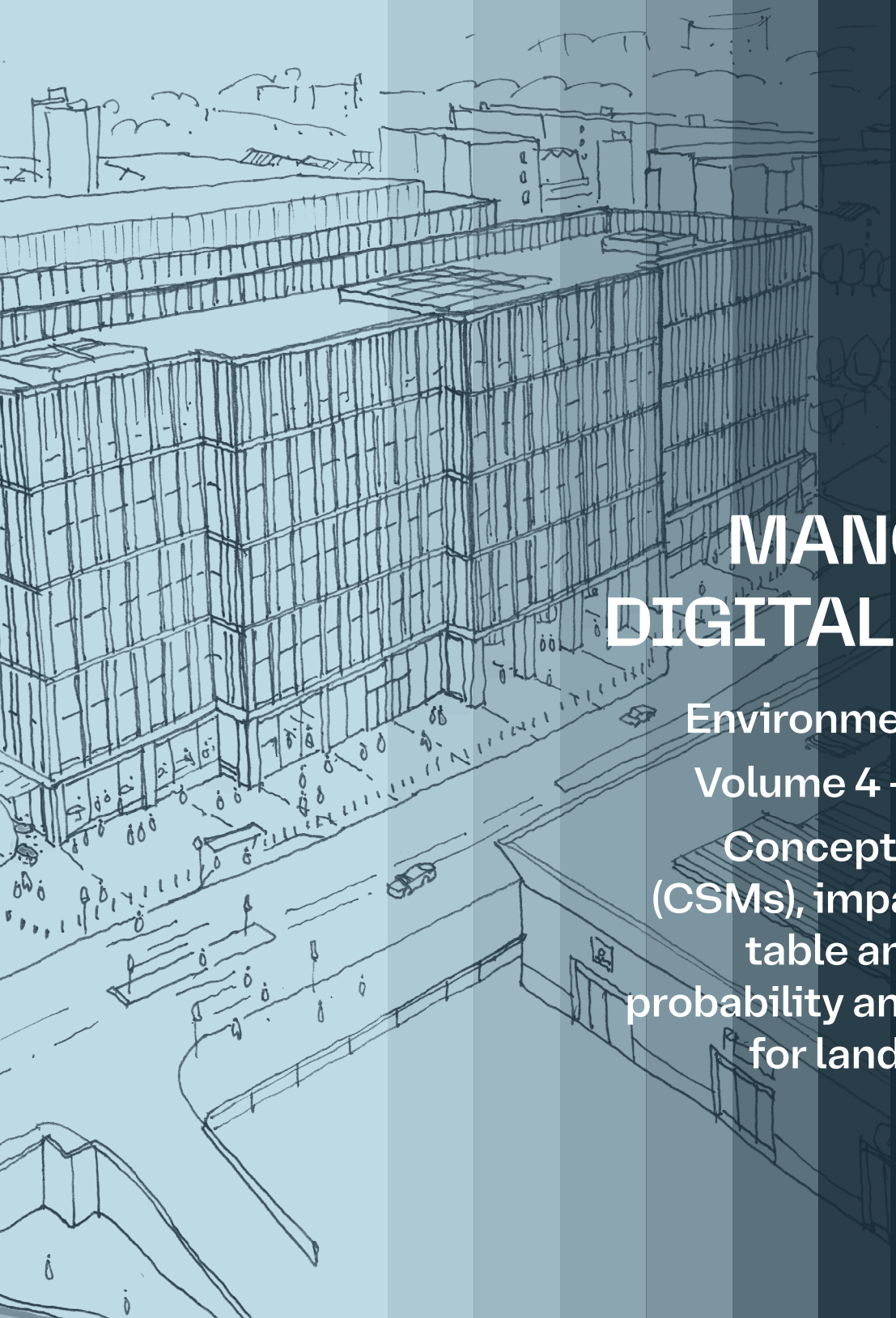
Government Property Agency

AtkinsRéalis



MANCHESTER DIGITAL CAMPUS

Environmental Statement

Volume 4 - Appendix 12.3: Conceptual Site Models (CSMs), impact assessment table and definitions of probability and consequence for land contamination

NOVEMBER 2024

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Appendix 12.3 Conceptual site models, impact assessment table and definitions of probability and consequence for land contamination

Table 1.1 - Construction phase conceptual site model

Source Description *Potential Contaminants*	Receptor	Pathway	Consequence	Probability / Likelihood	Risk Category	Comments
On-site Made Ground: asbestos, arsenic, TPHs, VOCs/SVOCs Unidentified contamination from historical industrial land uses on-site (including a foundry / iron works, wood yard, various mills, factories, various works, corporation yards, saw mill / timber yard, timber shed, garage, depot and retail park) Potential introduction of new sources during construction	**Human Health** **On-site:** Pedestrians / trespassers Site visitors	Direct contact / ingestion of contaminants within Made Ground / soils or groundwater	Minor	Low	Very low	Construction activities, such as earthworks, may expose the soil therefore increasing the risk of direct contact/ingestion of contaminants, inhalation of vapours and dust. Construction of the proposed basement will require the removal of Made Ground, removing a potential source of contamination. No exceedances of the human health screening criteria for a commercial land use were recorded during the e3p or Atkins' ground investigation. Several VOC/SVOCs were recorded above the LOD in TP01, TP02 and TP05, where no GAC was available. No elevated PID readings were recorded.
		Inhalation of organic vapours from Made Ground / soils, soil derived dust, and groundwater	Minor	Low	Very low	
		Inhalation of dust and fibres from Made Ground / soils, soil derived dust	Minor	Low	Very low	
		Inhalation of ground gas	Minor	Low	Very low	The degradation of contaminants in the Made Ground within the Site may result in ground gas production. During excavation of the proposed basement, ground gases may accumulate within the basement. More enclosed spaces will be present on-site as the construction phase progresses in which ground gases may accumulate. Ground investigations undertaken by e3p and AtkinsRéalis indicate a CS1, very low hazard potential.
		Inhalation of asbestos fibres	Severe	Low	Moderate / Low	Asbestos fibres of Chrysotile were identified in the Made Ground in WS109 at 2.9 m during the e3p ground investigation. No asbestos was identified during the Atkins' ground investigation. Based on the historical land uses of the Site and as Made Ground is present, the potential presence of asbestos cannot be completely dismissed. Construction activities, such as earthworks or piling, may disturb any potential asbestos fibres present.
	Human Health **Off-site:** Members of the public, neighbouring residents and commercial workers	Direct contact / ingestion of contaminants within soils derived dust or groundwater migrating off-site	Minor	Unlikely	Very low	Construction activities, such as earthworks, could result in increased dust generation which may be blown off-site. However, no exceedances of the human health screening criteria for a commercial land use were recorded during the e3p or Atkins' ground investigations. A CEMP will be produced to ensure reduction of risks during the construction phase.
		Inhalation of organic vapours and asbestos fibres migrating off-site	Minor	Low	Very low	
		Inhalation of ground gases migrating off-site	Minor	Unlikely	Very low	The degradation of contaminants in the Made Ground within the Site may result in ground gas production. Ground investigations undertaken by e3p and AtkinsRéalis indicate a CS1, very low hazard potential.

Source Description *Potential Contaminants*	Receptor	Pathway	Consequence	Probability / Likelihood	Risk Category	Comments
	Groundwater **On-site:** Superficial Secondary Undifferentiated Aquifer Bedrock Principal Aquifer **Off-site:** Superficial Secondary Undifferentiated Aquifer Bedrock Principal and Secondary B Aquifer	Leaching/dissolution from contaminated soils, followed by vertical migration Lateral migration of contaminants in groundwater Migration via preferential pathways e.g. existing drainage.	Mild	Low	Low	The superficial deposits are identified as a Secondary Undifferentiated aquifer due to the variability of the rock type. The bedrock deposits are identified as a Principal aquifer which indicates the strata has the potential to provide significant quantities of drinking water. As Made Ground is present across which may be exposed following breaking out of hardstanding, there is potential for leaching of contaminants into groundwater. Contaminants may be disturbed and mobilised further by activities such as earthworks, piling, installation of drainage and other below ground services, as well as potential for introduction of new pathways as a result of such activities. Superficial deposits across the Site comprise of predominantly clay, reducing the likelihood of contaminants within the Made Ground percolating down to the principal bedrock aquifer. No exceedances in groundwater samples from the Made Ground, taken by e3p, were identified when screened against Drinking Water Standards. An exceedance of arsenic was reported in a sample taken in the bedrock. Exceedances of DWS and EQS were recorded in groundwater samples collected during the Atkins' GI, however, it was concluded unlikely that an unacceptable risk is presented to controlled waters.
	Surface Water **Off-site** Rochdale Canal Islington Wharf Marina Ashton Canal	Leaching/dissolution from contaminated soils, followed by vertical migration Surface water run-off mobile contaminants Migration via preferential pathways e.g. existing drainage.	Minor	Low	Very low	During construction activities, there is potential for increased soil erosion and surface water runoff with a high sediment load, which may impact nearby surface waters, as a result of earthworks. However, as there are limited leachate exceedances, the presence of cohesive deposits are likely to inhibit the vertical and lateral migration of contaminants present within shallow groundwater. The CEMP will mitigate against contaminant migration to the surface water bodies.
	Ecology **On-site** Flora & Fauna	Direct contact of habitats with contaminated soils, ground water and surface water	Receptor not present			It is assumed that vegetation clearance will take place prior to commencement of construction.
	Ecology **Off-site** Flora & Fauna	Lateral migration of contaminants in air or surface water run-off	Minor	Unlikely	Very Low	Construction activities, such as earthworks, may result in increased dust generation which has the potential to be blown off-site, and increased soil erosion and surface water run off impacting flora and fauna within nearby surface water courses. The CEMP will mitigate against contaminant migration to off-site ecology.
	Property **On-site** New and existing services and structures on-site.	Chemical attack from aggressive chemical constituents in soil.	Minor	Unlikely	Very low	Localised areas of Made Ground may result in aggressive ground conditions. Ground investigations at the Site indicate the soils generally meet Class DS-1, AC-1. It is assumed that infrastructure installed during the construction phase will be constructed to appropriate standards for the Site to withstand attack from soil chemistry.

Source Description *Potential Contaminants*	Receptor	Pathway	Consequence	Probability / Likelihood	Risk Category	Comments
		Ground gas accumulation and potential explosion risk	Minor	Unlikely	Very low	Ground investigations undertaken by e3p and AtkinsRéalis indicate a CS1. Enclosed/confined spaces created during the construction phase may allow ground gases to accumulate. The CEMP will reduce risks during the construction phase.
	Property **Off-site** Existing structures and services.	Ground gas accumulation and potential explosion risk	Minor	Unlikely	Very low	Made Ground is present on-site which has the potential to generate harmful gases. However, ground investigations undertaken by e3p and AtkinsRéalis indicate a CS1 in which ground gas protection measures are considered not to be required. It is considered unlikely that with the Site classified as CS1, that significant gas concentrations would migrate off-site to nearby receptors.
Off-site Disturbed ground, Made Ground and worked ground Historical discharges to surface water Historical industrial land uses: Mills (cotton, cloth and flour), timber yards, saw mill, coal yard, coal / colliery wharfs, Infilled canal/wharf, smithy, spindle works, hydraulic power station, tin works, dye works, glass works, engineering works, machine tools works, galvanizing works, waterproof works, electricity sub station, brass and iron works / foundries, paint works, soap works, hospital, scrap metal yard, and tanks.	**Human Health** **On-site:** Pedestrians / trespassers Site visitors	Ingestion and inhalation of contaminants within Made Ground / soils, soil derived dust, vapours, fibres or groundwater migrating onto Site	Minor	Low	Very low	Although the likelihood is low, there are a number of historical and current developments adjacent to the Site where contamination may have migrated from.
		Inhalation ground gas migrating onto Site	Minor	Unlikely	Very low	Potential for migration of gases to migrate on to the Site, if sufficient Made Ground is present. Gases generated by off-site sources have the potential to accumulate within enclosed/confined spaces that are established during the construction phase.
	Groundwater **On-site:** Superficial Secondary Undifferentiated Aquifer Bedrock Principal Aquifer	Leaching/dissolution from contaminated soils, followed by migration Lateral migration of contaminants in groundwater Migration via preferential pathways e.g. drainage.	Mild	Low	Low	The potential for contamination off-site to migrate to the Site in the underlying aquifers and impact groundwater on-site is low given the limited exceedances recorded in the groundwater beneath the Site.
	Ecology On-site Flora & Fauna	Ingestion, inhalation and uptake of contaminants within soil derived dust, vapours, fibres or groundwater migrating onto Site	Receptor not present			It is assumed that vegetation clearance will be undertaken during the construction phase.
	On-site Property New and existing services and structures on-site.	Ground gas migration, accumulation and potential explosion risk	Minor	Unlikely	Very low	The risk from migration of off-site ground gas to cause explosion risk on-site is deemed to be very low.

Table 1.2 - Operational phase conceptual site model

Source *Potential Contaminants*	Receptor	Pathway	Consequence	Probability / Likelihood	Risk Category	Comments
On-site Made Ground: asbestos, arsenic, TPHs, VOCs/SVOCs Unidentified contamination from historical industrial land uses on-site (including a foundry / iron works, wood yard, various mills, factories, various works, corporation yards, saw mill / timber yard, timber shed, garage, depot and retail park) Potential introduction of new sources during operation.	**Human Health** **On-site:** Site visitors Future site users	Direct contact / ingestion of contaminants within Made Ground / soils or groundwater	Minor	Unlikely	Very low	No exceedances of the human health screening criteria for a commercial land use were recorded during the e3p or Atkins' ground investigation, therefore no sources have been identified. Several VOC/SVOCs were recorded above the LOD in TP01, TP02 and TP05, where no GAC was available. No elevated PID readings were recorded within these samples. Any remediation required will be completion prior to operation. There is potential for unidentified sources to be present onsite and the introduction of new sources on-site which may present a risk to human health. These will be managed by appropriate embedded mitigation and the majority of the Site will be covered in hardstanding, thereby breaking the PCL to humans. Material used for soft landscaping will undergo the appropriate chemical testing to ensure no exceedances of the human health GACs prior to placement. Areas of landscaping will be covered by clean cover, therefore the SPR linkage will not be present.
		Inhalation of organic vapours from Made Ground / soils, soil derived dust, and groundwater	Minor	Unlikely	Very low	
		Inhalation of dust and fibres from Made Ground / soils, soil derived dust	Minor	Unlikely	Very low	
		Inhalation of ground gas	Minor	Unlikely	Very low	Ground investigations undertaken by e3p and AtkinsRéalis indicate a CS1, very low hazard potential. It is assumed that design of the basement and onsite buildings will consider ventilation and correct materials to prevent gas accumulation.
		Inhalation of asbestos fibres	Severe	Unlikely	Moderate / low	Any soils containing asbestos encountered during the construction stage will be remediated during construction. The majority of the Site will be covered by hardstanding therefore breaking the pathway. Landscaping will involve placement of clean material therefore breaking the pathway.
	Human Health **Off-site:** Members of the public, neighbouring residents and commercial workers	Direct contact / ingestion of contaminants within soils derived dust or groundwater migrating off-site	Minor	Unlikely	Very low	No exceedances of the human health screening criteria for a commercial land use were recorded during the e3p or Atkins' ground investigation, therefore no sources have been identified. Several VOC/SVOCs were recorded above the LOD in TP01, TP02 and TP05, where no GAC was available. No elevated PID readings were recorded within these samples. Any remediation required will be completion prior to operation. However, there is potential for unidentified sources to be present onsite and the introduction of new sources on-site which may present a risk to human health. These will be managed by appropriate embedded mitigation and the majority of the Site will be covered in hardstanding, therefore reducing the likelihood for wind blown dust, fibres and vapours to reach off-site receptors. Material used for soft landscaping will undergo the appropriate chemical testing to ensure no exceedances of the human health GACs prior to placement. Areas of landscaping will be covered by clean cover, therefore reducing the risk of contaminants carried in windblown dust.
		Inhalation of organic vapours and asbestos fibres migrating off-site	Minor	Unlikely	Very low	
		Inhalation of ground gases migrating off-site	Minor	Unlikely	Very low	Ground investigations undertaken by e3p and AtkinsRéalis indicate a CS1, very low hazard potential. It is considered unlikely that significant concentrations of gases would migrate off-site.

Groundwater **On-site:** Superficial Secondary Undifferentiated Aquifer Bedrock Principal Aquifer **Off-site:** Superficial Secondary Undifferentiated Aquifer Bedrock Principal and Secondary B Aquifer	Leaching/dissolution from contaminated soils, followed by vertical migration Lateral migration of contaminants in groundwater. Migration via preferential pathways e.g. existing drainage.	Mild	Low	Low	The superficial deposits are identified as a secondary undifferentiated aquifer due to the variability of the rock type. The bedrock deposits are identified as a Principal aquifer which indicates the strata has the potential to provide significant quantities of drinking water. As Made Ground is present across there is potential for leaching of contaminants into groundwater. The majority of the Site is to be covered by hardstanding which reduces the risk of contaminant mobilisation via percolation. Furthermore, the superficial deposits across the Site predominantly comprise clay, further reducing the risk of contaminant migration into the principal bedrock aquifer. No exceedances in groundwater samples from the Made Ground, taken by e3p, were identified when screened against Drinking Water Standards. A slight exceedance of arsenic was reported in a sample taken in the bedrock. Exceedances of both DWS and EQS were recorded in samples collected from all strata during the Atkins' GI, however following further assessment, it was concluded unlikely that an unacceptable risk is presented to controlled water features. Any remediation required will be completion prior to operation.
Surface Water **Off-site** Rochdale Canal Islington Wharf Marina Ashton Canal	Leaching/dissolution from contaminated soils, followed by vertical migration Surface water run-off mobile contaminants Migration via preferential pathways e.g. existing drainage.	Minor	Low	Very low	The Site will be covered predominantly by hardstanding, reducing the risk of mobilising contaminants by surface water run-off. Also, any remediation required will be completion prior to operation and the presence of cohesive deposits are likely to inhibit the vertical and lateral migration of contaminants present within shallow groundwater.
Ecology **On-site** Flora & Fauna	Direct contact of habitats with contaminated soils, ground water and surface water	Minor	Unlikely	Very low	It is assumed that landscaping will comprise placement of clean cover.
Ecology **Off-site** Flora & Fauna	Lateral migration of contaminants in air or surface water run-off	Minor	Unlikely	Very Low	The majority of the Site will be covered by hardstanding, therefore limiting the potential for dust generation and subsequent impacts on nearby ecology.
Property **On-site** New and existing services and structures on-site.	Chemical attack from aggressive chemical constituents in soil.	Minor	Unlikely	Very low	Localised areas of Made Ground may result in aggressive ground conditions. It is assumed that infrastructure will be constructed to appropriate standards for the Site to withstand attack from soil chemistry throughout the operational phase.
	Ground gas accumulation and potential explosion risk	Minor	Unlikely	Very low	New enclosed/confined spaces provide space for gas accumulation, however it is assumed that new structures and the basement will have been constructed appropriately to provide adequate ventilation. Ground investigations undertaken by e3p and AtkinsRéalis indicate a CS1, therefore there is limited potential for significant concentrations for gas to accumulate.
Property **Off-site** New and existing structures and services.	Ground gas accumulation and potential explosion risk	Minor	Unlikely	Very low	Made Ground is present on-site which has the potential to generate ground gases. It is considered unlikely with the Site classified as CS1, that significant gas concentrations would migrate off-site to nearby receptors.

Off-site Disturbed ground, Made Ground and worked ground Historical discharges to surface water Historical industrial land uses: Mills (cotton, cloth and flour), timber yards, saw mill, coal yard, coal / colliery wharfs, Infilled canal/wharf, smithy, spindle works, hydraulic power station, tin works, dye works, glass works, engineering works, machine tools works, galvanizing works, waterproof works, electricity sub station, brass and iron works / foundries, paint works, soap works, hospital, scrap metal yard, and tanks.	**Human Health** **On-site:** Pedestrians / trespassers Site visitors	Ingestion and inhalation of contaminants within Made Ground / soils, soil derived dust, vapours, fibres or groundwater migrating onto Site	Minor	Low	Very low	Although the likelihood is low, there are a number of historical and current developments adjacent to the Site where contamination may migrate from during the operational phase.
		Inhalation ground gas migrating onto Site	Minor	Unlikely	Very low	Potential for migration of gases to migrate on to the Site throughout the operational phase, if sufficient Made Ground is present. Gases generated by offsite sources have the potential to accumulate within enclosed/confined spaces onsite.
	Groundwater **On-site:** Superficial Secondary Undifferentiated Aquifer Bedrock Principal Aquifer	Leaching/dissolution from contaminated soils, followed by vertical migration Lateral migration of contaminants in groundwater. Migration via preferential pathways e.g. drainage.	Mild	Low	Low	Potential for contamination off-site to migrate to the Site in the underlying aquifers and impact groundwater on-site is low given the limited exceedances recorded in the groundwater beneath the Site.
	Ecology **On-site** Flora & Fauna	Ingestion, inhalation and uptake of contaminants within Made Ground / soils, soil derived dust, vapours, fibres or groundwater	Minor	Low	Very low	A number of historical and current developments are present surrounding the Site from which contamination, if present, may migrate onto Site and impact on onsite flora and fauna.
	On-site Property New and existing services and structures on-site.	Ground gas migration, accumulation and potential explosion risk	Minor	Unlikely	Very low	The risk from migration of off-site ground gas to cause explosion risk on-site is deemed to be very low.

Table 1.3 - Impact assessment table (with embedded mitigation)

Source Description *Potential Contaminants*	Receptor	Pathway	Baseline			Construction				Operation			
			Consequence	Probability / Likelihood	Risk Category	Consequence	Probability / Likelihood	Risk Category	Classification of Effect	Consequence	Probability / Likelihood	Risk Category	Classification of Effect
On-site Made Ground: asbestos, arsenic, TPHs, VOCs/SVOCs Unidentified contamination from historical industrial land uses on-site (including a foundry / iron works, wood yard, various mills, factories, various works, corporation yards, saw mill / timber yard, timber shed, garage, depot and retail park) Potential introduction of new sources during construction	**Human Health** **On-site:** Pedestrians / trespassers / Site Visitor	Direct contact / ingestion of contaminants within Made Ground / soils or groundwater Inhalation of organic vapours, ground gases, dust from Made Ground / soils, soil derived dust, and groundwater	Minor	Unlikely	Very low	Minor	Low	Very low	Negligible	Receptor Not Present			Negligible[1]
		Inhalation of asbestos fibres	Severe	Unlikely	Moderate / low	Severe	Low	Moderate / low	Negligible				
	Human Health **On-site:** Future site users / Stie visitors	Direct contact / ingestion of contaminants within Made Ground / soils or groundwater Inhalation of organic vapours, ground gases dust and fibres from Made Ground / soils, soil derived dust and groundwater	Receptor Not Present			Receptor Not Present			Negligible	Minor	Unlikely	Very low	Negligible[2]
		Inhalation of asbestos fibres								Severe	Unlikely	Moderate / low	Negligible
	Human Health **Off- site:** Members of the public, neighbouring residents and commercial workers	Direct contact / ingestion of contaminants within soils derived dust or groundwater migrating off-site Inhalation of ground gases migrating off-site	Minor	Unlikely	Very low	Minor	Unlikely	Very low	Negligible	Minor	Unlikely	Very low	Negligible
		Inhalation of organic vapours and asbestos fibres migrating off-site	Minor	Unlikely	Very low	Minor	Low	Very low	Negligible	Minor	Unlikely	Very low	Negligible

[1] Removal of this receptor at operational stage automatically triggers a minor beneficial effect. However, professional judgement has been exercised and this effect has been reduced to negligible.

[2] Introduction of this receptor at operational stage automatically triggers a minor adverse effect. However, professional judgement has been exercised and this effect has been reduced to negligible.

Source Description *Potential Contaminants*	Receptor	Pathway	Baseline			Construction				Operation			
			Consequence	Probability / Likelihood	Risk Category	Consequence	Probability / Likelihood	Risk Category	Classification of Effect	Consequence	Probability / Likelihood	Risk Category	Classification of Effect
	Groundwater **On-site& Off-site:** Superficial Secondary Undifferentiated Aquifer Bedrock Principal Aquifer and Bedrock Secondary B Aquifer (offsite)	Leaching/dissolution from contaminated soils, followed by vertical migration Lateral migration of contaminants in groundwater. Migration via preferential pathways e.g. existing and new drainage.	Mild	Low	Low	Mild	Low	Low	Negligible	Mild	Low	Low	Negligible
	Surface Water **Off-site** Rochdale Canal Islington Wharf Marina Ashton Canal	Leaching/dissolution from contaminated soils, followed by vertical migration Surface water run-off mobile contaminant Migration via preferential pathways e.g. existing and new drainage.	Minor	Low	Very low	Minor	Low	Very low	Negligible	Minor	Low	Very low	Negligible
	Ecology **On-site** Flora & Fauna	Direct contact of habitats with contaminated soils, ground water and surface water	Minor	Unlikely	Very low	Receptor Not Present			Negligible[3]	Minor	Unlikely	Very low	Negligible
	Ecology **Off-site** Flora & Fauna	Lateral migration of contaminants in air or surface water run-off	Minor	Unlikely	Very low	Minor	Unlikely	Very low	Negligible	Minor	Unlikely	Very low	Negligible
	Property **On-site** New and existing services and structures on-site.	Chemical attack from aggressive chemical constituents in soil.	Minor	Low	Low	Minor	Unlikely	Very low	Minor beneficial	Minor	Unlikely	Very low	Minor beneficial
		Ground gas accumulation and potential explosion risk	Minor	Unlikely	Very low	Minor	Unlikely	Very low	Negligible	Minor	Unlikely	Very low	Negligible
	Property **Off-site** Existing structures and services.	Ground gas accumulation and potential explosion risk	Minor	Unlikely	Very low	Minor	Unlikely	Very low	Negligible	Minor	Unlikely	Very low	Negligible
Off-site Disturbed ground, Made Ground and worked ground. Historical discharges to surface water.	**Human Health** **On-site:** Pedestrians / trespassers Site visitors	Ingestion and inhalation of contaminants within Made Ground / soils, soil derived dust, vapours, fibres or groundwater	Minor	Low	Very low	Minor	Low	Very low	Negligible	Minor	Low	Very low	Negligible
		Inhalation ground gas	Minor	Unlikely	Very low	Minor	Unlikely	Very low	Negligible	Minor	Unlikely	Very low	Negligible

[3] Removal of this receptor at construction automatically triggers a minor beneficial effect. However, professional judgement has been exercised and this effect has been reduced to negligible.

Source Description ***Potential Contaminants***	Receptor	Pathway	Baseline			Construction				Operation			
			Consequence	Probability / Likelihood	Risk Category	Consequence	Probability / Likelihood	Risk Category	Classification of Effect	Consequence	Probability / Likelihood	Risk Category	Classification of Effect
Historical industrial land uses: Mills, works, timber yards, saw mill, coal yard, coal / colliery wharfs, Infilled canal/wharf, smithy, hydraulic power station, electricity sub station, brass & iron foundries, hospital, scrap metal yard, and tanks.	**Groundwater** **On-site:** Superficial Secondary Undifferentiated Aquifer Bedrock Principal Aquifer	Leaching/dissolution from contaminated soils, followed by vertical migration Lateral migration of contaminants in groundwater. Migration via preferential pathways e.g. existing and new drainage.	Mild	Low	Low	Mild	Low	Low	Negligible	Mild	Low	Low	Negligible
	Ecology **On-site** Flora & Fauna	Ingestion, inhalation and uptake of contaminants within soil derived dust, vapours, fibres or groundwater	Minor	Unlikely	Very low	Receptor Not Present			Negligible[4]	Minor	Low	Very low	Negligible
	On-site Property Existing services on-site.	Ground gas accumulation and potential explosion risk	Minor	Unlikely	Very low	Minor	Unlikely	Very low	Negligible	Minor	Unlikely	Very low	Negligible

[4] Removal of this receptor at construction automatically triggers a minor beneficial effect. However, professional judgement has been exercised and this effect has been reduced to negligible.

The descriptions of the classified risks as given in R&D 66/CIRA C552 are as follows:

Table 1.4 - Risk Estimation - classification of probability / likelihood

Classification	Definition of the probability of harm / pollution occurring
High Likelihood	The pollutant linkage exists and it is very likely to result in harm/pollution in the short term, and/or will almost inevitably result in harm/pollution in the long term, and/or there is current evidence of harm/pollution. Likelihood is defined as more likely than not and meets the definition of 'significant possibility' under Part 2A of EPA 1990.
Likely	The source, pathway and receptor exist for the pollutant linkage and it is probable that harm/pollution will occur. Circumstances are such that harm/pollution is not inevitable, but possible in the short term and likely over the long term. Likelihood is defined as reasonably possible and meets the definition of 'significant possibility' under Part 2A of EPA 1990.
Low Likelihood	The source, pathway and receptor exist and it is possible that harm/pollution could occur. Circumstances are such that harm/pollution is by no means certain in the long term and less likely in the short term.
Unlikely	The source, pathway and receptor exist for the pollutant linkage but it is improbable that harm/pollution will occur even in the long term.

Table 1.5 - Risk Estimation - classification of consequence

Classification	Definition of consequence
Human Health Receptors – Site end use or other more sensitive receptor	
Severe	Acute damage to human health based on the effects on the critical human health receptor. Concentrations of contaminants above appropriate site specific assessment criteria. Harm meets definition of 'significant harm' under Part 2A of EPA 1990.
Medium	Chronic damage to human health based on the effects on the critical human health receptor. Concentrations of contaminants above appropriate site specific assessment criteria. Harm meets definition of 'significant harm' under Part 2A of EPA 1990.
Mild	No appreciable impact on human health based on the potential effects on the critical human health receptor. Concentrations of contaminants above generic assessment criteria but below appropriate site specific assessment criteria.
Minor	No appreciable impact on human health based on the effects on the critical human health receptor. Concentrations of contaminants below appropriate generic assessment criteria.
Human Health Receptors – Site construction workers	
Severe	Exposure to hazardous substances resulting in a reportable death, major injury, 3-day injury or illness/disease under RIDDOR.
Medium	Exposure to hazardous substances resulting in a dangerous occurrence reportable under RIDDOR. Exposure to hazardous substances resulting in exceedance of a workplace exposure limit.
Mild	Exposure to hazardous substances resulting in limited effects such as headache, dizziness, nausea. Exposures below the workplace exposure limits. Not reportable under RIDDOR.
Minor	Minor exposure to hazardous substance resulting in no appreciable ill health effects.
Controlled Water Receptors	

Classification	Definition of consequence
Severe	Pollution of a Principal aquifer within a source protection zone or potable supply characterised by a breach of drinking water standards. Pollution of a surface water course characterised by a breach of an EQS at a statutory monitoring location or resulting in a change in GQA grade of river reach. Discharge of a List I or List II substance to groundwater. Pollution meets Part 2A definition.
Medium	Pollution of a Principal aquifer outside a source protection zone or a Secondary A aquifer characterised by a breach of drinking water standards. Pollution of an industrial groundwater abstraction or irrigation supply that impairs its function. Substantial pollution but insufficient to result in a change in the GQA grade of river reach. Pollution meets Part 2A definition.
Mild	Low levels of pollution of a Principal aquifer outside a source protection zone or an industrial abstraction, or pollution of a Secondary aquifer. Low levels of pollution insufficient to result in a change in the GQA grade of river reach, pollution of a surface water course without a quality classification.
Minor	No appreciable pollution, or pollution of a low sensitivity receptor such as a non-aquifer or a surface water course without a quality classification
Property Receptors – Buildings, Foundations and Services	
Severe	Catastrophic damage to buildings, such as explosion. Catastrophic failure of foundations and services. Substantial damage to a Scheduled Monument significantly impairing the by reason of which the monument is scheduled. Harm meets definition of 'significant harm' under Part 2A of EPA 1990.
Medium	Substantial damage to buildings and foundations rendering the structures unsafe. Substantial damage to services impairing their function. Significant damage to a Scheduled Monument significantly impairing the reason of which the monument is scheduled. Harm meets definition of 'significant harm' under Part 2A of EPA 1990.
Mild	Significant damage to buildings and foundations but not resulting in them being unsafe for occupation. Damage to services but not sufficient to impair their function. Damage to a Scheduled Monument but no significant impairment to the reason of which the monument is scheduled.
Minor	Easily repairable damage to buildings, foundations and services
Property Receptors – Crops and Livestock and Ecological Receptors	
Severe	Substantial loss in the value of crops or domestically-grown produce. Death to livestock, domesticated animals or wild animals subject to shooting or fishing rights. A short-term risk to a particular ecosystem or organism forming part of such ecosystem. Harm meets definition of 'significant harm' within the Part 2A Contaminated Land Statutory Guidance.
Medium	Substantial diminution in yield (over 20% reduction) of crops or domestically-grown produce. Serious disease or other serious physical damage to livestock, domesticated animals or wild animals subject to shooting or fishing rights. A significant change in a particular ecosystem, or organism forming part of such ecosystem. Harm meets definition of 'significant harm' within the Part 2A Contaminated Land Statutory Guidance.
Mild	Harm to crops but not resulting in a substantial loss in value or diminution in yield (less than 20% reduction). Limited harm in terms of disease or other physical damage to ecosystems, livestock, domesticated animals or wild animals subject to shooting or fishing rights.
Minor	No appreciable harm, or harm to a low sensitivity receptor.

Table 1.6 - Definition of risk

Classification	Definition of risk
Very High Risk	There is a high probability that severe harm may arise to a designated receptor or there is evidence that severe harm to a designated receptor is currently happening. This risk is likely to result in a substantial liability. Urgent investigation (if not already undertaken) and remediation are likely to be required.
High Risk	Harm is likely to arise to a designated receptor. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not already undertaken) is required and remedial works may be necessary in the short term and are likely over the longer term.
Moderate Risk	It is possible that harm may arise to a designated receptor. It is either relatively unlikely that any such harm will be severe, or if any harm were to occur, it is more likely that the harm will be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low Risk	It is possible that harm will arise to a designated receptor, but it is likely that this harm will be mild. Further investigation is not necessarily required, and should be considered to confirm that there is no unanticipated contamination present.
Very Low risk	The possibility of harm to the designated receptor is either not plausible or, if the possibility of harm is plausible, risk is considered to be very unlikely with attenuation along the exposure pathway. Further investigation is not necessarily required, and may be considered to confirm that there is no unanticipated contamination present.

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