquifer of the Sidmouth Mudstone Formation | | | | |
| | Controlled waters – surface water<br>Tributary of Peover Eye | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Medium | Moderate/low |
| | Ecological designations – Plumley Lime Beds Nature Reserve (SSSI) | Vertical and lateral migration, direct contact | Unlikely | Medium | Low |
| | Ecological designations – Hame Farm Pond (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

- *site assessed without construction of the Proposed Scheme;*
- *see BID document Section 2 Table 7 for details of receptors to the site; and*
- *existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed.*

**Table 10: Baseline CSM and qualitative risk assessment for electrical sub-station - large (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| Contamination from ongoing activities residual contamination from | Existing site users – Sub-station workers | Direct contact, ingestion, inhalation of dusts and vapours from | Unlikely | Medium | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| current and former activities – hydrocarbons including waste oils, phenols, PCB, chlorinated hydrocarbons, heavy metals, semi-metals and asbestos | | contaminated soils and waters | | | |
| | Adjacent site users – Farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary A Aquifer of the glaciofluvial deposits and alluvium | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water Wade Brook | Lateral migration through groundwater Direct runoff from site | Low likelihood | Minor | Low |
| | Ecological designations – Wade Brook (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors - buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to vapours | Unlikely | Medium | Low |

*Notes/assumptions:*

- *site assessed without construction of the Proposed Scheme;*
- *see BID document Section 2 Table 8 for details of receptors to the site; and*
- *existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed.*

**Table 11: Baseline CSM and qualitative risk assessment for former RAF airfield (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| Residual contamination from former activities as RAF Cranage grass runways – hydrocarbons including waste oils, heavy metals, solvents, inorganic compounds, PCB, explosive compounds and asbestos. Possible radionuclides associated with aircraft dials. Potentially low levels of ground gas (methane and carbon dioxide) | Existing site users – Residents, walkers, farm workers, visitors to and workers at industrial premises | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – Residents, school users, walkers, farm workers and golf course users | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary A Aquifer of the glaciofluvial sheet deposits | Leaching, vertical and lateral migration from contaminated soils and waters | Likely | Medium | Moderate |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till Secondary B Aquifer of the Sidmouth Mudstone Formation | Leaching, vertical and lateral migration from contaminated soils and waters | Likely | Minor | Moderate/low |
| | Controlled waters – surface water Puddinglake Brook | Lateral migration through groundwater Direct runoff from site | Likely | Minor | Moderate/low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

- *site assessed without construction of the Proposed Scheme;*
- *see BID document Section 2 Table 9 for details of receptors to the site; and*
- *existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed.*

**Table 12: Baseline CSM and qualitative risk assessment for historical landfill (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| Potential contamination in infilled ground, industrial landfill waste, contaminated groundwater / leachate plume: high pH, ammonia, metals, hydrocarbons; and possible landfill gas (methane, carbon dioxide, VOC and hydrogen sulphide) | Existing site users – Workers at waste lime beds workers at gas distribution station, works/depot, and factory | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Low likelihood | Severe | Moderate |
| | Adjacent site users – farm workers, residents, walkers workers at works/depot, farm workers, and walkers (adjacent site users) | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Severe | Moderate/low |
| | Controlled waters – groundwater | Leaching, vertical and lateral migration from | Low likelihood | Medium | Moderate/low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| | Secondary A Aquifer of the glaciofluvial deposits | contaminated soils and waters | | | |
| | Controlled waters – groundwater<br>Secondary Undifferentiated Aquifer of the glacial till<br>Secondary B Aquifer of the Sidmouth Mudstone Formation | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water<br>Trent and Mersey Canal | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Medium | Moderate/low |
| | Controlled waters – surface water<br>Wade Brook | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Minor | Low |
| | Ecological designations – Wade Brook (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Unlikely | Minor | Very low |
| | | Exposure to explosive gases | Low likelihood | Severe | Moderate |

*Notes/assumptions:*

*• sites assessed without construction of the Proposed Scheme;*

*• see BID document Section 2 Table 10 for details of receptors relevant to groups of sites;*

*• for groups of sites where different sensitivities of receptors have been identified, a risk range has been provided based on the least and most sensitive receptors;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed; and*

*• Environment Agency historical landfill, licence number: EAHLD17938. Waste deposited from 1952 to 1994. Waste types included inert, industrial, special wastes and liquid sludge.*

**Table 13: Baseline CSM and qualitative risk assessment for farms (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| Potential contamination from former and current activities including potential tanks: contaminants primarily compromising petroleum and diesel range hydrocarbons, pesticides, asbestos, pathogens, aggressive ground conditions for concrete (sulphate/pH). Potential for low concentrations/flow rates of ground gases/vapours | Existing site users – residents and farm workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/Low |
| | | Inhalation of ground gases | Low likelihood | Medium | Moderate/Low |
| | Adjacent site users – Residents, farm workers, and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater<br>Secondary A Aquifer of the glaciofluvial sheet deposits | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | Controlled waters – groundwater<br>Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water<br>Puddinglake Brook<br>River Wheelock<br>Trent and Mersey Canal<br>Spring at Mill Farm | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Medium | Moderate/low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| | Ecological designations – Puddinglake Brook Wood, and Whatcroft Hedge (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

*• sites assessed without construction of the Proposed Scheme;*

*• see BID document Section 2 Table 11 for details of receptors relevant to groups of sites;*

*• for groups of sites where different sensitivities of receptors have been identified, a risk range has been provided based on the least and most sensitive receptors;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed;*

*• MA02-134 is located in proximity to Puddinglake Brook and the Trent and Mersey Canal, the Secondary A Aquifer of the glaciofluvial deposits, and the LWS of Puddinglake Brook Wood and Whatcroft Hedge; and*

*• MA02-241 is located in proximity to the River Wheelock and the spring at Mill Farm.*

**Table 14: Baseline CSM and qualitative risk assessment for historical infilled land (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| Potential contamination from possible infilling activities. Composition of infill (if any) is unknown. Depending upon the source of the infill this could comprise inert materials or those that | Existing site users – Walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – Farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from | Unlikely | Medium | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| could include a range of organic and inorganic contaminants including: petroleum and diesel range hydrocarbons, PAH, metals and asbestos. Potentially low levels of ground gas (methane and carbon dioxide) if bio-degradable infill used. | | contaminated soils and waters | | | |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater<br>Secondary A Aquifer of the alluvium | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | Controlled waters – groundwater<br>Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water<br>Tributary of Peover Eye | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Minor | Very low |
| | Ecological designations – Plumley Lime Beds Nature Reserve (SSSI) | Vertical and lateral migration, direct contact | Unlikely | Medium | Low |
| | Ecological designations – Mill Wood and Mill Bottoms, and Long Wood at Lostock (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

*• site assessed without construction of the Proposed Scheme;*

*• see BID document Section 2 Table 12 for details of receptors relevant to the site; and*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed.*

**Table 15: Baseline CSM and qualitative risk assessment for former ammonia soda, and bleach works (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| Contamination from ongoing activities and residual contamination from former activities – hydrocarbons including waste oils, heavy metals, ammoniacal nitrogen, solvents, inorganic compounds, PCB, explosive compounds and asbestos. Potential for low concentrations/flow rates of ground gases/vapours | Existing site users – walkers, workers at Lostock/bleach works | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – residents, farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary A Aquifer of the glaciofluvial deposits | Leaching, vertical and lateral migration from contaminated soils and waters | Likely | Medium | Moderate |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Likely | Minor | Moderate/low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| | Secondary B Aquifer of the Sidmouth Mudstone Formation | | | | |
| | Controlled waters – surface water<br>Trent and Mersey Canal | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Medium | Moderate/low |
| | Ecological designations – Plumley Lime Beds Nature Reserve (SSSI) | Vertical and lateral migration, direct contact | Unlikely | Medium | Low |
| | Ecological designations – Long Wood at Lostock, Hame Farm Pond, Wade Brook, Griffith's Park, and Wincham Brook Valley (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

*• sites assessed without construction of the Proposed Scheme;*

*• see BID document Section 2 Table 13 for details of receptors relevant to groups of sites;*

*• for groups of sites where different sensitivities of receptors have been identified, a risk range has been provided based on the least and most sensitive receptors;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed;*

*• MA02-211 is located in the vicinity of a tributary of Peover Eye, the Plumely Lime Beds Nature Reserve SSSI and LWS of Long Wood at Lostock and Hame Farm Pond; and*

*• MA02-262 is located in the vicinity of Wade Brook and the Trent and Mersey Canal, the Secondary A Aquifer of the alluvium and glaciofluvial deposits, the Secondary B Aquifer of the Sidmouth Mudstone Formation, and the LWS of Wade Brook, Griffith's Park, and Wincham Brook Valley.*

**Table 16: Baseline CSM and qualitative risk assessment for industrial estate (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| Contamination from ongoing activities and residual contamination from former activities – hydrocarbons including waste oils, heavy metals, solvents, inorganic compounds, PCB and asbestos | Existing site users – workers and visitors to industrial estate | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – Railway staff, farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary A Aquifer of the glaciofluvial deposits and the alluvium | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Ecological designations – The Willowbeds (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| | services (existing and adjacent) | Exposure to explosive gases | Low likelihood | Medium | Moderate/low |

*Notes/assumptions*

*• site assessed without construction of the Proposed Scheme;*

*• see BID document Section 2 Table 14 for details of receptors relevant to the site; and*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed.*

**Table 17: Baseline CSM and qualitative risk assessment for former railway land (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| Potential contamination from Made Ground from former activities: contaminants primarily comprising PCB, PAH, chlorinated hydrocarbons-creosote, asbestos, fuel and lubricating oils, metals, herbicides and pesticides, ash, potentially low levels of ground gas (methane, carbon dioxide and VOC) | Existing site users – walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – railway staff, residents, farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Lateral and vertical migration of mobile contamination | Low likelihood | Minor | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| | Controlled waters – surface water<br>Tributary of Peover Eye | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Minor | Low |
| | Ecological designations – Plumley Lime Beds Nature Reserve (SSSI) | Vertical and lateral migration, direct contact | Unlikely | Medium | Low |
| | Ecological designations – Holford Moss Wood, Hame Farm Pond, Long Wood at Lostock, and Mill Wood and Mill Bottoms (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Minor | Very Low |

*Notes/assumptions:*

*• site assessed without construction of the Proposed Scheme;*

*• see BID document Section 2 Table 15 for details of receptors relevant to the site; and*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed.*

### Table 18: Baseline CSM and qualitative risk assessment for power station (off-site)

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| Contamination from ongoing activities and residual contamination from former activities – | Existing site users – Workers at gas distribution station | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at baseline phase |
|---|---|---|---|---|---|
| hydrocarbons including waste oils, heavy metals, ammoniacal nitrogen, solvents, inorganic compounds, PCB, explosive compounds and asbestos, potentially low levels of ground gases (methane and carbon dioxide). | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – Farm workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water Tributary of Gad Brook | Lateral migration through groundwater Direct runoff from site | Low likelihood | Medium | Moderate/low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions*

- *site assessed without construction of the Proposed Scheme;*
- *see BID document Section 2 Table 16 for details of receptors relevant to the site; and*
- *existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed.*

## 3.3 Construction risk assessment

**Table 19: Construction CSM and qualitative risk assessment for railway land (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| Potential contamination from made ground from former and current activities: contaminants primarily comprising PCB, PAH, chlorinated hydrocarbons- creosote, asbestos, fuel and lubricating oils, metals, herbicides and pesticides, ash, potentially low levels of ground gas (methane, carbon dioxide and VOC) | Existing site users – Railway staff | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – Residents, workers in commercial/industrial areas, farm workers, walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater<br>Secondary Undifferentiated Aquifer of the glacial till<br>Secondary B Aquifer of the Sidmouth Mudstone Formation | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water<br>Shropshire Union Canal, the Dingle and a tributary of the River Weaver | Lateral migration through groundwater<br>Direct runoff from site | Unlikely to low likelihood | Minor | Very low to low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| | Ecological designations – Wimboldsley Wood (SSSI) | Vertical and lateral migration, direct contact | Unlikely | Medium | Low |
| | Ecological designations - Woodland near Lea Hall and Shropshire Union Canal (Middlewich Branch) (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases/vapours | Unlikely | Minor | Very Low |

*Notes/assumptions:*

*• site investigation will be required prior to construction of the Proposed Scheme;*

*• sites which lie within the land required for construction of the Proposed Scheme may require remediation;*

*• remediation will be restricted to mitigation of land quality effects arising from the Proposed Scheme;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the potentially contaminated area;*

*• during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP (Volume 5, Appendix CT-002-00000). Construction workers have been excluded from the assessment due to the use of PPE/risk management protocols and in accordance with the SMR;*

*• while the draft CoCP will make it unlikely that there will be adverse consequences associated with construction e.g. the control of surface runoff and dust, it is considered that there may still be temporary minor adverse effects during the construction period from ground disturbance in these areas. The adoption of the draft CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline; and*

*• railway workers/staff are assumed to remain present on-site during the construction phase and are therefore considered in the construction assessment.*

### Table 20: Construction CSM and qualitative risk assessment for farms (on-site)

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| Potential contamination from former and current | Existing site users – | Direct contact, ingestion, inhalation of dusts and | N/A | N/A | N/A |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| activities including potential tanks: contaminants primarily compromising petroleum and diesel range hydrocarbons, pesticides, asbestos, pathogens, aggressive ground conditions for concrete (sulphate/pH). Potential for low concentrations/flow rates of ground gases/vapours | residents and farm workers | vapours from contaminated soils and waters | | | |
| | | Inhalation of ground gases | N/A | N/A | N/A |
| | Adjacent site users – residential properties and workers in the surrounding light industrial/residential areas | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary A Aquifer of the glaciofluvial sheet deposits | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water Shropshire Union Canal and Trent and Mersey Canal and multiple nearby springs | Lateral migration through groundwater Direct runoff from site | Low likelihood | Medium | Moderate/low |
| | Ecological designations - Shropshire Union Canal (Middlewich Branch), Billinge Green Farm Pond, | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| | Whatcroft Lane Wetlands, and Pear Tree Farm (LWS) | | | | |
| | Property receptors - buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | N/A | N/A | N/A |
| | | Exposure to explosive gases | N/A | N/A | N/A |

*Notes/assumptions:*

*• site investigation will be required prior to construction of the Proposed Scheme;*

*• sites which lie within the land required for construction of the Proposed Scheme may require remediation;*

*• sites located on the land required for the construction of the Proposed Scheme are assumed to be unoccupied during construction, therefore on-site construction risks to human health receptors are labelled as not applicable (N/A);*

*• it is assumed that existing on-site properties will be demolished during the construction stage and so risks to them have not been assessed;*

*• remediation will be restricted to mitigation of land quality effects arising from the Proposed Scheme;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the potentially contaminated area;*

*• for groups of sites where different sensitivities of receptors have been identified, a risk range has been provided based on the least and most sensitive receptors;*

*• during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP. Construction workers have been excluded from the assessment due to the use of PPE/risk management protocols and in accordance with the SMR; and*

*• while the draft CoCP will make it unlikely that there will be adverse consequences associated with construction e.g. the control of surface runoff and dust, it is considered that there may still be temporary minor adverse effects during the construction period from ground disturbance in these areas. The adoption of the draft CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline.*

### Table 21: Construction CSM and qualitative risk assessment for authorised disposal/deep storage facilities (on-site)

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| Deep storage of wastes, hazardous wastes and | Current site users – | Direct contact, ingestion, inhalation of dusts and vapours from | Unlikely | Medium | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| highly reactive/explosive substances in salt caverns | Workers in deep storage facilities | contaminated soils and waters | | | |
| | | Inhalation of ground gases | Unlikely | Severe | Moderate/low |
| | Controlled waters – groundwater<br>Secondary B Aquifer of Sidmouth Mudstone Formation | Leaching, vertical and lateral migration from contaminated soils and waters | Unlikely | Minor | Very low |

*Notes/assumptions:*

*• site investigation will be required prior to construction of the Proposed Scheme;*

*• these sites are situated at considerable depth beneath the surface and are therefore not thought to pose a risk to surface or shallow receptors. Therefore, remediation is not likely to be carried out and the sites' current use is expected to continue during the construction phase;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the potentially contaminated area;*

*• for groups of sites where different sensitivities of receptors have been identified, a risk range has been provided based on the least and most sensitive receptors; and*

*• during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP. Construction workers have been excluded from the assessment due to the use of PPE/risk management protocols and in accordance with the SMR.*

### Table 22: Construction CSM and qualitative risk assessment for historical dredging silt lagoon (on-site)

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| Potential contamination from former activities including metals, asbestos, residual hydrocarbons, potentially | Current site users – Farm workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | N/A | N/A | N/A |
| | | Inhalation of ground gases | N/A | N/A | N/A |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| low levels of ground gas (methane and carbon dioxide) | Adjacent site users – Farm workers, walkers (along Trent and Mersey Canal) and residents | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water Trent and Mersey Canal | Lateral migration through groundwater Direct runoff from site | Low likelihood | Medium | Moderate/low |
| | Ecological designations - Billinge Green Farm Pond, Ash trees along Trent and Mersey Canal at Billinge Green, and Whatcroft Lane Wetlands (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors - buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | N/A | N/A | N/A |
| | | Exposure to explosive gases | N/A | N/A | N/A |

*Notes/assumptions:*

*• site investigation will be required prior to construction of the Proposed Scheme;*

*• sites which lie within the land required for construction of the Proposed Scheme may require remediation;*

*• sites located on the land required for the construction of the Proposed Scheme are assumed to be unoccupied during construction, therefore on-site construction risks to human health receptors are labelled as not applicable (N/A);*

*• it is assumed that existing on-site properties will be demolished during the construction stage and so risks to them have not been assessed;*

*• remediation will be restricted to mitigation of land quality effects arising from the Proposed Scheme;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the potentially contaminated area;*

*• during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP. Construction workers have been excluded from assessment due to the use of PPE/risk management protocols and in accordance with the SMR; and*

*• while the draft CoCP will make it unlikely that there will be adverse consequences associated with construction e.g. the control of surface runoff and dust, it is considered that there may still be temporary minor adverse effects during the construction period from ground disturbance in these areas. The adoption of the draft CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline.*

**Table 23: Construction CSM and qualitative risk assessment for historical localised shallow mineral extraction (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| Potential contamination from possible infilling activities. Composition of infill (if any) is unknown although much of the previous excavation appears not to have been infilled. Depending upon the source of the infill this could comprise inert materials or those that could include a range of organic and inorganic contaminants including: petroleum and diesel range hydrocarbons, PAH, metals and asbestos. Potentially low levels of ground gas (methane and carbon dioxide) if bio-degradable infill used. | Current site users – Walkers and farm workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | N/A | N/A | N/A |
| | | Inhalation of ground gases | N/A | N/A | N/A |
| | Adjacent site users – Walkers and farm workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary A Aquifer of the glaciofluvial deposits | Leaching, vertical and lateral migration from contaminated soils and waters | Low Likelihood | Medium | Moderate/low |
| | Controlled waters – groundwater | Leaching, vertical and lateral migration from | Low likelihood | Minor | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| | Secondary Undifferentiated Aquifer of the glacial till | contaminated soils and waters | | | |
| | Ecological designations - River Dane at Bostock, and Bull's Wood and Meadow (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |

*Notes/assumptions:*

*• site investigation will be required prior to construction of the Proposed Scheme;*

*• sites which lie within the land required for construction of the Proposed Scheme may require remediation;*

*• sites located on the land required for the construction of the Proposed Scheme are assumed to be unoccupied during construction, therefore on-site construction risks to human health receptors are labelled as not applicable (N/A);*

*• remediation will be restricted to mitigation of land quality effects arising from the Proposed Scheme;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the potentially contaminated area;*

*• during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP. Construction workers have been excluded from assessment due to the use of PPE/risk management protocols and in accordance with the SMR; and*

*• while the draft CoCP will make it unlikely that there will be adverse consequences associated with construction e.g. the control of surface runoff and dust, it is considered that there may still be temporary minor adverse effects during the construction period from ground disturbance in these areas. The adoption of the draft CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline.*

### Table 24: Construction CSM and qualitative risk assessment for cemetery (on-site)

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| Residual contamination from former and current activities contaminants primarily comprising metals, semi-metals, pathogens, ammonia, formaldehyde, potentially | Existing site users - Visitors/walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| low levels of ground gas (methane and carbon dioxide) | Adjacent site users - Residents and commercial industrial site workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters - groundwater Secondary Undifferentiated Aquifers of the glacial till Secondary B Aquifers of the Sidmouth Mudstone Formation | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Property receptors - buildings, foundations and services (adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to ground gases/vapours | Low likelihood | Minor | Low |

*Notes/assumptions:*

*• site investigation will be required prior to construction of the Proposed Scheme;*

*• sites which lie within the land required for construction of the Proposed Scheme may require remediation;*

*• remediation will be restricted to mitigation of land quality effects arising from the Proposed Scheme;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the potentially contaminated area;*

*• during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP. Construction workers have been excluded from assessment due to the use of PPE/risk management protocols and in accordance with the SMR;*

*• while the draft CoCP will make it unlikely that there will be adverse consequences associated with construction e.g. the control of surface runoff and dust, it is considered that there may still be temporary minor adverse effects during the construction period from ground disturbance in these areas. The adoption of the draft CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline; and*

*• cemetery visitors and walkers are assumed to remain present on-site during the construction phase and are therefore considered in the construction assessment.*

**Table 25: Construction CSM and qualitative risk assessment for former chemical works (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| Residual contamination from former activities – hydrocarbons including waste oils, heavy metals, ammoniacal nitrogen, solvents, inorganic compounds, PCB, explosive compounds and asbestos. Potentially low levels of ground gas (methane and carbon dioxide). | Existing site users – walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | N/A | N/A | N/A |
| | | Inhalation of ground gases | N/A | N/A | N/A |
| | Adjacent site users – residents, farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater<br>Secondary Undifferentiated Aquifer of the glacial till<br>Secondary B Aquifer of the Sidmouth Mudstone Formation | Leaching, vertical and lateral migration from contaminated soils and waters | Likely | Minor | Moderate/low |
| | Controlled waters – surface water<br>Tributary of Peover Eye | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Medium | Moderate/low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| | Ecological designations – Plumley Lime Beds Nature Reserve (SSSI) | Vertical and lateral migration, direct contact | Unlikely | Medium | Low |
| | Ecological designations – Hame Farm Pond (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

*• site investigation will be required prior to construction of the Proposed Scheme;*

*• sites which lie within the land required for construction of the Proposed Scheme may require remediation;*

*• sites located on the land required for the construction of the Proposed Scheme are assumed to be unoccupied during construction, therefore on-site construction risks to human health receptors are labelled as not applicable (N/A);*

*• remediation will be restricted to mitigation of land quality effects arising from the Proposed Scheme;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the potentially contaminated area;*

*• during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP. Construction workers have been excluded from assessment due to the use of PPE/risk management protocols and in accordance with the SMR;*

*• while the draft CoCP will make it unlikely that there will be adverse consequences associated with construction e.g. the control of surface runoff and dust, it is considered that there may still be temporary minor adverse effects during the construction period from ground disturbance in these areas. The adoption of the draft CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline; and*

*• adjacent property (a mast, assumed to be for telecoms) will remain during construction and therefore risks to this have been assessed.*

**Table 26: Construction CSM and qualitative risk assessment for electrical sub-station – large (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| Contamination from ongoing activities residual contamination from current and former activities – hydrocarbons including waste oils, phenols, PCB, chlorinated hydrocarbons, heavy metals, semi-metals and asbestos | Existing site users – Sub-station workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | Adjacent site users – Farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary A Aquifer of the glaciofluvial deposits and alluvium | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water Wade Brook | Lateral migration through groundwater Direct runoff from site | Low likelihood | Minor | Low |
| | Ecological designations – Wade Brook (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| | Property receptors - buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to vapours | Unlikely | Medium | Low |

*Notes/assumptions:*

*• site investigation will be required prior to construction of the Proposed Scheme;*

*• sites which lie within the land required for construction of the Proposed Scheme may require remediation;*

*• the substation will continue to be operated throughout the construction period so substation workers are assumed to remain present on-site during the construction phase and are therefore considered in the construction assessment;*

*• remediation will be restricted to mitigation of land quality effects arising from the Proposed Scheme;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the potentially contaminated area;*

*• during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP. Construction workers have been excluded from assessment due to the use of PPE/risk management protocols and in accordance with the SMR; and*

*• while the draft CoCP will make it unlikely that there will be adverse consequences associated with construction e.g. the control of surface runoff and dust, it is considered that there may still be temporary minor adverse effects during the construction period from ground disturbance in these areas. The adoption of the draft CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline.*

**Table 27: Construction CSM and qualitative risk assessment for former RAF airfield (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| Residual contamination from former activities as RAF Cranage grass runways – hydrocarbons including waste oils, heavy metals, solvents, inorganic compounds, PCB, | Existing site users – Residents, walkers, farm workers, visitors to and workers at industrial premises | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| explosive compounds and asbestos. Possible radionuclides associated with aircraft dials. Potentially low levels of ground gas (methane and carbon dioxide) | Adjacent site users – Residents, school users, walkers, farm workers and golf course users | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary A Aquifer of the glaciofluvial sheet deposits | Leaching, vertical and lateral migration from contaminated soils and waters | Likely | Medium | Moderate |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till Secondary B Aquifer of the Sidmouth Mudstone Formation | Leaching, vertical and lateral migration from contaminated soils and waters | Likely | Minor | Moderate/low |
| | Controlled waters – surface water Puddinglake Brook | Lateral migration through groundwater Direct runoff from site | Likely | Minor | Moderate/low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

*• site investigation will be required prior to construction of the Proposed Scheme;*

*• sites which lie within the land required for construction of the Proposed Scheme may require remediation;*

*• existing site users are assumed to remain present on-site during the construction phase and are therefore considered in the construction assessment; as the works will be undertaken in farmland and will not extend to on-site properties;*

*• remediation will be restricted to mitigation of land quality effects arising from the Proposed Scheme;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the potentially contaminated area;*

*• during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP. Construction workers have been excluded from assessment due to the use of PPE/risk management protocols and in accordance with the SMR; and*

*• while the draft CoCP will make it unlikely that there will be adverse consequences associated with construction e.g. the control of surface runoff and dust, it is considered that there may still be temporary minor adverse effects during the construction period from ground disturbance in these areas. The adoption of the draft CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline.*

**Table 28: Construction CSM and qualitative risk assessment for historical landfill (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| Potential contamination in infilled ground, industrial landfill waste, contaminated groundwater / leachate plume: high pH, metals, hydrocarbons; and possible landfill gas (methane, carbon dioxide, VOC and hydrogen sulphide) | Existing site users – Workers at waste lime beds<br>workers at gas distribution station, works/depot, and factory | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Low likelihood | Severe | Moderate |
| | Adjacent site users – farm workers, residents, walkers<br>workers at works/depot, farm workers, and walkers (adjacent site users) | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Severe | Moderate/low |
| | Controlled waters – groundwater<br>Secondary A Aquifer of the glaciofluvial deposits | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Moderate/low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| | Controlled waters – groundwater<br>Secondary Undifferentiated Aquifer of the glacial till<br>Secondary B Aquifer of the Sidmouth Mudstone Formation | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water<br>Trent and Mersey Canal | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Medium | Moderate/low |
| | Controlled waters – surface water<br>Wade Brook | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Minor | Low |
| | Ecological designations – Wade Brook (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Unlikely | Minor | Very low |
| | | Exposure to explosive gases | Low likelihood | Severe | Moderate |

*Notes/assumptions:*

*• site investigation may be required prior to construction of the Proposed Scheme;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed;*

*• during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP. Construction workers have been excluded from assessment due to the use of PPE/risk management protocols and in accordance with the SMR;; and*

*• while the draft CoCP will make it unlikely that there will be adverse consequences associated with construction e.g. the control of surface runoff and dust, it is considered that there may still be temporary minor adverse effects during the construction period from ground disturbance in these areas. The adoption of the draft CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline.*

**Table 29: Construction CSM and qualitative risk assessment for farms (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| Potential contamination from former and current activities including potential tanks: contaminants primarily compromising petroleum and diesel range hydrocarbons, pesticides, asbestos, pathogens, aggressive ground conditions for concrete (sulphate/pH). Potential for low concentrations/flow rates of ground gases/vapours | Existing site users – residents and farm workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/Low |
| | | Inhalation of ground gases | Low likelihood | Medium | Moderate/Low |
| | Adjacent site users – residents, farm workers, and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary A Aquifer of the glaciofluvial sheet deposits | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water Puddinglake Brook River Wheelock | Lateral migration through groundwater Direct runoff from site | Low likelihood | Medium | Moderate/low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| | Trent and Mersey Canal<br>Spring at Mill Farm | | | | |
| | Ecological designations – Puddinglake Brook Wood, and Whatcroft Hedge (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

*• site investigation may be required prior to construction of the Proposed Scheme;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed;*

*• during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP. Construction workers have been excluded from assessment due to the use of PPE/risk management protocols and in accordance with the SMR;*

*• for groups of sites where different sensitivities of receptors have been identified, a risk range has been provided based on the least and most sensitive receptors; and*

*• while the draft CoCP will make it unlikely that there will be adverse consequences associated with construction e.g. the control of surface runoff and dust, it is considered that there may still be temporary minor adverse effects during the construction period from ground disturbance in these areas. The adoption of the draft CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline.*

### Table 30: Construction CSM and qualitative risk assessment for historical infilled land (off-site)

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| Potential contamination from possible infilling activities. Composition of | Existing site users – Walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| infill (if any) is unknown. Depending upon the source of the infill this could comprise inert materials or those that could include a range of organic and inorganic contaminants including: petroleum and diesel range hydrocarbons, PAH, metals and asbestos. Potentially low levels of ground gas (methane and carbon dioxide) if bio-degradable infill used. | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary A Aquifer of the alluvium | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water Tributary of Peover Eye | Lateral migration through groundwater Direct runoff from site | Low likelihood | Minor | Moderate/low |
| | Ecological designations – Plumley Lime Beds Nature Reserve (SSSI) | Vertical and lateral migration, direct contact | Unlikely | Medium | Low |
| | Ecological designations – Mill Wood and Mill | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| | Bottoms, and Long Wood at Lostock (LWS) | | | | |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

*• site investigation may be required prior to construction of the Proposed Scheme;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed;*

*• during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP. Construction workers have been excluded from assessment due to the use of PPE/risk management protocols and in accordance with the SMR;*

*• while the draft CoCP will make it unlikely that there will be adverse consequences associated with construction e.g. the control of surface runoff and dust, it is considered that there may still be temporary minor adverse effects during the construction period from ground disturbance in these areas. The adoption of the draft CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline.*

**Table 31: Construction CSM and qualitative risk assessment for former ammonia soda and bleach works (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| Contamination from ongoing activities and residual contamination from former activities – hydrocarbons including waste oils, heavy metals, ammoniacal nitrogen, solvents, inorganic compounds, PCB, explosive compounds and asbestos. Potential for low | Current site users – walkers, workers at Lostock/bleach works | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – residents, farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| concentrations/flow rates of ground gases/vapours | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater<br>Secondary A Aquifer of the glaciofluvial deposits | Leaching, vertical and lateral migration from contaminated soils and waters | Likely | Medium | Moderate |
| | Controlled waters – groundwater<br>Secondary Undifferentiated Aquifer of the glacial till<br>Secondary B Aquifer of the Sidmouth Mudstone Formation | Leaching, vertical and lateral migration from contaminated soils and waters | Likely | Minor | Moderate/low |
| | Controlled waters – surface water<br>Trent and Mersey Canal | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Medium | Moderate/low |
| | Ecological designations – Plumley Lime Beds Nature Reserve (SSSI) | Vertical and lateral migration, direct contact | Unlikely | Medium | Low |
| | Ecological designations – Long Wood at Lostock, Hame Farm Pond, Wade Brook, Griffith's Park, and Wincham Brook Valley (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| | services (existing and adjacent) | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

*• site investigation may be required prior to construction of the Proposed Scheme;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed;*

*• during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP. Construction workers have been excluded from assessment due to the use of PPE/risk management protocols and in accordance with the SMR;*

*• for groups of sites where different sensitivities of receptors have been identified, a risk range has been provided based on the least and most sensitive receptors; and*

*• while the draft CoCP will make it unlikely that there will be adverse consequences associated with construction e.g. the control of surface runoff and dust, it is considered that there may still be temporary minor adverse effects during the construction period from ground disturbance in these areas. The adoption of the draft CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline.*

### Table 32: Construction CSM and qualitative risk assessment for industrial estate (off-site)

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| Contamination from ongoing activities and residual contamination from former activities – hydrocarbons including waste oils, heavy metals, solvents, inorganic compounds, PCBs and asbestos. Potentially low levels of ground gas (methane and carbon dioxide). | Existing site users – workers and visitors to industrial estate | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – railway staff, farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary A Aquifers of the glaciofluvial | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Moderate/low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| | deposits and the alluvium | | | | |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Ecological designations – The Willowbeds (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Low likelihood | Medium | Moderate/low |

*Notes/assumptions:*

*• site investigation may be required prior to construction of the Proposed Scheme;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed;*

*• during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP. Construction workers have been excluded from assessment due to the use of PPE/risk management protocols and in accordance with the SMR; and*

*• while the draft CoCP will make it unlikely that there will be adverse consequences associated with construction e.g. the control of surface runoff and dust, it is considered that there may still be temporary minor adverse effects during the construction period from ground disturbance in these areas. The adoption of the draft CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline.*

**Table 33: Construction CSM and qualitative risk assessment for former railway land (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| Potential contamination from Made Ground from former activities: contaminants primarily comprising PCB, PAH, chlorinated hydrocarbons-creosote, asbestos, fuel and lubricating oils, metals, herbicides and pesticides, ash, potentially low levels of ground gas (methane, carbon dioxide and VOC) | Existing site users – walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – railway staff, residents, farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Lateral and vertical migration of mobile contamination | Low likelihood | Minor | Low |
| | Controlled waters – surface water Tributary of Peover Eye | Lateral migration through groundwater Direct runoff from site | Low likelihood | Minor | Low |
| | Ecological designations – Plumley Lime Beds Nature Reserve (SSSI) | Vertical and lateral migration, direct contact | Unlikely | Medium | Low |
| | Ecological designations – Holford Moss Wood, Hame Farm Pond, Long | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| | Wood at Lostock, and Mill Wood and Mill Bottoms (LWS) | | | | |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Minor | Very Low |

*Notes/assumptions:*

*• site investigation may be required prior to construction of the Proposed Scheme;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed;*

*• during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP. Construction workers have been excluded from assessment due to the use of PPE/risk management protocols and in accordance with the SMR; and*

*• while the draft CoCP will make it unlikely that there will be adverse consequences associated with construction e.g. the control of surface runoff and dust, it is considered that there may still be temporary minor adverse effects during the construction period from ground disturbance in these areas. The adoption of the draft CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline.*

**Table 34: Construction CSM and qualitative risk assessment for power station (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| Contamination from ongoing activities and residual contamination from former activities – hydrocarbons including waste oils, heavy metals, ammoniacal nitrogen, solvents, inorganic compounds, PCB, explosive | Existing site users – Workers at gas distribution station | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – Farm workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at construction phase |
|---|---|---|---|---|---|
| compounds and asbestos, potentially low levels of ground gas (methane, carbon dioxide. | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater<br>Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Low |
| | Controlled waters – surface water<br>Tributary of Gad Brook | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Medium | Moderate/low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

*• site investigation may be required prior to construction of the Proposed Scheme;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed;*

*• during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP. Construction workers have been excluded from assessment due to the use of PPE/risk management protocols and in accordance with the SMR; and*

*• while the draft CoCP will make it unlikely that there will be adverse consequences associated with construction e.g. the control of surface runoff and dust, it is considered that there may still be temporary minor adverse effects during the construction period from ground disturbance in these areas. The adoption of the draft CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline.*

## 3.4 Post-construction risk assessment

**Table 35: Post-construction CSM and qualitative risk assessment for railway land (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| Potential contamination from Made Ground from former and current activities: contaminants primarily comprising PCB, PAH, chlorinated hydrocarbons- creosote, asbestos, fuel and lubricating oils, metals, herbicides and pesticides, ash, potentially low levels of ground gas (methane, carbon dioxide and VOC) | Existing site users – Railway staff | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – Nearby residential properties and commercial industrial site workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater<br>Secondary Undifferentiated Aquifer of the glacial till<br>Secondary B Aquifer of the Sidmouth Mudstone Formation | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| | Controlled waters – surface water<br>Shropshire Union Canal, the Dingle and a tributary of the River Weaver | Lateral migration through groundwater<br>Direct runoff from site | Unlikely | Minor | Very low |
| | Ecological designations – Wimboldsley Wood (SSSI) | Vertical and lateral migration, direct contact | Unlikely | Medium | Low |
| | Ecological designations – Woodland near Lea Hall and Shropshire Union Canal (Middlewich Branch) (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Minor | Very low |

*Notes/assumptions:*

*• assumes construction works are complete and remediation has been carried out where necessary. No pathways are left open;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed;*

*• excludes rail passengers (as whilst within trains, will at all routine times be within a controlled environment) and maintenance workers; but includes people at stations/depots or in areas returned to public land after construction; and*

*• the site comprises existing rail land that will remain operational, therefore railway workers/staff and property receptors are assumed to remain present on-site during the post-construction phase.*

**Table 36: Post-construction CSM and qualitative risk assessment for farms (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| Potential contamination from former and current activities including potential tanks: contaminants primarily compromising petroleum and diesel range hydrocarbons, pesticides, asbestos, pathogens, aggressive ground conditions for concrete (sulphate/pH). Potential for low concentrations/flow rates of ground gases/vapours | Existing site users – Residents and farm workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | N/A | N/A | N/A |
| | | Inhalation of ground gases | N/A | N/A | N/A |
| | Adjacent site users – residential properties and workers in the surrounding light industrial areas | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary A Aquifer of the glaciofluvial sheet deposits | Leaching, vertical and lateral migration from contaminated soils and waters | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Unlikely | Minor | Very low |
| | Controlled waters – surface water Shropshire Union Canal and Trent and Mersey Canal and multiple nearby springs | Lateral migration through groundwater Direct runoff from site | Unlikely | Medium | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| | Ecological designations – Shropshire Union Canal (Middlewich Branch), Billinge Green Farm Pond, Whatcroft Lane Wetlands, and Pear Tree Farm (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent)<br>Commercial / Industrial / Farm buildings | Direct contact with contaminated soils and waters | N/A | N/A | N/A |
| | | Exposure to explosive gases | N/A | N/A | N/A |

*Notes/assumptions:*

*• assumes construction works are complete and remediation has been carried out where necessary. No pathways are left open;*

*• as human health receptors are no longer present at the post-construction stage the risks are labelled as not applicable (N/A);*

*• it is assumed that existing properties are no longer present on-site at the post-construction stage and so risks to them have not been assessed;*

*• a risk range may be given as the need for remediation strategies will vary to focus on specific contaminative risks at each site;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed; and*

*• excludes rail passengers (as whilst within trains, will at all routine times be within a controlled environment) and maintenance workers; but includes people at stations/depots or in areas returned to public land after construction.*

**Table 37: Post-construction CSM and qualitative risk assessment for authorised disposal/deep storage facilities (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| Deep storage of wastes, hazardous wastes and highly reactive/explosive substances in salt caverns | Existing site users – Workers in deep storage facilities | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| | | Inhalation of ground gases | Unlikely | Severe | Moderate/low |
| | Controlled waters – groundwater<br>Secondary B Aquifer of Sidmouth Mudstone Formation | Leaching, vertical and lateral migration from contaminated soils and waters | Unlikely | Minor | Very low |

*Notes/assumptions:*

*• remediation is unlikely to be carried out at these sites due to their considerable depth beneath the surface and sites are expected to continue with their current use. Therefore, post-construction risks are not expected to change.*

**Table 38: Post-construction CSM and qualitative risk assessment for historical dredging silt lagoon (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| Potential contamination from former activities including metals, asbestos, residual hydrocarbons, potentially low levels of ground gas (methane and carbon dioxide) | Existing site users – Farm workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | N/A | N/A | N/A |
| | | Inhalation of ground gases | N/A | N/A | N/A |
| | Adjacent site users – Farm workers, walkers (along Trent and Mersey Canal) and residents | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Minor | Very low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| | Controlled waters – groundwater<br>Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Unlikely | Minor | Low |
| | Controlled waters – surface water<br>Trent and Mersey Canal | Lateral migration through groundwater<br>Direct runoff from site | Unlikely | Medium | Low |
| | Ecological designations – Billinge Green Farm Pond, Ash trees along Trent and Mersey Canal at Billinge Green, and Whatcroft Lane Wetlands (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | N/A | N/A | N/A |
| | | Exposure to explosive gases | N/A | N/A | N/A |

*Notes/assumptions:*

*• assumes construction works are complete and remediation has been carried out where necessary. No pathways are left open;*

*• as human health receptors are no longer present at the post-construction stage the risks are labelled as not applicable (N/A);*

*• it is assumed that existing properties are no longer present on-site at the post-construction stage and so risks to them have not been assessed;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed; and*

*• excludes rail passengers (as whilst within trains, will at all routine times be within a controlled environment) and maintenance workers; but includes people at stations/depots or in areas returned to public land after construction.*

**Table 39: Post-construction CSM and qualitative risk assessment for historical localised shallow mineral extraction (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| Potential contamination from possible infilling activities. Composition of infill (if any) is unknown although much of the previous excavation appears not to have been infilled. Depending upon the source of the infill this could comprise inert materials or those that could include a range of organic and inorganic contaminants including: petroleum and diesel range hydrocarbons, PAH, metals and asbestos. Potentially low levels of ground gas (methane and carbon dioxide) if bio-degradable infill used. | Existing site users – Walkers and farm workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | N/A | N/A | N/A |
| | | Inhalation of ground gases | N/A | N/A | N/A |
| | Adjacent site users – Walkers and farm workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Minor | Very low |
| | Controlled waters – groundwater Secondary A Aquifer of the glaciofluvial deposits | Leaching, vertical and lateral migration from contaminated soils and waters | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Unlikely | Minor | Low |
| | Ecological designations – River Dane at Bostock, and Bull's Wood and Meadow (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |

*Notes/assumptions:*

*• assumes construction works are complete and remediation has been carried out where necessary. No pathways are left open;*

*• as human health receptors are no longer present at the post-construction stage the risks are labelled as not applicable (N/A);*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed; and*

*• excludes rail passengers (as whilst within trains, will at all routine times be within a controlled environment) and maintenance workers; but includes people at stations/depots or in areas returned to public land after construction.*

**Table 40: Post-construction CSM and qualitative risk assessment for cemetery (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| Residual contamination from former and current activities contaminants primarily comprising metals, semi-metals, ammonia, formaldehyde, pathogens, potentially low levels of ground gas (methane and carbon dioxide) | Existing site users – visitors/walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – Residents and commercial industrial site workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifers of the glacial till Secondary B Aquifers of the Sidmouth Mudstone Formation | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to ground gases/vapours | Low likelihood | Minor | Low |

*Notes/assumptions:*

*• remediation is unlikely to be carried out at this site and the site is expected to continue with its use. Therefore, post-construction risks are not expected to change;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed; and*

*• excludes rail passengers (as whilst within trains, will at all routine times be within a controlled environment) and maintenance workers; but includes people at stations/depots or in areas returned to public land after construction.*

**Table 41: Post-construction CSM and qualitative risk assessment for former chemical works (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| Residual contamination from former activities – hydrocarbons including waste oils, heavy metals, ammoniacal nitrogen, solvents, inorganic compounds, PCB, explosive compounds and asbestos. Potentially low levels of ground gas (methane and carbon dioxide). | Existing site users – walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – residents, farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Likely | Minor | Moderate/low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| | Secondary B Aquifer of the Sidmouth Mudstone Formation | | | | |
| | Controlled waters – surface water<br>Tributary of Peover Eye | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Medium | Moderate/low |
| | Ecological designations – Plumley Lime Beds Nature Reserve (SSSI) | Vertical and lateral migration, direct contact | Unlikely | Medium | Low |
| | Ecological designations – Hame Farm Pond (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

*• remediation is unlikely to be carried out at this site as the land is required for some utility diversions only and the site is expected to continue with its use. Therefore, post-construction risks are not expected to change;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed; and*

*• excludes rail passengers (as whilst within trains, will at all routine times be within a controlled environment) and maintenance workers; but includes people at stations/depots or in areas returned to public land after construction.*

**Table 42: Post-construction CSM and qualitative risk assessment for electrical sub-station – large (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| Contamination from ongoing activities residual contamination from current and former activities – hydrocarbons | Existing site users – Sub-station workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| including waste oils, phenols, PCB, chlorinated hydrocarbons, heavy metals, semi-metals and asbestos | Adjacent site users – Farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary A Aquifer of the glaciofluvial deposits and alluvium | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Unlikely | Minor | Low |
| | Controlled waters – surface water Wade Brook | Lateral migration through groundwater Direct runoff from site | Low likelihood | Minor | Low |
| | Ecological designations – Wade Brook (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to ground gases/vapours | Unlikely | Medium | Low |

*Notes/assumptions:*

*• remediation is unlikely to be carried out at this site as it is expected to continue with its use as part of the electrical distribution network. No new structures are proposed. Therefore, post-construction risks are not expected to change;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed; and*

*• excludes rail passengers (as whilst within trains, will at all routine times be within a controlled environment) and maintenance workers; but includes people at stations/depots or in areas returned to public land after construction.*

**Table 43: Post-construction CSM and qualitative risk assessment for former RAF airfield (on-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| Residual contamination from former activities as RAF Cranage grass runways – hydrocarbons including waste oils, heavy metals, solvents, inorganic compounds, PCB, explosive compounds and asbestos. Possible radionuclides associated with aircraft dials. Potentially low levels of ground gas (methane and carbon dioxide) | Existing site users – Residents, walkers, farm workers, visitors to and workers at industrial premises | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – Residents, school users, walkers, farm workers and golf course users | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary A Aquifer of the glaciofluvial sheet deposits | Leaching, vertical and lateral migration from contaminated soils and waters | Unlikely | Medium | Very low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| | Secondary B Aquifer of the Sidmouth Mudstone Formation | | | | |
| | Controlled waters – surface water<br>Puddinglake Brook | Lateral migration through groundwater<br>Direct runoff from site | Likely | Minor | Moderate/low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

*• assumes construction works are complete and remediation has been carried out where necessary. No pathways are open;*

*• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed; and*

*• site users at post-construction are the same as those described at baseline, as the borrow pit will be restored to farmland.*

**Table 44: Post-construction CSM and qualitative risk assessment for historical landfill (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| Potential contamination in infilled ground, industrial landfill waste, contaminated groundwater / leachate plume: high pH, metals, ammonia, hydrocarbons; and possible landfill gas (methane, carbon dioxide, | Existing site users – Workers at waste lime beds, workers at gas distribution station, works/depots, and factory | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Low likelihood | Severe | Moderate |
| | Adjacent site users – | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| VOC and hydrogen sulphide) | farm workers, residents, walkers, workers at works/depot | Inhalation of ground gases | Unlikely | Severe | Moderate/low |
| | Controlled waters – groundwater<br>Secondary A Aquifer of the glaciofluvial deposits | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | Controlled waters – groundwater<br>Secondary Undifferentiated Aquifer of the glacial till<br>Secondary B Aquifer of the Sidmouth Mudstone Formation | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water<br>Trent and Mersey Canal | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Medium | Moderate/low |
| | Controlled waters – surface water<br>Wade Brook | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Minor | Low |
| | Ecological designations – Wade Brook (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Unlikely | Minor | Very low |
| | | Exposure to explosive gases | Low likelihood | Severe | Moderate |

*Notes/assumptions:*

*• assumes construction works are complete and remediation has been carried out where necessary. No pathways are open;*

*• assumes baseline conditions will not change at post-construction; and*

*• existing site users and adjacent site users in the receptor column refer to users within/near to the areas assessed.*

**Table 45: Post-construction CSM and qualitative risk assessment for farms (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| Potential contamination from former and current activities including potential tanks: contaminants primarily compromising petroleum and diesel range hydrocarbons, pesticides, asbestos, pathogens, aggressive ground conditions for concrete (sulphate/pH). Potential for low concentrations/flow rates of ground gases/vapours | Existing site users – Residential properties and workers in commercial/industrial estates | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/Low |
| | | Inhalation of ground gases | Low likelihood | Medium | Moderate/Low |
| | Adjacent site users, such as those within residential properties | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary A Aquifer of the glaciofluvial sheet deposits | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water | Lateral migration through groundwater | Low likelihood | Medium | Moderate/low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| | Puddinglake Brook<br>River Wheelock<br>Trent and Mersey Canal<br>Spring at Mill Farm | Direct runoff from site | | | |
| | Ecological designations – Puddinglake Brook Wood, and Whatcroft Hedge (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

*• assumes construction works are complete and remediation has been carried out where necessary. No pathways are open;*

*• assumes baseline conditions will not change at post-construction; and*

*• existing site users and adjacent site users in the receptor column refer to users within/near to the areas assessed.*

**Table 46: Post-construction CSM and qualitative risk assessment for historical infilled land (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| Potential contamination from possible infilling activities. Composition of infill (if any) is unknown. Depending upon the source of the infill this could comprise inert materials or those that could include a range of | Existing site users – Walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| organic and inorganic contaminants including: petroleum and diesel range hydrocarbons, PAH, metals and asbestos. Potentially low levels of ground gas (methane and carbon dioxide) if bio-degradable infill used. | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater<br>Secondary A Aquifer of the alluvium | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | Controlled waters – groundwater<br>Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Controlled waters – surface water<br>Tributary of Peover Eye | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Minor | Moderate/low |
| | Ecological designations – Plumley Lime Beds Nature Reserve (SSSI) | Vertical and lateral migration, direct contact | Unlikely | Medium | Low |
| | Ecological designations – Mill Wood and Mill Bottoms, and Long Wood at Lostock (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

- *assumes construction works are complete and remediation has been carried out where necessary. No pathways are open;*
- *assumes baseline conditions will not change at post-construction; and*
- *existing site users and adjacent site users in the receptor column refer to users within/near to the areas assessed.*

**Table 47: Post-construction CSM and qualitative risk assessment for former ammonia soda and bleach works (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| Contamination from ongoing activities and residual contamination from former activities – hydrocarbons including waste oils, heavy metals, ammoniacal nitrogen, solvents, inorganic compounds, PCB, explosive compounds and asbestos. Potential for low concentrations/flow rates of ground gases/vapours | Existing site users – Walkers, workers at Lostock/bleach works | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – Residents, farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary A Aquifer of the glaciofluvial deposits | Leaching, vertical and lateral migration from contaminated soils and waters | Likely | Medium | Moderate |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till Secondary B Aquifer of the Sidmouth Mudstone Formation | Leaching, vertical and lateral migration from contaminated soils and waters | Likely | Minor | Moderate/low |
| | Controlled waters – surface water Trent and Mersey Canal | Lateral migration through groundwater Direct runoff from site | Low likelihood | Medium | Moderate/low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| | Ecological designations – Plumley Lime Beds Nature Reserve (SSSI) | Vertical and lateral migration, direct contact | Unlikely | Medium | Low |
| | Ecological designations – Long Wood at Lostock, Hame Farm Pond, Wade Brook, Griffith's Park, and Wincham Brook Valley (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

*• assumes construction works are complete and remediation has been carried out where necessary. No pathways are open;*

*• assumes baseline conditions will not change at post-construction; and*

*• existing site users and adjacent site users in the receptor column refer to users within/near to the areas assessed.*

**Table 48: Post-construction CSM and qualitative risk assessment for industrial estate (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| Contamination from ongoing activities and residual contamination from former activities – hydrocarbons including waste oils, heavy metals, solvents, inorganic | Existing site users – Workers and visitors to industrial estate | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| compounds, PCB and asbestos | Railway staff, farm workers and walkers | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater<br>Secondary A Aquifers of the glaciofluvial deposits and the alluvium | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | Controlled waters – groundwater<br>Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |
| | Ecological designations – The Willowbeds (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Low likelihood | Medium | Moderate/low |

*Notes/assumptions:*

*• assumes construction works are complete and remediation has been carried out where necessary. No pathways are open;*

*• assumes baseline conditions will not change at post-construction; and*

*• existing site users and adjacent site users in the receptor column refer to users within/near to the areas assessed.*

**Table 49: Post-construction CSM and qualitative risk assessment for former railway land (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| Potential contamination from Made Ground from former activities: contaminants primarily comprising PCB, PAH, chlorinated hydrocarbons-creosote, asbestos, fuel and lubricating oils, metals, herbicides and pesticides, ash, potentially low levels of ground gas (methane, carbon dioxide and VOC) | Existing site users – walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – railway staff, residents, farm workers and walkers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Lateral and vertical migration of mobile contamination | Low likelihood | Minor | Low |
| | Controlled waters – surface water Tributary of Peover Eye | Lateral migration through groundwater Direct runoff from site | Low likelihood | Minor | Low |
| | Ecological designations – Plumley Lime Beds Nature Reserve (SSSI) | Vertical and lateral migration, direct contact | Unlikely | Medium | Low |
| | Ecological designations – Holford Moss Wood, Hame Farm Pond, Long Wood at Lostock, and Mill Wood and Mill Bottoms (LWS) | Vertical and lateral migration, direct contact | Unlikely | Minor | Very low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Minor | Very low |

*Notes/assumptions:*

*• assumes construction works are complete and remediation has been carried out where necessary. No pathways are open;*

*• assumes baseline conditions will not change at post-construction; and*

*• existing site users and adjacent site users in the receptor column refer to users within/near to the areas assessed.*

**Table 50: Post-construction CSM and qualitative risk assessment for Power station (off-site)**

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| Contamination from ongoing activities and residual contamination from former activities – hydrocarbons including waste oils, heavy metals, ammoniacal nitrogen, solvents, inorganic compounds, PCB, explosive compounds and asbestos, potentially low levels of ground gases (methane and carbon dioxide) | Existing site users – Workers at gas distribution station | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low likelihood | Medium | Moderate/low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Adjacent site users – Farm workers | Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Unlikely | Medium | Low |
| | | Inhalation of ground gases | Unlikely | Medium | Low |
| | Controlled waters – groundwater Secondary Undifferentiated Aquifer of the glacial till | Leaching, vertical and lateral migration from contaminated soils and waters | Low likelihood | Minor | Low |

| Source | Receptor | Pathway | Probability | Consequence | Risk at post-construction phase |
|---|---|---|---|---|---|
| | Controlled waters – surface water<br>Tributary of Gad Brook | Lateral migration through groundwater<br>Direct runoff from site | Low likelihood | Medium | Moderate/low |
| | Property receptors – buildings, foundations and services (existing and adjacent) | Direct contact with contaminated soils and waters | Low likelihood | Minor | Low |
| | | Exposure to explosive gases | Unlikely | Medium | Low |

*Notes/assumptions:*

- *assumes construction works are complete and remediation has been carried out where necessary. No pathways are open;*
- *assumes baseline conditions will not change at post-construction; and*
- *existing site users and adjacent site users in the receptor column refer to users within/near to the areas assessed.*

## 3.5 Assessment of temporary (construction) and permanent (post-construction) effects

3.5.1 The significance of the effects of land contamination is assessed by comparing the difference in risk of each contaminant linkage at baseline to those at construction and at post-construction stages. This provides a way of assessing both the adverse and beneficial effects during construction and the post-construction period.

**Table 51: Railway land (on-site) - significance of effect assessment**

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users to contamination through direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Moderate/low | Moderate/low | Low | Neutral effect | Minor beneficial |
| Exposure of existing site users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters impacting adjacent site users | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of adjacent off-site land users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary Undifferentiated aquifer and Secondary B aquifer) | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination and/or direct runoff from site to surface waters (Shropshire Union Canal, the Dingle and the River Weaver) | Very low to low | Very low to low | Very low | Neutral effect | Minor beneficial |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (SSSI) | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (LWS of Woodland near Lea Hall, and Shropshire Union Canal (Middlewich Branch)) | Very low | Very low | Very low | Neutral effect | Neutral effect |
| Exposure of property to via direct contact to contaminated soils and waters | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of property and underground structures/services to explosive gases | Very low | Very low | Very low | Neutral effect | Neutral effect |
| Overall significance | | | | Neutral effect | Neutral to minor beneficial effect |

*Notes/assumptions:*

*• the significance column may report a range of outcomes for a site. The draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance. Mitigation measures over and above the draft CoCP are detailed in the Volume 2 report for this study area; and*

*• railway staff and existing property receptors are assumed to continue to be present during construction works and have therefore been considered as part of this assessment.*

**Table 52: Farms (on-site) - significance of effect assessment**

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users to contamination through direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Moderate/low | N/A | N/A | N/A | N/A |
| Exposure of existing site users through inhalation of ground gases | Moderate/low | N/A | N/A | N/A | N/A |
| Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters impacting adjacent site users | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of adjacent off-site land users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary A aquifer) | Moderate/low | Moderate/low | Low | Neutral effect | Minor beneficial |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary Undifferentiated aquifer) | Low | Low | Very low | Neutral effect | Minor beneficial |
| Lateral and vertical migration of mobile contamination and/or direct runoff from site to surface waters (Shropshire Union Canal, Trent and Mersey Canal and multiple nearby springs) | Moderate/low | Moderate/low | Low | Neutral effect | Minor beneficial |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (LWS of Shropshire Union Canal (Middlewich Branch), Billinge Green Farm Pond, Whatcroft Lane Wetlands, and Pear Tree Farm) | Very low | Very low | Very low | Neutral effect | Neutral effect |
| Exposure of property to via direct contact to contaminated soils and waters | Low | N/A | N/A | N/A | N/A |
| Exposure of property and underground structures/services to explosive gases | Low | N/A | N/A | N/A | N/A |

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Overall significance | | | | Neutral effect | Neutral to minor beneficial effect |

*Notes/assumptions:*

*• the significance column may report a range of outcomes for a site. The draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance. Mitigation measures over and above the draft CoCP are detailed in the Volume 2 report for this study area.*

*• as human health receptors are no longer present during the construction and post-construction stages the risks are labelled as not applicable (N/A); and*

*• it is assumed that existing properties are demolished during the construction and post-construction stages and so risks to them have not been assessed.*

### Table 53: Authorised disposal/deep storage facilities (on-site) - significance of effect assessment

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users to contamination through direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of existing site users through inhalation of ground gases | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary B aquifer) | Very low | Very low | Very low | Neutral effect | Neutral effect |
| Overall significance | | | | Neutral effect | Neutral effect |

*Notes/assumptions:*

*• the significance column may report a range of outcomes for a site. The draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance. Mitigation measures over and above the draft CoCP are detailed in the Volume 2 report for this study area.*

### Table 54: Historical dredging silt lagoon (on-site) - significance of effect assessment

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users to contamination through direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Moderate/low | N/A | N/A | N/A | N/A |

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users through inhalation of ground gases | Low | N/A | N/A | N/A | N/A |
| Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters impacting adjacent site users | Low | Low | Very low | Neutral effect | Minor beneficial |
| Exposure of adjacent off-site land users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary Undifferentiated aquifer) | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination and/or direct runoff from site to surface waters (Trent and Mersey Canal) | Low | Moderate/low | Low | Minor adverse | Neutral effect |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (LWS of Billinge Green Farm Pond, Ash trees along Trent and Mersey Canal at Billinge Green, and Whatcroft Lane Wetlands) | Very low | Very low | Very low | Neutral effect | Neutral effect |
| Exposure of property to via direct contact to contaminated soils and waters | Very low | N/A | N/A | N/A | N/A |
| Exposure of property and underground structures/services to explosive gases | Low | N/A | N/A | N/A | N/A |
| Overall significance | | | | Neutral to minor adverse effect | Neutral to minor beneficial effect |

*Notes/assumptions:*

*• the significance column may report a range of outcomes for a site. The draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance. Mitigation measures over and above the draft CoCP are detailed in the Volume 2 report for this study area;*

*• as human health receptors are no longer present during the construction and post-construction stages the risks are labelled as not applicable (N/A); and*

*• it is assumed that existing properties are demolished during the construction and post-construction stages and so risks to them have not been assessed.*

**Table 55: Historical localised shallow mineral extraction (on-site) - significance of effect assessment**

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users to contamination through direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low | N/A | N/A | N/A | N/A |
| Exposure of existing site users through inhalation of ground gases | Low | N/A | N/A | N/A | N/A |
| Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters impacting adjacent site users | Low | Low | Very low | Neutral effect | Minor beneficial |
| Exposure of adjacent off-site land users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary A aquifer) | Moderate/low | Moderate/low | Low | Neutral effect | Minor beneficial |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary Undifferentiated aquifer) | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (LWS of River Dane at Bostock, and Bull's Wood and Meadow) | Very low | Very low | Very low | Neutral effect | Neutral effect |
| Overall significance | | | | Neutral effect | Neutral to minor beneficial effect |

*Notes/assumptions:*

*• the significance column may report a range of outcomes for a site. The draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance. Mitigation measures over and above the draft CoCP are detailed in the Volume 2 report for this study area; and*

*• as human health receptors are no longer present during the construction and post-construction stages the risks are labelled as not applicable (N/A).*

**Table 56: Cemetery (on-site) - significance of effect assessment**

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users to contamination through direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of existing site users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters impacting adjacent site users | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of adjacent off-site land users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary Undifferentiated aquifer and Secondary B aquifer) | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of property to via direct contact to contaminated soils and waters | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of property and underground structures/services to explosive gases | Low | Low | Low | Neutral effect | Neutral effect |
| Overall significance | | | | Neutral effect | Neutral effect |

*Notes/assumptions:*

*• the significance column may report a range of outcomes for a site. The draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance. Mitigation measures over and above the draft CoCP are detailed in the Volume 2 report for this study area; and*

*• as human health receptors are no longer present during the construction stage the risks are labelled as not applicable (N/A).*

**Table 57: Former chemical works (on-site) - significance of effect assessment**

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users to contamination through direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low | N/A | Low | N/A | Neutral effect |
| Exposure of existing site users through inhalation of ground gases | Low | N/A | Low | N/A | Neutral effect |
| Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters impacting adjacent site users | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of adjacent site users through inhalation of ground gases | Low | N/A | Low | N/A | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary Undifferentiated aquifer and Secondary B aquifer) | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to controlled waters (Tributary of Peover Eye) | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (SSSI at Plumley Lime Beds Nature Reserve) | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (LWS of Hame Farm Pond) | Very low | Very low | Very low | Neutral effect | Neutral effect |
| Exposure of property to via direct contact to contaminated soils and waters | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of property and underground structures/services to explosive gases | Low | Low | Low | Neutral effect | Neutral effect |
| Overall significance | | | | Neutral effect | Neutral effect |

*Notes/assumptions:*

*• the significance column may report a range of outcomes for a site. The draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance. Mitigation measures over and above the draft CoCP are detailed in the Volume 2 report for this study area; and*

*• as human health receptors are no longer present during the construction stage the risks are labelled as not applicable (N/A).*

**Table 58: Electrical sub-station - large (on-site) - significance of effect assessment**

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users to contamination through direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low | Low | Low | Neutral effect | Neutral effect |
| Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters impacting adjacent site users | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary A aquifer) | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary Undifferentiated aquifer) | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to controlled waters (Wade Brook) | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (LWS of Wade Brook) | Very low | Very low | Very low | Neutral effect | Neutral effect |
| Exposure of property to via direct contact to contaminated soils and waters | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of property and underground structures/services to vapours | Low | Low | Low | Neutral effect | Neutral effect |
| Overall significance | | | | Neutral effect | Neutral effect |

*Notes/assumptions:*

*• the significance column may report a range of outcomes for a site. The draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance. Mitigation measures over and above the draft CoCP are detailed in the Volume 2 report for this study area.*

**Table 59: Former RAF airfield (on-site) - significance of effect assessment**

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users to contamination through direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Exposure of existing site users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters impacting adjacent site users | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of adjacent off-site land users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary A aquifer) | Moderate | Moderate | Very low | Neutral effect | Moderate beneficial effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary Undifferentiated aquifer and Secondary B aquifer) | Moderate/low | Moderate/low | Low | Neutral effect | Minor beneficial effect |
| Lateral and vertical migration of mobile contamination and/or direct runoff from site to surface waters (Puddinglake Brook) | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Exposure of property to via direct contact to contaminated soils and waters | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of property and underground structures/services to explosive gases | Low | Low | Low | Neutral effect | Neutral effect |
| Overall significance | | | | Neutral effect | Neutral to moderate beneficial effect |

*Notes/assumptions:*

*• the draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance. Mitigation measures over and above the draft CoCP are detailed in the Volume 2 report for this study area.*

**Table 60: Historical landfill (off-site) - significance of effect assessment**

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users to contamination through direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Exposure of existing site users through inhalation of ground gases | Moderate | Moderate | Moderate | Neutral effect | Neutral effect |
| Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters impacting adjacent site users | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of adjacent off-site land users through inhalation of ground gases | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary A aquifer) | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary Undifferentiated aquifer and Secondary B aquifer) | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination and/or direct runoff from site to surface waters (Trent and Mersey Canal) | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to controlled waters (Wade Brook) | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (LWS of Wade Brook) | Very low | Very low | Very low | Neutral effect | Neutral effect |

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of property to via direct contact to contaminated soils and waters | Very low | Very low | Very low | Neutral effect | Neutral effect |
| Exposure of property and underground structures/services to explosive gases | Moderate | Moderate | Moderate | Neutral effect | Neutral effect |
| Overall significance | | | | Neutral effect | Neutral effect |

*Notes/assumptions:*

*• The significance column may report a range of outcomes for a site. The draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance. Mitigation measures over and above the draft CoCP are detailed in the Volume 2 report for this study area.*

### Table 61: Farms (off-site) - significance of effect assessment

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users to contamination through direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Exposure of existing site users through inhalation of ground gases | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters impacting adjacent site users | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of adjacent off-site land users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary A aquifer) | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary Undifferentiated aquifer) | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination and/or direct runoff from site to surface waters | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| (Puddinglake Brook, River Wheelock, Trent and Mersey Canal and spring at Mill Farm) | | | | | |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (LWS of Puddinglake Brook Wood, and Whatcroft Hedge) | Very low | Very low | Very low | Neutral effect | Neutral effect |
| Exposure of property to via direct contact to contaminated soils and waters | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of property and underground structures/services to explosive gases | Low | Low | Low | Neutral effect | Neutral effect |
| Overall significance | | | | Neutral effect | Neutral effect |

*Notes/assumptions:*

*• The significance column may report a range of outcomes for a site. The draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance. Mitigation measures over and above the draft CoCP are detailed in the Volume 2 report for this study area.*

### Table 62: Historical infilled land (off-site) - significance of effect assessment

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users to contamination through direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Exposure of existing site users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters impacting adjacent site users | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of adjacent off-site land users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary A aquifer) | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Lateral and vertical migration of mobile contamination to groundwater (Secondary Undifferentiated aquifer) | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination and/or direct runoff from site to surface waters (Puddinglake Brook, River Wheelock and Trent and Mersey Canal) | Very low | Very low | Very low | Neutral effect | Neutral effect |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (SSSI of Plumley Lime Beds Nature Reserve) | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (LWS of Mill Wood and Mill Bottoms, and Long Wood, Lostock) | Very low | Very low | Very low | Neutral effect | Neutral effect |
| Exposure of property to via direct contact to contaminated soils and waters | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of property and underground structures/services to explosive gases | Low | Low | Low | Neutral effect | Neutral effect |
| Overall significance | | | | Neutral effect | Neutral effect |

*Notes/assumptions:*

*• The significance column may report a range of outcomes for a site. The draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance. Mitigation measures over and above the draft CoCP are detailed in the Volume 2 report for this study area.*

### Table 63: Former ammonia soda and bleach works (off-site) - significance of effect assessment

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users to contamination through direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of existing site users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters impacting adjacent site users | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of adjacent off-site land users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary A aquifer) | Moderate | Moderate | Moderate | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary Undifferentiated aquifer) | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination and/or direct runoff from site to surface waters (Trent and Mersey Canal) | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (SSSI) | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (LWS of Long Wood at Lostock, Hame Farm Pond, Wade Brook, Griffith's Park, and Wincham Brook Valley) | Very low | Very low | Very low | Neutral effect | Neutral effect |
| Exposure of property to via direct contact to contaminated soils and waters | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of property and underground structures/services to explosive gases | Low | Low | Low | Neutral effect | Neutral effect |
| Overall significance | | | | Neutral effect | Neutral effect |

*Notes/assumptions:*

*• The significance column may report a range of outcomes for a site. The draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance. Mitigation measures over and above the draft CoCP are detailed in the Volume 2 report for this study area.*

**Table 64: Industrial estate (off-site) - significance of effect assessment**

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users to contamination through direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Exposure of existing site users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters impacting adjacent site users | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of adjacent site users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary A aquifer) | Moderate/low | Moderate/low | Moderate/ow | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary Undifferentiated aquifer) | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (LWS of The Willowbeds) | Very low | Very low | Very low | Neutral effect | Neutral effect |
| Exposure of property to via direct contact to contaminated soils and waters | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of property and underground structures/services to explosive gases | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Overall significance | | | | Neutral effect | Neutral effect |

*Notes/assumptions:*

*• The significance column may report a range of outcomes for a site. The draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance. Mitigation measures over and above the draft CoCP are detailed in the Volume 2 report for this study area.*

**Table 65: Former railway land (off-site) - significance of effect assessment**

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users to contamination through direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Exposure of existing site users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters impacting adjacent site users | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of adjacent off-site land users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary Undifferentiated aquifer) | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination and/or direct runoff from site to surface waters (Tributary of Peover Eye) | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (SSSI of Plumley Lime Beds Nature Reserve) | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact (LWS of Holford Moss Wood, and Hame Farm Pond, Long Wood at Lostock, and Mill Wood and Mill Bottoms) | Very low | Very low | Very low | Neutral effect | Neutral effect |
| Exposure of property to via direct contact to contaminated soils and waters | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of property and underground structures/services to explosive gases | Very low | Very low | Very low | Neutral effect | Neutral effect |
| Overall significance | | | | Neutral effect | Neutral effect |

*Notes/assumptions:*

*• The significance column may report a range of outcomes for a site. The draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance. Mitigation measures over and above the draft CoCP are detailed in the Volume 2 report for this study area.*

### Table 66: Current power station (off-site) - significance of effect assessment

| Contaminant linkage | Baseline risk | Construction risk | Post-construction risk | Construction significance | Post-construction significance |
|---|---|---|---|---|---|
| Exposure of existing site users to contamination through direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Exposure of existing site users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils and waters impacting adjacent site users | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of adjacent off-site land users through inhalation of ground gases | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination to groundwater (Secondary Undifferentiated aquifer and Secondary B aquifer) | Low | Low | Low | Neutral effect | Neutral effect |
| Lateral and vertical migration of mobile contamination and/or direct runoff from site to surface waters (Tributary of Gad Brook) | Moderate/low | Moderate/low | Moderate/low | Neutral effect | Neutral effect |
| Exposure of ecological sites to contamination via vertical and lateral migration and direct contact | Low | Low | Low | Neutral effect | Neutral effect |
| Exposure of property and underground structures/services to explosive gases | Low | Low | Low | Neutral effect | Neutral effect |
| Overall significance | | | | Neutral effect | Neutral effect |

*Notes/assumptions:*

*• The significance column may report a range of outcomes for a site. The draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance. Mitigation measures over and above the draft CoCP are detailed in the Volume 2 report for this study area.*

hs2.org.uk

**High Speed Two (HS2) Limited**
Two Snowhill
Snow Hill Queensway
Birmingham B4 6GA
Freephone: 08081 434 434
Minicom: 08081 456 472
Email: HS2enquiries@hs2.org.uk