HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement 2 and Additional Provision 3 Environmental Statement

Volume 5 | Technical appendices

Land quality

LQ-001-001

September 2015

SES2 and AP3 ES 3.5.1.4

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Department for Transport

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Appendix name:	Detailed risk assessment	001
Community forum area:	Euston – Station and Approach	001

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1 Introduction

1.1.1 The land quality appendix for Euston station and approach community forum area 1 (CFA1) comprises:

- detailed risk assessment for both Stage A and B1 (Section 2 and 3 respectively); and
- references (Section 4).

1.1.2 The maps referred to throughout the land quality appendix are contained in Maps LQ-B6-D6 in the main Environmental Statement (ES) Volume 5, Map Book Land Quality.

2 Detailed risk assessment (Stage A)

2.1.1 This appendix presents assessments for areas potentially posing a contaminative risk which are referenced in the Supplementary Environmental Statement 2 (SES2) and the Additional Provision 3 Environmental Statement (AP3 ES). For each site the following data is presented:

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

2.1.2 This risk assessment incorporates the following assumptions:

- construction workers are not included within this assessment;
- higher risk, potentially contaminated sites have been grouped and considered together where appropriate. It should be noted that some parcels of land may have had several land uses from different eras;
- during construction, standard mitigation procedures will be in place in accordance with the provisions of the draft Code of Construction Practice (CoCP) (Volume 5: Appendix CT-003-000 of the main ES); and
- during the post-construction condition it is assumed that all required remediation has been undertaken.

Table 1: Detailed risk assessment for areas potentially posing a contaminative risk within the Euston station and approach study area

Site reference	Name	Table numbers
1-40	Former printing office	2,16,30,44
1-08	Printing works	2,16,30,44
1-07	Former builders yard	3,17,31,45
1-35	Former builders yard	3,17,31,45

Site reference	Name	Table numbers
1-33	Former wagon works	4,18,32,46
1-14	Railway land	4,18,32,46
1-44	Former electricity sub-station	5,19,33,47
1-04	Disused fuel filing station	6,20,34,48
1-30	Former garage	6,20,34,48
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1-24	Former printing works	10,24,38,52
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1-32	Former chemical works	13,27,41,55
1-38	Former printing works	13,27,41,55
1-01	Former leather works	14,28,42,56
1-20	Former foundry	15,29,43,57
1-39	Former foundry	15,29,43,57

2.1.3 The contaminant groups included in this risk assessment are based on research into the site-specific processes, materials and wastes associated with particular industries and land uses and the information provided in the Department of the Environment (now the Department of Environment, Food and Rural Affairs (Defra)) industry profiles. The series of industry profiles were first published by the previous Department of the Environment in 1995, but remain a valid technical resource for the evaluation of land quality.[1]

2.1.4 The remainder of this appendix presents the risk assessment for the sites set out in Table 1. The following abbreviations are used in these tables:

- CSM - conceptual site model;

[1] A full list of Department of Environment (now Defra) Industry Profiles are available at https://www.gov.uk/government/publications/department-of-environment-industry-profiles.

- CO_2 – carbon dioxide
- MTBE - methyl tert-butyl ether;
- PAH - polycyclic aromatic hydrocarbons;
- PCB - polychlorinated biphenyls;
- SVOC - semi-volatile organic compounds; and
- VOC - volatile organic compounds.

2.2 Baseline risk assessment

Table 2: Summary CSM for on-site former printing works at baseline (Ref ID 1-40/1-08)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from previous activities, including: hydrocarbons, heavy metals, phenols, acetones, aromatic hydrocarbons, VOC, PCB and asbestos	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Principal bedrock aquifer (Chalk)	Lateral and vertical migration of mobile contamination	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 3: Summary CSM for on-site former building yards at baseline (Ref ID: 1-07/1-35)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals, PAH, VOC and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Minor	Low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Principal bedrock aquifer (Chalk)*	Lateral and vertical migration of mobile contamination	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

* Risk only applies to 1-07

Table 4: Summary CSM for on-site rail land and former wagon works at baseline (Ref ID 1-14/1-33)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Contamination in made ground (e.g. ballast) as well as: PCB, metals, asbestos, PAH and chlorinated hydrocarbons (VOC); potentially low levels of ground gas (methane and CO_2).	Current site users (rail staff)	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
		Exposure to asphyxiative or explosive gases	Unlikely	Severe	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Low likelihood	Minor	Low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination.	Unlikely	Minor	Very low
	Principal bedrock aquifer (Chalk)	Lateral and vertical migration of mobile contamination	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Likely	Minor	Moderate/low
		Migration of hazardous gas (potentially asphyxiative or explosive gases) to confined spaces via permeable strata or conduits	Unlikely	Medium	Low

Table 5: Summary CSM for an on-site former electricity sub-station at baseline (Ref ID: 1-44)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities including: hydrocarbons, heavy metals, asbestos PAH, VOC and PCB.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Medium	Low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low	Minor	Low

Table 6: Summary CSM for on-site disused fuel filling station and former garage at baseline (Ref ID: 1-04/1-30)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils and petrol and diesel, heavy metals, PAH, chlorinated aliphatic compounds, VOC, organolead compounds and MTBE.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Likely	Minor	Moderate/low

Table 7: Summary CSM for off-site operational garage at baseline (Ref ID: 1-05)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils and fuels, heavy metals, PAH, VOC and organolead compounds.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 8: Summary CSM for an onsite former timber yard at baseline (Ref ID: 1-11)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons, heavy metals, arsenic, PAH, phenols, VOC and cresols.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low	Minor	Low

Table 9: Summary CSM for on-site former warehouse at baseline (Ref ID: 1-27)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, potentially including: fuels such as heating oils.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Minor	Low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contaminants	Unlikely	Minor	Very low
	Principal bedrock aquifer (Chalk)	Lateral and vertical migration of mobile contamination	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 10: Summary CSM for an on-site former printing works at baseline (Ref ID: 1-24)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals, chlorinated solvents, acetones, PAH, PCB, VOC and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Medium	Low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contaminants	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 11: Summary CSM for an off-site former chemical works at baseline (Ref ID: 1-29)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals, PCB, VOC and SVOC.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 12: Summary CSM for an off-site former warehouse and saw mill at baseline (Ref ID: 1-25/1-26)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons, heavy metals, arsenic, PAH, phenols and cresols.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 13: Summary CSM for an off-site former chemical works and printing works at baseline (Ref ID: 1-32/ 1-38)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals, PCB, VOC, SVOC, acetone, paints and dyes.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 14: Summary CSM for an off-site former leather works at baseline (Ref ID: 1-01)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals (including chromium), solvents (VOC) and pathogens.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 15: Summary CSM for off-site former foundries at baseline (Ref ID: 1-39 and 1-20)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from previous activities– oil/fuel hydrocarbons, PAH, heavy metals, PCB, VOC, sulphates, sulphur and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

2.3 Construction risk assessment

Table 16: Summary CSM for on-site former printing works during construction phase (Ref ID 1-40/1-08)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from previous activities, including: hydrocarbons, heavy metals, phenols, acetones, aromatic hydrocarbons, VOC, PCB and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Not present during construction		
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Low likelihood	Minor	Low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Principal bedrock aquifer (Chalk)	Lateral and vertical migration of mobile contamination	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 17: Summary CSM for on-site former building yards during construction phase (Ref ID: 1-07/1-35)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals, PAH, VOC and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Not present during construction		
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours, VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Principal bedrock aquifer (Chalk)*	Lateral and vertical migration of mobile contamination	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

* Risk only applies to 1-07

Table 18: Summary CSM for on-site rail land and former wagon works during construction phase (Ref ID 1-14/1-33)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Contamination in made ground (e.g. ballast) as well as: PCB, metals, asbestos, PAH, VOC and chlorinated hydrocarbons); potentially low levels of ground gas (methane and CO_2).	Current site users (rail staff)	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Not present during construction		
		Exposure to asphyxiative or explosive gases	Not present during construction		
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas	Off-site migration of soil vapours, VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Low likelihood	Minor	Low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Principal bedrock aquifer (Chalk)	Lateral and vertical migration of mobile contamination	Unlikely	Medium	Low
	Buildings/under-ground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Likely	Minor	Moderate/low
		Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits	Unlikely	Medium	Low

Table 19: Summary CSM for an on-site former electricity sub-station during construction phase (Ref ID: 1-44)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities including: hydrocarbons, heavy metals, asbestos, PAH, VOC and PCB.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Not present during construction		
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 20: Summary CSM for on-site disused fuel filing station and former garage during construction phase (Ref ID: 1-04/1-30)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils and petrol and diesel, heavy metals, PAH, VOC, chlorinated aliphatic compounds, organolead compounds and MTBE.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Not present during construction		
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Likely	Minor	Moderate/low

Table 21: Summary CSM for off-site operational garage during construction phase (Ref ID: 1-05)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils and fuels, heavy metals, PAH, VOC, chlorinated aliphatic compounds and organolead compounds.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 22: Summary CSM for an on-site former timber yard during construction phase (Ref ID: 1-11)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals, arsenic, PAH, VOC, phenols and cresols.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low	Minor	Low

Table 23: Summary CSM for an on-site former warehouse during construction phase (Ref ID: 1-27)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Contamination from on-going activities, potentially including: fuels such as heating oils.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Not present during construction		
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Principal bedrock aquifer (Chalk)	Lateral and vertical migration of mobile contamination	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 24: Summary CSM for an on-site printing works during construction phase (Ref ID: 1-24)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals, chlorinated solvents (VOC), acetones, PAH, PCB and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Not present during construction		
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contaminants	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 25: Summary CSM for an off-site former chemical works over a Secondary A superficial aquifer during construction phase (Ref ID: 1-29)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals, PCB, VOC and SVOC.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 26: Summary CSM for an off-site warehouse and saw mill works over a Secondary A superficial aquifer during construction phase (Ref ID: 1-25/1-26)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals, arsenic, PAH, VOC, phenols and cresols.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours, VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 27: Summary CSM for an off-site former chemical works and printing works during construction phase (Ref ID: 1-32/ 1-38)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals, PCB, VOC, SVOC, acetone, paints and dyes.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 28: Summary CSM for an off-site former leather works at construction (Ref ID: 1-01)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals (including chromium), solvents (VOC) and pathogens.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 29: Summary CSM for off-site former foundries during construction phase (Ref ID: 1-39 and 1-20)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from previous activities– oil/fuel hydrocarbons, PAH, heavy metals, PCB, sulphates, sulphur and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Off-site migration of wind-blown dust	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
	Off-site migration of wind-blown dust	Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

2.4 Post-construction risk assessment

Table 30: Summary CSM for on-site former printing works and at post construction stage (Ref ID Ref ID 1-40/1-08)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination within made ground – hydrocarbons including waste oils, heavy metals, acetones, aromatic hydrocarbons, PCB, VOC and asbestos.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Minor	Very low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Principal bedrock aquifer (Chalk)	Lateral and vertical migration of mobile contamination	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Unlikely	Minor	Very low

Table 31: Summary CSM for on-site former building yards at post construction stage (Ref ID: 1-07/1-35)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals, PAH, VOC and asbestos.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Minor	Very low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Principal bedrock aquifer (Chalk)*	Lateral and vertical migration of mobile contamination	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Unlikely	Minor	Very low

* Risk only applies to 1-07

Table 32: Summary CSM for on-site rail land and former wagon works at post construction stage (Ref ID 1-14/1-33)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Contamination in made ground (e.g. ballast) as well as: PCB, metals, asbestos, PAH and chlorinated hydrocarbons (VOC); potentially low levels of ground gas (methane and CO_2).	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low	Minor	Low
		Exposure to asphyxiative or explosive gases	Unlikely	Severe	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Principal bedrock aquifer (Chalk)	Lateral and vertical migration of mobile contamination	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low	Minor	Low
		Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits	Unlikely	Medium	Low

Table 33: Summary CSM for an on-site former electricity sub-station at post-construction phase (Ref ID: 1-44)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities including: hydrocarbons, heavy metals, asbestos PAH and PCB.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Minor	Very low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Unlikely	Minor	Very low

Table 34: Summary CSM for on-site disused fuel filling station and garage at post construction stage (Ref ID: 1-04/1-30)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils and petrol and diesel, heavy metals, PAH, , VOC, organolead compounds and MTBE.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Minor	Very low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours, VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Unlikely	Minor	Very low

Table 35: Summary CSM for off-site operational garage during post-construction phase (Ref ID: 1-05)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils and fuels, heavy metals, PAH, chlorinated aliphatic compounds and organolead compounds.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 36: Summary CSM for a former off-site timber yard at post construction stage (Ref ID: 1-11)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals, arsenic, PAH, phenols and cresols.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low	Minor	Low

Table 37: Summary CSM for an on-site former warehouse over a Secondary A superficial aquifer at post construction stage (Ref ID: 1-27)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from former activities, potentially including: fuels such as heating oils.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Minor	Very low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Unlikely	Minor	Very low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contaminants	Unlikely	Minor	Very low
	Principal bedrock aquifer (Chalk)	Lateral and vertical migration of mobile contamination	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Unlikely	Minor	Very low

Table 38: Summary CSM for an on-siteformer printing works over a Secondary A superficial aquifer at post construction stage (Ref ID: 1-24)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals, VOC, acetones, PAH, PCB and asbestos.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Minor	Very low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Unlikely	Minor	Very low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contaminants	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Unlikely	Minor	Very low

Table 39: Summary CSM for an off-site chemical works over a Secondary A superficial aquifer at post construction stage (Ref ID: 1-29)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals, PCB, VOC and SVOC.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours, VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 40: Summary CSM for an off-site former warehouse and saw mill works over a Secondary A superficial aquifer at post construction stage (Ref ID: 1-25/1-26)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals, arsenic, PAH, phenols and cresols.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 41: Summary CSM for an off-site former chemical works and printing works at post construction phase (Ref ID: 1-32/ 1-38)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals, PCB, VOC, SVOC, acetone, paints and dyes.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 42: Summary CSM for an off-site former leather works at post construction phase (Ref ID: 1-01)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals (including chromium), solvents (VOC) and pathogens.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 43: Summary CSM for off-site former foundries at post construction phase (Ref ID: 1-39 and 1-20)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from previous activities– oil/fuel hydrocarbons, PAH, heavy metals, PCB, sulphates, sulphur and asbestos.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

2.5 Assessment of temporary (construction) and permanent (post-construction) effects

Table 44: Significance of impact during construction/post construction for an on-site former printing and works (Ref ID 1-40/1-08)

Contaminant linkage	Baseline	Construction	Post-construction	Construction effect	Post-construction effect
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	N/A	Very low	N/A	Moderate beneficial
Exposure of adjacent human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water.	Low	Low	Very low	Negligible	Minor beneficial
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Lateral and vertical migration of mobile contamination into the underlying Secondary A bedrock aquifer (Lambeth Group).	Very low	Very low	Very low	Negligible	Negligible
Lateral and vertical migration of mobile contamination into the underlying Principal bedrock aquifer (Chalk).	Low	Low	Low	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Very low	Negligible	Minor beneficial effect
Overall significance.				Negligible effect	Negligible to moderate beneficial effect

Table 45: Significance of impact during construction/post construction for on-site former building yards (Ref ID: 1-07/1-35)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Low	N/A	Very low	N/A	Minor beneficial
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Lateral and vertical migration of mobile contamination into the underlying Secondary A bedrock aquifer (Lambeth Group).	Very low	Very low	Very low	Negligible	Negligible
Lateral and vertical migration of mobile contamination into the underlying Principal bedrock aquifer (Chalk).	Low	Low	Low	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Very low	Negligible	Minor beneficial
Overall significance.				Negligible effect	Negligible to minor beneficial effect

Table 46: Significance of impact during construction/post construction for on-site rail land and former wagon works at baseline (Ref ID 1-14/1-33)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	N/A	Low	N/A	Minor beneficial
Exposure to asphyxiative or explosive gases.	Moderate/low	N/A	Moderate/low	N/A	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water.	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Low	Low	Very low	Negligible	Minor beneficial
Lateral and vertical migration of mobile contamination into the underlying Secondary A bedrock aquifer (Lambeth Group).	Very low	Very low	Very low	Negligible	Negligible
Lateral and vertical migration of mobile contamination into the underlying Principal bedrock aquifer (Chalk).	Low	Low	Low	Negligible	Negligible
Migration of contamination and direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes).	Moderate/low	Moderate/low	Low	Negligible	Minor beneficial
Migration of contamination and direct contact with buildings receptors including foundations and services.	Low	Low	Low	Negligible	Negligible
Overall significance.				Negligible effect	Negligible to minor beneficial effect

Table 47: Significance of impact during construction/post construction for an on-site former electricity sub-station at baseline (Ref ID: 1-44)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	N/A	Very low	N/A	Minor/moderate beneficial
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Lateral and vertical migration of mobile contamination into the underlying Secondary A aquifers (Lambeth Group).	Very low	Very low	Very low	Negligible	Minor beneficial
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Very low	Negligible	Minor beneficial effect
Overall significance.				Negligible effect	Negligible to minor/moderate beneficial effect

Table 48: Significance of impact during construction/post construction for an on-site disused fuel filling station and garage at baseline (Ref ID: 1-04/1-30)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	N/A	Very low	N/A	Minor/moderate beneficial
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Low	Low	Very low	Negligible	Minor beneficial
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Lateral and vertical migration of mobile contamination into the underlying Secondary A aquifers (Lambeth Group).	Very low	Very low	Very low	Minor adverse	Minor beneficial
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Very low	Negligible	Minor beneficial
Overall significance.				Negligible effect	Negligible to minor/moderate beneficial effect

Table 49: Significance of impact during construction/post construction for an off-site former garage at baseline (Ref ID: 1-05)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	Moderate/low	Negligible	Negligible	Minor/moderate beneficial
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Low	Low	Negligible	Negligible	Minor beneficial
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Negligible	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Negligible	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

Table 50: Significance of impact during construction/post construction for an off-site former timber yard at baseline (Ref ID: 1-11)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Low	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

Table 51: Significance of impact during construction/post construction for an on-site former warehouse over a Secondary A superficial aquifer at baseline (Ref ID: 1-27)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Low	N/A	Very low	N/A	Minor beneficial
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Leaching of soluble contaminants or migration of liquid contaminants into Lynch Hill Gravel.	Low	Low	Very low	Negligible	Minor beneficial
Lateral and vertical migration of mobile contamination into the underlying Secondary A bedrock aquifer (Lambeth Group).	Very low	Very low	Very low	Negligible	Negligible
Lateral and vertical migration of mobile contamination into the underlying Principal bedrock aquifer (Chalk)	Low	Low	Low	Negligible	Negligible
Migration of contamination and direct contact with buildings receptors including foundations and services.	Low	Low	Very low	Negligible	Minor beneficial
Overall significance.				Negligible effect	Negligible to minor beneficial effect

Table 52: Significance of impact during construction/post construction for an on-site former printing works over a Secondary A superficial aquifer at baseline (Ref ID: 1-24)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Low	N/A	Very low	N/A	Minor beneficial
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Low	Low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Leaching of soluble contaminants or migration of liquid contaminants into Lynch Hill Gravel.	Low	Low	Very low	Negligible	Minor beneficial
Lateral and vertical migration of mobile contamination into the underlying Secondary A bedrock aquifers (Lambeth Group).	Very low	Very low	Very low	Negligible	Negligible
Migration of contamination and direct contact with buildings receptors including foundations and services.	Low	Low	Very low	Negligible	Minor beneficial
Overall significance.				Negligible effect	Negligible to minor beneficial effect

Table 53: Significance of impact during construction/post construction for an off-site chemical works over a Secondary A superficial aquifer at baseline (Ref ID: 1-29)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Leaching of soluble contaminants or migration of liquid contaminants into Lynch Hill Gravel.	Low	Low	Low	Negligible	Negligible
Migration of contamination and direct contact with buildings receptors including foundations and services.	Low	Low	Low	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

Table 54: Significance of impact during construction/post construction for an off-site warehouse and saw mill over a Secondary A superficial aquifer at baseline (Ref ID: 1-25/1-26)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Leaching of soluble contaminants or migration of liquid contaminants into Lynch Hill Gravel.	Low	Low	Low	Negligible	Negligible
Migration of contamination and direct contact with buildings receptors including foundations and services.	Low	Low	Low	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

Table 55: Significance of impact during construction/post construction for an off-site former chemical works and printing works at baseline (Ref ID: 1-32/ 1-38)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Low	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

Table 56: Significance of impact during construction/post construction for an off-site leather works at baseline (Ref ID: 1-01)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Low	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

Table 57: Significance of impact during construction/post construction for off-site former foundries at baseline (Ref ID: 1-39 and 1-20)

Contaminant linkage	Baseline	Construction	Post-construction	Construction effect	Post-construction effect
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Low	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

3 Detailed risk assessment (Stage B1)

3.1.1 This appendix presents assessments for areas potentially posing a contaminative risk which are referenced in the SES2 and the AP3 ES. For each site the following data is presented:

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

3.1.2 This risk assessment incorporates the following assumptions:

- construction workers are not included within this assessment;
- higher risk, potentially contaminated sites have been grouped and considered together where appropriate. It should be noted that some parcels of land may have had several land uses from different eras;
- during construction, standard mitigation procedures will be in place in accordance with the provisions of the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES); and
- during the post-construction condition it is assumed that all required remediation has been undertaken.

3.1.3 The mapping referred to throughout the land quality appendix is contained in Map LQ-01-001 (Volume 5, Map Book Land Quality).

Table 58: Detailed risk assessment for areas potentially posing a contaminative risk within the Euston Station and Approach study area during Stage B1

Site reference	Name	Table numbers
1-40	Former printing office	59, 73, 87, 101
1-08	Former printing works	60, 74, 88, 102
1-35	Former builders yard	61, 75, 89, 103
1-14	Railway land	62, 76, 90, 104
1-33	Former wagon works	63, 77, 91, 105
1-44	Electricity sub-station	63, 77, 91, 105
1-30	Former garage	63, 77, 91, 105
1-04	Disused fuel filing station	64, 78, 92, 106

Site reference	Name	Table numbers
1-05	Operational garage	65, 79, 93, 107
1-27	Former warehouses	66, 80, 94, 108
1-24	Former printing works	67, 81, 95, 109
1-29	Former chemical works	68, 82, 96, 110
1-25	Former warehouses	69, 83, 97, 111
1-26	Former saw mill	69, 83, 97, 111
1-32	Former chemical works	70, 84, 98, 112
1-38	Former printing works	70, 84, 98, 112
1-01	Former leather works	71, 85, 99, 113
1-20	Former foundry	72, 86, 100, 114
1-39	Former foundry	72, 86, 100, 114

3.1.4 The contaminant groups included in this risk assessment are based on research into the site-specific processes, materials and wastes associated with particular industries and land uses and the information provided in the Department of Environment (now Defra) Industry Profiles. The series of Industry Profiles were first published by the previous Department of the Environment in 1995, but remain a valid technical resource for the evaluation of land quality.[2]

3.1.5 The remainder of this appendix presents the risk assessment for the sites set out in Table 58. The following abbreviations are used in these tables:

- CSM - conceptual site model;
- MTBE - methyl tert-butyl ether;
- PAH - polycyclic aromatic hydrocarbons;
- PCB - polychlorinated biphenyls;
- SVOC - semi-volatile organic compounds; and
- VOC - volatile organic compounds.
- CO_2 – Carbon dioxide

[2] A full list of Department of Environment (now Defra) Industry Profiles are available at https://www.gov.uk/government/publications/department-of-environment-industry-profiles.

3.2 Baseline risk assessment

Table 59: Summary CSM for on-site former printing works at baseline (Ref ID 1-40)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from previous activities, including: hydrocarbons, heavy metals, phenols, acetones, aromatic hydrocarbons, VOC, PCB and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 60: Summary CSM for an off-site former printing works at baseline (Ref ID 1-08)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from previous activities, including: hydrocarbons, heavy metals, phenols, acetones, aromatic hydrocarbons, VOC, PCB and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 61: Summary CSM for an on-site former building yard at baseline (Ref ID: 1-07, 1-35)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals, VOC, PAH and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Minor	Low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 62: Summary CSM for on-site rail land at baseline (Ref ID 1-14)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Contamination in made ground (e.g. ballast) as well as: PCB, metals, asbestos, PAH, VOC and chlorinated hydrocarbons); potentially low levels of ground gas (methane and CO_2).	Current site users (rail staff)	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
		Exposure to asphyxiative or explosive gases	Unlikely	Severe	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Low likelihood	Minor	Low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Principal bedrock aquifer (Chalk)	Lateral and vertical migration of mobile contamination	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Likely	Minor	Moderate/low
		Migration of hazardous gas (potentially asphyxiative or explosive gases) to confined spaces via permeable strata or conduits	Unlikely	Medium	Low

Table 63: Summary CSM for an off-site former electricity sub-station, garage and wagon works at baseline (Ref ID: 1-44, 1-30, 1-33)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities including: hydrocarbons, heavy metals, asbestos PAH, VOC and PCB	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low	Minor	Low

Table 64: Summary CSM for on-site disused fuel filling station at baseline (Ref ID: 1-04)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils and petrol and diesel, heavy metals, PAH, VOC chlorinated aliphatic compounds, organolead compounds and MTBE.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Principal bedrock aquifer (Chalk)	Lateral and vertical migration of mobile contamination	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Likely	Minor	Moderate/low

Table 65: Summary CSM for off-site garage at baseline (Ref ID: 1-05)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils and fuels, heavy metals, PAH, VOC chlorinated aliphatic compounds and organolead compounds.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 66: Summary CSM for an on-site former warehouse over a Secondary A superficial aquifer at baseline (Ref ID: 1-27)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Contamination from on-going activities, potentially including: fuels such as heating oils.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Minor	Low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 67: Summary CSM for an offsite former printing works over a Secondary A superficial aquifer at baseline (Ref ID: 1-24)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals , chlorinated solvents, acetones, aromatic hydrocarbons, PCB, VOC and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Medium	Low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 68: Summary CSM for an off-site former chemical works over a Secondary A superficial aquifer at baseline (Ref ID: 1-29)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals , PCB, VOC and SVOC	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A Aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 69: Summary CSM for an off-site former warehouse and saw mill over a Secondary A superficial aquifer at baseline (Ref ID: 1-25/1-26)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals, arsenic, PAH, , VOC, phenols and cresols.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 70: Summary CSM for an off-site former chemical works and printing works at baseline (Ref ID: 1-32/ 1-38)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals , PCB, VOC, SVOC, acetone, paints and dyes.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 71: Summary CSM for an off-site former leather works at baseline (Ref ID: 1-01)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals (including chromium), solvents and pathogens.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 72: Summary CSM for off-site former foundries at baseline (Ref ID: 1-39 and 1-20)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from previous activities– oil/fuel hydrocarbons, PAH, heavy metals , PCB, sulphates, sulphur, VOC and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel*	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

* Pathway refers to polygon 1-20 only

3.3 Construction risk assessment

Table 73: Summary CSM for off-site former printing office during construction phase (Ref ID 1-40)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from previous activities, including: hydrocarbons, heavy metals, phenols, acetones, aromatic hydrocarbons, VOC, PCB and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Not present during construction		
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 74: Summary CSM for an off-site former printing works during construction (Ref ID 1-08)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from previous activities, including: hydrocarbons, heavy metals, phenols, acetones, aromatic hydrocarbons, VOC, PCB and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 75: Summary CSM for an on-site former building yard during construction phase (Ref ID: 1-07, 1-35)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals, PAH , VOC and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Not present during construction		
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 76: Summary CSM for on-site rail land during construction phase (Ref ID 1-14)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Contamination in made ground (e.g. ballast) as well as: PCB, metals, asbestos, PAH , VOC and chlorinated hydrocarbons); potentially low levels of ground gas (methane and CO_2).	Current site users (rail staff)	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Not present during construction		
		Exposure to asphyxiative or explosive gases	Not present during construction		
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas	Off-site migration of soil vapours, VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Low likelihood	Minor	Low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Principal bedrock aquifer (Chalk)	Lateral and vertical migration of mobile contamination	Unlikely	Medium	Low
	Buildings/under-ground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Likely	Minor	Moderate/low
		Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits	Unlikely	Medium	Low

Table 77: Summary CSM for an off-site former electricity sub-station, garage and wagon works during construction (Ref ID: 1-44, 1-30, 1-33)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities including: hydrocarbons, heavy metals, asbestos PAH, VOC and PCB.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low	Minor	Low

Table 78: Summary CSM for on-site disused fuel filing station during construction phase (Ref ID: 1-04)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils and petrol and diesel, heavy metals, PAH, chlorinated aliphatic compounds (VOC), organolead compounds and MTBE.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Not present during construction		
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Likely	Minor	Moderate/low

Table 79: Summary CSM for off-site operational garage during construction phase (Ref ID: 1-05)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils and fuels, heavy metals, PAH, chlorinated aliphatic compounds and organolead compounds.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 80: Summary CSM for an on-site warehouse during construction phase (Ref ID: 1-27)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Contamination from on-going activities, potentially including: fuels such as heating oils.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Not present during construction		
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 81: Summary CSM for an off-site printing works during construction phase (Ref ID: 1-24)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals , chlorinated solvents, acetones, aromatic hydrocarbons, PCB , VOC and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Medium	Low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 82: Summary CSM for an off-site former chemical works during construction phase (Ref ID: 1-29)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals , PCB, VOC and SVOC	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 83: Summary CSM for an off-site warehouse and saw mill works over a Secondary A superficial aquifer during construction phase (Ref ID: 1-25/1-26)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals, arsenic, PAH , VOC, phenols and cresols.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours, VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 84: Summary CSM for an off-site former chemical works and printing works during construction phase (Ref ID: 1-32/ 1-38)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals, PCB, VOC, SVOC, acetone, paints and dyes.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 85: Summary CSM for an off-site former leather works at construction (Ref ID: 1-01)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, VOC, heavy metals (including chromium), solvents and pathogens.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 86: Summary CSM for off-site former foundries during construction phase (Ref ID: 1-39 and 1-20)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from previous activities– oil/fuel hydrocarbons, PAH, heavy metals, PCB, VOC, sulphates, sulphur and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

* Pathway refers to polygon 1-20 only

3.4 Post-construction risk assessment

Table 87: Summary CSM for on-site chemical works at post construction stage (Ref ID Ref ID 1-40)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination within made ground – hydrocarbons including waste oils, heavy metals, acetones, aromatic hydrocarbons, PCB, VOC and asbestos.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Minor	Very low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Unlikely	Minor	Very low

Table 88: Summary CSM for an off-site former printing works during post-construction (Ref ID 1-08)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from previous activities, including: hydrocarbons, heavy metals, phenols, acetones, aromatic hydrocarbons, VOC, PCB and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 89: Summary CSM for an on-site former building yard at post construction stage (Ref ID: 1-35)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals, PAH, VOC and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Minor	Very low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Unlikely	Minor	Very low

Table 90: Summary CSM for on-site rail land at post construction stage (Ref ID 1-14)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Contamination in made ground (e.g. ballast) as well as: PCB, metals, asbestos, PAH and chlorinated hydrocarbons); potentially low levels of ground gas (methane and CO_2).	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low	Minor	Low
		Exposure to asphyxiative or explosive gases	Unlikely	Severe	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Secondary A bedrock aquifer (Lambeth Group)	Lateral and vertical migration of mobile contamination	Unlikely	Minor	Very low
	Principal bedrock aquifer (Chalk)	Lateral and vertical migration of mobile contamination	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low	Minor	Low
		Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits	Unlikely	Medium	Low

Table 91: Summary CSM for an off-site former electricity sub-station, garage and wagon works at post-construction (Ref ID: 1-44, 1-30, 1-33)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities including: hydrocarbons, heavy metals, asbestos PAH, VOC and PCB	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Medium	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low	Minor	Low

Table 92: Summary CSM for on-site disused fuel filling station and at post construction stage (Ref ID: 1-04)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils and petrol and diesel, heavy metals, PAH, , VOC, chlorinated aliphatic compounds, organolead compounds and MTBE	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Minor	Very low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours, VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Unlikely	Minor	Very low

Table 93: Summary CSM for off-site garage during post-construction phase (Ref ID: 1-05)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils and fuels, heavy metals, PAH, VOC, chlorinated aliphatic compounds and organolead compounds.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 94: Summary CSM for an on-site former warehouse over a Secondary A superficial aquifer at post construction stage (Ref ID: 1-27)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Contamination from on-going activities, potentially including: fuels such as heating oils.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Minor	Very low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel	Lateral and vertical migration of mobile contaminants	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Unlikely	Minor	Very low

Table 95: Summary CSM for an off-site printing works at post construction stage (Ref ID: 1-24)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals, chlorinated solvents, acetones, aromatic hydrocarbons, PCB, VOC and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Medium	Low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 96: Summary CSM for an off-site chemical works at post construction stage (Ref ID: 1-29)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals, PCB, VOC and SVOC	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours, VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 97: Summary CSM for an off-site former warehouse and saw mill works at post construction stage (Ref ID: 1-25/1-26)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals, arsenic, PAH, phenols, VOC and cresols.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 98: Summary CSM for an off-site former chemical works and printing works at post construction phase (Ref ID: 1-32/ 1-38)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from former activities, including: hydrocarbons heavy metals, PCB, VOC, SVOC, acetone, paints and dyes.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 99: Summary CSM for an off-site former leather works at post construction phase (Ref ID: 1-01)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from former activities, including: hydrocarbons including waste oils, heavy metals (including chromium), solvents, VOC and pathogens.	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Medium	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 100: Summary CSM for off-site former foundries at post construction phase (Ref ID: 1-39 and 1-20)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from previous activities– oil/fuel hydrocarbons, PAH, heavy metals, PCB, sulphates, VOC sulphur and asbestos.	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and VOC (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Lynch Hill Gravel (Secondary A aquifer)	Lateral and vertical migration of mobile contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

* Pathway refers to polygon 1-20 only

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

Table 101: Significance of impact during construction/post construction for an on-site former chemical works (Ref ID 1-40)

Contaminant linkage	Baseline	Construction	Post-construction	Construction effect	Post-construction effect
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	N/A	Very low	N/A	Moderate beneficial
Exposure of adjacent human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water.	Low	Low	Very low	Negligible	Minor beneficial
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Very low	Negligible	Minor beneficial effect
Overall significance.				Negligible effect	Negligible to moderate beneficial effect

Table 102: Significance of impact during construction/post construction for an off-site former printing works (Ref ID 1-08)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water.	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Low	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

Table 103: Significance of impact during construction/post construction for an onsite former building yard (Ref ID: 1-35)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Low	N/A	Low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Low	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

Table 104: Significance of impact during construction/post construction for on-site rail land at baseline (Ref ID 1-14)

Contaminant linkage	Baseline	Construction	Post-construction	Construction effect	Post-construction effect
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	N/A	Low	N/A	Minor beneficial
Exposure to asphyxiative or explosive gases.	Moderate/low	N/A	Moderate/low	N/A	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water.	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Low	Low	Very low	Negligible	Minor beneficial
Lateral and vertical migration of mobile contamination into the underlying Secondary A bedrock aquifer (Lambeth Group).	Very low	Very low	Very low	Negligible	Negligible
Lateral and vertical migration of mobile contamination into the underlying Principal bedrock aquifer (Chalk).	Low	Low	Low	Negligible	Negligible
Migration of contamination and direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes).	Moderate/low	Moderate/low	Low	Negligible	Minor beneficial
Migration of contamination and direct contact with buildings receptors including foundations and services.	Low	Low	Low	Negligible	Negligible

Contaminant linkage	Baseline	Construction	Post-construction	Construction effect	Post-construction effect
Overall significance.				Negligible effect	Negligible to minor beneficial effect

Table 105: Significance of impact during construction/post construction for an off-site former electricity sub-station, garage and wagon works (Ref ID: 1-44, 1-30, 1-33)

Contaminant linkage	Baseline	Construction	Post-construction	Construction effect	Post-construction effect
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Low	Low	Low	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Low	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

Table 106: Significance of impact during construction/post construction for an on-site disused fuel filling station and at baseline (Ref ID: 1-04)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	N/A	Very low	N/A	Minor/moderate beneficial
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Low	Low	Very low	Negligible	Minor beneficial
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Very low	Negligible	Minor beneficial
Overall significance.				Negligible effect	Negligible to minor/moderate beneficial effect

Table 107: Significance of impact during construction/post construction for an off-site former garage at baseline (Ref ID: 1-05)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	Moderate/low	Negligible	Negligible	Minor/moderate beneficial
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Low	Low	Negligible	Negligible	Minor beneficial
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Negligible	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Negligible	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

Table 108: Significance of impact during construction/post construction for an on-site former warehouse over a Secondary A superficial aquifer at baseline (Ref ID: 1-27)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Low	N/A	Very low	N/A	Minor beneficial
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Leaching of soluble contaminants or migration of liquid contaminants into Lynch Hill Gravel.	Low	Low	Very low	Negligible	Minor beneficial
Migration of contamination and direct contact with buildings receptors including foundations and services.	Low	Low	Very low	Negligible	Minor beneficial
Overall significance.				Negligible effect	Negligible to minor beneficial effect

Table 109: Significance of impact during construction/post construction for an on-site former printing works over a Secondary A superficial aquifer at baseline (Ref ID: 1-24)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Leaching of soluble contaminants or migration of liquid contaminants into Lynch Hill Gravel.	Low	Low	Low	Negligible	Negligible
Migration of contamination and direct contact with buildings receptors including foundations and services.	Low	Low	Low	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

Table 110: Significance of impact during construction/post construction for an off-site chemical works over a Secondary A superficial aquifer at baseline (Ref ID: 1-29)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Leaching of soluble contaminants or migration of liquid contaminants into Lynch Hill Gravel.	Low	Low	Low	Negligible	Negligible
Migration of contamination and direct contact with buildings receptors including foundations and services.	Low	Low	Low	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

Table 111: Significance of impact during construction/post construction for an off-site warehouse and saw mill over a Secondary A superficial aquifer at baseline (Ref ID: 1-25/1-26)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Leaching of soluble contaminants or migration of liquid contaminants into Lynch Hill Gravel.	Low	Low	Low	Negligible	Negligible
Migration of contamination and direct contact with buildings receptors including foundations and services.	Low	Low	Low	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

Table 112: Significance of impact during construction/post construction for an off-site former chemical works and printing works at baseline (Ref ID: 1-32/ 1-38)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Low	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

Table 113: Significance of impact during construction/post construction for an off-site leather works at baseline (Ref ID: 1-01)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Low	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

Table 114: Significance of impact during construction/post construction for off-site former foundries at baseline (Ref ID: 1-39 and 1-20)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effect**	**Post-construction effect**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water.	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water.	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust.	Very low	Very low	Very low	Negligible	Negligible
Leaching of soluble contaminants or migration of liquid contaminants into Lynch Hill Gravel.	Low	Low	Low	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits.	Low	Low	Low	Negligible	Negligible
Overall significance.				Negligible effect	Negligible effect

4 References

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