Appendix 14.1 G: Preliminary Risk Assessment

Appendix G
Preliminary Risk Assessment

Potential Source	Potential Pollutant	Potential Receptors	Potential Pathways to Receptors	Current Use			Future Use		
				Severity	Likelihood of Occurrence	Risk/Significance	Severity	Likelihood of Occurrence	Risk/Significance
General Made Ground (reclaimed land including slag and rubble)	Inorganics (metals, abnormal pH, sulphate and cyanide). Organics (PAH, TPH, VOCs and SVOCs).	Site users: commercial/industrial	Dermal contact, ingestion and/or inhalation of soil and soil dusts.	Medium	Low Made Ground is a potential source of contamination, and the remediation status of site is unknown. However, the site is mostly hardstanding	Moderate/Low	Medium	Unlikely The proposed development will be mostly buildings, hardstanding, gravel cover or soft landscaped with imported soils.	Low
		Site users: commercial/industrial	Permeation of drinking water pipes and ingestion	Medium	Likely Previous investigations identified hydrocarbon contamination of shallow Made Ground and groundwater within the site	**Moderate**	Medium	Unlikely Further investigation and appropriate pipe materials will be selected	Low
		Offsite users: commercial/industrial	Dermal contact, ingestion and/or inhalation of soil and soil dusts.	Medium	Low Made Ground is a potential source of contamination, and the remediation status of site is unknown. However, the site is mostly hardstanding or vegetated and contact is unlikely under normal forms of use.	Moderate/Low	Medium	Unlikely The proposed development will be mostly buildings, hardstanding, gravel cover or soft landscaped with imported soils.	Low
		Controlled Waters: Tees Estuary (including River Tees SSSI and SPA)	Leaching from soils and lateral migration in groundwater	Medium	Likely Given the proximity of the River Tees, and unnamed drains it is possible for contaminants to leach and laterally to the River Tees.	**Moderate**	Medium	Low The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff thereby reducing infiltration and leaching.	Moderate/Low
		Controlled Waters: Tees Estuary (including River Tees SSSI and SPA)	Surface water run-off, flooding and drainage	Medium	Unlikely The site is not at significant risk of flooding and is mostly hard standing.	Low	Medium	Low The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff thereby reducing infiltration and leaching.	Moderate/Low
		Controlled Waters: Secondary Aquifers (Tidal Flat Deposits and Mercia Mudstone)	Leaching from soils and vertical and lateral migration	Medium	Likely Made Ground is a potential source of contamination and perched groundwater in Made Ground is likely to be in continuity with underlying aquifers. Potential impacts have been identified in previous investigations.	**Moderate**	Medium	Low The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff thereby reducing infiltration and leaching.	Moderate/Low
		Onsite buildings and services	Direct contact with soil and groundwater	Medium	Likely Made Ground and groundwater has the potential to be aggressive to concrete.	**Moderate**	Medium	Likely Made Ground and groundwater has the potential to be aggressive to concrete. Further investigation will be undertaken and appropriate materials selected during construction.	**Moderate**
		Offsite buildings and services	Direct contact with groundwater	Mild	Likely Groundwater migrating offsite has the potential to be aggressive to concrete.	Moderate/ Low	Mild	Likely Groundwater migrating offsite has the potential to be aggressive to concrete.	Moderate/ Low

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				Severity	Likelihood of Occurrence	Risk/Significance	Severity	Likelihood of Occurrence	Risk/Significance
	Asbestos	Site users: commercial/industrial	Inhalation of soil, soil dusts and fibres	Severe	Low Made Ground is a potential source of contamination. However, the site is mostly hardstanding or vegetated.	Moderate/Low	Severe	Unlikely The proposed development will be mostly buildings, hardstanding, gravel cover or soft landscaped with imported soils.	Moderate/Low
		Offsite users: commercial/industrial	Inhalation of soil, soil dusts and fibres	Severe	Unlikely Made Ground is a potential source of contamination. However, the site is mostly hardstanding or vegetated.	Moderate/Low	Severe	Unlikely The proposed development will be mostly buildings, hardstanding, gravel cover or soft landscaped with imported soils.	Moderate/Low
	Ground gases (carbon dioxide, methane, hydrogen sulphide)	Site users: commercial/industrial	Inhalation of vapours and accumulated gases	Severe	Likely Made Ground and underlying organic deposits are potential sources of ground gas. Ground gas has been recorded at concentrations >5%v/v in previous investigations.	**High**	Severe	Unlikely Made Ground and underlying organic deposits are potential sources of ground gas. Further investigation and ground gas measures will be implemented.	Moderate/Low
		Offsite users: commercial/industrial sites	Inhalation of vapours and accumulated gases	Severe	Likely Made Ground and underlying organic deposits are potential sources of ground gas. Ground gas has been recorded at concentrations >5%v/v in previous investigations.	**High**	Severe	Likely Made Ground and underlying organic deposits are potential sources of ground gas. The proposed development comprises a significant proportion of hard cover therefore there is the potential for offsite gas migration.	**High**
		Onsite buildings and services	Ground gas migration and indoor accumulation	Severe	Likely Made Ground is potential source of ground gas. Ground gas has been recorded at concentrations >5%v/v in previous investigations.	**High**	Severe	Unlikely Made Ground and underlying organic deposits are potential sources of ground gas. Further investigation and ground gas measures will be implemented.	Moderate/Low
		Offsite buildings and services	Ground gas migration and indoor accumulation	Severe	Likely Made Ground is potential source of ground gas. Ground gas has been recorded at concentrations >5%v/v in previous investigations.	**High**	Severe	Likely Made Ground and underlying organic deposits are potential sources of ground gas. The proposed development comprises a significant proportion of hard cover therefore there is the potential for offsite gas migration.	**High**
Teesport Oil Refinery (including the oil loading gantry, excluding railway land)	Inorganics (metals, abnormal pH, sulphate and cyanide). Organics (PAH, TPH, VOCs and SVOCs). PCBs.	Site users: commercial/industrial	Dermal contact, ingestion and/or inhalation of soil, soil dusts.	Medium	Low Previous reports have recorded free phase hydrocarbons in groundwater on site. It is possible there are areas of contamination which have not been investigated on site. However, the site is mostly hardstanding	Moderate/Low	Medium	Unlikely The proposed development will be mostly buildings, hardstanding, gravel cover or soft landscaped with imported soils.	Low
		Site users: commercial/industrial	Permeation of drinking water pipes and ingestion	Medium	Likely Previous investigations identified hydrocarbon contamination of shallow Made Ground and groundwater within the site.	**Moderate**	Medium	Unlikely Further investigation and appropriate pipe materials will be selected	Low

Potential Source	Potential Pollutant	Potential Receptors	Potential Pathways to Receptors	Current Use			Future Use		
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		Offsite users: commercial/industrial	Dermal contact, ingestion and/or inhalation of soil and soil dusts.	Medium	Low Previous investigations identified hydrocarbon contamination of shallow Made Ground and groundwater within the site. However, the site is mostly hardstanding or vegetated and contact is unlikely under normal forms of use.	Moderate/Low	Medium	Unlikely The proposed development will be mostly buildings, hardstanding, gravel cover or soft landscaped with imported soils.	Low
		Controlled Waters: Tees Estuary (including River Tees SSSI and SPA)	Leaching from soils and lateral migration in groundwater	Medium	Likely Previous investigation identified hydrocarbons in shallow groundwater. Given the proximity of the River Tees, and unnamed drains it is possible for contaminants to leach into groundwater and laterally to the River Tees.	**Moderate**	Medium	Low The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff thereby reducing infiltration and leaching.	Moderate/Low
		Controlled Waters: Tees Estuary (including River Tees SSSI and SPA)	Surface water run-off, flooding and drainage	Medium	Unlikely The site is not at significant risk of flooding.	Low	Medium	Low The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff thereby reducing infiltration and leaching.	Moderate/Low
		Controlled Waters: Secondary Aquifers (Tidal Flat Deposits and Mercia Mudstone)	Leaching from soils and vertical and lateral migration.	Medium	Likely Potential impacts have been identified in previous investigations.	**Moderate**	Medium	Low The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff thereby reducing infiltration and leaching.	Moderate/Low
	Asbestos	Site users: commercial/industrial	Inhalation of soil, soil dusts and fibres	Severe	Low Made Ground containing demolition rubble is a potential source of contamination. However, the site is mostly hardstanding and vegetated.	**Moderate**	Severe	Unlikely The proposed development will be mostly buildings, hardstanding, gravel cover or soft landscaped with imported soils.	Moderate/Low
		Offsite users: commercial/industrial	Inhalation of soil, soil dusts and fibres	Severe	Unlikely Made Ground containing demolition rubble is a potential source of contamination. However, the site is mostly hardstanding and vegetated.	Moderate/Low	Severe	Unlikely The proposed development will be mostly buildings, hardstanding, gravel cover or soft landscaped with imported soils.	Moderate/Low
	Ground gases (carbon dioxide, methane, hydrogen sulphide, VOCs)	Site users: commercial/industrial	Inhalation of vapours and accumulated gases	Severe	Low Ground gas associated with general Made Ground is likely to be the most significant source of ground gas. The former use is a potential source of vapours and contains buildings and enclosed spaces.	**Moderate**	Severe	Unlikely Further investigation and ground gas/vapour measures will be implemented.	Moderate/Low
		Offsite users: commercial/industrial sites	Inhalation of vapours and accumulated gases	Severe	Unlikely Ground gas associated with general Made Ground is likely to be the most significant source of ground gas. The former use is a potential source of vapours and contains buildings and enclosed spaces. However, receptors are a significant distance from sources.	Moderate/Low	Severe	Unlikely The potential receptors are a significant distance from sources.	Moderate/Low

Potential Source	Potential Pollutant	Potential Receptors	Potential Pathways to Receptors	Current Use			Future Use		
				Severity	Likelihood of Occurrence	Risk/Significance	Severity	Likelihood of Occurrence	Risk/Significance
		Onsite buildings and services	Ground gas migration and indoor accumulation	Severe	Low Ground gas associated with general Made Ground is likely to be the most significant source of ground gas. The former use is a potential source of vapours and contains buildings and enclosed spaces.	**Moderate**	Severe	Unlikely Further investigation and ground gas/vapour measures will be implemented.	Moderate/Low
		Offsite buildings and services	Ground gas migration and indoor accumulation	Severe	Unlikely Ground gas associated with general Made Ground is likely to be the most significant source of ground gas. The former use is a potential source of vapours and contains buildings and enclosed spaces. However, receptors are a significant distance from sources.	Moderate/Low	Severe	Unlikely The potential receptors are a significant distance from sources.	Moderate/Low
Fire station, refinery fire and foam tank	PFAS	Site users: commercial/industrial	Dermal contact, ingestion and/or inhalation of soil, soil dusts.	Medium	Low The use of firefighting foam at the site is known therefore contamination is potentially present. However, the site is mostly hardstanding or vegetated and contact is unlikely under normal forms of use.	Moderate/Low	Medium	Unlikely The proposed development will be mostly buildings, hardstanding, gravel cover or soft landscaped with imported soils.	Low
		Site users: commercial/industrial	Permeation of drinking water pipes and ingestion	Medium	Unlikely There is no information on the quality of site drinking water.	Low	Medium	Unlikely Further investigation and appropriate pipe materials will be selected	Low
		Offsite users: commercial/industrial	Dermal contact, ingestion and/or inhalation of soil and soil dusts.	Medium	Low The use of firefighting foam at the site is known therefore contamination is potentially present. However, the site is mostly hardstanding or vegetated and contact is unlikely under normal forms of use.	Moderate/Low	Medium	Unlikely The proposed development will be mostly buildings, hardstanding, gravel cover or soft landscaped with imported soils.	Low
		Controlled Waters: Tees Estuary (including River Tees SSSI and SPA) – note there is uncertainty around PFAS and its impact and regulation	Leaching from soils and lateral migration in groundwater	Medium	Likely PFAS and its pre-cursors are stable, non-reactive compounds that easily leach from soils and structures and have very low to no absorption therefore migration in groundwater for significant distances is possible.	**Moderate**	Medium	Low The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff thereby reducing infiltration and leaching.	Moderate/Low
		Controlled Waters: Tees Estuary (including River Tees SSSI and SPA) – note there is uncertainty around PFAS and its impact and regulation	Surface water run-off, flooding and drainage	Medium	Likely PFAS is known to leach from concrete drains if they were previously in contact with PFAS contaminated water.	**Moderate**	Medium	Low The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff.	Moderate/Low

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		Controlled Waters: Secondary Aquifers (Tidal Flat Deposits and Mercia Mudstone) – note there is uncertainty around PFAS and its impact and regulation	Leaching from soils and vertical and lateral migration.	Medium	Likely Previous investigation identified hydrocarbon contamination therefore the use of firefighting foam in fire prevention is considered possible. PFAS and its pre-cursors are easily leach and have very low to no absorption therefore migration to groundwater is likely.	**Moderate**	Medium	Low The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff thereby reducing infiltration and leaching.	Moderate/Low
Railway land (marshalling yards)	Inorganics (metals, abnormal pH, sulphate and cyanide). Organics (PAH, TPH, VOCs and SVOCs). PCBs.	Site users: commercial/industrial	Dermal contact, ingestion and/or inhalation of soil, soil dusts.	Medium	Low Made Ground at the former marshalling yards is a potential source of contamination. However, the site is mostly hardstanding or vegetated and contact is unlikely under normal forms of use.	Moderate/Low	Medium	Unlikely The proposed development will be mostly buildings, hardstanding, gravel cover or soft landscaped with imported soils.	Low
		Site users: commercial/industrial	Permeation of drinking water pipes and ingestion	Medium	Likely Made Ground at the former marshalling yards is a potential source of hydrocarbon contamination.	**Moderate**	Medium	Unlikely Further investigation and appropriate pipe materials will be selected	Low
		Offsite users: commercial/industrial	Dermal contact, ingestion and/or inhalation of soil and soil dusts.	Medium	Low Made Ground at the former marshalling yards is a potential source of contamination.	Moderate/Low	Medium	Unlikely The proposed development will be mostly buildings, hardstanding, gravel cover or soft landscaped with imported soils.	Low
		Controlled Waters: Tees Estuary (including River Tees SSSI and SPA)	Leaching from soils and lateral migration in groundwater	Medium	Likely Given the proximity of the River Tees, and unnamed drains it is possible for contaminants to leach into groundwater and laterally to the River Tees.	**Moderate**	Medium	Low The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff thereby reducing infiltration and leaching.	Moderate/Low
		Controlled Waters: Tees Estuary (including River Tees SSSI and SPA)	Surface water run-off, flooding and drainage	Medium	Unlikely The site is not at risk of flooding.	Low	Medium	Low The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff.	Moderate/Low
		Controlled Waters: Secondary Aquifers (Tidal Flat Deposits and Mercia Mudstone)	Leaching from soils and vertical and lateral migration.	Medium	Likely Potential impacts have been identified in previous investigations.	**Moderate**	Medium	Low The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff thereby reducing infiltration and leaching.	Moderate/Low
	Asbestos	Site users: commercial/industrial	Inhalation of soil, soil dusts and fibres	Severe	Low Made Ground is a potential source of contamination.	**Moderate**	Severe	Unlikely The proposed development will be mostly buildings, hardstanding, gravel cover or soft landscaped with imported soils.	Moderate/Low
		Offsite users: commercial/industrial	Inhalation of soil, soil dusts and fibres	Severe	Unlikely Made Ground is a potential source of contamination.	Moderate/Low	Severe	Unlikely The proposed development will be mostly buildings, hardstanding,	Moderate/Low

Potential Source	Potential Pollutant	Potential Receptors	Potential Pathways to Receptors	Current Use Severity	Likelihood of Occurrence	Risk/Significance	Future Use Severity	Likelihood of Occurrence	Risk/Significance
								gravel cover or soft landscaped with imported soils.	
	Ground gases (carbon dioxide, methane, hydrogen sulphide)	Site users: commercial/industrial	Inhalation of vapours and accumulated gases	Severe	Unlikely Ground gas associated with general Made Ground is likely to be the most significant source of ground gas.	Moderate/ Low	Severe	Unlikely Further investigation and ground gas/vapour measures will be implemented.	Moderate/Low
		Offsite users: commercial/industrial sites	Inhalation of vapours and accumulated gases	Severe	Unlikely Ground gas associated with general Made Ground is likely to be the most significant source of ground gas.	Moderate/ Low	Severe	Unlikely Ground gas associated with general Made Ground at the receptors is likely to be the most significant source of ground gas.	Moderate/Low
		Onsite buildings and services	Ground gas migration and indoor accumulation	Severe	Unlikely Ground gas associated with general Made Ground is likely to be the most significant source of ground gas.	Moderate/ Low	Severe	Unlikely Further investigation and ground gas/vapour measures will be implemented.	Moderate/Low
		Offsite buildings and services	Ground gas migration and indoor accumulation	Severe	Unlikely Ground gas associated with general Made Ground is likely to be the most significant source of ground gas.	Moderate/ Low	Severe	Unlikely Ground gas associated with general Made Ground at the receptors is likely to be the most significant source of ground gas.	Moderate/Low
Depot (including vehicle and container storage and workshops)	Inorganics (metals and sulphate). Organics (PAH, TPH, VOCs and SVOCs). PCBs.	Site users: commercial/industrial	Dermal contact, ingestion and/or inhalation of soil, soil dusts.	Medium	Unlikely The depot has been hardstanding throughout its history and is unlikely to have been as significant a source as previous land uses.	Low	Medium	Unlikely The proposed development will be mostly buildings, hardstanding, gravel cover or soft landscaped with imported soils.	Low
		Site users: commercial/industrial	Permeation of drinking water pipes and ingestion	Medium	Unlikely The depot has been hardstanding throughout its history and is unlikely to have been as significant a source as previous land uses.	Low	Medium	Unlikely The depot is unlikely to have been as significant a source as previous land uses.	Low
		Offsite users: commercial/industrial	Dermal contact, ingestion and/or inhalation of soil and soil dusts.	Medium	Low The depot has been hardstanding throughout its history and is unlikely to have been as significant a source as previous land uses.	Moderate/Low	Medium	Unlikely The proposed development will be mostly buildings, hardstanding, gravel cover or soft landscaped with imported soils.	Low
		Controlled Waters: Tees Estuary (including River Tees SSSI and SPA)	Leaching from soils and lateral migration in groundwater	Medium	Unlikely The depot has been hardstanding throughout its history and is unlikely to have been as significant a source as previous land uses.	Low	Medium	Low The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff thereby reducing infiltration and leaching.	Moderate/Low
		Controlled Waters: Tees Estuary (including River Tees SSSI and SPA)	Surface water run-off, flooding and drainage	Medium	Unlikely Any spills or leaks on the hard standing will have entered the site drainage. However, all surface water passes through an interceptor prior to discharge to the River Tees.	Low	Medium	Low The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff.	Moderate/Low

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				Severity	Likelihood of Occurrence	Risk/Significance	Severity	Likelihood of Occurrence	Risk/Significance
		Controlled Waters: Secondary Aquifers (Tidal Flat Deposits and Mercia Mudstone)	Leaching from soils and vertical and lateral migration	Medium	Unlikely The depot has been hardstanding throughout its history and is unlikely to have been as significant a source as previous land uses. Hardstanding is likely to reduce the infiltration of rainwater.	Low	Medium	Low The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff thereby reducing infiltration and leaching.	Moderate/Low
Off-site: BOC Limited works	Inorganics (metals and sulphate). Organics (PAH, TPH, VOCs and SVOCs). PCBs.	Site users: commercial/industrial	Dermal contact, ingestion and/or inhalation of soil, soil dusts	Medium	Unlikely The BOC works is completely hardstanding therefore the only viable pathway is via direct contact with groundwater that has migrated onsite. Under normal forms of commercial use this is considered unlikely.	Moderate /Low	Medium	Unlikely Under normal forms of commercial use contact with contaminated groundwater is considered unlikely.	Moderate/Low
		Site users: commercial/industrial	Permeation of drinking water pipes and ingestion	Medium	Likely The BOC works is upgradient of the site and is a potential source of groundwater contamination.	**Moderate**	Medium	Unlikely Further investigation and appropriate pipe materials will be selected	Low
		Controlled Waters: Secondary Aquifers (Tidal Flat Deposits and Mercia Mudstone)	Lateral migration from offsite	Medium	Likely The BOC works is upgradient of the site and is a potential source of groundwater contamination.	**Moderate**	Medium	Likely The BOC works is upgradient of the site and is a potential source of groundwater contamination. The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff thereby reducing infiltration.	**Moderate**
		Onsite buildings and services	Direct contact with soil and groundwater	Medium	Likely The BOC works is upgradient of the site and is a potential source of groundwater contamination.	**Moderate**	Medium	Low Made Ground and groundwater has the potential to be aggressive to concrete. Further investigation will be undertaken and an appropriate material selected during construction.	Moderate/Low
	Asbestos	Site users: commercial/industrial	Inhalation of soil, soil dusts and fibres	Severe	Unlikely The BOC works is completely hardstanding therefore dust and fibre generation is unlikely.	Moderate/Low	Severe	Unlikely The BOC works is completely hardstanding therefore dust and fibre generation is unlikely.	Moderate /Low
	Ground gases (carbon dioxide, methane, hydrogen sulphide)	Site users: commercial/industrial	Inhalation of vapours and accumulated gases	Severe	Unlikely Ground gas associated with general Made Ground onsite is likely to be the most significant source of ground gas.	Moderate/Low	Severe	Unlikely Further investigation and ground gas/vapour measures will be implemented.	Moderate/Low
		Onsite buildings and services	Ground gas migration and indoor accumulation	Severe	Unlikely Ground gas associated with general Made Ground is likely to be the most significant source of ground gas.	Moderate/Low	Severe	Unlikely Further investigation and ground gas/vapour measures will be implemented.	Moderate/Low

Potential Source	Potential Pollutant	Potential Receptors	Potential Pathways to Receptors	Current Use			Future Use		
				Severity	Likelihood of Occurrence	Risk/Significance	Severity	Likelihood of Occurrence	Risk/Significance
Off-site: Kimera Ltd chemical works	Inorganics (metals, abnormal pH, sulphate and cyanide). Organics (PAH, TPH, VOCs and SVOCs).	Site users: commercial/industrial	Dermal contact, ingestion and/or inhalation of soil, soil dusts	Medium	Unlikely The Kimera chemical works is almost completely hardstanding therefore the only viable pathway is via direct contact with groundwater that has migrated onsite. Under normal forms of commercial use this is considered unlikely.	Moderate/Low	Medium	Unlikely Under normal forms of commercial use direct contact is considered unlikely.	Moderate/Low
		Site users: commercial/industrial	Permeation of drinking water pipes and ingestion	Medium	Likely The Kimera chemical works are potentially upgradient of the site and is a potential source of groundwater contamination.	**Moderate**	Medium	Unlikely Further investigation and appropriate pipe materials will be selected	Low
		Controlled Waters: Secondary Aquifers (Tidal Flat Deposits and Mercia Mudstone)	Lateral migration from offsite	Medium	Likely The Kimera chemical works are potentially upgradient of the site and is a potential source of groundwater contamination.	**Moderate**	Medium	Likely The works is potentially upgradient of the site and is a potential source of groundwater contamination. The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff thereby reducing infiltration.	**Moderate**
		Onsite buildings and services	Direct contact with soil and groundwater	Medium	Likely The Kimera chemical works are potentially upgradient of the site and is a potential source of groundwater contamination.	**Moderate**	Medium	Low Made Ground and groundwater has the potential to be aggressive to concrete. Further investigation will be undertaken and an appropriate material selected during construction.	Moderate/Low
Off-site: Historical industrial land uses including slag breaking and Tees Works Lackenby	Inorganics (metals and sulphate). Organics (PAH, TPH, VOCs and SVOCs). PCBs.	Site users: commercial/industrial	Dermal contact, ingestion and/or inhalation of soil, soil dusts	Medium	Unlikely The only viable pathway is via direct contact with groundwater that has migrated onsite. Under normal forms of commercial use this is considered unlikely.	Moderate/Low	Medium	Unlikely Under normal forms of commercial use direct contact is considered unlikely.	Moderate/Low
		Site users: commercial/industrial	Permeation of drinking water pipes and ingestion	Medium	Likely Both sources are potentially upgradient of the site and are potential sources of groundwater contamination.	**Moderate**	Medium	Unlikely Further investigation and appropriate pipe materials will be selected	Low
		Controlled Waters: Secondary Aquifers (Tidal Flat Deposits and Mercia Mudstone)	Lateral migration from offsite	Medium	Likely Both sources are potentially upgradient of the site and are potential sources of groundwater contamination.	**Moderate**	Medium	Likely The sources are potentially upgradient of the site. The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff thereby reducing infiltration.	**Moderate**
		Onsite buildings and services	Direct contact with soil and groundwater	Medium	Likely Both sources are potentially upgradient of the site and are potential sources of groundwater contamination.	**Moderate**	Medium	Low Further investigation will be undertaken, and an appropriate material selected during construction.	Moderate/Low

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				Severity	Likelihood of Occurrence	Risk/Significance	Severity	Likelihood of Occurrence	Risk/Significance
	Asbestos	Site users: commercial/industrial	Inhalation of soil, soil dusts and fibres	Severe	Unlikely Both sources have complete hard cover therefore dust and fibre generation is unlikely.	Moderate/Low	Severe	Unlikely Both sources have complete hard cover therefore dust and fibre generation is unlikely.	Moderate/Low
	Ground gases (carbon dioxide, methane, hydrogen sulphide)	Site users: commercial/industrial	Inhalation of vapours and accumulated gases	Severe	Unlikely Ground gas associated with general Made Ground onsite is likely to be the most significant source of ground gas.	Moderate/Low	Severe	Unlikely Further investigation and ground gas/vapour measures will be implemented.	Moderate/Low
Off-site: Landfills	Inorganics (metals and sulphate). Organics (PAH, TPH, VOCs and SVOCs). PCBs.	Site users: commercial/industrial	Dermal contact, ingestion and/or inhalation of soil, soil dusts	Medium	Unlikely The only viable pathway is via direct contact with groundwater that has migrated onsite. Under normal forms of commercial use this is considered unlikely.	Moderate/Low	Medium	Unlikely Under normal forms of commercial use direct contact is considered unlikely.	Moderate/Low
		Site users: commercial/industrial	Permeation of drinking water pipes and ingestion	Medium	Likely The source is potentially upgradient of the site	**Moderate**	Medium	Unlikely Further investigation and appropriate pipe materials will be selected	Low
		Controlled Waters: Secondary Aquifers (Tidal Flat Deposits and Mercia Mudstone)	Lateral migration from offsite	Medium	Likely The source is potentially upgradient of the site	**Moderate**	Medium	Likely The landfills are a potential source of groundwater contamination. The proposed development will be mostly buildings and hardstanding where a drainage system will capture runoff thereby reducing infiltration.	**Moderate**
		Onsite buildings and services	Direct contact with soil and groundwater	Medium	Likely The source is potentially upgradient of the site	**Moderate**	Medium	Low Further investigation will be undertaken, and an appropriate material selected during construction.	Moderate/Low
	Asbestos	Site users: commercial/industrial	Inhalation of soil, soil dusts and fibres	Severe	Unlikely The source has vegetation cover.	Moderate /Low	Medium	Low The source areas have a vegetated cover and are a significant distance from the site.	Moderate/Low
	Ground gases (carbon dioxide, methane)	Site users: commercial/industrial	Inhalation of vapours and accumulated gases	Severe	Unlikely Ground gas associated with general Made Ground onsite is likely to be the most significant source of ground gas.	Moderate/ Low	Severe	Unlikely Further investigation and ground gas/vapour measures will be implemented.	Moderate/Low