



## **Appendix 14-PD-2: Geo-Environmental Desk Based Assessment**

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# Appendix 14-PD-2: Geo-Environmental Desk Based Assessment

## 1. Introduction

1.1.1 This Appendix supplements **Chapter 14: Ground Conditions** in PEI Report **Volume 2** and presents the Phase 1 Geo-environmental Desk Based Assessment for the following Parts of the Proposed Development:

- a. Part 2: Works to the Coventry, Grand Union and Oxford Canals, hereafter referred to as 'Part 2'. Note that only the Indicative Work Area of Part 2 is included in this Appendix. Due to no works being proposed in the Indicative Non-Work Area of Part 2, these areas have been excluded;
- b. Part 3: Works to Daventry and Drayton Reservoirs, which overlaps with Part 2 (Section K), hereafter referred to as 'Part 3'. Note that only the Indicative Work Area of Part 3 is included in this Appendix. Due to no works being proposed in the Indicative Non-Work Area of Part 3, this has been excluded;
- c. Part 4a: Abstraction, storage and treatment, hereafter referred to as 'Part 4a'; and
- d. Part 4b: Pipeline to an Underground Reservoir near Luton, hereafter referred to as 'Part 4b'.

1.1.2 Geo-Environmental Desk Studies have been completed for Parts 1a and 1b by PJA (Ref. 1 and Ref. 2).

1.1.3 The following figures in PEI Report **Volume 4** support this Appendix:

- a. **Figure 1-PD-1**: Preliminary Order Limits;
- b. **Figure 14-PD-1**: Parts 1, 2, 3 & 4 Proposed Development Sections and Study Areas;
- c. **Figure 14-PD-2**: Parts 1, 2, 3 & 4 Superficial Geology and BGS Boreholes;
- d. **Figure 14-PD-3**: Parts 1, 2, 3 & 4 Bedrock Geology and Morphological Features; and
- e. **Figure 14-PD-6**: Parts 2, 3 & 4 Potential Areas of Contamination.

1.1.4 The following Annexes support this Appendix:

- a. **Annex 14-1**: Description of Superficial and Bedrock Geology;
- b. **Annex 14-2**: Consultants Coal Mining Reports; and

c. **Annex 14-3: Current and Historical Potential Sources of Contamination.**

- 1.1.5 For the purposes of this report, the baseline conditions for different 'sections' of Parts 2 to 4b have been referred to (see **Table 1**). **Table 1** also indicates which Local Authority boundary the Part / Section is located within. These are indicated on **Figure 14-PD-1** in PEI Report **Volume 3**.

**Table 1: Areas of the Proposed Development and Local Authority**

| <b>Name</b>                                                                                      | <b>Reference throughout Appendix</b> | <b>Local Authority</b>          |
|--------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------|
| <b>Part 2</b>                                                                                    |                                      |                                 |
| Section A: Coventry Canal – Atherstone to Nuneaton Road, Hartshill                               | Part 2 (Section A)                   | North Warwickshire              |
| Section B: Coventry Canal – Nuneaton Road, Hartshill to Chilvers Rise, Nuneaton                  | Part 2 (Section B)                   | Nuneaton and Bedworth           |
| Section C: Coventry Canal – Chilvers Rise, Nuneaton to Oxford Canal – Hawkesbury Pumping Station | Part 2 (Section C)                   | Nuneaton and Bedworth           |
| Section D: Oxford Canal – Hawkesbury Pumping Station to Sowe Common Sports Ground                | Part 2 (Section D)                   | Nuneaton and Bedworth, Coventry |
| Section E: Oxford Canal – Sowe Common Sports Ground to Brinklow Road, Ansty                      | Part 2 (Section E)                   | Rugby                           |
| Section F: Oxford Canal – Brinklow Road, Ansty to Cathiron Lane, Hungerford                      | Part 2 (Section F)                   | Rugby                           |
| Section G: Oxford Canal – Cathiron Lane, Hungerford to Brownsover Road, Newbold on Avon          | Part 2 (Section G)                   | Rugby                           |
| Section H: Oxford Canal – Brownsover Road, Newbold on Avon to Hillmorton Lane, Rugby             | Part 2 (Section H)                   | Rugby                           |
| Section I: Oxford Canal – Hillmorton Pumping Station to Crick Road (A428), Hillmorton            | Part 2 (Section I)                   | Rugby                           |

| <b>Name</b>                                                                                   | <b>Reference throughout Appendix</b>     | <b>Local Authority</b>               |
|-----------------------------------------------------------------------------------------------|------------------------------------------|--------------------------------------|
| Section K: Grand Union Canal – Junction of Oxford and Grand Union Canal to Norton Junction    | Part 2 (Section K) (overlap with Part 3) | West Northamptonshire                |
| Section L: Grand Union Canal – Norton Junction to Diamond Bridge                              | Part 2 (Section L)                       | West Northamptonshire                |
| Section M: Grand Union Canal – Diamond Bridge to Weedon Sewage Treatment Works                | Part 2 (Section M)                       | West Northamptonshire                |
| Section N: Grand Union Canal – Weedon Sewage Treatment Works to Camp Hill, Bugbrooke          | Part 2 (Section N)                       | West Northamptonshire                |
| Section Q: Grand Union Canal – Stoke Road, Stoke Bruerne to Bozenham Mill Lane, Grafton Regis | Part 2 (Section Q)                       | West Northamptonshire                |
| Section S: Grand Union Canal – Station Road, Castlethorpe to Marsh Drive, Milton Keynes       | Part 2 (Section S)                       | West Northamptonshire, Milton Keynes |
| Section T: Grand Union Canal – Marsh Drive, Milton Keynes to Childs Way, Milton Keynes        | Part 2 (Section T)                       | Milton Keynes                        |
| Section U: Grand Union Canal – Childs Way, Milton Keynes to A5, Milton Keynes                 | Part 2 (Section U)                       | Milton Keynes                        |
| Section V: Grand Union Canal – A5, Milton Keynes to A4146, Milton Keynes                      | Part 2 (Section W)                       | Milton Keynes                        |
| <b>Part 3</b>                                                                                 |                                          |                                      |
| Daventry and Drayton Reservoirs                                                               | Part 3                                   | West Northamptonshire                |
| <b>Part 4a</b>                                                                                |                                          |                                      |
| Abstraction, storage and treatment                                                            | Part 4a                                  | Buckinghamshire and Milton Keynes    |

| Name                                                 | Reference throughout Appendix | Local Authority                                         |
|------------------------------------------------------|-------------------------------|---------------------------------------------------------|
| <b>Part 4b</b>                                       |                               |                                                         |
| Section A: Galley WTW Site to A5 North Crossing      | Part 4b (Section A)           | Buckinghamshire and Milton Keynes                       |
| Section B: East of A5 to A5 South Crossing           | Part 4b (Section B)           | Buckinghamshire, Milton Keynes and Central Bedfordshire |
| Section C: A5 South Crossing to A4012                | Part 4b (Section C)           | Central Bedfordshire                                    |
| Section D: A4012 to A505                             | Part 4b (Section D)           | Central Bedfordshire                                    |
| Section E: A505 to B489 Crossing                     | Part 4b (Section E)           | Central Bedfordshire                                    |
| Section F: B489 to A5183 including Dunstable Downs   | Part 4b (Section F)           | Central Bedfordshire                                    |
| Section G: A5183 to Underground Reservoir Near Luton | Part 4b (Section G)           | Central Bedfordshire and Luton                          |

## 1.2 Report Objectives

- 1.2.1 This report has been prepared in general accordance with the British Standard (BS) 10175:2011+A2:2017 Investigation of potentially contaminated sites. Code of practice (Ref. 1), and the Environment Agency Land Contamination Risk Management (LCRM) guidance (Ref. 4).
- 1.2.2 This report is intended to meet the requirements of a Stage 1, Tier 1 Preliminary Risk Assessment as defined in LCRM and to also establish the baseline conditions across the Proposed Development; it is also a necessary precursor to any ground investigation that may be required to support the preliminary design following the Development Consent Order (DCO) Application submission.
- 1.2.3 The baseline conditions will be used to identify potential sources of contamination, receptors to contamination and potential pathways between them. The identified sources, pathways and receptors are presented in the form of a Conceptual Site Model (CSM) showing the potential contaminant linkages (PCL).
- 1.2.4 Note that due to the size and nature of the Proposed Development, the desk study is necessarily high-level in some areas with a focus on presenting relevant information in a proportionate manner (for example, relevant historical features will be identified as potential sources of contamination however detailed history will not be presented).
- 1.2.5 The following represents the scope of this report:
  - a. a review of the Preliminary Order Limit's geological, hydrological and hydrogeological setting, and other geo-environmental information obtained from Groundsure GIS environmental data (September 2025) (Ref. 5) to build up an understanding of the environmental setting and sensitivity;
  - b. an appraisal of the historical development and land use at the Preliminary Order Limits and in the surrounding area, with an emphasis on identifying potential on-site and off-site contamination sources (from Groundsure GIS historical mapping (October 2025) (Ref. 6);
  - c. carry out a site inspection of selected, more significant potential contamination sources to identify any possible indicators of contamination;
  - d. preparation of a CSM describing source-pathway-receptor linkages followed by a high-level preliminary qualitative risk assessment (PRA); and
  - e. outline recommendations for any further investigation or remediation as required.

## 1.3 Sources of Information

1.3.1 This report has been formulated using a combination of the following sources:

- a. Groundsure environmental information (GIS format, September 2025) (Ref. 5) and historical mapping (GIS format, October 2025) (Ref. 6);
- b. British Geological Survey (BGS) geological mapping (Ref. 7);
- c. BGS Geoindex website (Ref. 8);
- d. BGS Lexicons of Geology Units (Ref. 9);
- e. Mining Remediation Authority mapping, including coal mining reporting areas and Development High Risk Areas (DHRA) (Ref. 10) and Consultants Coal Mining Reports (CCMR) where proposed buildings are located within coal mining reporting areas and DHRA (Annex 14-2) (see section 2.1, for further details);
- f. UK Health Security Agency website (Ref. 11); and
- g. Department for Environment, Food and Rural Affairs (DEFRA) Multi-Agency Geographic Information for the Countryside (MAGIC) website for information on sensitive sites (Ref. 12).

## 1.4 Study Area

- 1.4.1 For the purposes of determining the wider geological context, geodiversity and to support the conceptual understanding of the ground model, the geology baseline considers an extended 250 m study area from the Preliminary Order Limits.
- 1.4.2 For the purposes of determining the local baseline conditions with respect to land contamination, a study area that also extends 250 m from the Preliminary Order Limits has been adopted.
- 1.4.3 A 250 m study area has also been generally used for hydrogeology. However, this study area has been extended to 1 km from the Preliminary Order Limits in areas where there are higher permeability aquifers, for example, Principal aquifers and Source Protection Zones (SPZ). This is appropriate to assess the hydrogeological setting, and any influence that potential land contamination might have on the Proposed Development or local receptors (taking into consideration the pathways for contaminant migration). The study areas are presented in **Figure 14-PD-1** in PEI Report **Volume 3**.
- 1.4.4 Note that the study area will also be extended to 1 km where Secondary A aquifers are present for parts of the Preliminary Order Limits in which trenchless crossings are proposed. As the trenchless crossings have not yet been confirmed, this will be considered in the ES.

- 1.4.5 There is no published guidance on defining study areas for this topic. The study areas adopted are based on typically adopted study area limits for nationally significant infrastructure projects and these are consistent with the limits adopted on projects that have been located within very sensitive environments. The Environment Agency have agreed with the principles of the adopted study areas (see **Appendix 14-PD-1** in PEI Report **Volume 4**).

## 2. Part 2: Works to the Coventry, Oxford and Grand Union Canals

### 2.1 Environmental Setting

#### Introduction

- 2.1.1 The environmental setting including the soil chemistry, geology, hydrogeology, and hydrology are the key factors that influence the way in which contaminants in the soil or groundwater can be transported on or off-site, and the way in which contamination can impact users of the Proposed Development.
- 2.1.2 The environmental setting of Part 2 has been assessed in the following sections by referring to the information sources detailed in section 1.3.

#### Soil Chemistry

- 2.1.3 **Table 2** outlines the estimated background concentration range of the soil chemistry according to Groundsure (Ref. 5) within Part 2.

**Table 2: Part 2 - Estimated soil chemistry**

| Part / section     | Background soil concentration range within the section (mg/kg) |         |          |          |            |
|--------------------|----------------------------------------------------------------|---------|----------|----------|------------|
|                    | Arsenic                                                        | Cadmium | Chromium | Nickel   | Lead       |
| Part 2 (Section A) | <15                                                            | <1.8    | 40 – 90  | <15 – 45 | <100       |
| Part 2 (Section B) | <15                                                            | <1.8    | 40 – 90  | <15 – 45 | <100 – 200 |
| Part 2 (Section C) | <15                                                            | <1.8    | 40 – 60  | 15 – 30  | <100       |
| Part 2 (Section D) | <15                                                            | <1.8    | 40 – 90  | 15 – 45  | <100       |
| Part 2 (Section E) | <15                                                            | <1.8    | 40 – 90  | <15 – 30 | <100       |
| Part 2 (Section F) | <15 – 25                                                       | <1.8    | 40 – 90  | 15 – 30  | <100       |
| Part 2 (Section G) | <15 – 25                                                       | <1.8    | 40 – 60  | 15 – 30  | <100       |
| Part 2 (Section H) | 15 – 25                                                        | <1.8    | 60 – 90  | 15 – 30  | <100       |
| Part 2 (Section I) | 15 – 25                                                        | <1.8    | 40 – 90  | 15 – 30  | <100       |
| Part 2 (Section K) | <15 – 35                                                       | <1.8    | 40 – 120 | 15 – 45  | <100       |
| Part 2 (Section L) | 15 – 35                                                        | <1.8    | 40 – 120 | 15 – 45  | <100       |
| Part 2 (Section M) | 15 – 35                                                        | <1.8    | 60 – 120 | 15 – 45  | <100       |
| Part 2 (Section N) | 15 – 45                                                        | <1.8    | 60 – 120 | 15 – 45  | <100 – 200 |
| Part 2 (Section Q) | <15 – 25                                                       | <1.8    | 60 – 90  | 15 – 30  | <100       |
| Part 2 (Section S) | <15 – 35                                                       | <1.8    | 40 – 120 | 15 – 45  | <100 – 600 |

| Part / section                  | Background soil concentration range within the section (mg/kg) |         |          |         |      |
|---------------------------------|----------------------------------------------------------------|---------|----------|---------|------|
|                                 | Arsenic                                                        | Cadmium | Chromium | Nickel  | Lead |
| Part 2 (Section T)              | <15 – 25                                                       | <1.8    | 60 – 90  | 15 – 45 | <100 |
| Part 2 (Section U) <sup>1</sup> | <15 – 25                                                       | <1.8    | 60– 90   | 15 – 45 | <100 |
| Part 2 (Section V)              | 15 – 25                                                        | <1.8    | 60 – 90  | 15 – 45 | <100 |

## Geology

- 2.1.4 The BGS geology maps (provided as part of the Groundsure data (Ref. 5)) have been reviewed. **Annex 14-1** outlines the anticipated geological succession underlying Part 2 and within the 250 m study area. Where a geological stratum exists which is defined as a Principal aquifer, the study area has been extended to 1 km. Furthermore, a summary of the BGS lexicon definitions (Ref. 9) for the geological formations is provided in **Annex 14-1** in PEI Report **Volume 4**.

## Mining

### Coal Mining

- 2.1.5 **Annex 14-1** in PEI Report **Volume 4** summarises information on coal mining features within 250 m of Part 2, which has been collated from the Mining Remediation Authority online map viewer (Ref. 10).
- 2.1.6 A preliminary mine gas risk assessment has been undertaken to assess effects of the historical mining activity in proximity to the Proposed Development. The Proposed Development comprises surface construction works for access pathways, canal bank alterations along with the construction of pumping stations and other structures. Given that implementation of access pathways and canal bank alterations will likely comprise shallow earthworks features only, these are considered unlikely to alter mine gas pathways or represent mine gas receptors. As such, the assessment has focused on the construction of enclosed buildings only.
- 2.1.7 The assessment was undertaken for buildings located within the Coal Mining Reporting Areas including Part 2 (Section A) – outfall structure, and Part 2 (Section D) – Hawkesbury pumping station and associated construction area. The assessment was undertaken based on the available information from the Mining Remediation Authority Interactive Map (Ref. 10), Mining Remediation Authority Consultant's Coal Mining Reports (CCMR) (**Annex 14-2** in PEI Report **Volume 4**) and the Groundsure GIS Database, and in accordance with CL:AIRE's document titled Good Practice for Risk Assessment for Coal Mine Gas Emissions (Ref. 13).

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<sup>1</sup> Groundsure data not available for the whole section.

*Part 2 (Section A)*

2.1.8 Part 2 (Section A) is located within the Coal Mining Reporting Area; however, it is not located within the DHRA:

- a. There are no recorded mine entries recorded within 100 m of the outfall feature located within the Preliminary Order Limits;
- b. Based on the CCMR, there is no past underground mining, no probable unrecorded shallow workings, no coal outcrops, no geological faults, fissures nor breaklines;
- c. Based on the CCMR, there are no opencast mines nor Mining Remediation Authority managed tips within 500 m of the outfall feature located within the Preliminary Order Limits; and
- d. Based on the CCMR, there are no records of coal mining subsidence in the area, and no identified mine gas sites nor mine water treatment schemes within 500 m of the outfall feature located within the Preliminary Order Limits.

2.1.9 Based on the above, the construction area is assessed to be within a Negligible Risk Zone and hence mitigation measures are not required in accordance with the CL:AIRE 2021 guidance. No further assessment is considered to be required for Part 2 (Section A).

*Part 2 (Section D)*

2.1.10 The Part 2 (Section D) Hawkesbury pumping station is located within the Coal Mining Reporting Area, but is not located within a DHRA:

- a. The CCMR for Part 2 (Section D) indicates that there are 15 no. coal seams beneath the Preliminary Order Limits and the depths of the workings beneath the whole of Part 2 (Section D) vary from 66 and 252 metres below ground level (m bgl);
- b. The coal seams beneath Part 2 (Section D) are noted to dip to the west (underneath the Preliminary Order Limits) and include the following seams: Nine Feet, Ryder / Ell, Two Yard, Tick Coal (formed of Nine Feet, Ryder / Ell, Two Yard seams) associated with the Middle Coal Measures Formation, and White Ironstone;
- c. Three inferred coal seams have been identified on BGS mapping (Ref. 8):
  - i. Seven Feet Coal Seam (within Pennine Lower Coal Measures) 670 m north-east of the mine entries;
  - ii. Nine Feet Coal Seam (part of Thick Coal within Pennine Middle Coal Measures) located 600 m north-east of the mine entries;
  - iii. Two Yard Coal Seam (part of Thick Coal within Pennine Middle Coal Measures) located 540 m north-east of the mine entries.

- d. There are multiple mine entries recorded within the boundary of Part 2 (Section D). The closest mine entries to the proposed Hawkesbury pumping station and its associated construction area are mine entries referenced 436284-028 and 436284-027, located 90 and 110 m north of the Indicative Works Area respectively;
- e. The Mining Remediation Authority has identified that these mine entries are associated with DHRA and the CCMR states that the treatment details of these shafts are unknown;
- f. There are two BGS records associated with these recorded mine shafts (Ref. SP38SE657 and SP38SE656), however, no additional information was provided that could be used in the assessment;
- g. It is uncertain at what depth the historical workings are and whether these are flooded in the vicinity of the aforementioned mine shafts and construction area. However, given the presence of Helsby Sandstone Formation bedrock, coal seams are unlikely to be present at shallow depth (i.e. <30 m);
- h. The proposed construction area is not located within a surface coal resource area, nor within the probable shallow coal mine workings area, although other areas within Part 2 (Section D) are within areas of probable shallow coal mine workings;
- i. Based on the Mining Remediation Authority online viewer, the entire Preliminary Order Limits is not located within an area of former recorded mine workings ('past shallow coal mine workings') nor surface mining (past and current); and
- j. Faults and discontinuities have not been identified within the Preliminary Order Limits, the fault nearest to the aforementioned mine entries is located 700 m south.

2.1.11 Based on the above, the Hawkesbury pumping station construction area within the Preliminary Order Limits is considered to potentially represent a Moderate Risk with respect to mine gas risk in accordance with CL:AIRE 2021 guidance. As such, a Detailed Mine Gas Risk Assessment is likely to be required for the proposed Hawkesbury pumping station construction.

### ***Non-Coal Mining***

2.1.12 **Table 3** summarises information on non-coal mining features within 250 m of Part 2, which has been collated from Groundsure (Ref. 5).

**Table 3: Part 2 - Non-coal mining features**

| Area               | Commodity type                            | Class |
|--------------------|-------------------------------------------|-------|
| Part 2 (Section A) | Bedded ore (manganese) / vein mineral     | A, B  |
| Part 2 (Section B) | Bedded ore (manganese) / vein mineral     | A, B  |
| Part 2 (Section C) | Vein mineral (within the study area only) | A     |

2.1.13 With regard to the past or current underground workings for the aforementioned mineral commodities, the Groundsure dataset (Ref. 5) indicates that:

- a. Class A: *“Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.”*; and
- b. Class B: *“Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.”*

## Hydrogeology

### **Aquifer classification**

2.1.14 The Environment Agency adopts aquifer designations that are consistent with the Water Framework Directive (Ref. 14).

2.1.15 **Table 4** outlines the designations of the underlying aquifers within each section of Part 2.

2.1.16 The Environment Agency definitions for the aquifer designations are as follows (Ref. 15 and Ref. 16):

- a. Principal aquifer: *“rocks that provide significant quantities of water and can support water supply and/or baseflow to rivers, lakes and wetlands on a strategic scale. They typically have a high intergranular and/or fracture permeability, meaning they usually provide a high level of water storage.”*;
- b. Secondary A aquifer: *“permeable layers that can support local water supplies, and may form an important source of base flow to rivers.”*;
- c. Secondary B aquifer: *“mainly lower permeability layers that may store and yield limited amounts of groundwater through characteristics like thin cracks (called fissures) and openings or eroded layers.”*;
- d. Secondary undifferentiated aquifer: *“aquifers where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type. These have only a minor value.”*; and
- e. Unproductive strata: *“are largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them.”*

**Table 4: Part 2 - Aquifer designations**

| Geological stratum                       | Aquifer type               | Part 2 (Section A) | Part 2 (Section B) | Part 2 (Section C) | Part 2 (Section D) | Part 2 (Section E) | Part 2 (Section F) | Part 2 (Section G) | Part 2 (Section H) | Part 2 (Section I) | Part 2 (Section K) | Part 2 (Section L) | Part 2 (Section M) | Part 2 (Section N) | Part 2 (Section Q) | Part 2 (Section S) | Part 2 (Section T) | Part 2 (Section U) | Part 2 (Section V) |
|------------------------------------------|----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| <b>Superficial Aquifers</b>              |                            |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| River Terrace Deposits                   | Secondary A                | ✓                  | ✓                  |                    |                    |                    |                    |                    | ✓                  |                    |                    |                    |                    |                    | ✓                  | ✓                  |                    |                    | ✓                  |
| Alluvium                                 | Secondary A                | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  |
| Head                                     | Secondary undifferentiated |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  | ✓                  | ✓                  |                    |
| Glaciolacustrine Deposits                | Unproductive               |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  |                    |                    |                    |                    | ✓                  |
| Glaciofluvial Deposits                   | Secondary A                |                    |                    |                    | ✓                  |                    | ✓                  |                    |                    |                    | ✓                  | ✓                  | ✓                  | ✓                  |                    | ✓                  |                    |                    |                    |
| Anker Sand and Gravel                    | Secondary A                | ✓                  | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Wolston Formation (Oadby Member)         | Secondary undifferentiated |                    |                    |                    |                    | ✓                  | ✓                  |                    | ✓                  |                    | ✓                  |                    | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  |
| Wolston Formation (Thrussington Member)  | Secondary undifferentiated |                    | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Wolston Formation (Bosworth Clay Member) | Unproductive               |                    |                    | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Wolston Sand and Gravel                  | Secondary A                |                    |                    |                    |                    | ✓                  | ✓                  | ✓                  | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Hillmorton Sand                          | Secondary A                |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Peat                                     | Unproductive               |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Tufa                                     | Secondary A                |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  |                    |                    |                    |

| Geological stratum                                     | Aquifer type | Part 2 (Section A) | Part 2 (Section B) | Part 2 (Section C) | Part 2 (Section D) | Part 2 (Section E) | Part 2 (Section F) | Part 2 (Section G) | Part 2 (Section H) | Part 2 (Section I) | Part 2 (Section K) | Part 2 (Section L) | Part 2 (Section M) | Part 2 (Section N) | Part 2 (Section Q) | Part 2 (Section S) | Part 2 (Section T) | Part 2 (Section U) | Part 2 (Section V) |
|--------------------------------------------------------|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Unclassified Superficial Deposits                      | Secondary A  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  |
| Felmersham Member                                      | Secondary A  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  |                    |                    |                    |
| Stoke Goldington Member                                | Secondary A  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  |                    |                    |                    |
| <b>Bedrock Aquifers</b>                                |              |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Halesowen Formation – Mudstone Siltstone and Sandstone | Secondary A  |                    |                    |                    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Halesowen Formation – Limestone                        | Principal    |                    |                    |                    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Salop Formation                                        | Principal    |                    |                    |                    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Pennine Lower Coal Measures Formations                 | Secondary A  |                    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Midlands Minor Intrusive Suite                         | Secondary B  | ✓                  | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Outwoods Shale Formation                               | Secondary B  |                    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Mancetter Shale Formation                              | Secondary B  | ✓                  | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Abbey Shale Formation                                  | Secondary B  | ✓                  | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |

| Geological stratum                                        | Aquifer type | Part 2 (Section A) | Part 2 (Section B) | Part 2 (Section C) | Part 2 (Section D) | Part 2 (Section E) | Part 2 (Section F) | Part 2 (Section G) | Part 2 (Section H) | Part 2 (Section I) | Part 2 (Section K) | Part 2 (Section L) | Part 2 (Section M) | Part 2 (Section N) | Part 2 (Section Q) | Part 2 (Section S) | Part 2 (Section T) | Part 2 (Section U) | Part 2 (Section V) |
|-----------------------------------------------------------|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Purley Shale Formation                                    | Secondary B  | ✓                  | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Helsby Sandstone Formation - Sandstone                    | Principal    | ✓                  | ✓                  |                    | ✓                  | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Helsby Sandstone Formation – sandstone, pebbly (gravelly) | Principal    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Gunthorpe Member                                          | Secondary B  | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Mercia Mudstone Group - Mudstone, siltstone and sandstone | Secondary B  |                    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Mercia Mudstone Group - Mudstone and Siltstone            | Secondary A  | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Mercia Mudstone Group - Mudstone                          | Secondary B  |                    |                    |                    | ✓                  |                    | ✓                  | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Mercia Mudstone Group - Sandstone                         | Secondary A  |                    |                    |                    |                    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Hartshill Sandstone Formation                             | Secondary B  | ✓                  | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Caldecote Volcanic Formation                              | Secondary B  | ✓                  | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Unnamed Pluton, Neoproterozoic III                        | Secondary B  |                    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |

| Geological stratum                           | Aquifer type               | Part 2 (Section A) | Part 2 (Section B) | Part 2 (Section C) | Part 2 (Section D) | Part 2 (Section E) | Part 2 (Section F) | Part 2 (Section G) | Part 2 (Section H) | Part 2 (Section I) | Part 2 (Section K) | Part 2 (Section L) | Part 2 (Section M) | Part 2 (Section N) | Part 2 (Section Q) | Part 2 (Section S) | Part 2 (Section T) | Part 2 (Section U) | Part 2 (Section V) |
|----------------------------------------------|----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Etruria Formation                            | Secondary A                |                    |                    |                    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Blue Anchor Formation                        | Secondary B                |                    |                    |                    |                    |                    |                    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Penarth Group                                | Secondary undifferentiated |                    |                    |                    |                    |                    |                    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Lilstock Formation                           | Secondary undifferentiated |                    |                    |                    |                    |                    |                    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Blue Lias Formation (Saltford Shale Member)  | Secondary B                |                    |                    |                    |                    |                    |                    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Blue Lias Formation (Rugby Limestone Member) | Secondary A                |                    |                    |                    |                    |                    |                    | ✓                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Charmouth Mudstone Formation                 | Secondary undifferentiated |                    |                    |                    |                    |                    |                    |                    | ✓                  | ✓                  | ✓                  | ✓                  |                    |                    |                    |                    |                    |                    |                    |
| Dyrham Formation                             | Secondary undifferentiated |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  | ✓                  | ✓                  | ✓                  |                    |                    |                    |                    |                    |
| Marlstone Rock Formation                     | Secondary A                |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  |                    | ✓                  | ✓                  |                    |                    |                    |                    |                    |
| Whitby Mudstone Formation                    | Unproductive               |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  |                    | ✓                  | ✓                  | ✓                  | ✓                  |                    |                    |                    |
| Northampton Sand Formation                   | Secondary A                |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  | ✓                  |                    |                    |                    |                    |                    |

| Geological stratum                                  | Aquifer type | Part 2 (Section A) | Part 2 (Section B) | Part 2 (Section C) | Part 2 (Section D) | Part 2 (Section E) | Part 2 (Section F) | Part 2 (Section G) | Part 2 (Section H) | Part 2 (Section I) | Part 2 (Section K) | Part 2 (Section L) | Part 2 (Section M) | Part 2 (Section N) | Part 2 (Section Q) | Part 2 (Section S) | Part 2 (Section T) | Part 2 (Section U) | Part 2 (Section V) |
|-----------------------------------------------------|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Rutland Formation (Stamford Member)                 | Secondary A  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  |                    | ✓                  | ✓                  |                    |                    |                    |
| Rutland Formation (Wellingborough Limestone Member) | Secondary A  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  | ✓                  | ✓                  |                    |                    |
| Rutland Formation                                   | Secondary B  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  | ✓                  | ✓                  |                    |                    |
| Blisworth Limestone Formation                       | Principal    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓<br>2             | ✓<br>2             | ✓                  | ✓                  | ✓                  |                    |                    |
| Blisworth Clay Formation                            | Unproductive |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  | ✓                  | ✓                  |                    |                    |
| Cornbrash Formation                                 | Secondary A  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  | ✓                  |                    |                    |
| Kellaways Formation                                 | Secondary A  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  | ✓                  |                    |                    |
| Oxford Clay Formation                               | Unproductive |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    | ✓                  | ✓                  | ✓                  |

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<sup>2</sup> Within the extended 1 km study area only

### **Groundwater vulnerability**

2.1.17 Mapping provided by Groundsure (Ref. 5) outlines the vulnerability of groundwater to pollution and has been summarised in **Table 5**. The definition of the groundwater vulnerability to pollution is as follows;

- a. High: *“Areas able to easily transmit pollution to groundwater. They are characterised by high leaching soils and the absence of low permeability superficial deposits.”*;
- b. Medium: *“Areas that offer some groundwater protection. Intermediate between high and low vulnerability”*; and
- c. Low: *“Areas that provide the greatest protection to groundwater from pollution. They are likely to be characterised by low leaching soils and/or the presence of low permeability superficial deposits”*.

2.1.18 Note that depending on the variability of the underlying geology, each of the sections may have multiple vulnerability classifications.

**Table 5: Part 2 - Groundwater vulnerability**

| <b>Section</b>     | <b>Groundwater combined vulnerability identified within the Preliminary Order Limits and study area</b> |
|--------------------|---------------------------------------------------------------------------------------------------------|
| Part 2 (Section A) | Medium-high, high                                                                                       |
| Part 2 (Section B) | Medium-high, high                                                                                       |
| Part 2 (Section C) | Low, medium-low, medium                                                                                 |
| Part 2 (Section D) | Low, medium-low, medium, medium-high.                                                                   |
| Part 2 (Section E) | Low, medium, medium-high.                                                                               |
| Part 2 (Section F) | Low, medium.                                                                                            |
| Part 2 (Section G) | Low, medium-low, medium                                                                                 |
| Part 2 (Section H) | Low, medium                                                                                             |
| Part 2 (Section I) | Low, medium-low, medium, medium-high, high                                                              |
| Part 2 (Section K) | Low, medium.                                                                                            |
| Part 2 (Section L) | Medium, medium-high, high.                                                                              |
| Part 2 (Section M) | Low, medium-low, medium, medium-high, high                                                              |
| Part 2 (Section N) | Unproductive, low, medium-low, medium, medium-high, high                                                |
| Part 2 (Section Q) | Unproductive, low, medium-low, medium, medium-high, high.                                               |
| Part 2 (Section S) | Unproductive, low, medium-low, medium, medium-high, high.                                               |
| Part 2 (Section T) | Unproductive, medium-high, high.                                                                        |
| Part 2 (Section U) | Unproductive, low.                                                                                      |
| Part 2 (Section V) | Unproductive, low, medium-low.                                                                          |

### **Groundwater Source Protection Zones**

- 2.1.19 According to DEFRA's MAGIC Map (Ref. 12), there are no SPZ located within 1 km of Part 2.

### **Groundwater Abstractions**

- 2.1.20 Groundwater abstraction information provided by the Environment Agency has been included in the following section. This database is considered to be the primary source of information for licensed abstractions. As these abstractions are not identified as points on the map, their exact location is not known.
- 2.1.21 For the purpose of reporting relevant information in a proportionate manner, only active abstractions are listed as potential receptors to land contamination, with potable abstractions identified up to 1 km from the Preliminary Order Limits and abstractions for industrial and commercial use up to 250 m from the Preliminary Order Limits.
- 2.1.22 Further details on groundwater abstractions are included in **Chapter 22: Water Environment and Flood Risk** in PEI Report **Volume 2**. The locations of the abstractions are indicated on **Figure 22-P1-1 (Sheets A to D)**, **Figure 22-P2&3-1**, and **Figure 22-P4-1 (Sheets A to G)** in PEI Report **Volume 3**.
- 2.1.23 There are five Environment Agency groundwater abstraction licences for industrial and commercial use within 250 m of Part 2. These are detailed in **Table 6**. No potable abstractions were identified within 1 km.

**Table 6: Part 2 - Groundwater abstractions (Environment Agency grid squares)**

| Section                          | Groundwater abstractions identified within the study area                                                                                                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Part 2 (Section A)               | MD/028/0019/015 (two entries named 'Primary Sump at Mancetter Quarry' and 'Second Settlement Lagoon Mancetter Quarry') - industrial, commercial and public services – dust suppression, effective from 2022, expiry in 2038. |
|                                  | MD/028/0019/016 (named 'Two Sumps at Mancetter Quarry') - industrial, commercial and public services – dewatering, effective from 2022, expiry in 2038.                                                                      |
|                                  | 03/28/19/0066 (named 'Mancetter, Atherstone – Lagoon') - agricultural – spray irrigation, effective from 1976, no expiry date.                                                                                               |
| Part 2 (Section L and Section M) | 5/32/01/*G/0037 (named 'Borehole at Ivy House Farm') - agriculture – general farming and domestic use, effective from 1986, no expiry date                                                                                   |

- 2.1.24 Further information on Private Water Supplies (PWS) has been requested from the Local Planning Authorities (LPA). West Northamptonshire have not responded at the time of writing; therefore, data from the scoping stage has

been included. Active PWS from groundwater within 1 km from Part 2 are presented in **Table 7**.

**Table 7: Part 2 - PWS**

| Section            | Distance / direction from closest Part / Section | PWS identified within the study area                                                                             |
|--------------------|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Part 2 (Section A) | 30 m north-east of central area.                 | Address: Canalside Cottage, Quarry Lane, Mancetter, Atherstone.<br>Supply: spring.<br>Use: unknown.              |
|                    | 70 m north-east of central area.                 | Address: Railway Cottage, Quarry Lane, Mancetter, Atherstone.<br>Supply: unknown <sup>3</sup> .<br>Use: unknown. |
|                    | 705 m east of central area.                      | Address: Spring Farm, Nuneaton Road, Mancetter, Atherstone.<br>Supply: well.<br>Use: unknown.                    |
| Part 2 (Section G) | 980 m south of western extent.                   | Address: The Lodge, Newnham Lane, Kings Newnham.<br>Supply: well.<br>Use: domestic.                              |
|                    | 710 m south of western extent.                   | Address: Fennis Field Farm, Kings Newman, Rugby.<br>Supply: spring.<br>Use: domestic.                            |
|                    | 640 m north of eastern extent.                   | Address: The Old Manor House, Harborough Magna.<br>Supply: borehole.<br>Use: domestic.                           |
| Part 2 (Section K) | 155 m north of central area.                     | Address: Ashby Road, Welton, West Northamptonshire.<br>Supply: spring.<br>Use: domestic.                         |
|                    | 20 m south of central area.                      | Address: Welton Road, Braunston, West Northamptonshire.<br>Supply: spring.<br>Use: domestic.                     |
|                    | 395 m north of central area.                     | Address: Welton Road, Barby, West Northamptonshire.<br>Supply: spring.                                           |

<sup>3</sup> The supply for this abstraction is 'unknown'. Therefore, could be groundwater or surface water – has been included under both sections.

| Section            | Distance / direction from closest Part / Section | PWS identified within the study area                                                          |
|--------------------|--------------------------------------------------|-----------------------------------------------------------------------------------------------|
|                    |                                                  | Use: domestic.                                                                                |
| Part 2 (Section L) | 960 m west of central area.                      | Address: Brockhall Road, Flore, West Northamptonshire.<br>Supply: well.<br>Use: domestic.     |
|                    | 85 m west of southern extent.                    | Address: Barby Road, Braunston, West Northamptonshire.<br>Supply: well.<br>Use: domestic.     |
| Part 2 (Section M) | 245 m west of northern extent.                   | Address: Daventry Road, Norton, West Northamptonshire.<br>Supply: borehole.<br>Use: domestic. |

## Hydrology

### Surface Watercourses

- 2.1.25 The main watercourses and water features present within 250 m of Part 2 include:
- Canals: Coventry Canal, Oxford Canal and Grand Union Canal;
  - Rivers and Brooks: Bar Pool Brook, Smite Brook, River Swift, Clifton Brook, Welton Arm, Old Mill Race, Old Mill Stream, Whilton Brook, River Nene, Luddle Brook, River Tove, Dogsmouth Brook, River Great Ouse and River Ouzel;
  - Drayton Reservoir; and
  - Numerous minor watercourses and features.
- 2.1.26 Surface watercourses are further discussed in **Chapter 22: Water Environment and Flood Risk** in PEI Report **Volume 3**.

### Surface Water Abstractions

- 2.1.27 Surface water abstraction information provided by the Environment Agency has been included in the following section. This database is considered to be the primary source of information for licensed abstractions. As these abstractions are not identified as points on the map, their exact location is not known.
- 2.1.28 Further details on surface water abstractions are included in **Chapter 22: Water Environment and Flood Risk** in PEI Report **Volume 2**. The locations of the abstractions are indicated on **Figure 22-P2&3-1 (Sheets A to S)** in PEI Report **Volume 3**.

2.1.29 There are seven Environment Agency surface water abstraction licences located within 250 m of Part 2. These are detailed in **Table 8**.

**Table 8: Part 2 – Surface water abstractions (Environment Agency grid squares)**

| Section            | Surface water abstractions identified within the study area                                                                                                                                               |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Part 2 (Section A) | 03/28/21/0020 (named 'Merevale Lake') – agricultural use – spray irrigation, effective from 1966, no expiry date.                                                                                         |
|                    | MD/028/0019/011 (named 'Mancetter Feeder') - industrial, commercial and public services – supply to a canal for throughflow, effective from 2022, expiry in 2038.                                         |
| Part 2 (Section E) | 18/54/11/0133 (named 'Golf Course at Shilton House Farm, Shilton - Tributary R Sowe') - industrial, commercial and public services – spray irrigation, effective from 1991, no expiry date.               |
| Part 2 (Section H) | 18/54/10/0025 (named 'A E I Works, Rugby – River Avon') - industrial, commercial and public services – non-evaporative cooling, effective from 1966, no expiry date.                                      |
|                    | 18/54/10/0072 (named 'Brownsover Mill, Rugby – River Avon') – public / potable water supply, effective from 1966, no expiry date.                                                                         |
| Part 2 (Section Q) | AN/033/0004/005 (named 'River Tove at River Tove Pumping Station') - industrial, commercial and public services – supply to a canal for throughflow, effective from 2022, expiry in 2028.                 |
| Part 2 (Section S) | AN/033/0004/005 (named 'Point A - River Great Ouse at River Ouse Pumping Station') - industrial, commercial and public services – supply to a canal for throughflow, effective from 2022, expiry in 2028. |

2.1.30 The only active PWS potentially from a surface watercourse located within 250 m from Part 2 is 70 m north-east of the central area of Part 2 (Section A) (address: Railway Cottage, Quarry Lane, Mancetter, Atherstone). This is also listed in **Table 7** as the supply is 'unknown'.

#### ***Nitrate Vulnerability Zones***

2.1.31 According to the DEFRA's MAGIC Map (Ref. 12), Part 2 is located within a Nitrate Vulnerability Zone.

#### ***Drinking Water Protected Areas***

2.1.32 The Groundsure GIS dataset (Ref. 5) does not report any Drinking Water Protected Areas (surface water) for the Preliminary Order Limits and the study area.

## Radon

- 2.1.33 The Groundsure data (Ref. 5) provides details of radon risk provided by the BGS and the UK Health Security Agency, which has been summarised in **Table 9** for any buildings (including the outfall structure and pumping stations) within the Preliminary Order Limits.

**Table 9: Part 2 - Radon potential**

| Proposed pumping station                | Radon risk (percentage of dwellings exceeding the Action Level) | Radon protection measures required (Ref. 11)? |
|-----------------------------------------|-----------------------------------------------------------------|-----------------------------------------------|
| Outfall structure at Part 2 (Section A) | Low to medium (0-10%)                                           | Yes - basic measures                          |
| Pumping station at Part 2 (Section D)   | Low (0-1%)                                                      | No                                            |
| Pumping station at Part 2 (Section I)   | Low (0-1%)                                                      | No                                            |
| Pumping station at Part 2 (Section K)   | Medium (1-3%)                                                   | No                                            |
| Pumping station at Part 2 (Section V)   | Low (0-1%)                                                      | No                                            |

## 2.2 Current and Historical Potential Sources of Contamination

- 2.2.1 The current and historical activities that have been identified as potential sources of contamination for Part 2 are listed within **Annex 14-3** and are shown on **Figure 14-PD-6** in PEI Report **Volume 3**. This includes those located within the Preliminary Order Limits for Part 2 (on-site), as well as those within the 250 m study area (off-site). These activities may have in turn impacted on soil, soil leachate and groundwater quality.

## 2.3 Sensitive Land Uses

- 2.3.1 Due to the reasons indicated in paragraph 1.2.4, sensitive land uses of international / national / regional importance are listed up to 250 m from the Preliminary Order Limits, and sensitive land uses of local importance are listed up to 50 m from the Preliminary Order Limits.
- 2.3.2 **Table 10** summarises the sensitive land uses that surround Part 2.
- 2.3.3 No Ramsar sites, national parks, Sites of Special Scientific Interest (SSSI), Special Protection Area (SPA), Special Areas of Conservation (SAC), National Landscapes and National Nature Reserves (NNR) were identified within Part 2 and its study area.
- 2.3.4 Local Wildlife Sites (LWS) and Local Nature Reserves (LNR) are reported up to 50 m from the Preliminary Order Limits.

**Table 10: Part 2 - Summary of sensitive land uses**

| Details          | Distance and direction                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ancient woodland | <ul style="list-style-type: none"> <li>• Rawn Hill Wood located 190 m south of the northern area of Part 2 (Section A).</li> <li>• Purley Park, located 150 m west of the central area of Part 2 (Section A).</li> <li>• Spring Wood located 240 m north-east of the northern area of Part 2 (Section B).</li> <li>• All Oaks Wood located 10 m south of Part 2 (Section F).</li> <li>• Parson's Spinney, located 150 m south of the eastern part of Part 2 (Section S).</li> </ul> |
| LNR              | <ul style="list-style-type: none"> <li>• Wyken Slough, located in the western area of Part 2 (Section D).</li> <li>• Daventry Country Park, located adjacent to the southern extent Part 2 (Section K).</li> </ul>                                                                                                                                                                                                                                                                  |
| LWS              | <ul style="list-style-type: none"> <li>• Multiple located within 50 m of Part 2 (Section A, Section B, Section C, Section D, Section G, Section H, Section I, Section K, Section M, Section Q)</li> </ul>                                                                                                                                                                                                                                                                           |

## 2.4 Site Walkover

2.4.1 Site walkover surveys are on-going and will be reported in the ES.

## 2.5 Initial Conceptual Site Model

### Introduction

2.5.1 This section is aimed at identifying possible risks, if any, arising from substances used or deposited on land or from other sources of land contamination within Part 2 Preliminary Order Limits and study area. Both past and current potentially contaminative land uses have been considered. It is based on Part 2 of the Proposed Development involving the works to the Coventry, Oxford and Grand Union canals including:

- An outfall structure housed at Atherstone to control the discharge of the recycled water transferred from the Minworth AWTP;
- Construction of pumped (requiring new pumping stations) and gravity bypasses to divert flow around existing locks, as not all existing locks and bypass weirs will not be able to pass maximum transfer flows while maintaining safe navigation;
- Raising of sections of canal bank levels where required to maintain a minimum freeboard (the vertical distance from the top of the canal bank to the water surface) – required to prevent potential overtopping, maintain safe moorings and prevent water loss;

- d. Construction of transfer locks located in selected pounds to reduce the extent of bank raising by breaking up the hydraulic gradient along the pound;
- e. Potential modification of one existing canal bridge (Milton Keynes – Bridge 88, Peartree Bridge) to ensure safe navigation/headroom clearance, where water levels are predicted to increase during peak transfer;
- f. Modification of existing control and waste weirs to prevent water loss and premature discharge to adjacent connected watercourses;
- g. Potential modification to the Iron Trunk Aqueduct or introduction of a fourth transfer lock; and
- h. Works to selected infrastructure assets along the canals to ensure they are sufficiently resilient for the water transfer.

2.5.2 The risk assessment process for environmental contaminants is based on a source-pathway-receptor analysis. These terms can be defined as follows:

- a. Source: a contaminant or pollutant that is in, on or under the land and that has the potential to cause harm or pollution;
- b. Pathway: a route by which a receptor is or could be affected by a contaminant: examples include ingestion of contaminated soil and leaching of contaminants from soil into watercourses; and
- c. Receptor: something that could be adversely affected by a contaminant: examples include human occupants / users of the Proposed Development, water resources (surface waters or groundwater), or structures.

## Sources of Potential Contamination

- 2.5.3 Former and current on-site and off-site activities that have been identified as potential sources of contamination for Part 2 have been listed within **Table 1** in **Annex 14-3** and are shown on **Figure 14-PD-6** in PEI Report **Volume 3**. These activities may have in turn impacted on soil, soil leachate and groundwater quality.
- 2.5.4 **Table 11** groups the potential on-site and off-site sources of contamination identified in section 2.2 and with reference to the Construction Industry Research and Information Association (CIRIA) Guidance for the Safe Development of Housing on Land Affected by Contamination: R&D Publication 66 (National House Building Council (NHBC) / Chartered Institute of Environmental Health (CIEH) / Environment Agency) 2008, Department of Environment (DoE) Industry Profiles and professional experience indicates the contaminants of potential concern (CoPC) that may be associated with the potential sources identified.

**Table 11: Part 2 - Potential sources of contamination and associated CoPC**

| Potential Source                                                                                 | Location                                                                                                                                                                                                                                             | Associated CoPC                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Current and former railway lines and sidings, cuttings                                           | <i>On-site:</i><br>Part 2 (Section B, Section D, Section E, Section F, Section I, Section K and Section L)<br><i>Off-site:</i><br>Part 2 (Section A, Section B, Section D, Section H, Section M, Section N, Section S, Section T, Section V).        | Potential for metals and semi-metals; inorganics (sulphates, asbestos); organics (polycyclic aromatic hydrocarbons (PAH), chlorinated aliphatic hydrocarbons, and polychlorinated biphenyls (PCB)).                                                                                                                                                                          |
| Current and historical canal infrastructure: wharfs, marinas, pumping stations and engine houses | <i>On-site:</i><br>Part 2 (Section B, Section G, Section K, Section L)<br><i>Off-site:</i><br>Part 2 (Section A, Section B, Section D, Section F, Section G, Section K, Section L, Section M, Section N, Section Q, Section S, Section T, Section U) | Potential for metals and semi-metals, phenols, sulphates, sulphides, PAH, coal / coke, tars, cyanides, oils, petroleum products, solvents, asbestos and PCB.                                                                                                                                                                                                                 |
| Former Power Station                                                                             | <i>Off-site:</i><br>Part 2 Section D                                                                                                                                                                                                                 | Potential for metals and semi-metals; inorganics (ammonia, sulphate, sulphide, asbestos, acids and alkalis, pH); organics (oil / fuel hydrocarbons, PAH, volatile organic compounds (VOC) and semi-volatile organic compounds SVOC, PCB, Total Petroleum Hydrocarbons (TPH), glycols.<br>Potential for ground gases including methane, hydrogen sulphide and carbon dioxide. |
| Gas works and associated infrastructure                                                          | <i>On-site:</i><br>Part 2 Section V<br><i>Off-site:</i><br>Part 2 (Section A, Section L, Section S, Section V)                                                                                                                                       | Potential for metals and semi-metals; inorganics (ammonia, sulphate, sulphide, cyanides, acids and alkalis, pH); organics (oil / fuel hydrocarbons, PAH, VOC and SVOC, PCB, TPH), asbestos.                                                                                                                                                                                  |
| Industrial works and estates                                                                     | <i>On-site:</i><br>Part 2 (Section A, Section G)                                                                                                                                                                                                     | Potential for metals and semi-metals; inorganics                                                                                                                                                                                                                                                                                                                             |

| Potential Source                                                                                                                                     | Location                                                                                                                                                                                                 | Associated CoPC                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (including historical smithies, breweries, unspecified factories, brick works, depots, distribution centres, industrial yards and recycling centres) | <i>Off-site:</i><br>Part 2 (Section A, Section B, Section D, Section F, Section H, Section I, Section K, Section L, Section M, Section N, Section Q, Section S, Section T, Section V)                    | (ammonia, sulphate, sulphide, cyanides, acids and alkalis, pH); organics (oil / fuel hydrocarbons, PAH, VOC and SVOC, PCB, TPH, glycols, organic solvents, detergents, asbestos).                                                                                                                                                                                                                        |
| Historical landfill sites and refuse heaps                                                                                                           | <i>On-site:</i><br>Part 2 (Section M)<br><i>Off-site:</i><br>Part 2 (Section B, Section D, Section F, Section K, Section L, Section M, Section S)                                                        | Various deposited wastes including inert, industrial and commercial waste.<br>Potential for a range of inorganic and organic contaminants including but not limited to heavy metals, acids, organic compounds, inorganic compounds, asbestos, TPH, PAH, VOC, SVOC, solvents, lubricants, fuel oils, alkalis, PCB.<br>Potential for ground gases including methane, hydrogen sulphide and carbon dioxide. |
| Commercial areas (including builders' merchants, retail parks, hospitals, dry cleaners)                                                              | <i>On-site:</i><br>Part 2 (Section B)<br><i>Off-site:</i><br>Part 2 (Section B, Section H, Section S, Section V)                                                                                         | Potential for a range of inorganic and organic contaminants including but not limited to metals, acids, organic compounds, inorganic compounds, asbestos, TPH, PAH, VOC, SVOC, solvents, lubricants, fuel oils, alkalis, PCB, biological contaminants, asbestos.                                                                                                                                         |
| Farms                                                                                                                                                | <i>On-site:</i><br>Part 2 (Section L)<br><i>Off-site:</i><br>Part 2 (Section A, Section B, Section D, Section F, Section I, Section K, Section L, Section M, Section N, Section Q, Section S, Section V) | Potential for a range of organic and inorganic contaminants including, but not limited to, metals, hydrocarbons (diesel range, lubricating oils, solvents), ammonia, elevated biochemical oxygen demand (BOD), elevated chemical                                                                                                                                                                         |

| Potential Source                                               | Location                                                                                                                                                                                                 | Associated CoPC                                                                                                                                                                                             |
|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                |                                                                                                                                                                                                          | oxygen demand (COD), pesticides and asbestos.                                                                                                                                                               |
| Infilled land (old canal, pits, quarries, historical workings) | <i>On-site:</i><br>Part 2 (Section F, Section G)<br><i>Off-site:</i><br>Part 2 (Section A, Section B, Section D, Section E, Section F, Section H, Section K, Section L, Section M, Section Q, Section S) | Potential for metals and semi-metals; inorganics; organics (oil / fuel hydrocarbons, PAH, VOC and SVOC, TPH), asbestos. Potential for ground gases including methane, hydrogen sulphide and carbon dioxide. |
| Sewage works                                                   | <i>Off-site:</i><br>Part 2 (Section A, Section D, Section G, Section K, Section L, Section M, Section S, Section V)                                                                                      | Potential for range of compounds including but not limited to metals, organics and inorganics, including acids and alkalis, microorganisms and gas including methane, carbon dioxide and hydrogen sulphide. |
| Car garages and petrol filling stations                        | <i>Off-site:</i><br>Part 2 (Section A, Section B, Section E, Section M, Section S, Section U, Section V)                                                                                                 | Potential for range of compounds including but not limited to metals, acids and alkalis, asbestos, organic compounds including fuel and hydrocarbons, detergents, solvents, and PAH.                        |
| Tanks (standalone)                                             | <i>On-site:</i><br>Part 2 (Section B)<br><i>Off-site:</i><br>Part 2 (Section B, Section G)                                                                                                               | Unknown contents of tank but suspected potential compounds including but not limited to fuels, oils or solvents.                                                                                            |
| Cemeteries                                                     | <i>Off-site:</i><br>Part 2 (Section D, Section F, Section K, Section M, Section S)                                                                                                                       | Potential for range of compounds including but not limited to metals, biological contaminants, trace gases (sulphur oxides, nitrogen oxides, carbon monoxide), and toxic organic volatiles.                 |
| Electrical distribution centres and substations                | <i>On-site:</i><br>Part 2 (Section H)<br><i>Off-site:</i><br>Part 2 (Section A, Section B, Section D, Section L, Section N, Section Q, Section S, Section U)                                             | Potential for range of compounds including but not limited to TPH; PAH; hydrocarbons, PCB, metals, asbestos, inorganics.                                                                                    |

| Potential Source       | Location                                              | Associated CoPC                                                                            |
|------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Mine workings          | On-site and off-site:<br>Part 2 Section D             | Potential for mine gases in bulk including methane and carbon dioxide.                     |
| Historical rifle range | Off-site:<br>Part 2 (Section B, Section K, Section S) | Potential for unexploded ordnance (UXO) and heavy metals associated with spent ammunition. |

## Potential Receptors

2.5.5 **Table 12** provides a summary of the potential receptors associated with the Proposed Development for Part 2, which could be impacted by the contamination sources outlined in **Annex 14-3** and section 2.2 and summarised in **Table 11**.

**Table 12: Part 2 - Potential receptors**

| Receptor                                                                | Receptor description                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Human health</b>                                                     |                                                                                                                                                                                                                                                             |
| R1: Current and future on-site commercial / industrial users            | Workers at the pumping stations and outfall structure at Atherstone.                                                                                                                                                                                        |
| R2: Current and future on-site public open space and agricultural users | Public open space users including, but not limited to waterway users, towpath users, boaters, mooring areas, marinas                                                                                                                                        |
| R3: Current and future on-site residential users                        | Residential.                                                                                                                                                                                                                                                |
| R4: Off-site residential users                                          | Residential.                                                                                                                                                                                                                                                |
| R5: Off-site public open space users                                    | Public open space users (surrounding).                                                                                                                                                                                                                      |
| R6: Off-site industrial and commercial site users                       | Commercial and industrial users surrounding the Preliminary Order Limits.                                                                                                                                                                                   |
| <b>Controlled waters</b>                                                |                                                                                                                                                                                                                                                             |
| R7: Bedrock Principal aquifers                                          | Groundwater: bedrock geology classified as Principal aquifers including: Halesowen Formation – Limestone, Salop Formation, Helsby Sandstone Formation – Sandstone, Helsby Sandstone Formation – sandstone, pebbly (gravelly), Blisworth Limestone Formation |
| R8: Superficial and bedrock Secondary A aquifers                        | Groundwater: superficial geology classified as Secondary A aquifers including: River Terrace Deposits, Alluvium, Glaciofluvial Deposits, Anker Sand and Gravel, Wolston Sand and Gravel, Hillmorton Sand, Tufa,                                             |

| Receptor                                                         | Receptor description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                  | <p>Unclassified Superficial Deposits. Felmersham Member, Stoke Goldington Member</p> <p>Groundwater: bedrock geology classified as Secondary A aquifers including: Halesowen Formation – Mudstone Siltstone and Sandstone, Pennine Lower Coal Measures Formations, Mercia Mudstone Group - Mudstone and Siltstone, Mercia Mudstone Group – Sandstone, Etruria Formation, Blue Lias Formation (Rugby Limestone Member), Marlstone Rock Formation, Northampton Sand Formation, Rutland Formation (Stamford Member), Rutland Formation (Wellingborough Limestone Member), Cornbrash Formation, Kellaways Formation.</p> |
| R9: Bedrock Secondary B aquifers                                 | <p>Groundwater: bedrock classified as Secondary B aquifer including: Midlands Minor Intrusive Suite, Outwoods Shale Formation, Mancetter Shale Formation, Abbey Shale Formation, Purley Shale Formation, Gunthorpe Member, Mercia Mudstone Group - Mudstone, Siltstone and Sandstone, Mercia Mudstone Group – Mudstone, Hartshill Sandstone Formation, Caldecote Volcanic Formation, Unnamed Pluton, Neoproterozoic III, Blue Anchor Formation, Blue Lias Formation (Saltford Shale Member), Rutland Formation.</p>                                                                                                  |
| R10: Superficial and bedrock Secondary undifferentiated aquifers | <p>Groundwater: superficial deposits classified as undifferentiated aquifer including: Head, Wolston Formation (Thrussington Member), Wolston Formation (Oadby Member).</p> <p>Groundwater: bedrock classified as Undifferentiated aquifer: Penarth Group, Lilstock Formation, Charmouth Mudstone Formation, Dyrham Formation,</p>                                                                                                                                                                                                                                                                                   |
| R11: Superficial and bedrock Unproductive strata                 | <p>Groundwater: superficial deposits classified as Unproductive strata including: Glaciolacustrine Deposits, Wolston Formation (Bosworth Clay Member), Peat.</p> <p>Groundwater: bedrock classified as Unproductive strata: Whitby Mudstone Formation, Blisworth Clay Formation, Oxford Clay Formation.</p>                                                                                                                                                                                                                                                                                                          |
| R12: Groundwater abstractions / PWS                              | For commercial / industrial purposes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                                  | For potable water supply                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| R13: Surface water                                               | <p>Surface waters: located both on and off-site (various unnamed streams and ponds).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                                                  | <p>Surface waters: located both on and off-site:</p> <p>Canals: Coventry Canal, Oxford Canal and Grand Union Canal and connecting arms</p> <p>Rivers and Brooks: Bar Pool Brook, Smite Brook, River Swift, Clifton Brook, Welton Arm, Old Mill Race, Old Mill Stream, Whilton Brook, River Nene, Luddle Brook, River Tove, Dogsmouth Brook, River Great Ouse, River Grea and River Ouzel</p>                                                                                                                                                                                                                         |

| Receptor                                                             | Receptor description                                                                                                                                                              |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                      | Drayton Reservoir<br>Numerous minor watercourses and features                                                                                                                     |
| R14: Surface water abstractions / PWS                                | For commercial / industrial purposes                                                                                                                                              |
|                                                                      | For potable water supply                                                                                                                                                          |
| <b>Buildings and infrastructure</b>                                  |                                                                                                                                                                                   |
| R15: Proposed pumping stations, outfall structure and transfer locks | Proposed pumping stations, outfall structure: infrastructure at risk from ignition of flammable ground gas following potential accumulation of ground gas within confined spaces. |
| R16: Foundations and services                                        | Foundations and services: below ground infrastructure at risk from potentially aggressive ground conditions.                                                                      |
| <b>Ecological / geological sites</b>                                 |                                                                                                                                                                                   |
| R17: Local sites                                                     | Local importance including LWS and LNR, (see section 2.3).                                                                                                                        |
| R18: International / national / regional sites                       | International / national / regional importance including ancient woodland (see section 2.3).                                                                                      |

## Potential Pathways

2.5.6 **Table 13** provides a summary of the potential pathways associated with Part 2 of the Proposed Development.

**Table 13: Part 2 - Potential pathways**

| Pathway | Pathway description                                                                                                                                                                                                                                                 |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P1      | Direct contact / ingestion of contaminants within Made Ground / natural soils, in addition to soil derived dust, and groundwater.                                                                                                                                   |
| P2      | Inhalation of organic vapours from Made Ground / natural soils, soil derived dust and groundwater.                                                                                                                                                                  |
| P3      | Inhalation of asbestos fibres.                                                                                                                                                                                                                                      |
| P4      | Leaching of soluble contaminants and vertical / lateral migration of mobile contaminants into shallow groundwater.                                                                                                                                                  |
| P5      | Vertical / lateral migration of groundwater through Made Ground and superficial deposits into underlying bedrock aquifer.                                                                                                                                           |
| P6      | Lateral groundwater migration and direct run-off to nearby surface waters.                                                                                                                                                                                          |
| P7      | Vertical / lateral migration of ground gases to indoor and outdoor air and migration of ground gases into enclosed spaces (inhalation / asphyxiation / explosion).                                                                                                  |
| P8      | Direct contact of buried concrete (proposed upgraded pumping station and outfall structure) with contaminated Made Ground / natural soils and aggressive ground conditions (pH and sulphate) / direct contact of services and supply pipes with contaminated soils. |

| Pathway | Pathway description                                                                                                                                     |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| P9      | Mine gas - generation and migration through bedrock and superficial deposits and / or fissures, faults into confined spaces (asphyxiation / explosion). |

## 2.6 Risk Assessment Principles

### Assessment Framework

- 2.6.1 Current best practice recommends that the determination of hazards due to contaminated land is based on the principle of risk assessment, as outlined in the Environment Agency's LCRM (Ref. 4).
- 2.6.2 For a risk to be present, there must be a viable contaminant linkage; i.e. a mechanism whereby a source impacts on a sensitive receptor via a pathway.
- 2.6.3 Assessment of risks associated with each of these potential contaminant linkages are discussed in the following sections.
- 2.6.4 Using criteria broadly based on those presented in NHBC/CIEH/EA publication R&D 66 (Ref. 17) the magnitude of the risk associated with potential contamination at the Site has been assessed. To do this, an estimate is made of:
- the magnitude of the potential consequence (i.e. severity); and
  - the magnitude of probability (i.e. likelihood).
- 2.6.5 The severity of the risk is classified according to the criteria in **Table 14**.

**Table 14: Severity of risk**

| Severity | Definition and examples                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Severe   | <ul style="list-style-type: none"> <li>highly elevated concentrations likely to result in significant harm to human health;</li> <li>catastrophic damage to crops, buildings or property (e.g., by explosion);</li> <li>equivalent to Environment Agency Category 1 pollution incident including persistent and / or extensive effects of water quality;</li> <li>major damage to aquatic or other ecosystems;</li> </ul>            |
| Medium   | <ul style="list-style-type: none"> <li>elevated concentrations which could result in significant harm to human health;</li> <li>significant damage to crops, buildings or property (e.g., damage to building rendering it unsafe);</li> <li>equivalent to Environment Agency Category 2 pollution incident including significant effect on water quality; and</li> <li>significant damage to aquatic or other ecosystems.</li> </ul> |

|       |                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mild  | <ul style="list-style-type: none"> <li>• exposure to human health unlikely to lead to significant harm;</li> <li>• minor damage to crops, buildings or property (e.g., surface spalling to concrete);</li> <li>• equivalent to Environment Agency Category 3 pollution incident including minimal or short-lived effect on water quality; and</li> <li>• minor or short-lived damage to aquatic or other ecosystems.</li> </ul> |
| Minor | <ul style="list-style-type: none"> <li>• no measurable effect on humans;</li> <li>• repairable effects of damage to buildings, structures and services; and</li> <li>• equivalent to insubstantial pollution incident with no observed effect on water quality of ecosystems.</li> </ul>                                                                                                                                        |

2.6.6 The probability of the risk occurring is classified according to the criteria in **Table 15**.

**Table 15: Probability of risk**

| Probability | Definition and examples                                                                                                                                                                                                                                               |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| High        | There is a pollutant linkage, and an event would appear very likely in the short-term and almost inevitable over the long-term, or there is evidence at the receptor of harm or pollution.                                                                            |
| Likely      | There is a pollutant linkage, and all the elements are present and in the right place which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short-term and likely over the long-term. |
| Low         | There is a pollutant linkage and circumstance are possible under which an event could occur. However, it is by no means certain that even over a long period such an event would take place and is less likely in the shorter term.                                   |
| Unlikely    | There is a pollutant linkage, but circumstances are such that it is improbable that an event would occur even in the very long-term.                                                                                                                                  |

2.6.7 An overall evaluation of the level of risk is gained from a comparison of the severity and probability, as shown in **Table 16**.

**Table 16: Level of risk matrix**

|                    |                 | <b>Severity</b> |                |                |                |
|--------------------|-----------------|-----------------|----------------|----------------|----------------|
|                    |                 | <b>Severe</b>   | <b>Medium</b>  | <b>Mild</b>    | <b>Minor</b>   |
| <b>Probability</b> | <b>High</b>     | Very High       | High           | Moderate       | Moderate / Low |
|                    | <b>Likely</b>   | High            | Moderate       | Moderate / Low | Low            |
|                    | <b>Low</b>      | Moderate        | Moderate / Low | Low            | Very Low       |
|                    | <b>Unlikely</b> | Moderate / Low  | Low            | Very Low       | Very Low       |

## 2.7 Preliminary Risk Assessment

- 2.7.1 In accordance with the risk assessment principles outlined above, a preliminary evaluation of the potential risks associated with all the identified sources across Part 2 (**Table 11**), through the potential pathways (P1 to P9) to the various potential receptors (R1 to R18) is discussed and presented in **Table 17**, below. The level of risk is determined based on the current condition of Part 2 of the Preliminary Order Limits (i.e. the effects of mitigation measures are not included). Mitigation is then proposed based on the level of risk. In some cases, a degree of mitigation is assumed as part of legislative requirements or standard construction practice. This is acknowledged where these assumptions are made.
- 2.7.2 The preliminary risk assessment undertaken within this section does not consider acute linkages for construction and maintenance workers. It is anticipated that these acute linkages will be managed by appropriate health and safety measures. These are discussed further in section 2.8.

**Table 17: Part 2 - Preliminary Risk Assessment**

| <b>Pathway</b>                                                                                                             | <b>Receptor</b>                                                         | <b>Potential severity</b> | <b>Likelihood of occurrence</b> | <b>Potential risk</b> | <b>Linkage reference</b> | <b>Justification</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------|---------------------------------|-----------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P1: Direct contact / ingestion of contaminants within Made Ground / soils, together with soil derived dust and groundwater | R1: Current and future on-site commercial / industrial users            | Medium                    | Unlikely                        | Low                   | L1                       | <p>There are multiple sources of contamination in relation to Part 2 (see <b>Table 1</b> in <b>Annex 14-3</b> and summarised in <b>Table 11</b>). The majority of them are associated with off-site sources (including the former Hawkesbury Power Station, landfills, infilled quarries and old sections of the canal, industrial estates and various former works, current and historical railway, and sewage works). The Proposed Development will consist mostly of canal route with adjacent paths and infrastructure, as well as areas of hardstanding and open space.</p> <p>L1: The potential risk to the current and future pumping station / outfall structure users from direct contact / ingestion of contaminants has been assessed as low. This is due to the presence of hardstanding and buildings, reducing exposure</p> |
|                                                                                                                            | R2: Current and future on-site public open space and agricultural users | Mild                      | Low                             | Low                   | L2                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| Pathway | Receptor                                                                                                                    | Potential severity | Likelihood of occurrence | Potential risk  | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------|-----------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------|-----------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | R3: Current and future on-site residential users                                                                            | Medium             | Unlikely                 | Low             | L3                | <p>risk. Furthermore, wind-blown particulates are unlikely to be mobilised due to future development cover.</p> <p>L2: The risk to on-site public open space and agricultural land users has been assessed as low, based on a relatively low potential for contamination to exist (mainly off-site sources). Furthermore, public open space and agricultural land users are temporary site users, and the time on-site will be transient.</p> <p>L3: Risk to on-site residents is also considered to be low as sources of potential contamination are not located in proximity to the on-site residential areas.</p> <p>L4: The risk to off-site users from potential direct contact / ingestion of on-site contaminants (from the on-site sources) is assessed to be</p> |
|         | R4 / R5 / R6: Off-site residential users, public open space and agricultural users and industrial and commercial site users | Mild to medium     | Unlikely                 | Very low to Low | L4                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| Pathway | Receptor                                       | Potential severity | Likelihood of occurrence | Potential risk | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------|------------------------------------------------|--------------------|--------------------------|----------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | R17: Local sites                               | Mild               | Unlikely                 | Very low       | L5                | <p>very low to low. This is due to the limited presence of on-site sources.</p> <p>L5 / L6: The risk to the identified ecological / geological sites from on-site sources of contamination is assessed to be low to moderate / low based on the sensitivity and proximity to on-site potential contamination sources. If phytotoxic contaminants are found to be present within the Made Ground, these can normally be mitigated through suitable topsoil / subsoil cover.</p> |
|         | R18: International / national / regional sites | Medium             | Unlikely                 | Low            | L6                | <p>Measures to control the generation of soil derived dust during construction should be outlined in the outline Construction Environmental Management Plan (CEMP) taking into account CIRIA C811 5<sup>th</sup> Edition 'Environmental Good Practice On Site' (2023) (Ref. 18)</p> <p>Further site characterisation / assessment will be required to quantify the significance of the risks identified.</p>                                                                   |

| Pathway                                                                                       | Receptor                                                                | Potential severity | Likelihood of occurrence | Potential risk        | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------|--------------------------|-----------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2: Inhalation of organic vapours from Made Ground / soils, soil derived dust and groundwater | R1: Current and future on-site commercial / industrial users            | Medium             | Unlikely to low          | Low to Moderate / low | L7                | <p>A number of (mostly off-site sources) have been identified, some with elevated contamination potential (e.g. former Hawkesbury Power Station, landfills, works). These have the potential to affect on-site receptors through inhalation of organic vapours or soil derived dust.</p> <p>L7: The level of risk with regards to potential vapours emanating from within Made Ground is assessed to be low to moderate / low due to the severity of the hazard rather than the likelihood of occurrence. The off-site sources are limited at the pumping stations / outfall structure other than at Hawkesbury (Part 2 (Section D)). Hardstanding at the pumping stations / outfall structure reduces the risk to a degree. Should future ground investigation confirm the potential for vapours, then the future design can mitigate</p> |
|                                                                                               | R2: Current and future on-site public open space and agricultural users | Mild               | Unlikely                 | Very low              | L8                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                               | R3: Current and future on-site residential users                        | Medium             | Unlikely                 | Low                   | L9                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Pathway                           | Receptor                                                                                                                    | Potential severity | Likelihood of occurrence | Potential risk  | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------|-----------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   | R4 / R5 / R6: Off-site residential users, public open space and agricultural users and industrial and commercial site users | Mild to medium     | Unlikely                 | Very low to Low | L10               | this risk by inclusion of vapour barriers in the design.<br>L8: Public open space and agricultural land users are outdoor, temporary site users and the time on-site will be transient. Risk is assessed to be very low.<br>L9: See L3.<br>L10: See L4.                                                                                                                                                                                                                                                                                                                                                     |
| P3: Inhalation of asbestos fibres | R1: Current and future on-site commercial / industrial users                                                                | Severe             | Unlikely                 | Moderate / low  | L11               | L11 / L12 / L13: There is potential for asbestos to be present in any Made Ground across Part 2 and landfills. In the absence of controls there is the potential for air-borne dispersion if soils containing asbestos are disturbed. As asbestos presents a risk if it is disturbed, it is considered that the likelihood of this risk being realised is unlikely and therefore the overall risk of moderate / low has been concluded.<br>L14: Off-site receptors are unlikely to be exposed to asbestos fibres from on-site Made Ground or on-site sources. Therefore, the risk has been assessed as low. |
|                                   | R2: Current and future on-site public open space and agricultural users                                                     | Severe             | Unlikely                 | Moderate / low  | L12               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                   | R3: Current and future on-site residential users                                                                            | Severe             | Unlikely                 | Moderate / low  | L13               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| Pathway                                                                                                                                                               | Receptor                                                                                                                    | Potential severity | Likelihood of occurrence | Potential risk        | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------|-----------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                       | R4 / R5 / R6: Off-site residential users, public open space and agricultural users and industrial and commercial site users | Medium             | Unlikely                 | Low                   | L14               | If asbestos is encountered during future redevelopment, it must be managed in accordance with the Control of Asbestos Regulations 2012. (Ref. 19).                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| P7: Vertical / lateral migration of ground gases to indoor and outdoor air and migration of ground gases into enclosed spaces (inhalation / asphyxiation / explosion) | R1: Current and future on-site commercial / industrial users                                                                | Medium             | Unlikely to low          | Low to Moderate / low | L15               | L15: Ground gases are generally unlikely to be present at the pumping stations and outfall structure due to the relatively low potential for any significant Made Ground (other than infilled land associated with historical landfills off-site, particularly around Hawkesbury Part 2 (Section D)). Where ground gases are present, there is the potential for ground gas migration and build-up in confined spaces. Where methane is identified at certain levels, there is the potential for explosion to occur, albeit unlikely. If ground gases are found to be present, these will need to be mitigated as |
|                                                                                                                                                                       | R2: Current and future on-site public open space and agricultural users                                                     | Mild               | Unlikely                 | Very low              | L16               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Pathway                                                     | Receptor                                                                                                                    | Potential severity | Likelihood of occurrence | Potential risk  | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------|-----------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                             | R3: Current and future on-site residential users                                                                            | Medium             | Unlikely                 | Low             | L17               | part of the future Proposed Development design.<br>L16: The risks to public open space and agricultural land users is assessed to be very low as they will not be accessing confined environments.<br>L17: Given the limited extent of on-site sources in proximity to the on-site residential areas, there is a low potential for ground gas to migrate off-site and affect nearby properties although there is no evidence this is happening currently. |
|                                                             | R4 / R5 / R6: Off-site residential users, public open space and agricultural users and industrial and commercial site users | Mild to medium     | Unlikely                 | Very low to Low | L18               | L18: The on-site sources have very limited potential to generate ground gases that could migrate off-site. Therefore, the occurrence is assessed to be unlikely.                                                                                                                                                                                                                                                                                          |
| P4: Leaching of soluble contaminants and vertical / lateral | R8: Superficial Secondary A aquifers                                                                                        | Medium             | Low                      | Moderate / low  | L19               | L19 / L20 / L21: Superficial deposits across Part 2 will vary in nature, therefore the potential for leaching of contaminants can also vary significantly. Given the on-site                                                                                                                                                                                                                                                                              |

| Pathway                                                                                                                      | Receptor                                             | Potential severity | Likelihood of occurrence | Potential risk | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|--------------------|--------------------------|----------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| migration of mobile contaminants into shallow groundwater                                                                    | R10: Superficial Secondary undifferentiated aquifers | Mild               | Low                      | Low            | L20               | and off-site sources of contamination identified, there is the potential for soil contaminants to have leached into on-site shallow aquifers. The risk has been assessed as varying from very low to moderate / low which is driven by the different aquifer sensitivities.<br>Monitoring would be required to confirm the current groundwater quality regime and confirm the risk.                                                                                                                                                                |
|                                                                                                                              | R11: Superficial Unproductive strata                 | Minor              | Low                      | Very low       | L21               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| P5: Vertical / lateral migration of groundwater through Made Ground and superficial deposits into underlying bedrock aquifer | R7: Bedrock Principal aquifers                       | Medium             | Low                      | Moderate / low | L22               | L22: The Principal aquifers are generally present across the more rural areas of the Preliminary Order Limits, with the exception of some areas in Part 2 (Section B) and Part 2 (Section D), and therefore less likely to encounter significant contamination. Part 2 (Section B) and Part 2 (Section D) are near quarrying and landfilling activities which have potential to affect the Principal aquifer.<br>L22 / L23 / L24 / L25 / L26: Groundwater levels across Part 2 will vary significantly. The extent to which the groundwater in the |
|                                                                                                                              | R8: Bedrock Secondary A aquifers                     | Medium             | Low                      | Moderate / low | L23               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                              | R9: Bedrock Secondary B aquifers                     | Mild               | Low                      | Low            | L24               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| Pathway                                                        | Receptor                                                                              | Potential severity | Likelihood of occurrence | Potential risk | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------|--------------------------|----------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                | R10: Bedrock<br>Secondary undifferentiated aquifers                                   | Mild               | Low                      | Low            | L25               | superficial deposits is connected to groundwater in the underlying bedrock aquifers has not been confirmed. Given the presence of on-site and off-site contaminative sources across Part 2, the risk of migration of contaminants to the bedrock groundwater has been assessed as varying from very low to moderate / low which is driven by the different aquifer sensitivities. L27 / L28: Potential PWS for potable use are present within Part 2 (Section A, Section G, Section K, Section L, Section M). The risk has been assessed as moderate which is driven by the sensitivity. The risk to commercial / industrial abstractions has been assessed as low.<br>Monitoring would be required to confirm the current groundwater quality regime and confirm the risk. |
|                                                                | R11: Bedrock<br>Unproductive strata                                                   | Minor              | Low                      | Very low       | L26               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                                                | R12: Groundwater abstractions / PWS<br>For commercial / industrial purposes           | Mild               | Low                      | Low            | L27               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                                                | R12: Groundwater abstractions / PWS<br>For potable water supply                       | Severe             | Low                      | Moderate       | L28               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| P6: Lateral groundwater migration and direct run-off to nearby | R13: Surface waters: located both on and off-site (various unnamed streams and ponds) | Mild               | Low                      | Low            | L29               | L29 / L30: Numerous rivers, streams, drains and ponds, and the canals themselves (Grand Union Canal, Coventry Canal and Oxford Canal) cross Part 2 and are                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Pathway                                                               | Receptor                                                                                         | Potential severity | Likelihood of occurrence | Potential risk | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------|--------------------------|----------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| surface waters                                                        | R13: Surface waters: located both on and off-site (canals, rivers and brooks, Drayton Reservoir) | Medium             | Low                      | Moderate / low | L30               | in close proximity to the identified on-site and off-site sources. There is the potential for contaminants to be transported to surface waters. The overall risk is assessed as low to moderate / low depending on the sensitivity of the surface watercourse.<br>L31 / L32: The risk to the surface water abstractions has been assessed as low to moderate / low depending on whether they are a potable water supply or for commercial / industrial purposes. The potable water supply is within the study area of Part 2 (Section H) and of medium sensitivity based on absence of on-site sources in this area. |
|                                                                       | R14: Surface water abstractions / PWS For commercial / industrial purposes                       | Mild               | Low                      | Low            | L31               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                       | R14: Surface water abstractions / PWS For potable water supply                                   | Medium             | Low                      | Moderate / low | L32               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| P8: Direct contact and aggressive ground conditions (pH and sulphate) | R16: Foundations and services                                                                    | Mild               | Low                      | Low            | L33               | L33: The risk to foundations and services is assessed to be low based on the potential for on-site contamination within the Made Ground / soils, leachate and groundwater across Part 2.                                                                                                                                                                                                                                                                                                                                                                                                                             |
| P7: Vertical / lateral migration of                                   | R15: Proposed pumping stations,                                                                  | Medium             | Unlikely                 | Low            | L34               | L34: Ground gases may be present due to the areas of potential Made Ground (on-site                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Pathway                                                                                                                                               | Receptor                                          | Potential severity | Likelihood of occurrence | Potential risk        | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|--------------------|--------------------------|-----------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ground gases to indoor air and migration of ground gases into enclosed spaces (explosion)                                                             | outfall structure, pipelines                      |                    |                          |                       |                   | and off-site) and so there is the potential for ground gas migration and build-up in confined spaces (albeit low). Where methane is identified at certain levels, there is the potential for explosion to occur, albeit unlikely. If ground gases are found to be present, these will need to be mitigated as part of the future Proposed Development design.                                                                                                                                                                                                  |
| P9: Mine Gas - generation and migration through bedrock and superficial deposits and / or fissures, faults confined spaces (asphyxiation / explosion) | R15: Proposed pumping stations, outfall structure | Medium             | Unlikely to low          | Low to Moderate / low | L35               | L35: Based on the preliminary mine gas assessment, the construction area within Part 2 Section A is assessed to be within a Negligible Risk Zone and hence mitigation measures are not required in accordance with the CL:AIRE 2021 guidance. No further assessment is considered to be required for Part 2 (Section A).<br><br>The pumping station construction area within Part 2 Section D is considered to potentially represent a Moderate Risk with respect to mine gas risk in accordance with CL:AIRE 2021 guidance. As such, a Detailed Mine Gas Risk |

| Pathway | Receptor | Potential severity | Likelihood of occurrence | Potential risk | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------|----------|--------------------|--------------------------|----------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |          |                    |                          |                |                   | <p>Assessment is likely to be required for the proposed pumping station construction.</p> <p>The remaining areas of Part 2 Section D are likely to be High Risk with respect to mine gas risk in accordance with CL:AIRE 2021. As remaining areas include for shallow earthworks or placement of access tracks only, these are unlikely to represent receptors to mine gas, although this should be revisited once the Proposed Development design is finalised.</p> |

## **2.8 Discussions of Risks to Construction Workers and Off-Site Receptors during Construction Works**

- 2.8.1 As described in **Chapter 3: The Proposed Development** in PEI Report **Volume 2**, the Proposed Development works will be undertaken in compliance with Construction (Design and Management) Regulations 2015 (CDM).
- 2.8.2 Prior to work commencing, a health and safety risk assessment will be carried out by the appointed Principal Contractor, and this will be developed in accordance with current health and safety regulations. This assessment should cover potential risks to construction staff, permanent site staff and the local surrounding population. Based on the findings of this risk assessment, appropriate mitigation measures should be implemented during the construction period.
- 2.8.3 The greatest potential for generation of dust will be during the enabling and construction works. Dust generation will be minimised through the use of measures which will be outlined in the CEMP submitted with the DCO Application. This will take into account relevant best practice, for example, 'Environmental Good Practice on Site', CIRIA Publication C811 (Ref. 18) to reduce this risk to acceptable levels. The risk to future construction workers is considered to be low; however, this assumes the preparation of a construction management and health and safety plan including the use of Personal Protection Equipment (PPE) in accordance with statutory health and safety requirements. The potential for ground gas risks should be considered when developing Health and Safety Plans for works at the Proposed Development and a monitoring programme for occupational exposure risk should be considered. Further details regarding the management of dust during the construction phase are available within **Chapter 8: Air Quality and Odour** in PEI Report **Volume 2**.

### 3. Part 3: Daventry and Drayton Reservoirs

#### 3.1 Environmental Setting

##### Introduction

- 3.1.1 The environmental setting of Part 3 has been assessed in the following sections by referring to the information sources detailed in section 1.3.

##### Soil Chemistry

- 3.1.2 **Table 18** outlines the estimated background concentration range of the soil chemistry according to the Groundsure data (Ref. 5) within Part 3.

**Table 18: Part 3 - Estimated soil chemistry**

| Background soil concentration range within Part 3 (mg/kg) |         |          |         |      |
|-----------------------------------------------------------|---------|----------|---------|------|
| Arsenic                                                   | Cadmium | Chromium | Nickel  | Lead |
| <15 – 35                                                  | <1.8    | 40 – 120 | 15 - 45 | <100 |

##### Geology

- 3.1.3 The BGS geology maps (provided as part of the Groundsure data (Ref. 5)) have been reviewed. **Annex 14-1** outlines the anticipated geological succession underlying Part 3 and within the 250 m study area. Where a geological stratum exists which is defined as a Principal aquifer, the study area has been extended to 1 km. Furthermore, a summary of the BGS lexicon definitions (Ref. 9) for the geological formations is provided in **Annex 14-1**.

##### Mining

###### *Coal Mining*

- 3.1.4 The Mining Remediation Authority web based interactive map (Ref. 10) has been reviewed, which indicates that Part 3 is not located within a Mining Remediation Authority Coal Mining Reporting Area. This indicates that risks from historical coal mining are low, with no further assessment required.

###### *Non-Coal Mining*

- 3.1.5 No evidence of non-coal mining is recorded within the study area of Part 3.

##### Hydrogeology

###### *Aquifer classification*

- 3.1.6 Aquifer designations attributed to the superficial and bedrock geology are described in section 2.1.16.
- 3.1.7 The superficial aquifers within the Part 3 and its study area are classified as:

- a. Secondary A (Alluvium, Glaciofluvial Deposits) in the northern, central and eastern areas of Part 3; and
- b. Secondary (undifferentiated) (Wolston Formation (Oadby Member)) aquifers are mapped in the central and southern area of Part 3.

3.1.8 The bedrock aquifers underlying Part 3 are classified as:

- a. Secondary A (Marlstone Rock Formation) in the northern area;
- b. Secondary (undifferentiated) (Charmouth Mudstone Formation, Dyrham Formation) across the majority of the study area; and
- c. An unproductive aquifer is present within the study area (Whitby Mudstone Formation).

#### ***Groundwater vulnerability***

3.1.9 Definitions of the vulnerability of groundwater to pollution are included in section 2.1.17.

3.1.10 Part 3 is indicated to be of low to medium groundwater vulnerability.

#### ***Groundwater Source Protection Zones***

3.1.11 According to DEFRA's MAGIC Map (Ref. 12), there are no SPZ located within 1 km of Part 3.

#### ***Groundwater Abstractions***

3.1.12 There are no groundwater abstraction licences held by the Environment Agency within 1 km of Part 3.

3.1.13 Further information on PWS has been requested from the LPA. West Northamptonshire have not responded at the time of writing; therefore, data from the scoping stage has been included. Active PWS from groundwater, within 1 km from Part 3 are presented in **Table 19**.

**Table 19 Part 3 - PWS**

| <b>Part</b> | <b>Distance / direction</b>    | <b>PWS identified within the study area</b>                                                  |
|-------------|--------------------------------|----------------------------------------------------------------------------------------------|
| Part 3      | 330 m north of western extent. | Address: Ashby Road, Welton, West Northamptonshire.<br>Supply: spring.<br>Use: domestic.     |
|             | 20 m west of central area.     | Address: Welton Road, Braunston, West Northamptonshire.<br>Supply: spring.<br>Use: domestic. |
|             | 445 m north of central area.   | Address: Welton Road, Barby, West Northamptonshire.<br>Supply: spring.<br>Use: domestic.     |

## Hydrology

### **Surface Watercourses**

3.1.14 The main watercourses and water features present within 250 m of Part 3 include:

- a. Grand Union Canal;
- b. Welton Arm;
- c. Daventry and Drayton reservoirs; and
- d. Minor watercourses and features.

3.1.15 Surface watercourses are further discussed in **Chapter 22: Water Environment and Flood Risk** in PEI Report **Volume 2**.

### **Surface Water Abstractions**

3.1.16 There are no active surface water abstraction licences or PWS within 250 m from Part 3 based on information provided by the Environment Agency and the LPA.

### **Nitrate Vulnerability Zones**

3.1.17 According to DEFRA's MAGIC Map, Part 3 is located within a Nitrate Vulnerability Zone.

### **Drinking Water Protected Areas**

3.1.18 Part 3 is not located within a Drinking Water Protected area; however it is included in a Drinking Water Safeguard Zone for surface water.

## Radon

3.1.19 Radon risk is not considered as part of this assessment as no buildings with planned human occupancy are anticipated in Part 3.

## 3.2 Current and Historical Potential Sources of Contamination

3.2.1 The current and historical activities that have been identified as potential sources of contamination for Part 3 are listed within **Annex 14-3** and are shown on **Figure 14-PD-6** in PEI Report **Volume 3**. This includes those located within the Preliminary Order Limits for Part 3 (on-site), as well as those within the 250 m study area (off-site). These activities may have in turn impacted on soil, soil leachate and groundwater quality.

## 3.3 Sensitive Land Uses

3.3.1 Due to the reasons indicated in paragraph 1.2.4, sensitive land uses of international / national / regional importance are listed up to 250 m from the Preliminary Order Limits, and sensitive land uses of local importance are listed up to 50 m from the Preliminary Order Limits.

- 3.3.2 No Ramsar sites, national parks, ancient woodland, SSSI, SPA, SAC, National Landscapes and NNR were identified within Part 3 and its study area.
- 3.3.3 A LNR and LWS is present within 50 m of Part 3; Daventry Reservoir and Country Club overlaps the southern extent.

### 3.4 Site Walkover

- 3.4.1 Site walkover surveys are ongoing and will be reported in the ES.

### 3.5 Initial Conceptual Site Model

#### Introduction

- 3.5.1 This section is aimed at identifying possible risks, if any, arising from substances used or deposited on land or from other sources of land contamination within Part 3 Preliminary Order Limits and study area. Both past and current potentially contaminative land uses have been considered within Part 3.
- 3.5.2 The works to the existing Daventry Reservoir will include:
  - a. Replacement of the existing inlet structure with a new structure and connecting it to an existing large culvert using pre-cast culvert sections;
  - b. Construction of an additional outlet structure;
  - c. Bank raising along the existing channel leading from the reservoir to the Grand Union Canal; and
  - d. Replacement of the existing culvert discharging to the Grand Union Canal with a larger structure.
- 3.5.3 The works to the existing Drayton Reservoir will include:
  - a. Provision of a discharge structure to the existing inlet to the southwest of the reservoir; and
  - b. Works to the existing overflow structure to the north of the reservoir through the provision of an additional siphon and siphon discharge chamber.
- 3.5.4 The risk assessment process for environmental contaminants is based on a source-pathway-receptor analysis. These terms are described in section 2.5.2.

#### Sources of Potential Contamination

- 3.5.5 Former and current on-site and off-site activities that have been identified as potential sources of contamination for Part 3 have been listed within **Table 1** in **Annex 14-3** and are shown on **Figure 14-PD-6** in PEI Report **Volume 3**.

These activities may have in turn impacted on soil, soil leachate and groundwater quality.

- 3.5.6 **Table 20** groups the potential on-site and off-site sources of contamination identified in **Table 1** in **Annex 14-3** and with reference to the CIRIA Guidance for the Safe Development of Housing on Land Affected by Contamination: R&D Publication 66 (NHBC / CIEH / Environment Agency) 2008, DoE Industry Profiles and professional experience also indicates the CoPC that may be associated with the potential sources identified.

**Table 20: Part 3 - Potential sources of contamination and associated CoPC**

| Potential Source                                                                                 | Location                                                             | Associated CoPC                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Current and former railway lines and sidings, cuttings                                           | <i>On-site:</i><br>P3-P2-SK-CL01                                     | Potential for metals and semi-metals; inorganics (sulphates, asbestos); organics (PAH, chlorinated aliphatic hydrocarbons, PCB)                                                                                                                                                                                |
| Current and historical canal infrastructure: wharfs, marinas, pumping stations and engine houses | <i>Off-site:</i><br>P3-P2-SK-CL14,<br>P3-P2-SK-CL15<br>P3-P2-SK-CL16 | Potential for metals and semi-metals, phenols, sulphates, sulphides, PAH, coal/coke, tars, cyanides, oils, petroleum products, solvents, asbestos and PCB                                                                                                                                                      |
| Industrial works and estates (including business parks, industrial estates, warehouses)          | <i>Off-site:</i><br>P3-P2-SK-CL10,<br>P3-P2-SK-CL11                  | Potential for metals and semi-metals; inorganics (ammonia, sulphate, sulphide, cyanides, acids and alkalis, pH); organics (oil/ fuel hydrocarbons, PAH, VOC and SVOC, PCB, TPH, glycols, organic solvents, asbestos).                                                                                          |
| Historical landfill sites and refuse heaps                                                       | <i>Off-site:</i><br>P3-P2-SK-CL02,<br>P3-P2-SK-CL03<br>P3-P2-SK-CL04 | Various deposited wastes including inert, industrial and commercial waste. Potential for a range of inorganic and organic contaminants including but not limited to heavy metals, acids, organic compounds, inorganic compounds, asbestos, TPH, PAH, VOC, SVOC, solvents, lubricants, fuel oils, alkalis, PCB. |

| Potential Source                       | Location                                                              | Associated CoPC                                                                                                                                                                                                                    |
|----------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                        |                                                                       | Potential for ground gases including methane, hydrogen sulphide and carbon dioxide.                                                                                                                                                |
| Farms                                  | <i>Off-site:</i><br>P3-P2-SK-CL06,<br>P3-P2-SK-CL07,<br>P3-P2-SK-CL09 | Potential for a range of organic and inorganic contaminants including, but not limited to, metals, hydrocarbons (diesel range, lubricating oils, solvents), ammonia, elevated BOD, elevated COD, pesticides and asbestos.          |
| Infilled land (pits), disused quarries | <i>Off-site:</i><br>P3-P2-SK-CL17,<br>P3-P2-SK-CL18                   | Potential for metals and semi-metals; inorganics; organics (oil / fuel hydrocarbons, PAH, VOC and SVOC, TPH), asbestos.<br>Potential for ground gases including methane, hydrogen sulphide and carbon dioxide.                     |
| Sewage works                           | <i>Off-site:</i><br>P3-P2-SK-CL04                                     | Potential for a range of compounds including but not limited to metals, organics and inorganics, including acids and alkalis, microorganisms and potential for ground gas including methane, carbon dioxide and hydrogen sulphide. |
| Cemeteries                             | <i>Off-site:</i><br>P3-P2-SK-CL20                                     | Potential for range of compounds including but not limited to metals, biological contaminants, trace gases (sulphide oxides, nitrogen oxides and carbon monoxide), and toxic organic volatiles.                                    |
| Historical rifle range                 | <i>Off-site:</i><br>P3-P2-SK-CL19                                     | Potential for UXO and heavy metals associated with spent ammunition                                                                                                                                                                |

## Potential Receptors

3.5.7 **Table 21** provides a summary of the potential receptors associated with the Proposed Development for Part 3, which could be impacted upon by the potential contamination sources outlined in **Table 1** in **Annex 14-3** and summarised in **Table 20**.

**Table 21: Part 3 - Potential receptors**

| Receptor                                                                | Receptor description                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Human health</b>                                                     |                                                                                                                                                                                                                                                                               |
| R1: Current and future on-site public open space and agricultural users | Public open space users including, but not limited to waterway users, towpath users, boaters, mooring areas, marinas                                                                                                                                                          |
| R2: Off-site residential users                                          | Residential.                                                                                                                                                                                                                                                                  |
| R3: Off-site public open space users                                    | Public open space users (surrounding).                                                                                                                                                                                                                                        |
| R4: Off-site industrial and commercial site users                       | Commercial and industrial users surrounding the Preliminary Order Limits.                                                                                                                                                                                                     |
| <b>Controlled waters</b>                                                |                                                                                                                                                                                                                                                                               |
| R5: Superficial and bedrock Secondary A aquifers                        | Groundwater: superficial geology classified as Secondary A aquifers including: Alluvium, Glaciofluvial Deposits.<br>Groundwater: bedrock geology classified as Secondary A aquifer including: Marlstone Rock Formation.                                                       |
| R6: Superficial and bedrock Secondary undifferentiated aquifers         | Groundwater: superficial geology classified as Secondary undifferentiated aquifer including: Wolston Formation (Oadby Member).<br>Groundwater: bedrock geology classified as Secondary undifferentiated aquifer including: Charmouth Mudstone Formation and Dyrham Formation. |
| R7: Superficial and bedrock Unproductive strata                         | Groundwater: bedrock geology classified as Unproductive aquifer: Whitby Mudstone Formation.                                                                                                                                                                                   |
| R8: PWS                                                                 | For commercial / industrial purposes.                                                                                                                                                                                                                                         |
|                                                                         | For potable water supply.                                                                                                                                                                                                                                                     |
| R9: Surface water                                                       | Surface waters: located both on and off-site (various unnamed streams and ponds).                                                                                                                                                                                             |
|                                                                         | Surface waters: located both on and off-site including Drayton and Daventry Reservoirs                                                                                                                                                                                        |
| <b>Ecological / geological sites</b>                                    |                                                                                                                                                                                                                                                                               |
| R10: Local sites                                                        | Local importance including LNR / LWS.                                                                                                                                                                                                                                         |
| <b>Buildings and infrastructure</b>                                     |                                                                                                                                                                                                                                                                               |

| Receptor                      | Receptor description                                                                                        |
|-------------------------------|-------------------------------------------------------------------------------------------------------------|
| R11: Proposed structures      | Infrastructure at risk from ignition following potential accumulation of ground gas within confined spaces. |
| R12: Services and foundations | Services: below ground infrastructure at risk from potentially aggressive ground conditions.                |

## Potential Pathways

3.5.8 **Table 22** provides a summary of the potential pathways associated with Part 3 of the Proposed Development.

**Table 22: Part 3 - Potential pathways**

| Pathway | Pathway description                                                                                                               |
|---------|-----------------------------------------------------------------------------------------------------------------------------------|
| P1      | Direct contact / ingestion of contaminants within Made Ground / natural soils, in addition to soil derived dust, and groundwater. |
| P2      | Inhalation of organic vapours from Made Ground / natural soils, soil derived dust and groundwater.                                |
| P3      | Inhalation of asbestos fibres.                                                                                                    |
| P4      | Leaching of soluble contaminants and vertical / lateral migration of mobile contaminants into shallow groundwater.                |
| P5      | Vertical / lateral migration of groundwater through Made Ground and superficial deposits into underlying bedrock aquifer.         |
| P6      | Lateral groundwater migration and direct run-off to nearby surface waters.                                                        |
| P7      | Vertical / lateral migration of ground gases to indoor air (inhalation).                                                          |
| P8      | Direct contact of services and supply pipes with contaminated soils.                                                              |

## 3.6 Risk Assessment Principles

3.6.1 The risk assessment principles are described in section 2.6.

## 3.7 Preliminary Risk Assessment

3.7.1 In accordance with the risk assessment principles outlined in section 2.5, a preliminary evaluation of the potential risks associated with all the identified potential sources across Part 3 (**Table 20**), through the potential pathways (P1 to P8) to the various potential receptors (R1 to R12) is discussed and presented in **Table 23**, below. The general principles followed for the determination of the level of risk and of the proposed mitigation are included in section 2.7.

3.7.2 The discussions of risks to construction workers and off-site receptors during construction works are described in section 2.8 and not repeated here.

**Table 23: Part 3 - Preliminary Risk Assessment**

| Pathway                                                                                                                    | Receptor                                                                                                                    | Potential severity | Likelihood of occurrence | Potential risk  | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------|-----------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P1: Direct contact / ingestion of contaminants within Made Ground / soils, together with soil derived dust and groundwater | R1: Current and future on-site public open space and agricultural users                                                     | Mild               | Low                      | Low             | L1                | There are a number of sources of contamination in proximity to Part 3 (see <b>Table 1 in Annex 14-3</b> and summarised in <b>Table 20</b> ). The majority of them are associated with off-site uses (including canal infrastructure, landfills, infilled land, industrial estates, farms and a cemetery). The Proposed Development will consist mostly of reservoirs and canal infrastructure, as well as areas of hardstanding and open space. |
|                                                                                                                            | R2 / R3 / R4: Off-site residential users, public open space and agricultural users and industrial and commercial site users | Mild to medium     | Unlikely                 | Very low to Low | L2                | L1: The risk to on-site public open space and agricultural land users has been assessed as low, based on a relatively low potential for contamination to exist (mainly off-site sources). Furthermore, public open space and agricultural land users are temporary site users, and the time on-site will be limited.<br>L2: The risk to off-site users from potential direct contact / ingestion of on-site contaminants (from the on-site      |

|                                                                                               |                                                                         |                |          |                 |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                                                                                               | R10: Local sites                                                        | Mild           | Low      | Low             | L3 | <p>sources) is assessed to be very low to low. This is due to the limited presence of on-site sources.</p> <p>L3: The risk to the identified ecological sites from on-site sources of contamination is assessed to be low based on the sensitivity and proximity to on-site potential contamination sources. If phytotoxic contaminants are found to be present within the Made Ground, these can be mitigated through suitable topsoil / subsoil cover. Measures to control the generation of soil derived dust during construction should be outlined in the outline CEMP taking into account CIRIA C811 5<sup>th</sup> Edition 'Environmental Good Practice On Site' (2023) (Ref. 16).</p> <p>Further site characterisation / assessment will be required to quantify the significance of the risks identified.</p> |
| P2: Inhalation of organic vapours from Made Ground / soils, soil derived dust and groundwater | R1: Current and future on-site public open space and agricultural users | Mild           | Unlikely | Very low        | L4 | <p>A number of (mostly off-site sources) have been identified, some with elevated contamination potential (e.g. landfills). These have the potential to affect on-site receptors through inhalation of organic vapours or soil derived dust.</p> <p>L4: Public open space and agricultural land users are outdoor, temporary site users and the time on-site will be</p>                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                               | R2 / R3 / R4: Off-site residential users, public open                   | Mild to medium | Unlikely | Very low to Low | L5 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

|                                        |                                                                                                                             |        |          |                |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------|----------|----------------|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                        | space and agricultural users and industrial and commercial site users                                                       |        |          |                |    | transient. Risk is assessed to be very low.<br>L5: See L2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| P3: Inhalation of asbestos fibres      | R1: Current and future on-site public open space and agricultural users                                                     | Severe | Unlikely | Moderate / low | L6 | L6 / L7: There is potential for asbestos to be present in any Made Ground across Part 3 and within landfills. In the absence of controls there is the potential for air-borne dispersion if soils containing asbestos are disturbed. As asbestos presents a risk if it is disturbed, it is assessed that the likelihood of this risk being realised is unlikely and therefore the overall risk of moderate / low has been concluded.<br>L7: Off-site receptors are unlikely to be exposed to asbestos fibres from on-site Made Ground or on-site sources. Therefore, the risk has been assessed as low.<br><br>If asbestos is encountered during future redevelopment, it must be managed in accordance with the Control of Asbestos Regulations 2012 (Ref. 19). |
|                                        | R2 / R3 / R4: Off-site residential users, public open space and agricultural users and industrial and commercial site users | Medium | Unlikely | Low            | L7 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| P7: Vertical migration of ground gases | R1: Current and future on-site public open space and agricultural users                                                     | Mild   | Unlikely | Very low       | L8 | L8: The risks to public open space and agricultural land users is assessed to be very low as they will not be accessing confined environments.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|                                                                                                    |                                                                                                                             |                |          |                 |     |                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| to outdoor air (inhalation).                                                                       | R2 / R3 / R4: Off-site residential users, public open space and agricultural users and industrial and commercial site users | Mild to medium | Unlikely | Very low to Low | L9  | L9: The on-site sources have very limited potential to generate ground gases that could migrate off-site. Therefore, the occurrence is assessed to be unlikely resulting in a very low to low risk.                                                                                                                                                                                                                                    |
| P4: Leaching of soluble contaminants and migration of mobile contaminants into shallow groundwater | R5: Superficial Secondary A aquifers                                                                                        | Medium         | Low      | Moderate / low  | L10 | L10 / L11 / L12: Superficial deposits across Part 3 vary in nature, therefore the potential for leaching of contaminants will also vary. Given the on-site and off-site sources of contamination identified, there is the potential for soil contaminants to have leached into on-site shallow aquifers. The risk has been assessed as varying from very low to moderate / low which is driven by the different aquifer sensitivities. |
|                                                                                                    | R6: Superficial Secondary undifferentiated aquifers                                                                         | Mild           | Low      | Low             | L11 |                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                    | R7: Superficial Unproductive strata                                                                                         | Minor          | Low      | Very low        | L12 |                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| P5: Vertical migration of groundwater through Made Ground and superficial deposits into underlying | R5: Bedrock Secondary A aquifers                                                                                            | Medium         | Low      | Moderate / low  | L13 | L13 / L14 / L15: Groundwater levels across Part 3 may vary. The extent to which the groundwater in the superficial deposits is connected to groundwater in the underlying bedrock aquifers has not been confirmed, and in some areas no superficial deposits are expected to be present. Given the presence of potential on-site and off-site contamination sources across Part                                                        |
|                                                                                                    | R6: Bedrock Secondary undifferentiated aquifers                                                                             | Mild           | Low      | Low             | L14 |                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                    | R7: Bedrock Unproductive strata                                                                                             | Minor          | Low      | Very low        | L15 |                                                                                                                                                                                                                                                                                                                                                                                                                                        |

|                                                                                         |                                                                                       |        |          |                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------|----------|----------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| bedrock aquifer                                                                         | R12: Groundwater abstractions / PWS For commercial / industrial purposes              | Mild   | Low      | Low            | L16 | <p>3, the risk of migration of contaminants to the bedrock aquifers has been assessed as varying from very low to moderate / low which is driven by the different aquifer sensitivities.</p> <p>L16 / L17: Potential PWS for potable use are present within Part 3. The risk has been assessed as moderate which is driven by the sensitivity. The risk to commercial / industrial abstractions has been assessed as low.</p>                                                       |
|                                                                                         | R12: Groundwater abstractions / PWS For potable water supply                          | Severe | Low      | Moderate       | L17 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| P6: Lateral groundwater migration and direct run-off to nearby surface waters           | R9: Surface waters: located both on and off-site (various unnamed streams and ponds). | Mild   | Low      | Low            | L18 | <p>L18 / L19: Watercourses and features including the Grand Union Canal and the Daventry and Drayton Reservoirs have been identified. All are located off-site, with the exception of some areas of the two reservoirs that are located within the Preliminary Order Limits. Whilst there is the potential for contaminants to be transported to surface waters, the overall risk is assessed as low to moderate / low depending on the sensitivity of the surface watercourse.</p> |
|                                                                                         | R9: Surface waters: located both on and off-site                                      | Medium | Low      | Moderate / low | L19 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| P7: Vertical migration of ground gases to indoor air and migration of ground gases into | R11: Proposed structures                                                              | Medium | Unlikely | Low            | L20 | <p>L20: Ground gases may be present due to the areas of landfills and potential Made Ground (on-site and off-site) and so there is the potential for ground gas migration and build-up in confined spaces (albeit low). Where methane is identified at certain levels,</p>                                                                                                                                                                                                          |

|                                                     |                               |      |     |     |     |                                                                                                                                                                                                          |
|-----------------------------------------------------|-------------------------------|------|-----|-----|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| enclosed spaces (explosion)                         |                               |      |     |     |     | there is the potential for ignition and explosion to occur, albeit unlikely. If ground gases are found to be present, these will need to be mitigated as part of the future Proposed Development design. |
| P8: Direct contact and aggressive ground conditions | R12: Foundations and services | Mild | Low | Low | L21 | L21: The risk to foundations and services is assessed to be low based on the potential for on-site contamination within the Made Ground / soils, leachate and groundwater across Part 3.                 |

## 4. Part 4a: Abstraction, Storage and Treatment

### 4.1 Environmental Setting

#### Introduction

- 4.1.1 The environmental setting of Part 4a has been assessed in the following section by referring to the information sources detailed in section 1.3.

#### Soil chemistry

- 4.1.2 **Table 24** outlines the estimated background concentration range of the soil chemistry according to the Groundsure data (Ref. 5) within Part 4a.

**Table 24: Part 4a - Estimated soil chemistry**

| Background soil concentration range within Part 4a (mg/kg) |         |          |         |      |
|------------------------------------------------------------|---------|----------|---------|------|
| Arsenic                                                    | Cadmium | Chromium | Nickel  | Lead |
| 15-25                                                      | <1.8    | 60 – 90  | 15 - 45 | <100 |

#### Geology

- 4.1.3 The BGS geology maps (provided as part of the Groundsure data (Ref. 5)) have been reviewed. **Annex 14-1** outlines the anticipated geological succession underlying Part 4a and within the 250 m study area. Where a geological stratum exists which is defined as a Principal aquifer, the study area has been extended to 1 km.

#### Mining

##### *Coal Mining*

- 4.1.4 A review of the Mining Remediation Authority web based interactive map has been undertaken, which indicates that Part 4a is not located within a Coal Mining Reporting Area. This indicates that risks from historical coal mining are low, with no further assessment required.

##### *Non-Coal Mining*

- 4.1.5 No records of significant past or current non-coal mining are present for Part 4a or its study area.

#### Hydrogeology

##### *Aquifer classification*

- 4.1.6 Aquifer designations are described in section 2.1.16.
- 4.1.7 The superficial aquifers within the Part 4a and its study area are classified as:

- a. Secondary A (Alluvium, River Terrace Deposits) in the northern, central and western areas of study area; and
- b. Secondary (undifferentiated) (Head, Wolston Formation (Oadby Member)) aquifers are mapped in the central and southern area of Part 4a.

4.1.8 The bedrock aquifers underlying Part 4a are classified as:

- a. Unproductive (Oxford Clay Formation, West Walton Formation); and
- b. Principal (Woburn Sands Formation), mapped 570 m east.

### ***Groundwater vulnerability***

4.1.9 Definitions of the vulnerability of groundwater to pollution are included in section 2.1.17.

4.1.10 Mapping provided by Groundsure (Ref. 5) indicates that combined groundwater vulnerability to pollution within the Part 4a study area ranges from unproductive to low and medium–low.

### ***Groundwater Source Protection Zones***

4.1.11 According to DEFRA's MAGIC Map (Ref. 12), there are no SPZ located within 1 km of Part 4a.

### ***Groundwater Abstractions***

4.1.12 There are no active groundwater abstraction licences or PWS within 1 km from Part 4a based on information provided by the Environment Agency and the LPA.

## **Hydrology**

### ***Surface Watercourses***

4.1.13 The main watercourses and water features present within the 250 m of Part 4a include:

- a. Grand Union Canal;
- b. River Ouzel; and
- c. Minor watercourses and features.

4.1.14 Surface watercourses are further discussed in **Chapter 22: Water Environment and Flood Risk** in PEI Report **Volume 2**.

### ***Surface Water Abstractions***

4.1.15 Surface water abstraction information provided by the Environment Agency has been included in the following section. This database is considered to be the primary source of information for licensed abstractions. As these abstractions are not identified as points on the map, their exact location is not known.

- 4.1.16 Further details on surface water abstractions are included **Chapter 22: Water Environment and Flood Risk** in PEI Report **Volume 2**. The locations of the abstractions are indicated on **Figure 22-P2&3-1 (Sheets J to K)** in PEI Report **Volume 3**.
- 4.1.17 There is one Environment Agency surface water abstraction licence located within 250 m of Part 4a. This is detailed in **Table 25**.

**Table 25: Part 4a – Surface water abstractions (Environment Agency grid squares)**

| Part    | Surface water abstractions identified within the study area                                                                                           |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Part 4a | 6/33/08/*S/0064 (named 'River Ouzel - Great Brickhill') – agricultural use – fish farm / cress pond throughflow, effective from 1999, no expiry date. |

- 4.1.18 There are no active PWS within 250 m from Part 4a based on information provided by the LPA.

#### ***Nitrate Vulnerability Zones***

- 4.1.19 According to the DEFRA's MAGIC Map, Part 2 is located within a Nitrate Vulnerability Zone.

#### ***Drinking Water Protected Areas***

- 4.1.20 Part 4a is not located in a Drinking Water Protected area, however it is included in a Drinking Water Safeguard Zone for surface water.

#### **Radon**

- 4.1.21 According to Groundsure (Ref. 5), Part 4a is located within an area where the radon risk is designated as low (0–1%), and therefore no radon protection measures are required under Building Regulations.

## **4.2 Current and Historical Potential Sources of Contamination**

- 4.2.1 The current and historical activities that have been identified as potential sources of contamination for Part 4a are listed within **Annex 14-3** and are shown on **Figure 14-PD-6** in PEI Report **Volume 3**. This includes those located within the Preliminary Order Limits for Part 4a (on-site), as well as those within the 250 m study area (off-site). These activities may have in turn impacted on soil, soil leachate and groundwater quality.

## **4.3 Sensitive Land Uses**

- 4.3.1 Due to the reasons indicated in paragraph 1.2.4, sensitive land uses of international / national / regional importance are listed up to 250 m from the

Preliminary Order Limits, and sensitive land uses of local importance are listed up to 50 m from the Preliminary Order Limits.

- 4.3.2 No Ramsar sites, national parks, ancient woodland, SSSI, SPA, SAC, AONB, NNR, LWS or LNR were identified within Part 4a and its study area.

## 4.4 Site Walkover

- 4.4.1 Site walkover surveys are on-going and will be reported in the ES.

## 4.5 Initial Conceptual Site Model

### Introduction

- 4.5.1 This section is aimed at identifying possible risks, if any, arising from substances used or deposited on Part 4a, or from other sources of land contamination. Both past and current potentially contaminative land uses have been considered. Part 4a of the Proposed Development comprises the following infrastructure:
- a. Weir to abstract water from Grand Union Canal;
  - b. Pumping stations;
  - c. Water storage;
  - d. Water treatment works (WTW);
  - e. Electrical buildings and kiosks for new power supply (if required);
  - f. Clean water storage tank;
  - g. Other associated above and below ground works, including pipework and landscaping;
  - h. Access roads and car parking; and
  - i. Temporary construction working areas and compounds.

- 4.5.2 The risk assessment process for environmental contaminants is based on a source-pathway-receptor analysis. These terms are described in section 2.5.2.

### Sources of Potential Contamination

- 4.5.3 Former and current on-site and off-site activities that have been identified as potential sources of contamination for Part 4a have been listed within **Table 1** in **Annex 14-3** and are shown on **Figure 14-PD-6** in PEI Report **Volume 3**. These activities may have in turn impacted on soil, soil leachate and groundwater.
- 4.5.4 **Table 26** groups the potential on-site and off-site sources of contamination identified in **Table 1** in **Annex 14-3** with reference to the CIRIA Guidance for the Safe Development of Housing on Land Affected by Contamination: R&D

Publication 66 (NHBC / CIEH / Environment Agency) 2008, DoE Industry Profiles and professional experience also indicates the CoPC that may be associated with the potential sources identified.

**Table 26: Part 4a - Potential sources of contamination and associated CoPC**

| Potential Source                        | Location                                 | Associated CoPC                                                                                                                                                                                                            |
|-----------------------------------------|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Current and historical wharf and marina | <i>Off-site:</i><br>P4a-CL01             | Potential for metals and semi-metals, phenols, sulphates, sulphides, PAH, coal/coke, tars, cyanides, oils, petroleum products, solvents, asbestos and PCB.                                                                 |
| Garages and vehicle service centres     | <i>Off-site:</i><br>P4a-CL01<br>P4a-CL02 | Potential for range of compounds including but not limited to metals, acids and alkalis, asbestos, organic compounds including fuel and hydrocarbons, detergents, solvents, and PAH.                                       |
| Farm and associated agricultural land   | <i>Off-site:</i><br>P4a-CL02             | Potential for a range of organic and inorganic contaminants including, but not limited to, metals, hydrocarbons (diesel range, lubricating oils, solvents), ammonia, elevated BOD, elevated COD), pesticides and asbestos. |

## Potential Receptors

4.5.5 **Table 27** provides a summary of the potential receptors associated with the Proposed Development for Part 4a, which could be impacted upon by the contamination sources outlined in **Table 1** in **Annex 14-3** and summarised in **Table 26**.

**Table 27: Part 4a - Potential receptors**

| Receptor                                                     | Receptor description                                                                                                 |
|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Human health</b>                                          |                                                                                                                      |
| R1: Current on-site public open space and agricultural users | Public open space users including, but not limited to waterway users, towpath users, boaters, mooring areas, marinas |

| <b>Receptor</b>                                                                                      | <b>Receptor description</b>                                                                                                                                                |
|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| R2: Future on-site workers at Part 4a Proposed Development units including pumping stations and WTW. | Workers at the Proposed Development (pumping stations and WTW).                                                                                                            |
| R3: Off-site residential users                                                                       | Residential houses located approximately 110 m north-west of Part 4a and in nearby farms.                                                                                  |
| R4: Off-site public open space users                                                                 | Public open space users (surrounding).                                                                                                                                     |
| R5: Off-site industrial and commercial site users                                                    | Isolated commercial and industrial users.                                                                                                                                  |
| <b>Controlled waters</b>                                                                             |                                                                                                                                                                            |
| R6: Bedrock Principal aquifers                                                                       | Groundwater: bedrock geology classified as Principal aquifer: Woburn Sands Formation (located approximately 570 m east).                                                   |
| R7: Bedrock Unproductive strata                                                                      | Groundwater: bedrock geology classified as Unproductive strata: Oxford Clay Formation and West Walton Formation.                                                           |
| R8: Superficial Secondary A aquifers                                                                 | Groundwater: superficial geology classified as Secondary A aquifers: River Terrace Deposits and Alluvium.                                                                  |
| R9: Superficial Secondary undifferentiated aquifers                                                  | Groundwater: superficial geology classified as Secondary undifferentiated aquifers: Head and Wolston Formation (Oadby Member).                                             |
| R10: Surface water                                                                                   | Surface waters: located both on and off-site (River Ouzel and associated watercourses, Grand Union Canal and an artificial pond and associated drains located 110 m west). |
| R11: Surface water abstractions                                                                      | For commercial / industrial purposes                                                                                                                                       |
| <b>Buildings and infrastructure</b>                                                                  |                                                                                                                                                                            |
| R12: Proposed pumping stations, WTW, open air reservoirs and other structures                        | Structures associated with the Proposed Development: infrastructure at risk from ignition following potential accumulation of ground gas within confined spaces.           |
| R13: Foundations and services                                                                        | Foundations and services: below ground infrastructure at risk from potentially aggressive ground conditions.                                                               |

## Potential Pathways

4.5.6 **Table 28** provides a summary of the potential pathways associated with the Proposed Development for Part 4a.

**Table 28: Part 4a - Potential pathways**

| Pathway | Pathway description                                                                                                                                                                                                                                                 |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P1      | Direct contact / ingestion of contaminants within Made Ground / natural soils, in addition to soil derived dust, and groundwater.                                                                                                                                   |
| P2      | Inhalation of organic vapours from Made Ground / natural soils, soil derived dust and groundwater.                                                                                                                                                                  |
| P3      | Inhalation of asbestos fibres.                                                                                                                                                                                                                                      |
| P4      | Leaching of soluble contaminants and vertical / lateral migration of mobile contaminants into shallow groundwater.                                                                                                                                                  |
| P5      | Vertical / lateral migration of groundwater through Made Ground and superficial deposits into underlying bedrock aquifer.                                                                                                                                           |
| P6      | Lateral groundwater migration and direct run-off to nearby surface waters.                                                                                                                                                                                          |
| P7      | Vertical / lateral migration of ground gases to indoor and outdoor air and migration of ground gases into enclosed spaces (inhalation / asphyxiation / explosion).                                                                                                  |
| P8      | Direct contact of buried concrete (proposed upgraded pumping station and outfall structure) with contaminated Made Ground / natural soils and aggressive ground conditions (pH and sulphate) / direct contact of services and supply pipes with contaminated soils. |

## 4.6 Preliminary Risk Assessment

- 4.6.1 In accordance with the risk assessment principles outlined in section 2.5, a preliminary evaluation of the potential risks associated with all the identified sources across Part 4a (**Table 26**), through the potential pathways (P1 to P8) to the various potential receptors (R1 to R13) is discussed and presented in **Table 29**, below.
- 4.6.2 The general principles followed for the determination of the level of risk and the proposed mitigation are included in section 2.7.
- 4.6.3 The discussions of risks to construction workers and off-site receptors during construction works are described in section 2.8 and not repeated here.

**Table 29: Part 4a - Preliminary Risk Assessment**

| Pathway                                                                                                                    | Receptor                                                                                           | Potential severity | Likelihood of occurrence | Potential risk | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|--------------------|--------------------------|----------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P1: Direct contact / ingestion of contaminants within Made Ground / soils, together with soil derived dust and groundwater | R1: Current on-site public open space and agricultural users                                       | Medium             | Unlikely                 | Low            | L1                | A limited number of potential contamination sources have been identified in relation to Part 4a (see <b>Table 1 in Annex 14-3</b> and summarised <b>Table 26</b> ), all associated with off-site land uses. These include a wharf and marina, garages and vehicle service centres, a farm with associated storage sheds, infilled land). The proposed infrastructure for Part 4a will comprise pumping stations, a WTW, an open-air reservoir, and other ancillary buildings and access infrastructure. The layout is expected to consist primarily of hardstanding areas with limited open ground or soft landscaping.<br><br>L1: Part 4a and its immediate surroundings comprise predominantly agricultural land and open areas, with limited evidence of Made Ground or extensive potential for contamination. Although agricultural practices may have introduced minor agrochemical residues, these are expected to be of limited |
|                                                                                                                            | R2: Future on-site workers at Part 4a Proposed Development units such as pumping stations and WTW. | Mild               | Unlikely                 | Very Low       | L2                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                            | R3 / R4: Off-site residential, public open space and commercial/industrial users                   | Mild               | Unlikely                 | Very Low       | L3                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Pathway                                                          | Receptor                                                            | Potential severity | Likelihood of occurrence | Potential risk | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------|---------------------------------------------------------------------|--------------------|--------------------------|----------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                  | R4 / R5: Off-site public open space and industrial/commercial users | Mild               | Unlikely                 | Very low       | L4                | <p>environmental concern. The frequency and duration of exposure for open space or agricultural users is expected to be low, and therefore the overall risk is assessed to be low.</p> <p>L2 / L3 / L4: There is a very limited presence of potential sources of contamination on-site. Unexpected Made Ground or unforeseen contamination could be present, however the occurrence of a plausible source-pathway-receptor linkage between on-site sources and off-site receptors is unlikely. Additionally, during operation, workers will be present intermittently and are unlikely to come into direct contact with underlying soils given that the majority of Part 4a will be hard surfaced or landscaped. Standard occupational health and safety measures will provide additional controls. Consequently, the potential for exposure to residual contamination is limited and the associated risk is assessed as very low.</p> |
| P2: Inhalation of organic vapours from Made Ground / soils, soil | R1 / R2: On-site users and workers                                  | Medium             | Unlikely                 | Low            | L5                | <p>L5: Potential sources of hydrocarbons or solvent vapours are limited to historical off-site uses such as garages and wharfs. While vapour migration through shallow groundwater cannot be entirely ruled out, this</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Pathway                      | Receptor                                                                               | Potential severity | Likelihood of occurrence | Potential risk | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------|----------------------------------------------------------------------------------------|--------------------|--------------------------|----------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| derived dust and groundwater | R3 / R5: Off-site residential users, public open space and industrial/commercial users | Mild               | Unlikely                 | Very Low       | L6                | <p>is unlikely given the low contamination potential of the identified sources and the transient nature of human receptors at Part 4a.</p> <p>For future users, any risk of vapour ingress would be further mitigated to some degree by the presence of hardstanding and the design of the proposed infrastructure. Should intrusive investigation identify hydrocarbon-impacted soils or groundwater, appropriate vapour protection measures could be incorporated into the design; therefore, the current risk is assessed to be low.</p> <p>L6: Migration of vapours from Part 4a to off-site receptors is highly unlikely given the absence of a known contamination source, the distance to sensitive receptors, and the expected attenuation within soils and groundwater. Accordingly, the potential risk to off-site receptors from vapour migration is assessed as very low.</p> |
|                              | R1 / R2: On-site users and workers                                                     | Medium             | Unlikely                 | Low            | L7                | <p>L7: Part 4a is currently an undeveloped Greenfield area with no evidence of historical construction or demolition activities.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Pathway                           | Receptor                                                                               | Potential severity | Likelihood of occurrence | Potential risk | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------|----------------------------------------------------------------------------------------|--------------------|--------------------------|----------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P3: Inhalation of asbestos fibres | R3 / R5: Off-site residential users, public open space and industrial/commercial users | Medium             | Unlikely                 | Low            | L8                | <p>Accordingly, the presence of ACMs in soils at or near to the surface is assessed to be unlikely. While several off-site potential sources of ACMs, such as garages, vehicle service centres, and farm buildings, are located within 250 m of the Preliminary Order Limits, these are not considered to represent active emission sources. As asbestos presents a risk only if it is disturbed, the likelihood of this risk being realised is assessed to be unlikely. The primary potential risk would arise only during intrusive groundworks or redevelopment, where disturbance of previously unknown buried materials could occur. In the unlikely event that asbestos is encountered, it should be managed in accordance with the Control of Asbestos Regulations 2012, with appropriate risk assessment, control measures, and competent supervision implemented. On this basis, and given the current undeveloped nature of the Preliminary Order Limits, the overall potential for asbestos fibre inhalation is assessed as Low.</p> <p>L8: There is no evidence to suggest that ACMs are present in surface soils capable of becoming airborne or being transported off-site. Consequently, off-site receptors are considered unlikely to be exposed to</p> |

| Pathway                                                                                                               | Receptor                                                                                        | Potential severity | Likelihood of occurrence | Potential risk | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|--------------------|--------------------------|----------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                       |                                                                                                 |                    |                          |                |                   | asbestos fibres from on-site. Therefore, the risk has been assessed as low.<br>If asbestos is encountered during future redevelopment, it must be managed in accordance with the Control of Asbestos Regulations 2012 (Ref. 19).                                                                                                                                                                                                                                                                                                                                                                                                                                |
| P4: Leaching of soluble contaminants and vertical / lateral migration of mobile contaminants into shallow groundwater | R8: Superficial Secondary A aquifers (River Terrace Deposits and Alluvium)                      | Medium             | Low                      | Moderate / low | L9                | L9 / L10: Whilst there is no current evidence of existing contamination within the groundwater underlying Part 4a, leaching of contaminants from the off-site source and migration towards the shallow groundwater at Part 4a cannot be excluded at this stage. Superficial deposits across Part 4a vary in nature and are classified as Secondary A and Secondary undifferentiated aquifers, therefore the potential for leaching of contaminants can also vary significantly. The risk has been assessed as varying from low to moderate / low which is driven by the different aquifer sensitivities and the uncertainties around current ground conditions. |
|                                                                                                                       | R9: Superficial Secondary undifferentiated aquifers (Head and Wolston Formation (Oadby Member)) | Mild               | Low                      | Low            | L10               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| P5: Vertical / lateral migration of groundwater through Made Ground and superficial                                   | R6: Bedrock Principal aquifers (Woburn Sands Formation)                                         | Medium             | Unlikely                 | Low            | L11               | L11: The Principal Aquifer (Woburn Sands Formation) is located approximately 570 m east of Part 4a and is hydraulically separated by low-permeability strata. While the superficial deposits may allow some infiltration, attenuation through fine-grained units is expected to significantly limit vertical                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                       | R7: Bedrock Unproductive strata (Oxford clay                                                    | Minor              | Low                      | Very low       | L12               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Pathway                                                                       | Receptor                                                                            | Potential severity | Likelihood of occurrence | Potential risk | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------|--------------------------|----------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| deposits into underlying bedrock aquifer                                      | formation and West Walton formation)                                                |                    |                          |                |                   | <p>migration. Given the distance from potential sources, and the limited presence of off-site sources, the impact to the Principal Aquifer is considered unlikely, and the overall risk is assessed as Moderate/Low.</p> <p>L12: The bedrock units underlying Part 4a are classified as Unproductive Strata, which is anticipated to exhibit very low permeability, thereby significantly limiting vertical and lateral groundwater movement. As a result, the potential for contaminant migration or transport within this unit is assessed to be negligible. In addition, no active groundwater abstractions or sensitive controlled water receptors are associated with this geological unit in the vicinity of the Preliminary Order Limits. On this basis, the likelihood of impact to the bedrock unproductive strata is considered low, and the overall risk is assessed as very low.</p> |
| P6: Lateral groundwater migration and direct run-off to nearby surface waters | R10: Surface waters: located both on and off-site (River Ouzel, Grand Union Canal). | Medium             | Low                      | Moderate / low | L13               | L13: The Grand Union Canal and the River Ouzel, flow within Part 4a. These surface water features are close, in particular, to P4a-CL01, with the Grand Union Canal flowing adjacent. There is potential for contaminants to be transported to surface waters through lateral groundwater migration or surface run-off. However, significant contamination is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                               | R11: Surface water abstractions                                                     | Mild               | Low                      | Low            | L14               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Pathway                                                                                                                       | Receptor                                                                      | Potential severity | Likelihood of occurrence | Potential risk | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------|--------------------------|----------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                               | For commercial / industrial purposes                                          |                    |                          |                |                   | unlikely to be present at the Preliminary Order Limits given the land use. The overall risk to surface watercourses is assessed as low to moderate/low.<br>L14: The risk to the surface water abstractions has been assessed as low due to their use for commercial / industrial purposes.                                                                                                                                                                               |
| P8: Direct contact and aggressive ground conditions (pH and sulphate)                                                         | R13: Foundations and services                                                 | Mild               | Unlikely                 | Very low       | L15               | L15: When infrastructure is installed that requires concrete, this is to be mitigated through the analysis of BRE test results and the design in accordance with BRE guidance. While complete pathways may be present, available information indicates that the presence of significant contamination is unlikely.                                                                                                                                                       |
| P7: Vertical / lateral migration of ground gases to indoor air and migration of ground gases into enclosed spaces (explosion) | R12: Proposed pumping stations, WTW, open air reservoirs and other structures | Medium             | Unlikely                 | Low            | L16               | L16: While confined spaces within new infrastructure (e.g., pumping station chambers) may be susceptible to gas accumulation, the likelihood of significant gas ingress is low given the absence of ground gas-generating sources on-site and off-site. Gas monitoring during ground investigation is recommended to confirm conditions, and if ground gases are found to be present, these will need to be mitigated as part of the future Proposed Development design. |

## 5. Part 4b: Pipeline to Underground Reservoir near Luton

### 5.1 Environmental Setting

#### Introduction

- 5.1.1 The environmental setting of Part 4b has been assessed in the following sections by referring to the information sources detailed in section 1.3.

#### Soil Chemistry

- 5.1.2 **Table 30** outlines the estimated background concentration range of the soil chemistry according to the Groundsure data (Ref. 5) within Part 4b.

**Table 30: Part 4b - Estimated soil chemistry**

| Part / Section      | Background soil concentration range within the section (mg/kg) |         |          |          |      |
|---------------------|----------------------------------------------------------------|---------|----------|----------|------|
|                     | Arsenic                                                        | Cadmium | Chromium | Nickel   | Lead |
| Part 4b (Section A) | <15 – 25                                                       | <1.8    | 20 – 90  | <15 – 45 | <100 |
| Part 4b (Section B) | 15 – 35                                                        | <1.8    | 40 – 90  | 15 – 80  | <100 |
| Part 4b (Section C) | 15 – 35                                                        | <1.8    | 60 – 90  | 30 – 80  | <100 |
| Part 4b (Section D) | <15 – 35                                                       | <1.8    | 60 – 90  | 30 – 60  | <100 |
| Part 4b (Section E) | <15 – 25                                                       | <1.8    | 20 – 90  | 15 – 45  | <100 |
| Part 4b (Section F) | <15                                                            | <1.8    | 20 – 90  | 15 – 45  | <100 |
| Part 4b (Section G) | <15 – 25                                                       | <1.8    | 60 – 90  | 15 – 60  | <100 |

#### Geology

- 5.1.3 The BGS geology maps (provided as part of the Groundsure data (Ref. 5)) have been reviewed. **Annex 14-1** outlines the anticipated geological succession underlying Part 4b and within the 250 m study area. Where a geological stratum exists which is defined as a Principal aquifer, the study area has been extended to 1 km. Furthermore, a summary of the BGS lexicon definitions (Ref. 9) for the geological formations is provided in **Annex 14-1**.

#### Mining

##### *Coal Mining*

- 5.1.4 A review of the Mining Remediation Authority web based interactive map has been undertaken, which indicates that Part 4b is not located within a Coal Mining Reporting Area. This indicates that risks from historical coal mining are low, with no further assessment required.

### Non-Coal Mining

- 5.1.5 **Table 31** summarises information on non-coal mining features within 250 m of Part 4b, which has been collated from Groundsure.

**Table 31: Part 4b - Non-coal mining features**

| Area                | Commodity type | Class |
|---------------------|----------------|-------|
| Part 4b (Section E) | Chalk          | A     |
| Part 4b (Section F) | Chalk          | A     |
| Part 4b (Section G) | Chalk          | A     |

- 5.1.6 With regard to the past or current underground workings for the aforementioned mineral commodity, Class A is defined by the Groundsure dataset (Ref. 5) as “*underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.*”

### Hydrogeology

#### Aquifer classification

- 5.1.7 Aquifer designations are described in section 2.1.16.
- 5.1.8 **Table 32** outlines the designations of the underlying aquifers within each section of Part 4b.

**Table 32: Part 4b - Aquifer designations**

| Geological stratum               | Aquifer type               | Part 4b (Section A) | Part 4b (Section B) | Part 4b (Section C) | Part 4b (Section D) | Part 4b (Section E) | Part 4b (Section F) | Part 4b (Section G) |
|----------------------------------|----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>Superficial deposits</b>      |                            |                     |                     |                     |                     |                     |                     |                     |
| Clay-with-Flints                 | Unproductive               |                     |                     |                     |                     |                     | ✓                   | ✓                   |
| Alluvium                         | Secondary A                | ✓                   | ✓                   |                     |                     | ✓                   |                     |                     |
| Head                             | Secondary undifferentiated | ✓                   | ✓                   | ✓                   | ✓                   | ✓                   | ✓                   | ✓                   |
|                                  | Secondary A                |                     |                     |                     | ✓                   | ✓                   | ✓                   | ✓                   |
| Glaciofluvial Deposits           | Secondary A                |                     | ✓                   | ✓                   | ✓                   |                     |                     |                     |
| Wolston Formation (Oadby Member) | Secondary undifferentiated | ✓                   | ✓                   | ✓                   | ✓                   |                     |                     |                     |

| Geological stratum                                                                 | Aquifer type | Part 4b (Section A) | Part 4b (Section B) | Part 4b (Section C) | Part 4b (Section D) | Part 4b (Section E) | Part 4b (Section F) | Part 4b (Section G) |
|------------------------------------------------------------------------------------|--------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>Bedrock</b>                                                                     |              |                     |                     |                     |                     |                     |                     |                     |
| West Walton Formation                                                              | Unproductive | ✓                   |                     |                     |                     |                     |                     |                     |
| Woburn Sands Formation                                                             | Principal    | ✓                   | ✓                   | ✓ <sup>4</sup>      |                     |                     |                     |                     |
| Gault Formation                                                                    | Unproductive |                     | ✓                   | ✓                   | ✓                   | ✓                   |                     |                     |
| Upper Greensand Formation                                                          | Principal    |                     |                     |                     | ✓                   | ✓                   |                     |                     |
| West Melbury Marly Chalk Formation                                                 | Principal    |                     |                     |                     |                     | ✓                   | ✓ <sup>6</sup>      |                     |
| Zig Zag Chalk Formation                                                            | Principal    |                     |                     |                     |                     | ✓ <sup>6</sup>      | ✓                   |                     |
| Holywell Nodular chalk Formation                                                   | Principal    |                     |                     |                     |                     | ✓ <sup>6</sup>      | ✓                   |                     |
| Holywell Nodular chalk Formation and New Pit Chalk Formation                       | Principal    |                     |                     |                     |                     | ✓ <sup>6</sup>      | ✓                   | ✓                   |
| West Melbury Marly Chalk Formation and Zig Zag Chalk Formation (un-differentiated) | Principal    |                     |                     |                     |                     | ✓ <sup>6</sup>      | ✓                   |                     |
| Lewes Nodular Chalk Formation and Seaford Chalk Formation (un-differentiated)      | Principal    |                     |                     |                     |                     |                     | ✓                   | ✓                   |
| Lewes Nodular Chalk Formation                                                      | Principal    |                     |                     |                     |                     |                     | ✓                   | ✓                   |

### **Groundwater vulnerability**

5.1.9 Mapping provided by Groundsure (Ref. 5) outlines the vulnerability of groundwater to pollution and has been summarised in **Table 33**.

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<sup>4</sup> Within the extended 1 km study area only

5.1.10 **Table 33** The definitions of groundwater vulnerability to pollution are included in section 2.1.17.

**Table 33: Part 4b - Groundwater vulnerability**

| Section             | Groundwater combined vulnerability identified within Preliminary Order Limits and study area |
|---------------------|----------------------------------------------------------------------------------------------|
| Part 4b (Section A) | Unproductive, Low, Medium-low, Medium, Medium-high and High                                  |
| Part 4b (Section B) | Unproductive, Low, Medium-low, Medium, Medium-high and High                                  |
| Part 4b (Section C) | Unproductive, Low, Medium-low                                                                |
| Part 4b (Section D) | Unproductive, Low, Medium-high and High                                                      |
| Part 4b (Section E) | Unproductive, Low, Medium-low, Medium-high and High                                          |
| Part 4b (Section F) | Medium, Medium-high and High                                                                 |
| Part 4b (Section G) | Low, Medium-low, Medium, Medium-high and High                                                |

#### **Groundwater Source Protection Zones**

5.1.11 **Table 34** outlines the presence and proximity of SPZ I (Inner Protection Zone), SPZ II (Outer Protection Zone), and SPZ III (Total Catchment) located within 1 km of Part 4b, and based on information contained on DEFRA's MAGIC Map (Ref. 12).

**Table 34: Part 4b - SPZ Summary**

| Section             | SPZ Description                                                                                                                                                                                                      |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Part 4b (Section A) | The eastern extent of Part 4b (Section A) and study area fall within an SPZ III. No SPZ I or SPZ II are present within 1 km.                                                                                         |
| Part 4b (Section B) | The entire northern and central extents of Part 4b (Section B) and study area fall within an SPZ III. SPZ I and SPZ II are also present within the central extent of Part 4b (Section B) and study area.             |
| Part 4b (Section C) | A small area of SPZ I is located in the northern extent of the study area.                                                                                                                                           |
| Part 4b (Section D) | No SPZs are located within Part 4b (Section D) or within 1 km.                                                                                                                                                       |
| Part 4b (Section E) | An area of SPZ I is located in the easternmost extent of the study area.                                                                                                                                             |
| Part 4b (Section F) | The central and eastern extents of Part 4b (Section F) and study area fall within an SPZ III. SPZ II's are present in the study area in the north of the central area and south of the eastern extent. An additional |

| Section             | SPZ Description                                                                                                                                                                                                                        |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     | SPZ I and SPZ II are located in the south of the western extent of Part 4b (Section F) and slightly overlaps into the Preliminary Order Limits.                                                                                        |
| Part 4b (Section G) | The entire Part 4b (Section G) and study area fall within an SPZ III. The SPZ II boundary begins at the eastern extent and extends into Part 4b (Section G). The easternmost extent of Part 4b (Section G) also falls within an SPZ I. |

### **Groundwater Abstractions**

- 5.1.12 Groundwater abstraction information provided by the Environment Agency has been included in the following section. This database is considered to be the primary source of information for licensed abstractions. As these abstractions are not identified as points on the map, their exact location is not known.
- 5.1.13 For the purpose of reporting relevant information in a proportionate manner, only active abstractions are listed as potential receptors to land contamination, with potable abstractions identified up to 1 km from the Preliminary Order Limits and abstractions for industrial and commercial use up to 250 m from the Preliminary Order Limits.
- 5.1.14 Further details on groundwater abstractions are included in **Chapter 22: Water Environment and Flood Risk** in PEI Report **Volume 2**. The locations of the abstractions are indicated on **Figure 22-P4-1 (Sheets A to G)** in PEI Report **Volume 3**.
- 5.1.15 There are two Environment Agency groundwater abstraction licences for industrial and commercial use within 250 m of Part 4b and 14 no. potable abstractions identified within 1 km of Part 4b. These are detailed in **Table 35**.

**Table 35: Part 4b - Groundwater abstractions (Environment Agency grid squares)**

| Section             | Active groundwater abstractions identified within the study area                                                                                                                           |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Part 4b (Section B) | 6/33/07/*G/0014 (four entries named 'Boreholes A, C, D, and F at Sandhouse'), for direct potable water supply, effective from 1992, no expiry date.                                        |
| Part 4b (Section C) | 6/33/07/*G/0015 (six entries named 'Boreholes 1 to 6 at Battlesden') for direct potable water supply, effective from 1992, no expiry date.                                                 |
| Part 4b (Section F) | 6/33/06/*G/0043 (named 'Borehole at Icknield Way'), for general farming and domestic use, effective from 1967, no expiry date.                                                             |
|                     | 6/33/06/*G/0018 (two entries named 'Borehole 1 and 2 at Dunstable'), for spray irrigation and drinking, cooking, sanitary, washing, (small garden) – household; and industrial, commercial |

| Section                | Active groundwater abstractions identified within the study area                                                                                        |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | and public services – spray irrigation, effective from 1966, no expiry date.                                                                            |
| Part 4b<br>(Section G) | 29/38/01/0009 (named 'Runley Wood Pumping Station'), for direct potable water supply, effective from 1966, no expiry date.                              |
|                        | 29/38/01/0010 (two entries named 'Runley Wood Pumping Station N (LGS) – C and D') for direct potable water supply, effective from 1966, no expiry date. |

5.1.16 Further information on PWS has been requested from the LPA. Active PWS from groundwater, within 1 km from Part 4b are presented in **Table 36**.

**Table 36: Part 4b - PWS**

| Section                | Distance / direction from closest Part / Section | PWS identified within the study area                                                                                      |
|------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Part 4b<br>(Section B) | 910 m south-west of central area.                | Address: not supplied.<br>Supply: borehole.<br>Use: domestic.                                                             |
| Part 4b<br>(Section E) | 115 m north-east of southern extent.             | Address: not supplied.<br>Supply: borehole.<br>Use: domestic.                                                             |
|                        | 180 m north-east of southern extent.             | Address: not supplied.<br>Supply: borehole.<br>Use: domestic.                                                             |
|                        | 185 m north-east of southern extent.             | Address: not supplied.<br>Supply: borehole.<br>Use: domestic.                                                             |
| Part 4b<br>(Section F) | 105 m south of western extent.                   | Address: not supplied.<br>Supply: borehole.<br>Use: industrial commercial units and several domestic dwellings.           |
|                        | 500 m north of western extent.                   | Address: not supplied.<br>Supply: borehole.<br>Use: commercial restaurant, office buildings, & several domestic caravans. |

## Hydrology

### Surface Watercourses

5.1.17 The main watercourses and water features present within the 250 m of Part 4b include:

- a. Rivers and Brooks: Clipstone Brook and its tributaries, Ouzel Brook and its tributaries, and tributaries of the River Ouzel; and
- b. Numerous minor watercourses and features.

5.1.18 Surface watercourses are further discussed in **Chapter 22: Water Environment and Flood Risk** in PEI Report **Volume 2**.

### ***Surface Water Abstractions***

5.1.19 There are no active surface water abstraction licences or PWS within 250 m from Part 4b based on information provided by the Environment Agency and the LPA.

### ***Nitrate Vulnerability Zones***

5.1.20 According to DEFRA's MAGIC Map, Part 4b is located within a Nitrate Vulnerability Zone, with the exception of an area in the easternmost portion of Part 4b, roughly corresponding to Section G.

### ***Drinking Water Protected Areas***

5.1.21 Part 4b is not located in a Drinking Water Protected area, however it is included in a Drinking Water Safeguard Zone for surface water.

### ***Radon***

5.1.22 Radon risk is not considered as part of this assessment as no buildings with human occupancy are anticipated in Part 4b.

## **5.2 Current and Historical Potential Sources of Contamination**

5.2.1 The current and historical activities that have been identified as potential sources of contamination for Part 4b are listed within **Annex 14-3** and are shown on **Figure 14-PD-6** in PEI Report **Volume 3**. This includes those located within the Preliminary Order Limits for Part 4b (on-site), as well as those within the 250 m study area (off-site). These activities may have in turn impacted on soil, soil leachate and groundwater quality.

## **5.3 Sensitive Land Uses**

5.3.1 Due to the reasons indicated in paragraph 1.2.4, sensitive land uses of international / national / regional importance are listed up to 250 m from the Preliminary Order Limits, and sensitive land uses of local importance are listed up to 50 m from the Preliminary Order Limits.

5.3.2 **Table 37** summarises the sensitive land uses that surround Part 4b.

5.3.3 No Ramsar sites, national parks, SPA, SAC and NNR were identified within Part 4b and its study area.

5.3.4 LWS and LNR are reported up to 50 m from the Preliminary Order Limits.

**Table 37: Summary of sensitive land uses**

| Details              | Distance and Direction                                                                                                                                                                                                                                                                                                                           |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SSSI                 | <ul style="list-style-type: none"> <li>• Totternhoe Knolls SSSI, located 125 m east of Part 4b (Section E).</li> <li>• Dunstable and Whipsnade Downs SSSI, located adjacent to the north and south of Part 4b (Section F).</li> <li>• Kensworth Chalk Pit geological SSSI, located adjacent to the north of Part 4b (Section F).</li> </ul>      |
| AONB                 | <ul style="list-style-type: none"> <li>• All of Part 4b (Section F) and the western and central parts of Part 4b (Section G) falls in area designated as an AONB.</li> </ul>                                                                                                                                                                     |
| Ancient woodland     | <ul style="list-style-type: none"> <li>• Slough Wood, located within Part 4b (Section F).</li> <li>• Castlecroft Wood, located 45 m north of Part 4b (Section G).</li> <li>• Bush Wood, located adjacent to the south of Part 4b (Section G).</li> <li>• Round Wood, located within and adjacent to the south of Part 4b (Section G).</li> </ul> |
| Local Nature Reserve | <ul style="list-style-type: none"> <li>• Cottage Bottom Fields, located adjacent to the north of Part 4b (Section G).</li> </ul>                                                                                                                                                                                                                 |

## 5.4 Site Walkover

5.4.1 Site walkover surveys are on-going and will be reported in the ES.

## 5.5 Initial Conceptual Site Model

### Introduction

5.5.1 This section is aimed at identifying possible risks, if any, arising from substances used or deposited on Part 4b, or from other sources of land contamination. Both past and current potentially contaminative land uses have been considered within Part 4b.

5.5.2 Part 4b of the Proposed Development comprises the following infrastructure:

- a. New underground pipeline to transfer treated water;
- b. Works to facilitate temporary and permanent access;
- c. Temporary construction working areas and compounds;
- d. Connection point for the pipeline to the AfW underground reservoir;  
and
- e. Other associated above and below ground works relating to the pipeline, including the following above ground assets:

- i. Air valve access manholes in the field to the east of the Dunstable Downs crossing, and at one or two high points to the west of Eaton Bray;
- ii. A non-return valve access manhole located immediately to the west of the Dunstable Downs crossing; and
- iii. An access manhole to a washout chamber located near a minor watercourse, either at the A505 crossing, or between the Eastern Way and the A4012.

5.5.3 The risk assessment process for environmental contaminants is based on a source-pathway-receptor analysis. These terms are described in section 2.5.2.

### Sources of Potential Contamination

5.5.4 Former and current on-site and off-site activities that have been identified as potential sources of contamination for Part 4b have been listed within **Table 1** in **Annex 14-3** and are shown on **Figure 14-PD-6** in PEI Report **Volume 3**. These activities may have in turn impacted on soil, soil leachate and groundwater.

5.5.5 Table 38 groups the potential on-site and off-site sources of contamination identified in **Table 1** in **Annex 14-3** and with reference to the CIRIA Guidance for the Safe Development of Housing on Land Affected by Contamination: R&D Publication 66 (NHBC / CIEH / Environment Agency) 2008, DoE Industry Profiles and professional experience indicates the CoPC that may be associated with the potential sources identified.

**Table 38: Part 4b - Potential sources of contamination and associated CoPC**

| Potential Source                                                                                                          | Location                                                                                                                         | Associated CoPC                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Industrial works and estates (including engineering services, whiting works, pump houses, unspecified works or factories) | <i>On-site:</i><br>Part 4b (Section B and Section F)<br><i>Off-site:</i><br>Part 4b (Section B, Section D, Section E, Section F) | Potential for metals and semi-metals; inorganics (ammonia, sulphate, sulphide, cyanides, acids and alkalis, pH); organics (oil/ fuel hydrocarbons, PAH, VOC and SVOC, PCB, TPH, glycols, organic solvents, detergents, asbestos). |
| Historical landfill sites and refuse heaps                                                                                | <i>Off-site:</i><br>Part 4b (Section B and Section F)                                                                            | Various deposited wastes including inert, industrial and commercial waste.<br>Potential for a range of inorganic and organic contaminants including but not limited to heavy metals, acids, organic compounds, inorganic          |

| Potential Source                                                     | Location                                                                                                                                                          | Associated CoPC                                                                                                                                                                                                                         |
|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                      |                                                                                                                                                                   | compounds, asbestos, TPH, PAH, VOC, SVOC, solvents, lubricants, fuel oils, alkalis, PCB.<br>Potential for ground gases including methane, hydrogen sulphide and carbon dioxide.                                                         |
| Commercial areas (including business parks, mills)                   | <i>Off-site:</i><br>Part 4b (Section B, Section E and Section F)                                                                                                  | Potential for a range of inorganic and organic contaminants including but not limited to metals, acids, organic compounds, inorganic compounds, asbestos, TPH, PAH, VOC, SVOC, solvents, lubricants, fuel oils, alkalis, PCB, asbestos. |
| Farms                                                                | <i>On-site:</i><br>Part 4b (Section A, Section C)<br><i>Off-site:</i><br>Part 4b (Section A, Section B, Section C, Section D, Section E, Section F and Section G) | Potential for a range of organic and inorganic contaminants including, but not limited to, metals, hydrocarbons (diesel range, lubricating oils, solvents), ammonia, elevated BOD, elevated COD, pesticides and asbestos.               |
| Infilled land (cuttings, pits, quarries, heaps, historical workings) | <i>Off-site:</i><br>Part 4b (Section A, Section B, Section F and Section G)                                                                                       | Potential for metals and semi-metals; inorganics; organics (oil / fuel hydrocarbons, PAH, VOC and SVOC, TPH), asbestos.<br>Potential for ground gases including methane, hydrogen sulphide and carbon dioxide.                          |
| Sewage works                                                         | <i>Off-site:</i><br>Part 4b (Section E)                                                                                                                           | Potential for range of compounds including but not limited to metals, organics and inorganics, including acids and alkalis, microorganisms and ground gas including methane, carbon dioxide and hydrogen sulphide                       |
| Car garages and petrol filling stations                              | <i>Off-site:</i><br>Part 4b (Section B, Section D and Section E)                                                                                                  | Potential for range of compounds including but not limited to metals, acids and alkalis, asbestos, organic compounds including fuel and hydrocarbons, detergents, solvents, and PAH.                                                    |
| Cemeteries                                                           | <i>Off-site:</i>                                                                                                                                                  | Potential for range of compounds including but not limited to metals,                                                                                                                                                                   |

| Potential Source                                | Location                                     | Associated CoPC                                                                                                          |
|-------------------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
|                                                 | Part 4b (Section C, Section E and Section F) | biological contaminants, trace gases (sulphur oxides, nitrogen oxides, carbon monoxide), and toxic organic volatiles.    |
| Electrical distribution centres and substations | <i>Off-site:</i><br>Part 4b (Section F)      | Potential for range of compounds including but not limited to TPH; PAH; hydrocarbons, PCB, metals, asbestos, inorganics. |
| Historical rifle range                          | <i>Off-site:</i><br>Part 4b (Section F)      | Potential for UXO and heavy metals associated with spent ammunition.                                                     |

## Potential Receptors

5.5.6 **Table 39** provides a summary of the potential receptors associated with the Proposed Development for Part 4b, which could be impacted on by the potential contamination sources outlined in section 5.2 and summarised in **Table 39**.

**Table 39: Part 4b - Potential receptors**

| Receptor                                                                | Receptor description                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Human health</b>                                                     |                                                                                                                                                                                                                                                                                                                                                         |
| R1: Current and future on-site public open space and agricultural users | Public open space users including, but not limited to waterway users, towpath users, boaters, mooring areas, marinas                                                                                                                                                                                                                                    |
| R2: Off-site residential users                                          | Residential.                                                                                                                                                                                                                                                                                                                                            |
| R3: Off-site public open space users                                    | Public open space users (surrounding).                                                                                                                                                                                                                                                                                                                  |
| R4: Off-site industrial and commercial site users                       | Commercial and industrial users around the Preliminary Order Limits.                                                                                                                                                                                                                                                                                    |
| <b>Controlled waters</b>                                                |                                                                                                                                                                                                                                                                                                                                                         |
| R5: Bedrock Principal aquifers and SPZ                                  | Groundwater: bedrock geology classified as Principal aquifers including: Woburn Sands Formation, Upper Greensand Formation, West Melbury Marly Chalk Formation, Zig Zag Chalk Formation, Holywell Nodular Chalk Formation, New Pit Chalk Formation, Lewes Nodular Chalk Formation and Seaford Chalk Formation (undifferentiated).<br>SPZ I, II and III. |

| Receptor                                            | Receptor description                                                                                                                                                                                   |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| R6: Superficial Secondary A aquifers                | Groundwater: superficial geology classified as Secondary A aquifers including: Alluvium, Head and Glaciofluvial Deposits.                                                                              |
| R7: Superficial Secondary undifferentiated aquifers | Groundwater: superficial deposits classified as undifferentiated aquifer including: Head and Wolston Formation (Oadby Member).                                                                         |
| R8: Superficial and bedrock Unproductive strata     | Groundwater: superficial deposits classified as Unproductive strata: Clay with Flints.<br>Groundwater: bedrock classified as Unproductive strata including: West Walton Formation and Gault Formation. |
| R9: Groundwater abstractions / PWS                  | For commercial / industrial purposes.                                                                                                                                                                  |
|                                                     | For potable water supply.                                                                                                                                                                              |
| R10: Surface water                                  | Surface waters: located both on and off-site (various unnamed streams and ponds).                                                                                                                      |
|                                                     | Surface waters: located both on and off-site (Clipstone Brook, Ouzel Brook, and tributaries of the River Ouzel).                                                                                       |
| <b>Buildings and infrastructure</b>                 |                                                                                                                                                                                                        |
| R11: Foundations and services                       | Foundations and services: below ground infrastructure at risk from potentially aggressive ground conditions.                                                                                           |
| <b>Ecological / geological sites</b>                |                                                                                                                                                                                                        |
| R12: Local sites                                    | Local importance including LWS, LNR, ancient woodland (see section 5.3).                                                                                                                               |
| R13: International / national / regional sites      | International / national / regional importance including SSSI, National Landscapes, , ancient woodland (see section 5.3).                                                                              |

## Potential Pathways

5.5.7 **Table 40** provides a summary of the potential pathways associated with Part 4b of the Proposed Development.

**Table 40: Part 4b - Potential pathways**

| Pathway | Pathway description                                                                                                               |
|---------|-----------------------------------------------------------------------------------------------------------------------------------|
| P1      | Direct contact / ingestion of contaminants within Made Ground / natural soils, in addition to soil derived dust, and groundwater. |
| P2      | Inhalation of organic vapours from Made Ground / natural soils, soil derived dust and groundwater.                                |
| P3      | Inhalation of asbestos fibres.                                                                                                    |
| P4      | Leaching of soluble contaminants and vertical / lateral migration of mobile contaminants into shallow groundwater.                |
| P5      | Vertical / lateral migration of groundwater through Made Ground and superficial deposits into underlying bedrock aquifer.         |

| Pathway | Pathway description                                                        |
|---------|----------------------------------------------------------------------------|
| P6      | Lateral groundwater migration and direct run-off to nearby surface waters. |
| P7      | Vertical / lateral migration of ground gases to outdoor air (inhalation).  |
| P8      | Direct contact of services and supply pipes with contaminated soils.       |

## 5.6 Preliminary Risk Assessment

- 5.6.1 In accordance with the risk assessment principles outlined in section 2.5, a preliminary evaluation of the potential risks associated with all the identified sources across Part 4b (**Table 38**), through the potential pathways (P1 to P8) to the various potential receptors (R1 to R13) is discussed and presented in **Table 41**, below.
- 5.6.2 The general principles followed for the determination of the level of risk and of the proposed mitigation are included in section 2.7.
- 5.6.3 The discussions of risks to construction workers and off-site receptors during construction works are described in section 2.8 and not repeated here.

**Table 41: Part 4b - Preliminary Risk Assessment**

| Pathway                                                                                                                    | Receptor                                                                                                                    | Potential severity | Likelihood of occurrence | Potential risk  | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------|-----------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P1: Direct contact / ingestion of contaminants within Made Ground / soils, together with soil derived dust and groundwater | R1: Current and future on-site public open space and agricultural users                                                     | Mild               | Low                      | Low             | L1                | <p>There are a number of sources of contamination in proximity to Part 4b (see <b>Table 1 in Annex 14-3</b> and summarised in <b>Table 38</b>). The majority of them are associated with off-site sources (including industrial estates, landfills, sewage works and various former works). The Proposed Development will consist mostly of underground pipeline with access areas and manholes.</p> <p>L1: The risk to on-site public open space and agricultural land users has been assessed as low, based on a relatively low potential for contamination to exist (mainly off-site sources). Furthermore, public open space and agricultural land users are temporary site users, and the time on-site will be transient.</p> |
|                                                                                                                            | R2 / R3 / R4: Off-site residential users, public open space and agricultural users and industrial and commercial site users | Mild to medium     | Unlikely                 | Very low to Low | L2                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| Pathway                   | Receptor                                         | Potential severity | Likelihood of occurrence | Potential risk | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------|--------------------------------------------------|--------------------|--------------------------|----------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           | R12: Local sites                                 | Mild               | Unlikely                 | Very low       | L3                | L2: The risk to off-site users from potential direct contact / ingestion of on-site contaminants (from the on-site sources) is assessed to be very low to low. This is due to the limited presence of on-site sources.<br><br>L3 / L4: The risk to the identified ecological / geological sites from on-site sources of contamination is assessed to be low to moderate / low based on the sensitivity and proximity to on-site potential contamination sources. If phytotoxic contaminants are found to be present within the Made Ground, these can normally be mitigated through suitable topsoil / subsoil cover. |
|                           | R13: International / national / regional sites   | Medium             | Unlikely                 | Low            | L4                | Measures to control the generation of soil derived dust during construction should be outlined in the outline CEMP taking into account CIRIA C811 5 <sup>th</sup> Edition 'Environmental Good Practice On Site' (2023) (Ref. 18).<br><br>Further site characterisation / assessment will be required to quantify the significance of the risks identified.                                                                                                                                                                                                                                                            |
| P2: Inhalation of organic | R1: Current and future on-site public open space | Mild               | Unlikely                 | Very low       | L5                | A number of (mostly off-site sources) have been identified, some with elevated contamination potential (e.g.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Pathway                                                             | Receptor                                                                                                                    | Potential severity | Likelihood of occurrence | Potential risk  | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------|-----------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| vapours from Made Ground / soils, soil derived dust and groundwater | and agricultural users                                                                                                      |                    |                          |                 |                   | landfills and various former works). These have the potential to affect on-site receptors through inhalation of organic vapours or soil derived dust. L8: Public open space and agricultural land users are outdoor, temporary site users and the time on-site will be transient. The risk is assessed to be very low. L6: See L2.                                                                                                                                                                                                                                                                   |
|                                                                     | R2 / R3 / R4: Off-site residential users, public open space and agricultural users and industrial and commercial site users | Mild to medium     | Unlikely                 | Very low to Low | L6                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| P3: Inhalation of asbestos fibres                                   | R1: Current and future on-site public open space and agricultural users                                                     | Severe             | Unlikely                 | Moderate / low  | L7                | L7: There is potential for asbestos to be present in any Made Ground across Part 4b and landfill materials. In the absence of controls there is the potential for air-borne dispersion if soils containing asbestos are disturbed. As asbestos presents a risk if it is disturbed, it is considered that the likelihood of this risk being realised is unlikely and therefore the overall risk of moderate / low has been concluded. L8: Off-site receptors are unlikely to be exposed to asbestos fibres from on-site Made Ground or on-site sources. Therefore, the risk has been assessed as low. |
|                                                                     | R2 / R3 / R4: Off-site residential users, public open space and agricultural users and industrial and commercial site users | Medium             | Unlikely                 | Low             | L8                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Pathway                                                                                      | Receptor                                                                                                                    | Potential severity | Likelihood of occurrence | Potential risk  | Linkage reference | Justification                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------|-----------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                              |                                                                                                                             |                    |                          |                 |                   | If asbestos is encountered during future redevelopment, it must be managed in accordance with the Control of Asbestos Regulations 2012.                                                                                                                                                                |
| P7: Vertical / lateral migration of ground gases to outdoor air (inhalation)                 | R2: Current and future on-site public open space and agricultural users                                                     | Mild               | Unlikely                 | Very low        | L9                | L9: The risks to public open space and agricultural land users is assessed to be very low as they will not be accessing confined environments.                                                                                                                                                         |
|                                                                                              | R4 / R5 / R6: Off-site residential users, public open space and agricultural users and industrial and commercial site users | Mild to medium     | Unlikely                 | Very low to Low | L10               | L10: The on-site sources have very limited potential to generate ground gases that could migrate off-site. Therefore, the occurrence is assessed to be unlikely and the risk very low to low.                                                                                                          |
| P4: Leaching of soluble contaminants and vertical / lateral migration of mobile contaminants | R6: Superficial Secondary A aquifers                                                                                        | Medium             | Low                      | Moderate / low  | L11               | L11 / L12 / L13: Superficial deposits across Part 4b will vary in nature, therefore the potential for leaching of contaminants will also vary significantly. Given the on-site and off-site sources of contamination identified, there is the potential for soil contaminants to have leached into on- |
|                                                                                              | R7: Superficial Secondary undifferentiated aquifers                                                                         | Mild               | Low                      | Low             | L12               |                                                                                                                                                                                                                                                                                                        |

| Pathway                                                                                                                      | Receptor                                                                   | Potential severity | Likelihood of occurrence | Potential risk | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------|--------------------------|----------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| into shallow groundwater                                                                                                     | R8: Superficial Unproductive strata                                        | Minor              | Low                      | Very low       | L13               | site shallow aquifers. The risk has been assessed as varying from very low to moderate / low which is driven by the different aquifer sensitivities. Monitoring would be required to confirm the current groundwater quality regime and confirm the risk.                                                                                                                                                                                                                                                               |
| P5: Vertical / lateral migration of groundwater through Made Ground and superficial deposits into underlying bedrock aquifer | R5: Bedrock Principal aquifers and SPZ                                     | Medium             | Low                      | Moderate / low | L14               | Groundwater levels across Part 4b will vary significantly. The extent to which the groundwater in the superficial deposits is connected to groundwater in the underlying bedrock aquifers has not been confirmed.<br>L14: The Principal aquifers are present across a large portion of the Preliminary Order Limits, of which the general area is relatively rural. Some of the quarrying and landfilling activities in Part 4b (Section B) and Part 4b (Section F) have the potential to affect the Principal aquifer. |
|                                                                                                                              | R8: Bedrock Unproductive strata                                            | Minor              | Low                      | Very low       | L15               | L15: Given the presence of on-site and off-site contaminative sources across Part 4b, the risk of migration of contaminants to the bedrock groundwater has been assessed as                                                                                                                                                                                                                                                                                                                                             |
|                                                                                                                              | R9: Groundwater abstractions / PWS<br>For commercial / industrial purposes | Mild               | Low                      | Low            | L16               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Pathway                                                                       | Receptor                                                                                                             | Potential severity | Likelihood of occurrence | Potential risk | Linkage reference | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------|----------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                               | R9: Groundwater abstractions / PWS<br>For potable water supply.                                                      | Severe             | Low                      | Moderate       | L17               | very low which is driven by the aquifer sensitivity.<br>L16 / L17: Groundwater abstractions and PWS for potable use are present within Part 4b (Section B, Section C, Section F, Section G). The risk has been assessed as moderate which is driven by the sensitivity. The risk to commercial / industrial abstractions has been assessed as low.<br>Monitoring would be required to confirm the current groundwater quality regime and confirm the risk. |
| P6: Lateral groundwater migration and direct run-off to nearby surface waters | R10: Surface waters: located both on and off-site (various unnamed streams and ponds).                               | Mild               | Low                      | Low            | L18               | L18 / L19: Clipstone Brook, Ouzel Brook, and tributaries of the River Ouzel, together with numerous minor watercourses, cross Part 4b and some are in close proximity to the identified on-site and off-site sources. There is the potential for contaminants to be transported to surface waters. The overall risk is assessed as low to moderate / low depending on the sensitivity of the surface watercourse.                                          |
|                                                                               | R10: Surface waters: located both on and off-site (Clipstone Brook, Ouzel Brook, and tributaries of the River Ouzel) | Medium             | Low                      | Moderate / low | L19               |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| <b>Pathway</b>                                                        | <b>Receptor</b>               | <b>Potential severity</b> | <b>Likelihood of occurrence</b> | <b>Potential risk</b> | <b>Linkage reference</b> | <b>Justification</b>                                                                                                                                                                      |
|-----------------------------------------------------------------------|-------------------------------|---------------------------|---------------------------------|-----------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P8: Direct contact and aggressive ground conditions (pH and sulphate) | R11: Foundations and services | Mild                      | Low                             | Low                   | L20                      | L20: The risk to foundations and services is assessed to be low based on the potential for on-site contamination within the Made Ground / soils, leachate and groundwater across Part 4b. |

## 6. Ground Investigation

- 6.1.1 An initial scope for preliminary ground investigation will be developed and undertaken prior to determination of the DCO consent in order to provide an initial indication of the concentrations of contaminants within key areas of the Proposed Development.
- 6.1.2 It is anticipated that any intrusive ground investigation additional to design-related ground investigation (to address any residual data gaps or better delineate identified potential contaminant linkages), quantitative risk assessment, remediation and validation, would be undertaken post- DCO consent (as part of detailed ground investigation).
- 6.1.3 The ground investigations will validate the assumptions made in the initial CSMs and PRAs above, and provide site-specific data upon which to base a generic quantitative risk assessment (Stage 1, Tier 2 under LCRM (Ref. 4)).
- 6.1.4 As part of these ground investigations, groundwater and ground / mine gas monitoring will be undertaken. There is the potential for ground gas to accumulate within future buildings (including the pumping stations and outfall structure (along Part 2) and the WTW (Part 4a)) (based on the presence of nearby landfills, industrial land uses, potential Made Ground and underlying Coal Measures geology). Where risks are deemed to be unacceptable, further detailed quantitative risk assessment and, if required, detailed remediation strategies will be developed accordingly (post-determination of the DCO consent).

## 6.2 References

- Ref. 1 PJA (October 2025). Minworth AWTP – Geo-environmental Desk Study. Project Code: 07522, Project Ref: 07522-OUT-001.
- Ref. 2 PJA (January 2025). Minworth GUC Pipeline – Phase 1 Geo-environmental Desk Study. Project Code: 07522, Project Ref: 07522-RPT-002.
- Ref. 3 British Standards (BS) (2017). BS 10175:2011+A2:2017 Investigation of potentially contaminated sites. Code of practice.
- Ref. 4 Environmental Agency (2020), updated 2025; Online guidance for the management of land contamination 'Land contamination: risk management' (LCRM). Available at: <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm> [Accessed 29/01/2026].
- Ref. 5 Groundsure Site Sensitivity Data (GIS format), Ref. GS-L4D-PCR-CHS-QF9, September 2025.
- Ref. 6 Groundsure Historical Mapping (GIS format), October 2025.
- Ref. 7 British Geological Survey (BGS), Geological Survey of England and Wales, New Series 1:63 360/1:50 000 geological map series, Sheets 168, 169, 184, 185, 202, 203, 220. Available at:

[https://webapps.bgs.ac.uk/data/MapsPortal/?\\_ga=2.107888066.1990621736.1770109583-689017975.1770109583](https://webapps.bgs.ac.uk/data/MapsPortal/?_ga=2.107888066.1990621736.1770109583-689017975.1770109583) [Accessed 29/01/2026].

- Ref. 8 British Geological Survey (BGS), GeoIndex Onshore (2020). Available at: <https://mapapps2.bgs.ac.uk/geoindex/home.html> [Accessed 29/01/2026].
- Ref. 9 BGS, The BGS Lexicon of Named Rock Units. Available at: <https://webapps.bgs.ac.uk/lexicon/> [Accessed 29/01/2026].
- Ref. 10 Mining Remediation Authority Map Viewer. Available at: <https://datamine-cauk.hub.arcgis.com/> [Accessed 29/01/2026].
- Ref. 11 UK Health Security Agency website <https://www.ukradon.org/information/radonsearches> [Accessed 29/01/2026].
- Ref. 12 DEFRA Magic website (Magic Map Application) <https://magic.defra.gov.uk/MagicMap.html> [Accessed 29/01/2026].
- Ref. 13 CLAIRE (2021). Good Practice for Risk Assessment for Coal Mine Gas Emissions.
- Ref. 14 Water Framework Directive - Environment – European. Available at: Commission [https://environment.ec.europa.eu/topics/water/water-framework-directive\\_en](https://environment.ec.europa.eu/topics/water/water-framework-directive_en) [Accessed 29/01/2026].
- Ref. 15 Environment Agency guidance - Protect groundwater and prevent groundwater pollution. Available at: <https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution> [Accessed 29/01/2026].
- Ref. 16 Environment Agency, Groundwater vulnerability maps technical summary. Available at: [https://assets.publishing.service.gov.uk/media/5a81bea540f0b62305b9093f/Groundwater\\_variability\\_summary.pdf](https://assets.publishing.service.gov.uk/media/5a81bea540f0b62305b9093f/Groundwater_variability_summary.pdf) [Accessed 29/01/2026].
- Ref. 17 R&D 66 National House Building Council (NHBC), Environment Agency and Chartered Institute of Environmental Health (CIEH) report R&D66, 2008; Guidance for the Safe Development of Housing on Land Affected by Contamination.
- Ref. 18 CIRIA C811 Construction Industry Research and Information Association (CIRIA). (2023). C811 Environmental good practice on site guide. 5th edition.
- Ref. 19 Health and Safety Executive, 2006, updated 2013. Managing and working with asbestos. Control of Asbestos Regulations 2012. Available at: <https://www.hse.gov.uk/pubns/books/l143.htm> [Accessed 29/01/2026].

## **Annex 14-1: Description of Superficial and Bedrock Geology**

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## Annex 14-1: Description of Superficial and Bedrock Geology

- 1.1.1 Publicly available sources have been reviewed, including the British Geological Survey (BGS) geology maps (provided as part of the Groundsure data (Ref. 1)), and the Mining Remediation Authority Interactive Map (Ref. 2) to identify the ground conditions of the Proposed Development (and 250 metre [m] study area). A summary table of the superficial and bedrock geology across the Proposed Development and study area has been included in **Table 1**.
- 1.1.2 Note that only the Indicative Work Area of Part 2 is included in this Annex. Due to no works being proposed in the Indicative Non-Work Area of Part 2, this has been excluded.
- 1.1.3 Note that the description within the 'Location' column covers the presence of the geological stratum both in the Proposed Development and in the 250 m study area. Where the stratum is present only in the study area (not in the Proposed Development), this is specified.
- 1.1.4 The geological stratum (superficial deposits and bedrock geology) has been identified where it outcrops at the surface or subcrops (beneath the superficial deposits, where present).
- 1.1.5 Where geological stratum exists and is defined as a Principal Aquifer, the study area has been extended to 1 km.
- 1.1.6 The geology has been reported to 'formation' level. However, occasionally the 'member' level has been reported (in brackets) if there are different aquifer designations within that particular formation.
- 1.1.7 The descriptions are supported by **Figures 14-PD-2 Superficial Geology and BGS Boreholes** and **14-PD-3 Bedrock Geology and Geomorphological Features** in **Volume 3** of the PEI Report.
- 1.1.8 Where available, selected BGS historical borehole logs (Ref. 3) located within the Proposed Development have been summarised to give an indication of the expected ground conditions. Please note the following:
  - a. In some cases, obsolete naming for geological formations have been specified; these were on the original borehole log description. Instances are highlighted where encountered; and
  - b. In some cases, geological terms specified on the original borehole log description do not relate to the specified geology. Instances are highlighted where encountered.

- 1.1.9 A summary of the BGS lexicon definitions (Ref. 4) for the geological formations is provided in **Table 2**.

**Table 1: Superficial and Bedrock Geology**

| <b>Geological Stratum</b>                                                                  | <b>Location</b>                                                                                                               |
|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b><u>Part 2 (Section A) Coventry Canal – Atherstone to Nuneaton Road, Hartshill</u></b>   |                                                                                                                               |
| <b>Superficial Deposits</b> (present across 5% of the Proposed Development and study area) |                                                                                                                               |
| Made Ground                                                                                | Southern extent, from north of Hartshill to the east of Hartshill; area of limited extent in the southern-most extent.        |
| Alluvium                                                                                   | Crosses northern (south of Atherstone) and central extent (north of Hartshill), localised.                                    |
| Anker Sand and Gravel                                                                      | In a number of areas east of the Proposed Development.                                                                        |
| River Terrace Deposits                                                                     | Within the study area to the north of the northernmost extent.                                                                |
| <b>Bedrock Geology</b>                                                                     |                                                                                                                               |
| Gunthorpe Member - siltstone and mudstone                                                  | Northern-most extent.                                                                                                         |
| Helsby Sandstone Formation - sandstone                                                     | Northern-most extent.                                                                                                         |
| Purley Shale Formation                                                                     | Northern and central extent.                                                                                                  |
| Midlands Minor Intrusive Suite                                                             | In the study area, west of the northern and central portion.                                                                  |
| Abbey Shale Formation                                                                      | In the study area, west of the northern portion, localised.                                                                   |
| Mancetter Shale Formation                                                                  | In the study area, west of the northern-most portion, localised.                                                              |
| Helsby Sandstone Formation – sandstone, pebbly (gravelly)                                  | In the study area and overlapping the Proposed Development predominantly in the southern portion.                             |
| Mercia Mudstone Group – mudstone and siltstone                                             | In the study area and overlapping the Proposed Development predominantly in the southern portion.                             |
| Hartshill Sandstone Formation                                                              | In the study area, west of the Proposed Development, locally overlapping.                                                     |
| Caldecote Volcanic Formation                                                               | In the study area, south of the southern extent of the Proposed Development.                                                  |
| BGS Borehole Logs located within the Proposed Development                                  | SP39NW124 located within the central area. Summary of ground conditions:<br>- Made Ground to 1.10 m below ground level (bgl); |

| Geological Stratum                                                                                    | Location                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                       | <ul style="list-style-type: none"> <li>- Stiff, sandy, stony clay, possibly disturbed to 5.50 m bgl;</li> <li>- Initially weathered weak yellowy brown and grey silty mudstone, becoming less weathered and more competent with depth to 6.10 m bgl (end-depth of the borehole); and</li> <li>- Groundwater was encountered at 5.40 m bgl.</li> </ul> |
| Other Information including potential Coal Mining Areas and Geomorphological Features                 | Inferred fault west and east of the Proposed Development, approximately parallel (trending north-west to south-east), crossing the Proposed Development in the northern-most extent.<br>Partially within the Coal Mining Reporting Area.                                                                                                              |
| <b><u>Part 2 (Section B) Coventry Canal – Nuneaton Road, Hartshill to Chilvers Rise, Nuneaton</u></b> |                                                                                                                                                                                                                                                                                                                                                       |
| <b>Superficial Deposits</b> (present across 5% of the Proposed Development and study area)            |                                                                                                                                                                                                                                                                                                                                                       |
| Made Ground                                                                                           | In the study area to the west and east, and overlapping the Proposed Development for a limited extent in the northern-most portion, and in the central portion.                                                                                                                                                                                       |
| Anker Sand and Gravel                                                                                 | In the study area, predominantly to the east, overlapping the Proposed Development in the central extent.                                                                                                                                                                                                                                             |
| River Terrace Deposits                                                                                | Locally in the study area, to the east.                                                                                                                                                                                                                                                                                                               |
| Alluvium                                                                                              | Locally overlapping the Proposed Development in the central and southern extent.                                                                                                                                                                                                                                                                      |
| Wolston Formation (Thrussington Member)                                                               | In the study area, west of the southern extent. Overlapping the Proposed Development in an area of very limited extent.                                                                                                                                                                                                                               |
| <b>Bedrock Geology</b>                                                                                |                                                                                                                                                                                                                                                                                                                                                       |
| Mercia Mudstone Group – mudstone, sandstone, and siltstone                                            | Northern and central extent.                                                                                                                                                                                                                                                                                                                          |
| Helsby Sandstone Formation                                                                            | East southern extent, of the Proposed Development, locally overlapping in the northern central extent.                                                                                                                                                                                                                                                |
| Caldecote Volcanic Formation                                                                          | Locally west of the northern and central portion of the Proposed Development.                                                                                                                                                                                                                                                                         |
| Unnamed Pluton, Neoproterozoic III                                                                    | Locally west of the northern portion of the Proposed Development.                                                                                                                                                                                                                                                                                     |

| <b>Geological Stratum</b>                                                                               | <b>Location</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hartshill Sandstone Formation                                                                           | Central extent (localised), slightly overlapping.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Purley Shale Formation                                                                                  | Southern extent (localised).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Abbey Shale Formation                                                                                   | Southern extent (localised).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Mancetter Shale Formation                                                                               | Southern extent (localised).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Outwoods Shale Formation                                                                                | Southern extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Midlands Minor Intrusive Suite                                                                          | In the study area, parallel to the southern extent; slightly overlapping in localised areas.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Pennine Lower Coal Measures Formation                                                                   | In the study area, west of the southern extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| BGS Borehole Logs located within the Proposed Development                                               | <p>SP39SW249 located within the central area. Summary of ground conditions:</p> <ul style="list-style-type: none"> <li>- No core to 2.9 m bgl;</li> <li>- Mercia Mudstone Group to 39.60 m bgl;</li> <li>- Sandstone beds interbedded with siltstones, mudstones and gritstones to 65.68 m bgl;</li> <li>- Contact with volcanic intrusions between 65.68 to 76.03 m bgl (end-depth of the borehole).</li> </ul>                                                                                                                                                               |
| Other Information including potential Coal Mining Areas and Geomorphological Features                   | <p>Inferred faults approximately parallel to the Proposed Development (trending north-west to south-east), with one crossing the Proposed Development in the central portion.</p> <p>Inferred faults within the study area, trending south-west to north-east and east to west.</p> <p>Inferred coal seams in the study area, west of the southern portion of the area.</p> <p>Marine band 250 m west of the southern portion of the area.</p> <p>Partially within a Coal Mining Reporting Area; Development High Risk Area (DHRA) located approximately 250 m south-west.</p> |
| <b><u>Part 2 (Section D) Oxford Canal – Hawkesbury Pumping Station to Sowe Common Sports Ground</u></b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Superficial Deposits</b> (present across the whole Proposed Development and majority of study area)  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| <b>Geological Stratum</b>                                          | <b>Location</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Made Ground                                                        | Northern extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Wolston Formation (Thrussington Member)                            | Vast majority of the Proposed Development and study area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Alluvium                                                           | Northern extent, locally in the western area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Wolston Formation (Bosworth Clay Member)                           | In the study area northern and southern extent, slightly overlapping in the southern-most spur.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Glaciofluvial Deposits                                             | In the study area, southern-most extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Bedrock Geology</b>                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Etruria Formation                                                  | In the study area, north of the northern portion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Halesowen Formation – mudstone, siltstone and sandstone; limestone | In the study area, west of the northern portion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Salop Formation                                                    | In the study area, west of the central portion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Helsby Sandstone Formation                                         | Majority of the Proposed Development and study area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Mercia Mudstone Group – mudstone                                   | Eastern-most extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| BGS Borehole Logs located within the Proposed Development          | <p>Multiple shaft locations marked on BGS mapping.<br/> SP38SE966, SP38SE318, located within the northern area, both summarised as:</p> <ul style="list-style-type: none"> <li>- 0.0 to 9.0 m bgl drift (boulder clay<sup>1</sup>);</li> <li>- 9.0 to 28.96 m bgl Lower Keuper Sandstone<sup>2</sup>; and</li> <li>- 28.96 to 36.58 m bgl Halesowen Group.</li> </ul> <p>SP38SE1 located within the central area, original mine shaft log from 1948, notable features summarised as:</p> <ul style="list-style-type: none"> <li>- 0.0 to 2.13 m bgl soil and clay;</li> <li>- Marl maximum depth up to 30.02 m bgl;</li> </ul> |

<sup>1</sup> Obsolete term. Likely to reference the Wolston Formation.

<sup>2</sup> Obsolete term. References the Helsby Sandstone Formation.

| Geological Stratum                                                                                | Location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                   | <ul style="list-style-type: none"> <li>- Beds of firestone, stone bind and clunch, shale, fireclay, shelly stone, white stone and ironstone nodules interbedded with coal beds; <ul style="list-style-type: none"> <li>o Coal seams 63.12 to 63.73 m bgl, 151.27 to 152.30 m bgl, 181.43 to 181.66 m bgl, 182.96 to 183.56 m bgl, 191.49 to 191.81 (two yard seam), 191.48 to 199.11 m bgl (Ryder and ELL seam), 206.43 to 206.58 m bgl (dirty coal seam), 207.80 to 208.41 m bgl; 211.09 to 212.91 m bgl; 222.15 to 223.13 m bgl</li> <li>o Slate bed at 199.11 to 201.30 m bgl</li> </ul> </li> <li>- Borehole ended at 228.80 m bgl.</li> </ul> |
| Other Information including potential Coal Mining Areas and Geomorphological Features             | Inferred fault trending north-south in the study area, west of the western-most extent. Within a Coal Mining Reporting Area. DHRA in the northern and central areas. Multiple mine shafts identified.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b><u>Part 2 (Section E) Oxford Canal – Sowe Common Sports Ground to Brinklow Road, Ansty</u></b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Superficial Deposits</b> (present across the Proposed Development and majority of study area)  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Wolston Formation (Thrussington Member)                                                           | Majority of the western extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Wolston Formation (Bosworth Clay Member)                                                          | Majority of the central and eastern extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Alluvium                                                                                          | Localised area in the central and eastern extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Wolston Formation (Oadby Member)                                                                  | In the study area in the central and eastern portion, locally overlapping the Proposed Development in the central extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Wolston Sand and Gravel                                                                           | In the study area mostly to the north, locally overlapping the Proposed Development in the central and eastern extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Bedrock Geology</b>                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Helsby Sandstone Formation                                                                        | Western-most extent in study area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Mercia Mudstone Group – Sandstone                                                                 | Majority of the area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| BGS Borehole Logs located within the Proposed Development                                         | SP38SE115, SP38SE116, SP38SE117 located within the western area, summarised as:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| Geological Stratum                                                                                | Location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                   | <ul style="list-style-type: none"> <li>- Topsoil to approximate depth of 0.60 m bgl;</li> <li>- Firm brown/grey mottled silty clay with occasional stones or firm brown fissured silty clay with occasional stones and roots to approximate depth of 2.00 to 3.00 m bgl;</li> <li>- Stiff becoming hard red-brown marly boulder clay<sup>3</sup> with grey veins and pockets of calcareous silt and low stone content to approximate depth of 12.00 to 14.45 m bgl;</li> <li>- From 14.45 to 20.00 m bgl – stiff, becoming hard, red-brown silty sandy clay with green veins (Keuper Marl<sup>4</sup>).</li> </ul> |
| Other Information including potential Coal Mining Areas and Geomorphological Features             | Partially within a Coal Mining Reporting area (western area).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b><u>Part 2 (Section F) Oxford Canal – Brinklow Road, Ansty to Cathiron Lane, Hungerford</u></b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Superficial Deposits</b> (present across the Proposed Development and study area)              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Alluvium                                                                                          | Locally across the Proposed Development.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Wolston Formation (Bosworth Clay Member)                                                          | Majority of the Proposed Development.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Wolston Formation (Oadby Member)                                                                  | Locally in the study area only.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Wolston Sand and Gravel                                                                           | Locally in the central and southern extent and in the study area in the northern extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Wolston Formation (Thrussington Member)                                                           | Locally in the central and southern extent and in the study area in the northern extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Bedrock Geology</b>                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Mercia Mudstone Group – mudstone                                                                  | Majority of the Proposed Development.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| BGS Borehole Logs located within the Proposed Development                                         | Multiple boreholes identified in the middle of the central area (SP48SE150-158). Summary of SP48SW153 (the deepest borehole out of the cluster):                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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<sup>3</sup> Obsolete term. Likely to reference the Wolston Formation.

<sup>4</sup> Obsolete term. References the Mercia Mudstone Group.

| Geological Stratum | Location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    | <ul style="list-style-type: none"> <li>- Made Ground to 8.50 m bgl;</li> <li>- Stiff friable organic clayey silt with rootlets and decayed plant fragments (probable buried topsoil) to 8.60 m bgl;</li> <li>- Firm to stiff silty clay with subhorizontal irregular partings and subvertical root traces to 9.50 m bgl;</li> <li>- Very soft sandy silty clay with some rounded and sub-rounded fine to coarse gravel of quartzite (alluvium), becoming still to very stiff at depth with occasional gravel of quartzite and flint to a depth of 10.60 m bgl;</li> <li>- Very stiff very silty clay with occasional fine gravel size fragments of weak siltstone and irregular vertical fissures with traces of roots to 15.10 m bgl (end-depth of the borehole); and</li> <li>- No groundwater was encountered.</li> </ul> <p>Multiple boreholes identified in the south of the central area (SP47NW75-78).<br/>Summary of SP47SW78 (the deepest borehole out of the cluster):</p> <ul style="list-style-type: none"> <li>- Topsoil to 0.60 m bgl;</li> <li>- Firm sandy clay with some rounded and angular fine to coarse gravel (Oadby Till<sup>5</sup>) to 4.00 m bgl;</li> <li>- Loose probably becoming medium dense brown clayey fine and medium sand to 5.20 m bgl;</li> <li>- Stiff slightly silty clay (Oadby Till) to 22.95 m bgl (end-depth of the borehole). Clay with a little rounded fine gravel and a little rounded coarse sandstone gravel to 10.00 m bgl. Between 8.00 and 10.00 m bgl becomes thinly laminated with a little fine gravel-sized slightly silty clay pellets. Occasional grey fine sand laminae. Becomes very silty at 15.50 m bgl; and</li> <li>- Standing water recorded at 3.00 m bgl.</li> </ul> |

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<sup>5</sup> References the Oadby Member.

| <b>Geological Stratum</b>                                                                                       | <b>Location</b>                                                           |
|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Other Information including potential Coal Mining Areas and Geomorphological Features                           | None identified.                                                          |
| <b><u>Part 2 (Section G) Oxford Canal – Cathiron Lane, Hungerford to Brownsover Road, Newbold on Avon</u></b>   |                                                                           |
| <b>Superficial Deposits</b> (present across 90% of the Proposed Development and study area)                     |                                                                           |
| Made Ground                                                                                                     | In the study area, south in isolated area in the east.                    |
| Wolston Formation (Bosworth Clay Member)                                                                        | Majority of the Proposed Development and study area.                      |
| Wolston Sand and Gravel                                                                                         | Localised areas of the Proposed Development and study area.               |
| Alluvium                                                                                                        | In the study area, south of the eastern extent.                           |
| <b>Bedrock Geology</b>                                                                                          |                                                                           |
| Mercia Mudstone Group – Mudstone                                                                                | Western extent.                                                           |
| Blue Anchor Formation                                                                                           | Western area (central part).                                              |
| Penarth Group                                                                                                   | Western area.                                                             |
| Lilstock Formation                                                                                              | Western area.                                                             |
| Blue Lias Formation (Saltford Shale Member and Rugby Limestone Member)                                          | In the study area east of the western area and across the eastern extent. |
| BGS Borehole Logs located within the Proposed Development                                                       | None identified.                                                          |
| Other Information including potential Coal Mining Areas and Geomorphological Features                           | None identified.                                                          |
| <b><u>Part 2 (Section H) - Oxford Canal – Brownsover Road, Newbold on Avon to Hillmorton Lane, Rugby</u></b>    |                                                                           |
| <b>Superficial Deposits</b> (present across 50% of the study area, not present across the Proposed Development) |                                                                           |
| Alluvium                                                                                                        | In the south-west of the study area.                                      |
| River Terrace Deposits                                                                                          | Southern-most extent of the study area.                                   |
| Wolston Formation (Bosworth Clay Member)                                                                        | Northern study area.                                                      |

| <b>Geological Stratum</b>                                                                                   | <b>Location</b>                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wolston Sand and Gravel                                                                                     | Northern extent of the study area, localised                                                                                                                                                                                                                                                                         |
| Wolston Formation (Oadby Member)                                                                            | Northern and eastern extent of the study area.                                                                                                                                                                                                                                                                       |
| <b>Bedrock</b>                                                                                              |                                                                                                                                                                                                                                                                                                                      |
| Charmouth Mudstone Formation                                                                                | Entire Proposed Development and study area.                                                                                                                                                                                                                                                                          |
| BGS Borehole Logs located within the Proposed Development                                                   | SP57NW10 located 10 m north of the Proposed Development. Summary ground conditions: <ul style="list-style-type: none"> <li>- Topsoil to 0.3 m bgl;</li> <li>- Marl to 1.02 m bgl;</li> <li>- Marl and yellow clay to 2.03 m bgl; and</li> <li>- Wet sandy clay to 2.82 m bgl (end-depth of the borehole).</li> </ul> |
| Other Information including potential Coal Mining Areas and Geomorphological Features                       | None identified.                                                                                                                                                                                                                                                                                                     |
| <b><u>Part 2 (Section I) Oxford Canal – Hillmorton Pumping Station to Crick Road (A428), Hillmorton</u></b> |                                                                                                                                                                                                                                                                                                                      |
| <b>Superficial Deposits</b> (present across 60% of the Proposed Development and study area)                 |                                                                                                                                                                                                                                                                                                                      |
| Hillmorton Sand                                                                                             | Mostly across the south of the Proposed Development and in the study area in the north and south.                                                                                                                                                                                                                    |
| Alluvium                                                                                                    | Locally, northern extent.                                                                                                                                                                                                                                                                                            |
| Peat                                                                                                        | Eastern study area and slightly overlapping into the Proposed Development.                                                                                                                                                                                                                                           |
| Wolston Formation (Bosworth Clay Member)                                                                    | In the study area, west of the northern extent.                                                                                                                                                                                                                                                                      |
| <b>Bedrock Geology</b>                                                                                      |                                                                                                                                                                                                                                                                                                                      |
| Charmouth Mudstone Formation                                                                                | Entire Proposed Development and study area.                                                                                                                                                                                                                                                                          |
| BGS Borehole Logs located within the Proposed Development                                                   | SP57SW23 located within the central area. Summary of ground conditions: <ul style="list-style-type: none"> <li>- Peat to 0.51 m bgl;</li> <li>- Clay to 1.21 m bgl; and</li> <li>- Sand to 8.83 m bgl (end-depth of the borehole).</li> </ul>                                                                        |

| <b>Geological Stratum</b>                                                                                        | <b>Location</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Other Information including potential Coal Mining Areas and Geomorphological Features                            | Buried (superficial deposit-filled) channels or valleys in the study area, north-east of the central extent and west of the southern extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b><u>Part 2 (Section K) Grand Union Canal - Junction of Oxford and Grand Union Canal to Norton Junction</u></b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Superficial Deposits</b> (present across 70% of the Proposed Development and study area)                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Alluvium                                                                                                         | Western-most and eastern-most extents of the Proposed Development and study area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Glaciofluvial Deposits                                                                                           | Overlapping locally in the western and eastern areas and in the study area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Wolston Formation (Oadby Member)                                                                                 | Central area and in the study area mostly to the south (locally north).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Bedrock Geology</b>                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Charmouth Mudstone Formation                                                                                     | Western and eastern areas.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Dyrham Formation                                                                                                 | Mostly in the central area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Marlstone Rock Formation                                                                                         | Locally in the central area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| BGS Borehole Logs located within the Proposed Development                                                        | <p>Multiple identified within the central area, associated with air shaft. Summary of logs:</p> <p>SP56NE51 in the central area is noted to comprise of Made Ground across the whole depth, to 25.9 m bgl.</p> <p>SP56NE47 (drillers log) in the western area:</p> <ul style="list-style-type: none"> <li>- Boulder clay<sup>6</sup> to 2.8 m bgl;</li> <li>- Sand and gravel to 4.15 m bgl;</li> <li>- Soft sandy shale to 6.7 m bgl;</li> <li>- Mudstone to 19.9 m bgl (end-depth of the borehole).</li> </ul> <p>SP56NE49 (drillers log) in the eastern area:</p> <ul style="list-style-type: none"> <li>- Made Ground to 0.35 m bgl;</li> <li>- Clay and gravel to 2.5 m bgl;</li> </ul> |

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<sup>6</sup> Obsolete term. Likely to reference the Wolston Formation.

| Geological Stratum                                                                                | Location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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|                                                                                                   | <ul style="list-style-type: none"> <li>- Firm clay to 3.7 m bgl;</li> <li>- Mudstone/clay to 20.6 m bgl (end-depth of the borehole)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Other Information including potential Coal Mining Areas and Geomorphological Features             | None identified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b><u>Part 2 (Section L) Grand Union Canal – Norton Junction to Diamond Bridge</u></b>            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Superficial Deposits</b> (present across vast majority of Proposed Development and study area) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Glaciofluvial Deposits                                                                            | Majority of the Proposed Development.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Alluvium                                                                                          | Central extent; in the study area, north of the northern-most extent and east of the central and southern extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Bedrock Geology</b>                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Dyrham Formation                                                                                  | Majority of the Proposed Development.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Charmouth Mudstone Formation                                                                      | Northern extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| BGS Borehole Logs located within the Proposed Development                                         | <p>SP66SW12 located within the eastern part of the central area. Summary of ground conditions:</p> <ul style="list-style-type: none"> <li>- Topsoil to 0.2m bgl;</li> <li>- Alluvium of silty clay with flint pebbles to 1.2 m bgl;</li> <li>- River Terrace Deposits clayey sandy gravel, very clayey at the base to 4.5m bgl;</li> <li>- River Terrace Deposits silty clay with shells fragments and flint pebbles to 4.9 m bgl; and</li> <li>- Middle Lias<sup>7</sup> greyish blue silty clay with fine shelly fragments to 5.2 m bgl (end-depth of the borehole).</li> </ul> |
| Other Information including potential Coal Mining Areas and Geomorphological Features             | None identified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

<sup>7</sup> Obsolete / incorrect term. Likely to reference the Dyrham Formation.

| Geological Stratum                                                                                        | Location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| <b><u>Part 2 (Section M) Grand Union Canal – Diamond Bridge to Weedon Sewage Treatment Works</u></b>      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Superficial Deposits</b> (present across entire Proposed Development and vast majority of study area). |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Glaciofluvial Deposits                                                                                    | Majority of the Proposed Development.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Alluvium                                                                                                  | Locally overlapping in the northern and southern extent; in the study area, mostly east and north.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Wolston Formation (Oadby Member)                                                                          | In the study area west of the central extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Bedrock Geology</b>                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Dyrham Formation                                                                                          | Majority of the Proposed Development and study area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Whitby Mudstone Formation                                                                                 | Within the southern extent and in the study area south and west of the central extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Marlstone Rock Formation                                                                                  | Locally in the study area west of the Proposed Development.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Northampton Sand Formation                                                                                | Adjacent to the south-western-most extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Rutland Formation (Stamford Member)                                                                       | In the south-westernmost study area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Blisworth Limestone Formation                                                                             | In the 1 km study area in an isolated area to the south <sup>8</sup> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| BGS Borehole Logs located within the Proposed Development                                                 | <p>SP66SW47 and SP66SW48 located in the central area. Summary ground conditions:</p> <ul style="list-style-type: none"> <li>- Topsoil to 0.3 m bgl;</li> <li>- Firm to stiff silty sandy clay to 2.90 m bgl;</li> <li>- Medium dense sand to 6.10 m bgl;</li> <li>- Stiff fissured silty clay to 11.10 m bgl;</li> <li>- Grey siltstone to 12.00 m bgl (end-depth of the borehole); and</li> <li>- Groundwater strike at 5.8 m bgl.</li> </ul> <p>SP65NW5 located in the southern area. Summary ground conditions:</p> <ul style="list-style-type: none"> <li>- Topsoil to 0.3 m bgl;</li> </ul> |

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<sup>8</sup> Included as this is designated as a Principal aquifer

| Geological Stratum                                                                                         | Location                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                            | <ul style="list-style-type: none"> <li>- Boulder clay<sup>9</sup> becoming silty and sandy with flint ironstone pebbles to 1.3 m bgl;</li> <li>- Middle Lias<sup>10</sup> silty clay with traces of ironstone concentrations to 1.8 m bgl (end-depth of the borehole).</li> </ul> |
| Other Information including potential Coal Mining Areas and Geomorphological Features                      | Inferred faults trending north-south and south-west to north-east in the south-western extent.                                                                                                                                                                                    |
| <b><u>Part 2 (Section N) Grand Union Canal – Weedon Sewage Treatment Works to Camp Hill, Bugbrooke</u></b> |                                                                                                                                                                                                                                                                                   |
| <b>Superficial Deposits</b> (present across 70% of the Proposed Development and study area)                |                                                                                                                                                                                                                                                                                   |
| Glaciofluvial Deposits                                                                                     | Northern and central extent; locally in the southern extent.                                                                                                                                                                                                                      |
| Alluvium                                                                                                   | Locally in the central and northern extent.                                                                                                                                                                                                                                       |
| Wolston Formation (Oadby Member)                                                                           | Eastern extent.                                                                                                                                                                                                                                                                   |
| Glaciolacustrine Deposits                                                                                  | Eastern part of study area, locally overlapping the south-easternmost extent.                                                                                                                                                                                                     |
| <b>Bedrock Geology</b>                                                                                     |                                                                                                                                                                                                                                                                                   |
| Dyrham Formation                                                                                           | Majority of the Proposed Development.                                                                                                                                                                                                                                             |
| Whitby Mudstone Formation                                                                                  | In the study area south of the northern and southern extent locally overlapping the Proposed Development, and north of the central area.                                                                                                                                          |
| Marlstone Rock Formation                                                                                   | In the study area south of the northern and southern extent locally overlapping the Proposed Development in the southern extent, and north of the central area.                                                                                                                   |
| Northampton Sand Formation                                                                                 | In the study area, south of the northern extent.                                                                                                                                                                                                                                  |
| Blisworth Limestone Formation                                                                              | In the 1 km study area in isolated areas to the south-west <sup>11</sup> .                                                                                                                                                                                                        |

<sup>9</sup> Obsolete term. Likely to reference the Glaciofluvial Deposits.

<sup>10</sup> Obsolete / incorrect term. Likely to reference the Dyrham Formation.

<sup>11</sup> Included as this is designated as a Principal aquifer

| <b>Geological Stratum</b>                                                                                           | <b>Location</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BGS Borehole Logs located within the Proposed Development                                                           | SP65NE62 located 12 m south of the eastern-most extent of the Proposed Development. Summary ground conditions: <ul style="list-style-type: none"> <li>- Topsoil to 0.5 m bgl;</li> <li>- Grey silty clay with flint and chalk pebbles to 8.1 m bgl;</li> <li>- Very clayey sandy gravel to 8.2 m bgl;</li> <li>- Grey silty clay with pebbles to 9.5 m bgl;</li> <li>- Grey shaley clay to 9.8 m bgl (end-depth of the borehole); and</li> <li>- Groundwater was encountered at 8.1 m bgl.</li> </ul> |
| Other Information including potential Coal Mining Areas and Geomorphological Features                               | In the study area west of the northern-most extent. Trending north-west to south-east.                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b><u>Part 2 (Section Q) Grand Union Canal - Stoke Road, Stoke Bruerne to Bozenham Mill Lane, Grafton Regis</u></b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Superficial Deposits</b> (present across 20% of the Proposed Development and study area)                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Wolston Formation (Oadby Member)                                                                                    | In the study area, east and west of the northern area, and south and east of the southern-most extent (very locally overlapping into the Proposed Development).                                                                                                                                                                                                                                                                                                                                       |
| River Terrace Deposits                                                                                              | Southern extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Alluvium                                                                                                            | Southern extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Bedrock Geology</b>                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Whitby Mudstone Formation                                                                                           | Vast majority of the Proposed Development.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Rutland Formation (Stamford Member)                                                                                 | Slightly overlapping the northern-most extent; in the study area of the northern-most extent.                                                                                                                                                                                                                                                                                                                                                                                                         |
| Rutland Formation (Wellingborough Limestone Member)                                                                 | Study area of the northern-most extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Rutland Formation                                                                                                   | Study area of the northern-most extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| <b>Geological Stratum</b>                                                                                     | <b>Location</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Blisworth Limestone Formation                                                                                 | Study area of the northern-most extent and in the 1 km study area to the east <sup>12</sup> .                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Blisworth Clay Formation                                                                                      | Study area of the northern-most extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| BGS Borehole Logs located within the Proposed Development                                                     | SP74NW5-SP74NW9 located in the northern area of the Proposed Development.<br>Summary ground conditions based on SP74NW5: <ul style="list-style-type: none"> <li>- Fill of ash, brick and clay to 0.90 m bgl;</li> <li>- Soft to firm silty clay with sand and gravel to 2.40 m bgl;</li> <li>- Stiff fissured silty clay to 3.30 m bgl;</li> <li>- Stiff to very stiff silty clay, becoming fissured and tending to mudstone with depth to 9.10 m bgl (end-depth of the borehole).</li> </ul> Groundwater was not encountered. |
| Other Information including potential Coal Mining Areas and Geomorphological Features                         | None identified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b><u>Part 2 (Section S) Grand Union Canal - Station Road, Castlethorpe to Marsh Drive, Milton Keynes</u></b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Superficial Deposits</b> (present across 30% of the Proposed Development and 40% of the study area)        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Made Ground                                                                                                   | In the study area, to the north of the eastern area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| River Terrace Deposits                                                                                        | Overlapping the western and eastern-most extent. In the study area to the west and north (western half).                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Alluvium                                                                                                      | Overlapping the western extent. In the study area to the west and north.                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Tufa                                                                                                          | In the study area, in the westernmost-extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Glaciofluvial Deposits                                                                                        | In the study area, to the west, north and south.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Head                                                                                                          | Overlapping the central extent. In study area to the north, south and east.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Felmersham Member                                                                                             | In study area, in the central extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Stoke Goldington Member                                                                                       | In study area, to the north of the central area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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<sup>12</sup> Included as this is designated as a Principal aquifer

| <b>Geological Stratum</b>                                 | <b>Location</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wolston Formation (Oadby Member)                          | Overlapping in the western and central extent. In study area in south and east.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Bedrock Geology</b>                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Blisworth Limestone Formation                             | Western, central and eastern extents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Rutland Formation                                         | Western, central and eastern extents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Whitby Mudstone Formation                                 | Western and central area, and in the study area to the north of the eastern extent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Rutland Formation (Stamford Member)                       | Locally in the northern study area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Blisworth Clay Formation                                  | Western, southern and eastern extents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Cornbrash Formation                                       | Locally in the western, southern and eastern study areas.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Kellaways Formation                                       | Locally in the study area to the north-west, south and east.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Rutland Formation (Wellingborough Limestone Member)       | In the study area to the north-east.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| BGS Borehole Logs located within the Proposed Development | <p>Multiple borehole records available:</p> <p>SP84SW672 in western / central area:</p> <ul style="list-style-type: none"> <li>- Made Ground / Fill of ash, clinker, bricks, iron ore to 8.0 m bgl;</li> <li>- Poorly graded clayey gravelly sand to 9.0 m bgl;</li> <li>- Stiff silty clay with sandy zones in upper regions to 11.0 m bgl</li> <li>- Alternating beds of stiff to very stiff silty clay and stiff silty clay with pockets of silt, with silt content decreasing below 14.5 m bgl, to 18.0 m bgl (end-depth of the borehole).</li> </ul> <p>SP84SE1966 in easternmost area:</p> <ul style="list-style-type: none"> <li>- Topsoil to 0.7 m bgl;</li> <li>- Fill of sandy limestone to 3.2 m bgl;</li> <li>- Stiff calcareous fissured clay with inclusions of weathered limestone to 5.7 m bgl;</li> <li>- Very stiff calcareous clay occasionally laminated with fossiliferous bands to 7.15 m bgl;</li> </ul> |

| Geological Stratum                                                                                    | Location                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                       | <ul style="list-style-type: none"> <li>- Hard fissured marls with straining in fissures to 7.35 m bgl;</li> <li>- Hard calcareous silty fissured clay to 10.0 m bgl (end-depth of the borehole); and</li> <li>- Groundwater was encountered at 4.4 m bgl.</li> </ul>                                                                        |
| Other Information including potential Coal Mining Areas and Geomorphological Features                 | <p>Inferred fault trending north-south in the study area, in the western extent.</p> <p>Inferred fault trending north-west to south-east in the study area, north of the north-westernmost extent.</p> <p>One inferred fault trending north-south in the study area, in the eastern extent and cutting across the Proposed Development.</p> |
| <b>Part 2 (Section T) Grand Union Canal - Marsh Drive, Milton Keynes to Childs Way, Milton Keynes</b> |                                                                                                                                                                                                                                                                                                                                             |
| <b>Superficial Deposits</b> (present across 15% study area)                                           |                                                                                                                                                                                                                                                                                                                                             |
| Alluvium                                                                                              | Within the study area, to the east.                                                                                                                                                                                                                                                                                                         |
| Head                                                                                                  | Within the study area, to the north-west.                                                                                                                                                                                                                                                                                                   |
| Wolston Formation (Oadby Member)                                                                      | Within the study area, to the north-east.                                                                                                                                                                                                                                                                                                   |
| <b>Bedrock Geology</b>                                                                                |                                                                                                                                                                                                                                                                                                                                             |
| Blisworth Limestone Formation                                                                         | Entire extent of the area.                                                                                                                                                                                                                                                                                                                  |
| Rutland Formation                                                                                     | Within the study area, to the north.                                                                                                                                                                                                                                                                                                        |
| Rutland Formation (Stamford Member)                                                                   | Within the study area, to the north.                                                                                                                                                                                                                                                                                                        |
| Blisworth Clay Formation                                                                              | Within the study area, to the south.                                                                                                                                                                                                                                                                                                        |
| Cornbrash Formation                                                                                   | Within the study area, to the south.                                                                                                                                                                                                                                                                                                        |
| Kellaways Formation                                                                                   | Within the study area, to the east.                                                                                                                                                                                                                                                                                                         |
| Oxford Clay Formation (Peterborough Member)                                                           | Within the study area, to the east.                                                                                                                                                                                                                                                                                                         |
| BGS Borehole Logs located within the Proposed Development                                             | None identified.                                                                                                                                                                                                                                                                                                                            |

| <b>Geological Stratum</b>                                                                           | <b>Location</b>                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Other Information including potential Coal Mining Areas and Geomorphological Features               | One inferred fault trending north-south in the study area, in the eastern extent and cutting across the Proposed Development.                                                                                                                                                                                                                                                                                          |
| <b>Part 2 (Section U) Grand Union Canal – Childs Way, Milton Keynes to A5, Milton Keynes</b>        |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Superficial Deposits</b> (present across 30% Proposed Development and study area)                |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Wolston Formation (Oadby Member)                                                                    | Overlapping Proposed Development. In the study area, in the north-eastern extent.                                                                                                                                                                                                                                                                                                                                      |
| Alluvium                                                                                            | In the study area to the south.                                                                                                                                                                                                                                                                                                                                                                                        |
| Head                                                                                                | In the study area, in the northern-most, eastern-most and southern-most extent.                                                                                                                                                                                                                                                                                                                                        |
| <b>Bedrock Geology</b>                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Oxford Clay Formation                                                                               | Entire Proposed Development and study area.                                                                                                                                                                                                                                                                                                                                                                            |
| BGS Borehole Logs located within the Proposed Development                                           | SP83NE1219 located within the eastern part of the Proposed Development. The summary ground conditions: <ul style="list-style-type: none"> <li>- Topsoil to 0.3 m bgl;</li> <li>- Firm to stiff slightly silty fissured clay with gypsum crystals and pockets of organic matter 3.5 m bgl;</li> <li>- Stiff fissured clay with shell fragments to 9.65 m bgl; and</li> <li>- No groundwater was encountered.</li> </ul> |
| Other Information including potential Coal Mining Areas and Geomorphological Features               | None identified.                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Part 2 (Section V) Grand Union Canal - A5, Milton Keynes to A4146, Milton Keynes</b>             |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Superficial Deposits</b> (present across entire Proposed Development and majority of study area) |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Made Ground                                                                                         | Southern extent; in the study area, east of the northern extent.                                                                                                                                                                                                                                                                                                                                                       |
| Wolston Formation (Oadby Member)                                                                    | Overlapping the Proposed Development and in the study area in the western extent.                                                                                                                                                                                                                                                                                                                                      |
| Unclassified superficial deposits (sand and gravel)                                                 | Northern and southern extents.                                                                                                                                                                                                                                                                                                                                                                                         |
| Glaciolacustrine Deposits                                                                           | Southern and western study area.                                                                                                                                                                                                                                                                                                                                                                                       |

| <b>Geological Stratum</b>                                 | <b>Location</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alluvium                                                  | Overlapping the Proposed Development in the south-east and in the study area to the north.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| River Terrace Deposits                                    | In the study area to the east and north.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Bedrock Geology</b>                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Oxford Clay Formation                                     | Whole of the Proposed Development and study area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| BGS Borehole Logs located within the Proposed Development | <p>Multiple borehole logs available.</p> <p>SP83SE336 for the northern area:</p> <ul style="list-style-type: none"> <li>- Topsoil to 0.3 m bgl;</li> <li>- Made ground to 2.2 m bgl;</li> <li>- Sand and gravel (loose to medium dense varying from well graded medium to coarse sand and fine to coarse gravel to silty and or clayey sand with scattered gravel) to 4.3 m bgl;</li> <li>- Stiff, fissured silty clay with chalk and flint gravel and pockets of sand to 5.00 m bgl (end-depth of the borehole); and</li> <li>- Groundwater strike at 4.5 m bgl.</li> </ul> <p>SP83SE423 for the central area:</p> <ul style="list-style-type: none"> <li>- Topsoil to 0.3 m bgl;</li> <li>- Very stiff slightly desiccated sandy clay with scattered gravel, iron staining and some gypsum to 1.45 m bgl;</li> <li>- Stiff poorly laminated fissured very silty clay with calcareous nodules and some iron staining to 2.25 m bgl;</li> <li>- Firm to stiff laminated, fissured, very silty clay becoming clayey silt in part with partings of silt and fine sand to 10.0 m bgl (end-depth of the borehole); and</li> <li>- Groundwater strike at 6.2 m bgl.</li> </ul> <p>SP83SE430 for the southern area:</p> <ul style="list-style-type: none"> <li>- Topsoil to 0.5 m bgl;</li> <li>- Compact clayey silty sand with gravel to 0.9 m bgl;</li> </ul> |

| Geological Stratum                                                                    | Location                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|                                                                                       | <ul style="list-style-type: none"> <li>- Medium dense, well graded medium to coarse sand and fine to coarse gravel to 1.7 m bgl;</li> <li>- Soft to firm laminated silty clay with scattered shell debris and pockets of sand and gravel to 2.2 m bgl; and</li> <li>- Stiff becoming very stiff laminated fissured silty clay with occasional shell debris to 10.0 m bgl (end-depth of the borehole); and</li> <li>- Groundwater strike at 1.5 m bgl.</li> </ul> |
| Other Information including potential Coal Mining Areas and Geomorphological Features | None identified.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b><u>Part 3 Daventry and Drayton Reservoirs</u></b>                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Superficial Geology</b>                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Alluvium                                                                              | Eastern area, including across Daventry reservoir; in the study area to the north-west.                                                                                                                                                                                                                                                                                                                                                                          |
| Glaciofluvial Deposits                                                                | Western and eastern areas.                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Wolston Formation (Oadby Member)                                                      | Central area, including across Drayton reservoir, and locally in the western area.                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Bedrock Geology</b>                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Charmouth Mudstone Formation                                                          | Western-most, eastern and north-eastern area.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Dyrham Formation                                                                      | Central and southern area.                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Marlstone Rock Formation                                                              | In the study area to the south, south-east, and north.                                                                                                                                                                                                                                                                                                                                                                                                           |
| Whitby Mudstone Formation                                                             | In the study area of the south-easternmost and northern extents.                                                                                                                                                                                                                                                                                                                                                                                                 |
| BGS Borehole Logs located within the Proposed Development                             | <p>Multiple identified within the northern extent, associated with air shaft. Summary of logs:</p> <p>SP56NE51 in the central area of northern extent is noted to comprise of Made Ground across the whole depth, to 25.9 m bgl.</p> <p>SP56NE47 (drillers log) in the western area of northern extent:</p>                                                                                                                                                      |

| Geological Stratum                                                                         | Location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                            | <ul style="list-style-type: none"> <li>- Boulder clay<sup>13</sup> to 2.8 m bgl;</li> <li>- Sand and gravel to 4.15 m bgl;</li> <li>- Soft sandy shale to 6.7 m bgl;</li> <li>- Mudstone to 19.9 m bgl (end-depth of the borehole).</li> </ul> <p>SP56NE49 (drillers log) in the eastern area of northern extent:</p> <ul style="list-style-type: none"> <li>- Made Ground to 0.35 m bgl;</li> <li>- Clay and gravel to 2.5 m bgl;</li> <li>- Firm clat to 3.7 m bgl;</li> <li>- Mudstone/clay to 20.6 m bgl (end-depth of the borehole)</li> </ul> |
| Other Information including potential Coal Mining Areas and Geomorphological Features      | None identified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b><u>Part 4a: Abstraction, Storage &amp; Treatment Works</u></b>                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Superficial Geology</b> (present across 50% of the Proposed Development and study area) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Head                                                                                       | Centre, south, north-east of the Proposed Development and study area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Alluvium                                                                                   | Centre of the Proposed Development; west of the Proposed Development and study area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| River Terrace Deposits (sand and gravel)                                                   | North and west of the Proposed Development and study area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Wolston Formation (Oadby Member)                                                           | In the western study area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Bedrock Geology</b>                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Oxford Clay Formation                                                                      | Westernmost portion of the Proposed Development and study area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| West Walton Formation                                                                      | Majority of Proposed Development and study area (with the exception of the western area).                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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<sup>13</sup> Obsolete term. Likely to reference the Wolston Formation.

| <b>Geological Stratum</b>                                                                  | <b>Location</b>                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Woburn Sands Formation                                                                     | Within 1 km study area to the east <sup>14</sup> .                                                                                                                                                                                                                                                                                                                         |
| BGS Borehole Logs located within the Proposed Development                                  | SP83SE204 located 70 m north-west of the Proposed Development. Summary ground conditions: <ul style="list-style-type: none"> <li>- Topsoil to 0.5 m bgl;</li> <li>- Brown clayey sand and gravel to 2.0 m bgl;</li> <li>- Grey green silty clay with fossils to 5.0 m bgl (end-depth of the borehole); and</li> <li>- Groundwater was encountered at 2.0 m bgl.</li> </ul> |
| Other Information including potential Coal Mining Areas and Geomorphological Features      | None identified.                                                                                                                                                                                                                                                                                                                                                           |
| <b><u>Part 4b (Section A) Galley WTW Site to A5 North Crossing</u></b>                     |                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Superficial Geology</b> (present across 40% of the Proposed Development and study area) |                                                                                                                                                                                                                                                                                                                                                                            |
| Made Ground                                                                                | Mapped in two isolated locations within the central part of the Proposed Development, north-west of Springfield Farm.                                                                                                                                                                                                                                                      |
| Head                                                                                       | Mapped across the western and central parts of the Proposed Development and study area.                                                                                                                                                                                                                                                                                    |
| Alluvium                                                                                   | Mapped in a small area to the south-west of the western extent of the study area.                                                                                                                                                                                                                                                                                          |
| Wolston Formation (Oadby Member)                                                           | Present in the eastern extent of the Proposed Development and study area.                                                                                                                                                                                                                                                                                                  |
| <b>Bedrock Geology</b>                                                                     |                                                                                                                                                                                                                                                                                                                                                                            |
| West Walton Formation                                                                      | Mapped across the majority of the Proposed Development and Study Area, covering the western, central, and parts of the eastern extent.                                                                                                                                                                                                                                     |
| Woburn Sands Formation                                                                     | Mapped in the eastern extent of the Proposed Development and study area. Also mapped in the study area south of the central extent.                                                                                                                                                                                                                                        |

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<sup>14</sup> Included as this is designated as a Principal aquifer

| Geological Stratum                                                                                                                                                                                                                      | Location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BGS Borehole Logs located within the Proposed Development                                                                                                                                                                               | <p>Multiple borehole records available:</p> <p>SP93SW133 in the central/eastern area:</p> <ul style="list-style-type: none"> <li>- Lower Greensand<sup>15</sup> to 3.0 m bgl;</li> <li>- Oxford clay<sup>15</sup> to 10.6 m bgl (end-depth of the borehole).</li> </ul> <p>SP93SW214 in the eastern area:</p> <ul style="list-style-type: none"> <li>- Topsoil to 0.40 m bgl;</li> <li>- Clayey silty fine to occasionally medium sand (Red brown) to 2.50 m bgl;</li> <li>- Soft grey very silty sandy clay to 2.80 m bgl;</li> <li>- Very silty sand (grey) to 3.50 m bgl (end-depth of the borehole).</li> </ul> <p>SP93SW213 in the northern portion of the eastern extent:</p> <ul style="list-style-type: none"> <li>- Topsoil to 0.25 m bgl;</li> <li>- Clayey medium sand with gravel (Brown) to 1.70 m bgl;</li> <li>- Very sandy silty clay with fine to coarse gravel (light brown grey) to 2.10 m bgl;</li> <li>- Firm to stiff silty sandy clay (dark blue) with fine to coarse gravel to 2.80 m bgl (end-depth of the borehole).</li> </ul> |
| Other Information including potential Coal Mining Areas and Geomorphological Features                                                                                                                                                   | None identified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b><u>Part 4b (Section B) East of A5 to A5 South Crossing</u></b>                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Superficial Geology</b> (mapped across 90% of the Proposed Development and study area, predominantly within the study area to the east of the A5. Discontinuously present in the remainder of the study area to the west of the A5). |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Made Ground                                                                                                                                                                                                                             | Mapped in the study area to the west of the central extent, east of the A5. Also mapped as isolated patches in two locations: one within a small area north of Woburn Road, and the other in the central-southern extent of the study area, north of Eastern Way Road.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

<sup>15</sup> Interpretation included on the BGS historical borehole log which differs from the mapping reviewed.

| <b>Geological Stratum</b>                                 | <b>Location</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wolston Formation (Oadby Member)                          | Mapped across the majority of the Proposed Development and study area from the northern to central extents, and also across the central to southern extents of the Proposed Development and study area to the east of the A5.                                                                                                                                                                                                                                                                                                    |
| Alluvium                                                  | Mapped in an isolated area within the central extent of the Proposed Development and study area, extending east and west of the A5.                                                                                                                                                                                                                                                                                                                                                                                              |
| Head                                                      | Mapped as isolated patches in the southern part of the central extent of the study area, and also across the southern extent of the Proposed Development and wider study area.                                                                                                                                                                                                                                                                                                                                                   |
| Glaciofluvial Deposits                                    | Mapped in small areas within the central and southern extents of the study area, east of the A5.                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Bedrock Geology</b>                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Woburn Sands Formation                                    | Present across the entire northern and part of the central extent of the Proposed Development and study area.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Gault Formation                                           | Present across part of the central extent and the entire southern extent of the Proposed Development and study area.                                                                                                                                                                                                                                                                                                                                                                                                             |
| BGS Borehole Logs located within the Proposed Development | <p>Multiple borehole records available:</p> <p>SP93SW1 in the northern area:</p> <ul style="list-style-type: none"> <li>- Yellow clay to 1.2 m bgl;</li> <li>- Boulder clay<sup>16</sup> (Brownish) to 5.3 m bgl;</li> <li>- Clay and sand (sandy clay) to 6.5 m bgl;</li> <li>- Boulder clay (grey) to 7.3 m bgl;</li> <li>- Rock (grey limestone with pyrites: boulder) to 7.4 m bgl;</li> <li>- Boulder clay (grey, rather sandy) to 8.0 m bgl;</li> <li>- Green sand (reddish-brown) and ironstone to 13.7 m bgl;</li> </ul> |

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<sup>16</sup> Obsolete term. Likely to reference the Wolston Formation.

| Geological Stratum | Location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    | <ul style="list-style-type: none"> <li>- Green sand (brown) and ironstone to 14.7 m bgl;</li> <li>- Green sand (yellowish-brown) to 24.5 m bgl;</li> <li>- Brown sand and ironstone to 27.8 m bgl;</li> <li>- Brown Loam (Compacted, slightly clayey sand) with ironstone to 40.6 m bgl;</li> <li>- Oxford clay (grey clay) to 44.3 m bgl (end-depth of the borehole).</li> </ul> <p>SP93SW279 in the central area:</p> <ul style="list-style-type: none"> <li>- Topsoil to 0.3 m bgl;</li> <li>- Slightly clayey silty coarse to medium sand with flint gravel (Woburn sands) to 1.5 m bgl;</li> <li>- Orange brown and yellow slightly silty sand with cobbles and nodules of iron-bound sandstone (Woburn sands) to 2.3 m bgl;</li> <li>- Yellow and brown slightly silty medium-coarse sand with some large iron-bound nodules (Woburn sands) to 2.80 m bgl (end-depth of the borehole); and</li> <li>- Groundwater strike at 1.20 m bgl.</li> </ul> <p>SP92NW190 in the central area:</p> <ul style="list-style-type: none"> <li>- Topsoil to 0.25 m bgl;</li> <li>- Brown sandy very silty clay with occasional roots (Alluvium) to 1.30 m bgl;</li> <li>- Yellow brown silty clay and gravel with small fragments of red siltstone and small pockets of ash to 1.50 m bgl;</li> <li>- Brown clayey sand/gravel (Alluvium) to 2.50 m bgl;</li> <li>- Yellow and buff silty medium sand (Woburn Sands) to 3.0 m bgl (end-depth of the borehole); and</li> <li>- Groundwater strike at 1.50 m bgl</li> </ul> <p>SP92NE8 located 10 m east of proposed development in the southern extent</p> <ul style="list-style-type: none"> <li>- Maiden soil to 0.3 m bgl;</li> <li>- Loam to 1.5 m bgl;</li> <li>- Ballast to 3.0 m bgl;</li> </ul> |

| Geological Stratum                                                                               | Location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                  | <ul style="list-style-type: none"> <li>- Blue clay (Gault) to 29.9 m bgl;</li> <li>- Hard stone to 30.4 m bgl;</li> <li>- Grey sand to 39.6 m bgl;</li> <li>- Light sharp sand to 44.8 m bgl;</li> <li>- Hard stone to 45.1 m bgl,</li> <li>- Hard grey sand to 46.6 m bgl;</li> <li>- Green sand and stone to 47.2 m bgl;</li> <li>- Green sand with layers of clay to 70.1 m bgl;</li> <li>- Hard stone to 70.7 m bgl;</li> <li>- Green sand with clay to 91.44 m bgl (end-depth of the borehole); and</li> <li>- Groundwater level in borehole at 24.0 m bgl.</li> </ul> |
| Other Information including potential Coal Mining Areas and Geomorphological Features            | None identified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b><u>Part 4b (Section C) A5 South Crossing to A4012</u></b>                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Superficial Geology</b> (mapped across 40% of Proposed development and 60% of the study area) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Head                                                                                             | Mapped across the central part of the Proposed Development, and also in the north-eastern and south-eastern parts of the study area.                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Wolston Formation (Oadby Member)                                                                 | Mapped across the north-eastern study area, overlapping the north-eastern portion of the Proposed Development. Also mapped as an isolated patch in the area north of the A4012.                                                                                                                                                                                                                                                                                                                                                                                             |
| Glaciofluvial Deposits                                                                           | Very locally in central and northern extent of the study area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Bedrock Geology</b>                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Gault Formation                                                                                  | Present across the majority of the Proposed Development and study area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| BGS Borehole Logs located within the Proposed Development                                        | None identified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| <b>Geological Stratum</b>                                                                        | <b>Location</b>                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Other Information including potential Coal Mining Areas and Geomorphological Features            | None identified.                                                                                                                                                                                                                                                                                                                                                    |
| <b><u>Part 4b (Section D) A4012 to A505</u></b>                                                  |                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Superficial Geology</b> (mapped across 30% of Proposed Development and 40% of the study area) |                                                                                                                                                                                                                                                                                                                                                                     |
| Wolston Formation (Oadby Member)                                                                 | Mapped mostly within the northern and central extents of the Proposed Development and study area.                                                                                                                                                                                                                                                                   |
| Head                                                                                             | Mapped locally within a small areas in the central and southern extents, and in the study area in the north-east.                                                                                                                                                                                                                                                   |
| Glaciofluvial Deposits                                                                           | Mapped within the northern and central extents of the Proposed Development and study area.                                                                                                                                                                                                                                                                          |
| <b>Bedrock Geology</b>                                                                           |                                                                                                                                                                                                                                                                                                                                                                     |
| Gault Formation                                                                                  | Mapped across the entire Proposed Development and the majority of the study area.                                                                                                                                                                                                                                                                                   |
| Upper Greensand Formation                                                                        | Mapped in the study area in the central extent.                                                                                                                                                                                                                                                                                                                     |
| BGS Borehole Logs located within the Proposed Development                                        | <p>SP92SE27 located 30 m east of the Proposed Development in the southernmost extent of the study area north of A205:</p> <ul style="list-style-type: none"> <li>- Topsoil to 0.40 m bgl;</li> <li>- Grey and brown mottled slightly silty clay to 3.30 m bgl; and</li> <li>- Fissured grey slightly silty clay to 10 m bgl (end-depth of the borehole).</li> </ul> |
| Other Information including potential Coal Mining Areas and Geomorphological Features            | None identified.                                                                                                                                                                                                                                                                                                                                                    |
| <b><u>Part 4b (Section E) A505 to B489 Crossing</u></b>                                          |                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Superficial Geology</b> (mapped across 10% of Proposed Development and 20% of the study area) |                                                                                                                                                                                                                                                                                                                                                                     |
| Made Ground                                                                                      | Mapped in an isolated area within the northern extent of the study area, east of the Proposed Development.                                                                                                                                                                                                                                                          |

| <b>Geological Stratum</b>                                                         | <b>Location</b>                                                                                                                                                                |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Head                                                                              | Mapped in the north-easternmost extent of the study area, slightly overlapping the Proposed Development, and also as isolated patches within the central and southern extents. |
| Alluvium                                                                          | Mapped in the northernmost extent of the Proposed Development and study area, and also within a small area north of the central extent of the Proposed Development.            |
| <b>Bedrock Geology</b>                                                            |                                                                                                                                                                                |
| Gault Formation                                                                   | Mapped within the northern and north-western extents of the Proposed Development and study area.                                                                               |
| Upper Greensand Formation                                                         | Mapped within the northern and central extents of the Proposed Development and study area.                                                                                     |
| West Melbury Marly Chalk Formation – Chalk                                        | Mapped in parts of the northern extent of the study area and across the majority of the central and southern extents of the Proposed Development and study area.               |
| West Melbury Marly Chalk Formation – Limestone                                    | Mapped in the southern extent of the Proposed Development and study area.                                                                                                      |
| Zig Zag Chalk Formation                                                           | Mapped in a small portion of the study area to the east within the central extent, and also in the southernmost extent of the Proposed Development and study area.             |
| Holywell Nodular chalk Formation and New Pit Chalk Formation (undifferentiated)   | In the 1 km study area to the east <sup>17</sup>                                                                                                                               |
| Holywell Nodular Chalk Formation                                                  |                                                                                                                                                                                |
| West Melbury Marly Chalk Formation and Zig Zag Chalk Formation (Undifferentiated) |                                                                                                                                                                                |
| BGS Borehole Logs located within the Proposed Development                         | SP92SE88 in the northern area: <ul style="list-style-type: none"> <li>- Topsoil to 0.2 m bgl;</li> <li>- Subsoil to 1.4 m bgl;</li> </ul>                                      |

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<sup>17</sup> Included as this is designated as a Principal aquifer

| Geological Stratum | Location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    | <ul style="list-style-type: none"> <li>- Yellow clay with light bluish grey clay patches to 1.80 m bgl;</li> <li>- Dark bluish grey calcareous clay to 2.4 m bgl;</li> <li>- Medium grey to dark grey calcareous clay with white calcareous nodules to 4.2 m bgl;</li> <li>- Light grey marly clay to 0.30 m bgl;</li> <li>- Light grey compact marly clay/marlstone with white calcareous nodules to 6.65 m bgl;</li> <li>- Light and medium grey calcareous clay with grey clay patches bands/patches and white calcareous nodules to 8.93 m bgl;</li> <li>- Light grey marly clay with small shell fragments to 9.65 m bgl;</li> <li>- Interbanded soft plastic calcareous clay and fairly hard light grey calcareous clay to 10.08 m bgl;</li> <li>- Light grey marly clay with dark grey clay along planes of weakness to 10.51 m bgl;</li> <li>- Medium grey calcareous clay with a few minute shell fragments and two thin, soft clay bands to 11.27 m bgl;</li> <li>- Interbanded soft plastic dark grey calcareous clay and harder light grey clay to 12.03 m bgl;</li> <li>- Medium grey calcareous clay with large dark grey plastic clay patches to 12.64 m bgl;</li> <li>- Light grey calcareous clay with several thin soft plastic dark grey clay bands to 13.25 m bgl;</li> <li>- Medium grey calcareous clay with shell imprints and dark grey clay patches to 14.02 m bgl;</li> <li>- Mixture of medium grey calcareous clay and dark grey stiff plastic clay to 14.78 m bgl; and</li> <li>- Light grey marly clay/marlstone with shell impressions to 15.41 m bgl (end-depth of the borehole).</li> </ul> |

| <b>Geological Stratum</b>                                                                        | <b>Location</b>                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Other Information including potential Coal Mining Areas and Geomorphological Features            | None identified.                                                                                                                                                                                            |
| <b><u>Part 4b (Section F) B489 to A5183 including Dunstable Downs</u></b>                        |                                                                                                                                                                                                             |
| <b>Superficial Geology</b> (mapped across 30% of Proposed Development and 40% of the study area) |                                                                                                                                                                                                             |
| Made Ground                                                                                      | Isolated areas mapped in the study area to the north of the western and central extents.                                                                                                                    |
| Clay With Flints Formation                                                                       | In the central area, and in the majority of the eastern extent of the Proposed Development and study area.                                                                                                  |
| Head                                                                                             | Locally in central and eastern extent of the Proposed Development and study area.                                                                                                                           |
| <b>Bedrock Geology</b>                                                                           |                                                                                                                                                                                                             |
| Lewes Nodular Chalk Formation and Seaford Chalk Formation (undifferentiated)                     | Mapped in the central and eastern portion of the Proposed Development and study area.                                                                                                                       |
| Holywell Nodular Chalk Formation                                                                 | Mapped locally in the westernmost portion of the Proposed Development and study area.                                                                                                                       |
| West Melbury Marly Chalk Formation and Zig Zag Chalk Formation (Undifferentiated)                | Mapped in a small portion of the southern part of the study area, within the westernmost extent near the B489.                                                                                              |
| Zig Zag Chalk Formation                                                                          | Mapped in the westernmost extent of the Proposed Development and study area.                                                                                                                                |
| Lewes Nodular Chalk formation                                                                    | Mapped along the margins of Holywell Nodular Chalk Formation and New Pit Chalk Formation (undifferentiated) locally in the western, central and eastern portion of the Proposed Development and study area. |
| Holywell Nodular Chalk Formation and New Pit Chalk Formation (undifferentiated)                  | Mapped in the western, central and eastern portion of the Proposed Development and study area.                                                                                                              |
| BGS Borehole Logs located within the Proposed Development                                        | TL01NW19 in the central area: <ul style="list-style-type: none"> <li>- Clay and stone to 9.75 m bgl;</li> <li>- Middle chalk to 13.41 m bgl;</li> <li>- Chalk and flints to 37.19 m bgl;</li> </ul>         |

| Geological Stratum                                                                    | Location                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                       | <ul style="list-style-type: none"> <li>- Middle chalk to 93.57 m bgl;</li> <li>- Hard chalk to 95.71 m bgl;</li> <li>- Middle chalk to 100.89 m bgl;</li> <li>- Hard chalk to 114.60 m bgl;</li> <li>- Chalk marl to 126.19 m bgl (end-depth of the borehole); and</li> <li>- Water strike at 91.44 m bgl.</li> </ul> |
| Other Information including potential Coal Mining Areas and Geomorphological Features | None identified.                                                                                                                                                                                                                                                                                                      |
| <b><u>Part 4b (Section G) A5183 to Underground Reservoir Near Luton</u></b>           |                                                                                                                                                                                                                                                                                                                       |
| <b>Superficial Geology</b> (mapped across 90% of Proposed Development and study area) |                                                                                                                                                                                                                                                                                                                       |
| Made Ground                                                                           | Locally in the easternmost extent.                                                                                                                                                                                                                                                                                    |
| Head                                                                                  | Locally in western, central and eastern extent of the Proposed Development and study area.                                                                                                                                                                                                                            |
| Clay With Flints Formation                                                            | In the central area, and in the majority of the eastern extent of the Proposed Development and study area.                                                                                                                                                                                                            |
| <b>Bedrock Geology</b>                                                                |                                                                                                                                                                                                                                                                                                                       |
| Holywell Nodular Formation and New Pit Chalk Formation (undifferentiated) - Chalk     | Western and easternmost extents of the Proposed Development and study area.                                                                                                                                                                                                                                           |
| Lewes Nodular Chalk Formation and Seaford Chalk Formation (undifferentiated) - Chalk  | Vast majority of the Proposed Development and study area, particularly in the central and eastern extents.                                                                                                                                                                                                            |
| Lewes Nodular Chalk Formation, Chalk                                                  | Mapped along the margins of Holywell Nodular Chalk Formation and New Pit Chalk Formation (undifferentiated), locally in the central and eastern portions of the Proposed Development and study area.                                                                                                                  |
| BGS Borehole Logs located within the Proposed Development                             | <p>Multiple borehole records available:</p> <p>TL02SW303 in the western area:</p> <ul style="list-style-type: none"> <li>- Made Ground to 1.40 m bgl;</li> </ul>                                                                                                                                                      |

| Geological Stratum                                                                    | Location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                       | <ul style="list-style-type: none"> <li>- Head to 2.50 m bgl;</li> <li>- Middle Chalk grade V to 3.20 m bgl (end-depth of the borehole).</li> </ul> <p>TL02SW268 in the western area:</p> <ul style="list-style-type: none"> <li>- Topsoil to 0.30 m bgl;</li> <li>- Head to 1.55 m bgl;</li> <li>- Middle Chalk Grade III to 20 m bgl (end-depth of the borehole).</li> </ul> <p>TL02SW304 in the central area:</p> <ul style="list-style-type: none"> <li>- Made ground to 2.49 m bgl;</li> <li>- Head to 3.60 m bgl;</li> <li>- Middle Chalk grade IV to 4.20 m bgl (end-depth of the borehole).</li> </ul> <p>TL02SE246 located 40 m east of the easternmost extent within the study area:</p> <ul style="list-style-type: none"> <li>- Topsoil (Clay with Flints) to 1.00 m bgl;</li> <li>- Middle Chalk to 15.50m bgl (end-depth of the borehole).</li> </ul> |
| Other Information including potential Coal Mining Areas and Geomorphological Features | None identified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

**Table 2: Superficial and Bedrock Geology – Definitions**

| <b>Geological Strata</b>                 | <b>Summary of BGS Lexicon Definition</b>                                                                                                                                                                                          |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Superficial Deposits</b>              |                                                                                                                                                                                                                                   |
| Made Ground                              | Made Ground is an area where the pre-existing (natural or artificial) land surface is raised by artificial deposits.                                                                                                              |
| River Terrace Deposits                   | Sand and gravel, locally with lenses of silt, clay or peat.                                                                                                                                                                       |
| Alluvium                                 | Alluvium is a general term for clay, silt, sand and gravel. It is the unconsolidated detrital material deposited by a river, stream or other body of running water.                                                               |
| Head                                     | Head is poorly sorted and poorly stratified, angular rock debris and/or clayey hillwash and soil creep, mantling a hillslope and deposited by solifluction and gelifluction processes.                                            |
| Glaciolacustrine Deposits                | Deposits include sands, silts and clays of deltaic origin, shoreface sand and gravel and lake bottom varved, fine-grained (fine sand, silt and clay) sediments.                                                                   |
| Glaciofluvial Deposits                   | Sand and gravel.                                                                                                                                                                                                                  |
| Anker Sand and Gravel                    | Sand and gravel, with possible lenses of silt, clay or peat.                                                                                                                                                                      |
| Wolston Formation (Oadby Member)         | Diamicton, grey, weathering brown, characterised by Cretaceous and Jurassic rock fragments; subordinate lenses of sand and gravel, clay and silt. Clay, brown to grey, and silty clay, with chalk and flint fragments.            |
| Wolston Formation (Thrussington Member)  | Diamicton, brown to reddish-brown with stones and matrix derived primarily from Upper Carboniferous and Triassic rocks; subordinate sand, gravel and stoneless clay and silt. Red pebbly clay and silty clay with rock fragments. |
| Wolston Formation (Bosworth Clay Member) | Not available (listed as 'pending upgrade' on BGS).                                                                                                                                                                               |
| Wolston Sand and Gravel                  | Comprises the pre-Devensian glacial succession of much of the English Midlands.                                                                                                                                                   |
| Hillmorton Sand                          | Not available (listed as 'pending upgrade' on BGS).                                                                                                                                                                               |
| Peat                                     | Peat is a partially decomposed mass of semi-carbonized vegetation which has grown under waterlogged, anaerobic conditions, usually in bogs or swamps.                                                                             |

| <b>Geological Strata</b>                                 | <b>Summary of BGS Lexicon Definition</b>                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tufa                                                     | Tufa is a sedimentary rock composed of calcium carbonate or silica, formed by evaporation as a thin, surficial, soft, spongy, semifriable encrustation around the mouth of springs, seeps or along streams carrying calcium carbonate in solution, and exceptionally as a thick deposit along lake shores. |
| Stoke Goldington Member                                  | Fluviatile gravel with sand.                                                                                                                                                                                                                                                                               |
| Felmersham Member                                        | Fluviatile gravel with sand.                                                                                                                                                                                                                                                                               |
| Unclassified Superficial Deposits/Unclassified Sediments | Not available.                                                                                                                                                                                                                                                                                             |
| Clay-with-Flints                                         | Reddish brown, stiff, clay containing abundant clasts of orange-brown stained nodular and broken flints, commonly associated with deposits of sand, sandy clay, silt, loam and pebbles that have been mixed with the clay by solution, cryoturbation and solifluction.                                     |
| <b>Bedrock Geology</b>                                   |                                                                                                                                                                                                                                                                                                            |
| Sidmouth Mudstone Formation                              | Dominantly red-brown mudstone and siltstone with common grey-green reduction patches and spots.                                                                                                                                                                                                            |
| Halesowen Formation – mudstone siltstone and sandstone   | Grey-green, micaceous sandstone (litharenite), and grey-green mudstone, with thin coals and limestone beds known as the 'Spirobis' limestone, with local intraformational conglomerate, strata may be reddened, locally.                                                                                   |
| Halesowen Formation – limestone                          |                                                                                                                                                                                                                                                                                                            |
| Halesowen Formation – sandstone                          |                                                                                                                                                                                                                                                                                                            |
| Salop Formation                                          | Red and red-brown mudstone, and red-brown (mostly sublitharenite) sandstone containing beds of pebbly sandstone and conglomerate itself containing Carboniferous limestone and chert clasts.                                                                                                               |
| Pennine Lower Coal Measures Formation                    | Interbedded grey mudstone, siltstone and pale grey sandstone, commonly with mudstones containing marine fossils in the lower part, and more numerous and thicker coal seams in the upper part.                                                                                                             |
| Pennine Middle Coal Measures Formation                   | Interbedded grey mudstone, siltstone, pale grey sandstone and commonly coal seams, with a bed of mudstone containing marine fossils at the base, and several such marine fossil-bearing mudstones in the upper half of the unit.                                                                           |

| <b>Geological Strata</b>            | <b>Summary of BGS Lexicon Definition</b>                                                                                                                                                                                    |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Millstone Grit Group                | Broadly upward-coarsening cyclic sequences of sandstone, siltstone and grey mudstone, with subordinate and typically thin coal seams and seatearth (palaeosol) horizons.                                                    |
| Merevale Shale Formation – mudstone | Greyish green to dark grey mudstone with pale buff dolomitic bands and lenticles. Becomes darker and more carbonaceous downwards.                                                                                           |
| Midlands Minor Intrusive Suite      | Numerous thin sills of grey-green spessarite, lamprophyre and thicker composite sills of hornblende diorite, commonly melanocratic at the base, intruded into strata ranging from Precambrian to Ordovician (Tremadoc) age. |
| Monks Park Shale Formation          | Grey micaceous shaly mudstones in lower part. Black, locally calcareous and phosphatic mudstones in upper part.                                                                                                             |
| Moor Wood Sandstone Formation       | Massive to convoluted sandstone and siltstone, with interbedded wavy-bedded micaceous and shaly mudstone.                                                                                                                   |
| Outwoods Shale Formation            | Interbedded grey burrowed, and dark-grey or greenish grey pyritic, mudstone. Beds of siltstone and sandstone increase in upper part.                                                                                        |
| Mancetter Shale Formation           | Grey to dark grey, sporadically greenish, micaceous and pyritic mudstone with common current ripple-bedded sandy wisps.                                                                                                     |
| Abbey Shale Formation               | Dark grey, greenish or blueish black mudstones with thin beds of limestone and glauconitic sandstone.                                                                                                                       |
| Purley Shale Formation              | Blocky to shaly red or maroon mudstone and siltstone at the base; green and grey fissile mudstones in the middle and red and green interbedded shaly mudstones at the top.                                                  |
| Helsby Sandstone Formation          | Fine- to medium-grained, locally micaceous, cross-bedded and flat-bedded sandstones, weathering to sand near surface.                                                                                                       |
| Charmouth Mudstone Formation        | Dark grey laminated shales, and dark, pale and bluish grey mudstones.                                                                                                                                                       |
| Dyrham Formation                    | Pale to dark grey and greenish grey, silty and sandy mudstone, with interbeds of silt or very fine-grained sand (locally muddy or silty), weathering yellow.                                                                |
| Marlstone Rock Formation            | Sandy, shell-fragmental and ooidal ferruginous limestone interbedded with ferruginous calcareous sandstone, and generally subordinate ferruginous mudstone beds.                                                            |

| <b>Geological Strata</b>                                  | <b>Summary of BGS Lexicon Definition</b>                                                                                                                                                                                                                       |
|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Whitby Mudstone                                           | Medium and dark grey fossiliferous mudstone and siltstone, with thin siltstone or silty mudstone beds and rare fine-grained calcareous sandstone beds.                                                                                                         |
| Gunthorpe Member                                          | Mudstone, red-brown, with subordinate dolomitic siltstone and fine-grained sandstone, greenish grey, common gypsum veins and nodules.                                                                                                                          |
| Mercia Mudstone Group - mudstone, siltstone and sandstone | Dominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas.                                                                                                                          |
| Hartshill Sandstone Formation                             | Grey to maroon medium-grained sandstone, glauconitic in upper part. Mudstone present only as rare beds 0.10m thick, or as drapes to sandstone beds.                                                                                                            |
| Caldecote Volcanic Formation                              | Grey, massive, feldspar and quartz crystal-lapilli tuff with subordinate angular to subrounded lithic blocks. Intercalations of grey to green, fine, well-laminated to massive tuffaceous mudstone, siltstone and sandstone.                                   |
| Unnamed Pluton, Neoproterozoic III                        | Not available (listed as 'pending upgrade' on BGS).                                                                                                                                                                                                            |
| Etruria Formation                                         | Red, purple, brown, ochreous, green, grey and commonly mottled mudstone, with lenticular sandstones and conglomerates referred to as 'espleys'.                                                                                                                |
| Blue Anchor Formation                                     | Typically comprises pale green-grey, dolomitic silty mudstones and siltstones with thin argillaceous or arenaceous laminae and lenses and a few thin, commonly discontinuous beds of hard, dolomitic, pale-cream to buff, porcellanous mudstone and siltstone. |
| Penarth Group                                             | Grey to black mudstones with subordinate limestones and sandstones; predominantly marine in origin.                                                                                                                                                            |
| Lilstock Formation                                        | Langport Member (porcellanous limestone below, calcareous mudstone above).                                                                                                                                                                                     |
| Blue Lias Formation (Saltford Shale Member)               | Mostly grey, fissile or blocky, fossiliferous calcareous mudstones; a few limestones.                                                                                                                                                                          |
| Blue Lias Formation (Rugby Limestone Member)              | Alternating grey, argillaceous limestones and mudstones.                                                                                                                                                                                                       |
| Northampton Sand Formation                                | Sandy, berthierine-ooidal and sideritic ironstone, greenish grey where fresh, weathering to brown limonitic sandstone, typically displaying a box-stone structure.                                                                                             |

| Geological Strata                                   | Summary of BGS Lexicon Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rutland Formation (Stamford Member)                 | A pale greenish grey to yellowish and white, generally massive, fine-grained, generally friable, quartzose, unfossiliferous sandstone or siltstone.                                                                                                                                                                                                                                                                                                                                                               |
| Rutland Formation (Wellingborough Limestone Member) | A massive argillaceous, sandy, shelly and shell-detrital limestone associated with rubbly oyster-rich limestone and marl and mudstones, passing northwards into sandstone.                                                                                                                                                                                                                                                                                                                                        |
| Rutland Formation                                   | Interpreted as a succession of up to seven shallowing upward, essentially delta-type rhythms, comprising ideally of a grey marine mudstone passing up into non-marine mudstone and siltstone, with a greenish-grey rootlet bed at the top.                                                                                                                                                                                                                                                                        |
| Blisworth Limestone Formation                       | Pale grey to off-white or yellowish limestones with thin marls and mudstones, fossiliferous, bioturbated peloidal, ooidal and shell-fragmental more-or-less argillaceous packstones and wackestones, subordinate cross-bedded ooidal shell-fragmental grainstones.                                                                                                                                                                                                                                                |
| Blisworth Clay Formation                            | Silicate-mudstone, grey, commonly variegated purplish red, yellow and green, poorly bedded to blocky. Commonly contains fossil rootlets and sideritic ironstone nodules, and locally with impersistent beds and lenses of argillaceous limestone including (mainly in the south) shell fragmental wackestones, packstones and grainstones, and (mainly in the north) sandstone. Mudstone weathers to highly plastic clay.                                                                                         |
| Cornbrash Formation                                 | Limestone, medium- to fine-grained, predominantly bioclastic wackestone and packstone with sporadic peloids.                                                                                                                                                                                                                                                                                                                                                                                                      |
| Kellaways Formation                                 | Mudstone, grey, commonly silici-silty or silici-sandy, with (predominantly in the upper part) beds of generally calcareous siltstone and sandstone.                                                                                                                                                                                                                                                                                                                                                               |
| Oxford Clay Formation                               | Silicate-mudstone, grey, generally smooth to slightly silty, with sporadic beds of argillaceous limestone nodules.                                                                                                                                                                                                                                                                                                                                                                                                |
| West Walton Formation                               | Calcareous mudstone, silty mudstone and siltstone, with subordinate fine-grained sandstones and argillaceous limestone (cementstone) or siltstone nodules.                                                                                                                                                                                                                                                                                                                                                        |
| Woburn Sands Formation                              | Sandstone (or loose sand). Fine- to coarse-grained rounded marine quartz sand, glauconitic in part. Commonly silty with few clay wisps or seams. Locally clean silver sands. Locally cemented to iron pan or gritty carstone. Cross-bedded. Some pebbles and phosphatic nodules to base. Typically grey or greenish grey weathering to ochreous yellow-brown. Minor lignite and pyrite. Local developments of fuller's earth. Commonly barren but nodule layers to base fossiliferous as at Upware and Brickhill. |

| <b>Geological Strata</b>             | <b>Summary of BGS Lexicon Definition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Gault Formation                      | Pale to dark grey or blue-grey clay or mudstone, glauconitic in part, with a sandy base. Discrete bands of phosphatic nodules (commonly preserving fossils), some pyrite and calcareous nodules.                                                                                                                                                                                                                                                                                                     |
| Holywell and New Pit Chalk Formation | Principally blocky, white firm to moderately hard chalk with numerous marls or paired marl seams. Flint occurs sporadically in the upper part in the deeper basin areas of the Southern Province.                                                                                                                                                                                                                                                                                                    |
| Holywell Nodular chalk Formation     | Generally hard nodular chalks with thin flaser marls and significant proportions of shell debris in part. B.                                                                                                                                                                                                                                                                                                                                                                                         |
| Upper Greensand Formation            | Sand and sandstone, fine-grained, silt, glauconitic, shelly.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| West Melbury Marly Chalk Formation   | Buff, grey and off-white, soft, marly chalk and hard grey limestone arranged in couplets.                                                                                                                                                                                                                                                                                                                                                                                                            |
| Zig Zag Chalk Formation              | Mostly firm, pale grey to off-white blocky chalk with a lower part characterised by rhythmic alternations of marls and marly chalks with firm white chalk. Thin gritty, silty chalk beds act as markers in the sequence.                                                                                                                                                                                                                                                                             |
| Lewes Nodular Chalk Formation        | Composed of hard to very hard nodular chalks and hardgrounds (which resist scratching by finger-nail) with interbedded soft to medium hard chalks (some grainy) and marls; some griotte chalks. The softer chalks become more abundant towards the top. Nodular chalks are typically lumpy and iron-stained (usually marking sponges). Brash is rough and flaggy or rubbly, and tends to be dirty. First regular seams of nodular flint, some large, commence near the base and continue throughout. |
| Seaford Chalk Formation              | Firm white chalk with conspicuous semi-continuous nodular and tabular flint seams. Hardgrounds and thin marls are known from the lowest beds. Some flint nodules are large to very large.                                                                                                                                                                                                                                                                                                            |
| New Pit Chalk Formation              | Principally blocky, white firm to moderately hard chalk with numerous marls or paired marl seams.                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## 1.2 References

- Ref. 1 Groundsure Site Sensitivity Data (GIS format), Ref. GS-L4D-PCR-CHS-QF9, September 2025. Available at: <https://www.bgs.ac.uk/> [Accessed 20/10/2025].
- Ref. 2 The Coal Authority, The Coal Authority Map Viewer. Available at: <https://datamine-cauk.hub.arcgis.com/> [Accessed 20/10/2025].
- Ref. 3 BGS Geoindex. Available at: [https://mapapps2.bgs.ac.uk/geoindex/home.html?\\_ga=2.264289545.743023803.1762168528-1647126272.1762168528](https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.264289545.743023803.1762168528-1647126272.1762168528) [Accessed 20/10/2025].
- Ref. 4 BGS, The BGS Lexicon of Named Rock Units. Available at: <https://webapps.bgs.ac.uk/lexicon/> [Accessed 20/10/2025].

## **Annex 14-2: Consultant Coal Mining Reports**



The Coal  
Authority

# Consultants Coal Mining Report

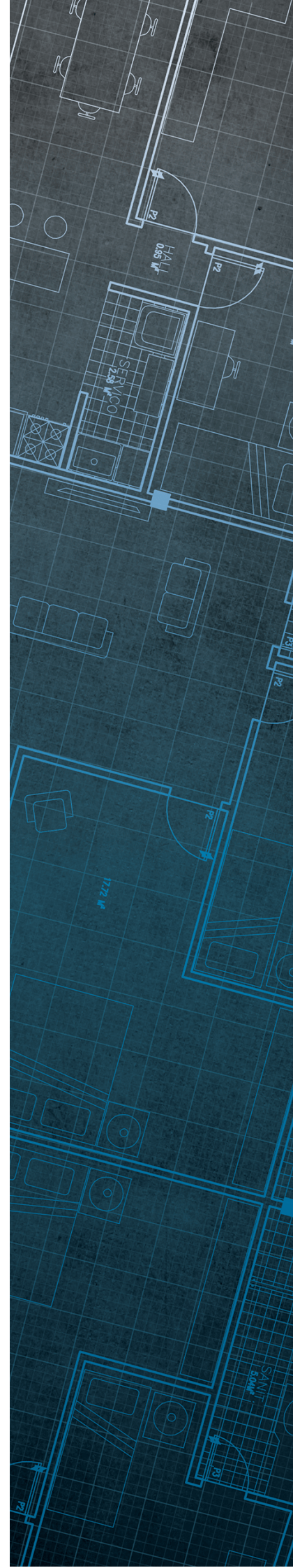
Part 1b Bentley  
Warwickshire

Date of enquiry:  
Date enquiry received:  
Issue date:

8 September 2025  
8 September 2025  
8 September 2025

Our reference:  
Your reference:

51003523508001  
GS-MJU-MUC-LFS-C8C



# Consultants

## Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

### Client name

GROUNDSURE LIMITED

### Enquiry address

Part 1b Bentley  
Warwickshire

### How to contact us

0345 762 6848 (UK)  
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200 Lichfield Lane  
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Nottinghamshire  
NG18 4RG

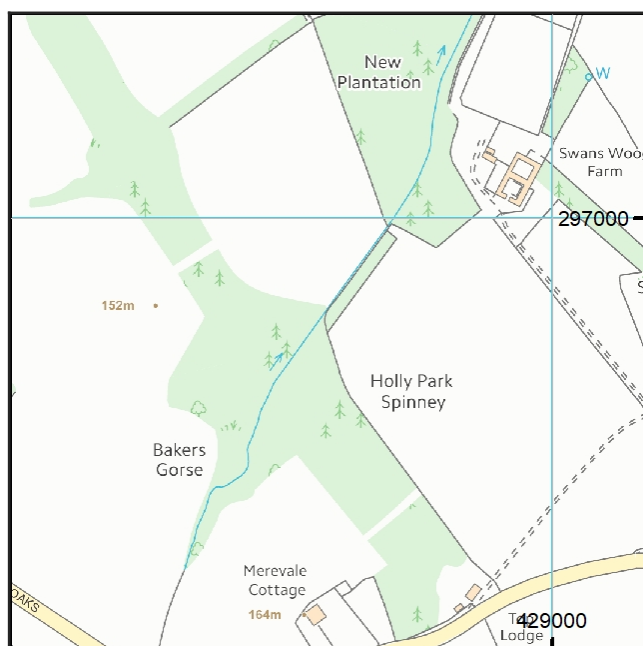
[www.groundstability.com](http://www.groundstability.com)

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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# Section 1 – Mining activity and geology

## Past underground mining

| Colliery  | Seam       | Mineral | Coal Authority reference | Depth (m) | Direction to working | Dipping rate of seam worked (degrees) | Dipped direction of seam worked | Extraction thickness (cm) | Year last mined |
|-----------|------------|---------|--------------------------|-----------|----------------------|---------------------------------------|---------------------------------|---------------------------|-----------------|
| BADDESLEY | TWO YARD   | Coal    | 4UOU                     | 36        | Beneath Property     | 21.3                                  | South-West                      | 168                       | 1842            |
| unnamed   | NINE FEET  | Coal    | 4QRJ                     | 47        | South-East           | 16.4                                  | South-West                      | 122                       | 1837            |
| BADDESLEY | SEVEN FEET | Coal    | 4QRM                     | 70        | South-East           | 39.8                                  | South-West                      | 178                       | 1900            |
| BADDESLEY | TWO YARD   | Coal    | 4QRE                     | 123       | Beneath Property     | 45.0                                  | South-West                      | 167                       | 1837            |
| BADDESLEY | SMITHY     | Coal    | 4UOV                     | 155       | South-West           | 18.4                                  | South-West                      | 76                        | 1894            |
| BADDESLEY | TWO YARD   | Coal    | 4QRH                     | 176       | South-West           | 14.0                                  | South-West                      | 167                       | 1880            |
| BADDESLEY | SEVEN FEET | Coal    | 4QRN                     | 237       | South-West           | 22.1                                  | South-West                      | 178                       | 1951            |

## Probable unrecorded shallow workings

Yes.

## Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

## Mine entries

| Entry type | Reference  | Grid reference | Treatment description                                                                          | Mineral | Conveyancing details |
|------------|------------|----------------|------------------------------------------------------------------------------------------------|---------|----------------------|
| Shaft      | 428297-007 | 428462 297369  | was drilled and sealed with shallow oilwell cement by King Associates Mining Limited in 1995.  | Coal    |                      |
| Shaft      | 428297-008 | 428457 297261  | Treatment details unknown.*                                                                    | Coal    |                      |
| Shaft      | 428297-009 | 428591 297076  | Treatment details unknown.*                                                                    | Coal    |                      |
| Shaft      | 428297-011 | 428449 297409  | was drilled and sealed with shallow oil well cement by King Associates Mining Limited in 1995. | Coal    |                      |
| Shaft      | 428297-012 | 428403 297256  | Treatment details unknown.*                                                                    | Coal    |                      |

\*For your information, before the coal industry was nationalised in 1947, there was no requirement for a mine operator to record mine entry treatment details when a mine was abandoned. Therefore, it is not unusual for us to have no treatment details for many of the 176,000 recorded mine entries on our database. Despite this lack of information, please be assured that the fact we have no treatment recorded does not necessarily mean that the mine entries were left untreated when abandoned.

### Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

|       |        |        |
|-------|--------|--------|
| 3593  | EM1124 | R332B  |
| R332A | EM1349 | EM1352 |
| PO0   | WMW333 | WMOC27 |

Our records show we have more plans than those shown above which could affect the enquiry boundary.

**Please contact us on 0345 762 6848** to determine the exact abandoned mine plans you require based on your needs.

## Outcrops

| Seam name  | Mineral | Seam workable | Distance to outcrop (m) | Direction to outcrop | Bearing of outcrop |
|------------|---------|---------------|-------------------------|----------------------|--------------------|
| BENCH      | Coal    | Yes           | Within                  | N/A                  | 153                |
| BENCH      | Coal    | Yes           | 17.4                    | North                | 276                |
| BENCH      | Coal    | Yes           | 17.4                    | North                | 276                |
| DEEP RYDER | Coal    | Yes           | Within                  | N/A                  | 145                |
| FOUR FEET  | Coal    | Yes           | Within                  | N/A                  | 4                  |
| FOUR FEET  | Coal    | Yes           | Within                  | N/A                  | 4                  |
| FOUR FEET  | Coal    | Yes           | Within                  | N/A                  | 131                |
| FOUR FEET  | Coal    | Yes           | Within                  | N/A                  | 312                |
| FOUR FEET  | Coal    | Yes           | Within                  | N/A                  | 312                |
| FOUR FEET  | Coal    | Yes           | 17.2                    | North-East           | 327                |
| FOUR FEET  | Coal    | Yes           | 17.2                    | North-East           | 327                |
| SEVEN FEET | Coal    | Yes           | Within                  | N/A                  | 155                |
| SEVEN FEET | Coal    | Yes           | 25.0                    | North                | 261                |
| SEVEN FEET | Coal    | Yes           | 25.0                    | North                | 261                |
| STUMPY     | Coal    | Yes           | 22.8                    | North                | 108                |
| STUMPY     | Coal    | Yes           | 22.8                    | North                | 286                |
| TWO YARD   | Coal    | Yes           | Within                  | N/A                  | 318                |
| TWO YARD   | Coal    | Yes           | Within                  | N/A                  | 320                |
| TWO YARD   | Coal    | Yes           | Within                  | N/A                  | 320                |
| TWO YARD   | Coal    | Yes           | Within                  | N/A                  | 326                |
| TWO YARD   | Coal    | Yes           | Within                  | N/A                  | 326                |
| TWO YARD   | Coal    | Yes           | 46.2                    | North-East           | 327                |

## Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

### **Opencast mines**

Please refer to the "Summary of findings" map (on separate sheet) for details of any opencast areas within 500 metres of the enquiry boundary.

### **Coal Authority managed tips**

None recorded within 500 metres of the enquiry boundary.

## Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

### Site investigations

| Distance to site investigation (m) | Direction  |
|------------------------------------|------------|
| 15.6                               | North-West |

See Section 4 for further information.

### Remediated sites

None recorded within 50 metres of the enquiry boundary.

### Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

### Mine gas

None recorded within 500 metres of the enquiry boundary.

### Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

## Section 3 – Licensing and future mining activity

### Future underground mining

None recorded.

### Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

### Court orders

None recorded.

### Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

### Withdrawal of support notices

The property is in an area where a notice to withdraw support was given in 1994.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

### Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

## Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

### Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

**MINE GAS:** Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

### Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

### Site investigations

The site is within an area of previous interest. It is close to where the Coal Authority has received information relating to past site investigations.

The site requires further investigation and may influence how you approach your risk assessment.

**For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at [groundstability@coal.gov.uk](mailto:groundstability@coal.gov.uk).**

## Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at [groundstability@coal.gov.uk](mailto:groundstability@coal.gov.uk)**.

### Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

### Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

### Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

### Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

### Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

### Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

### Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

### **Opencast mines**

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

### **Coal Authority managed tips**

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

### **Site investigations**

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

### **Remediated sites**

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

### **Coal mining subsidence**

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

### **Mine gas**

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

### **Mine water treatment schemes**

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

### **Future underground mining**

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

### **Coal mining licensing**

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

### **Court orders**

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

### **Section 46 notices**

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

### **Withdrawal of support notices**

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

### **Payment to owners of former copyhold land**

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

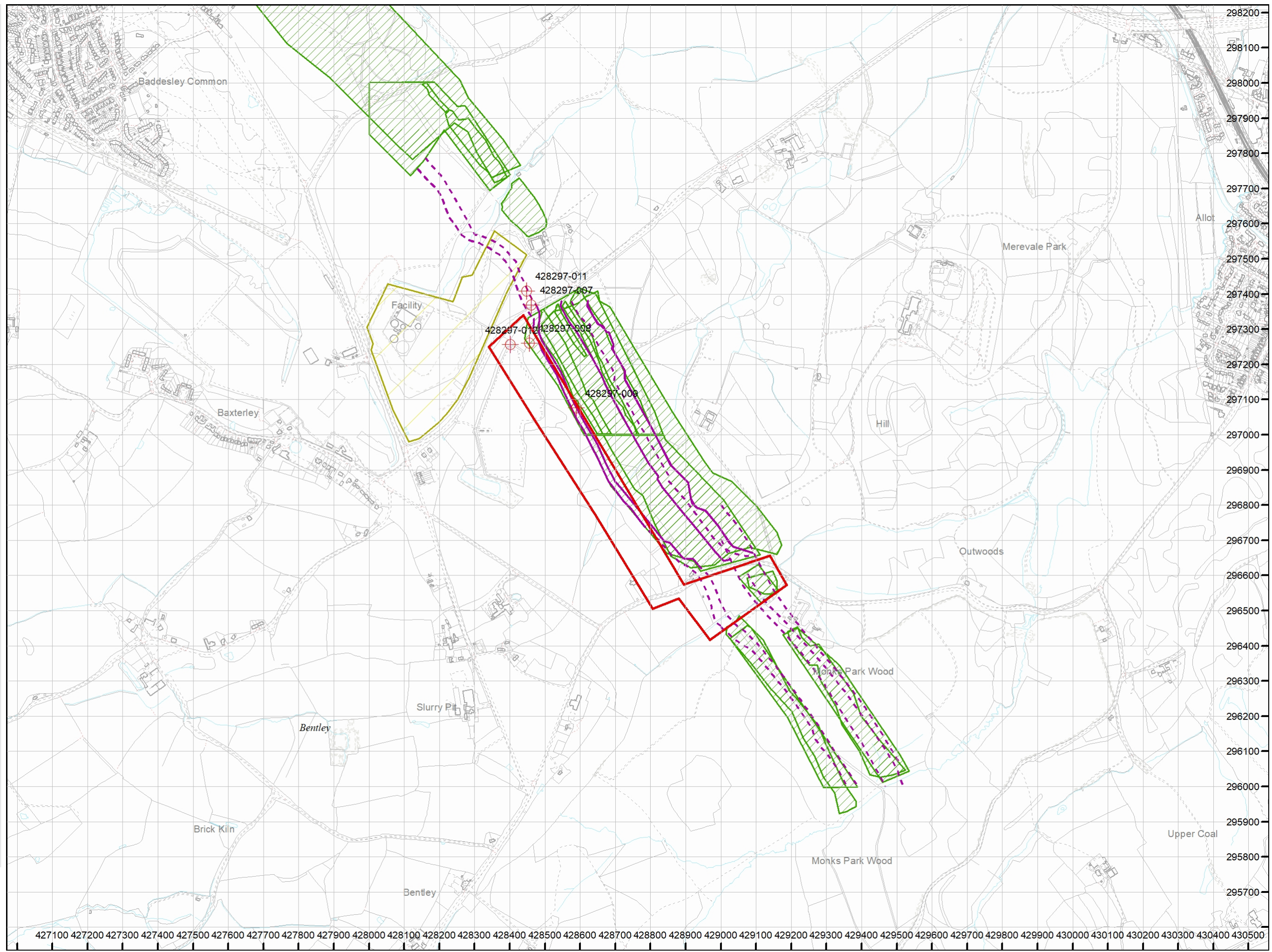
The map highlights any specific surface or subsurface features within or near to the boundary of the site.

### Key

- Approximate position of the enquiry boundary shown 
- Disused mine shaft 
- Outcrop (Proven) 
- Outcrop (Conjectured) 
- Unlicensed opencast site 
- Site investigations 

### How to contact us

0345 762 6848 (UK)  
+44 (0)1623 637 000 (International)  
[www.groundstability.com](http://www.groundstability.com)





The Coal  
Authority

# Consultants Coal Mining Report

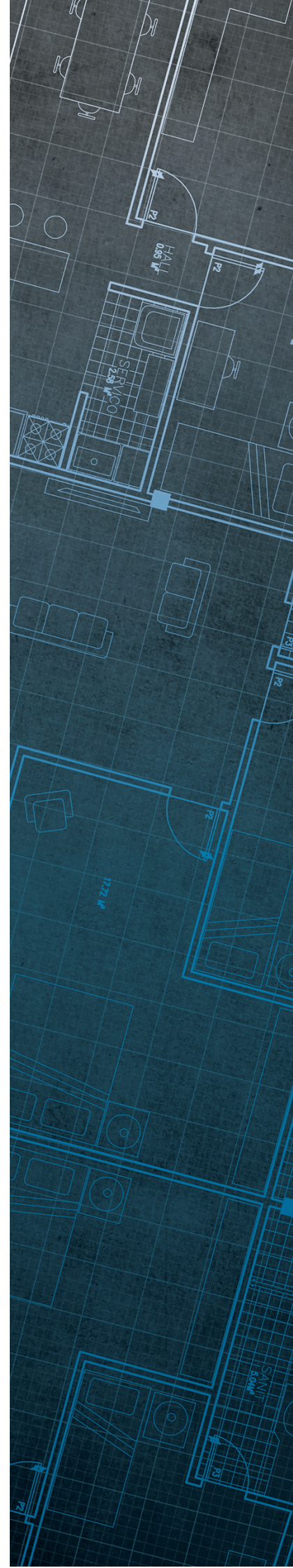
Atherstone Outfall  
Warwickshire

Date of enquiry:  
Date enquiry received:  
Issue date:

8 September 2025  
8 September 2025  
8 September 2025

Our reference:  
Your reference:

51003523499001  
GS-597-O6O-PZQ-BCX



# Consultants

# Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

## Client name

GROUNDSURE LIMITED

## Enquiry address

Atherstone Outfall  
Warwickshire

## How to contact us

0345 762 6848 (UK)  
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Mansfield  
Nottinghamshire  
NG18 4RG

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 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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# Section 1 – Mining activity and geology

## **Past underground mining**

No past mining recorded.

## **Probable unrecorded shallow workings**

None.

## **Spine roadways at shallow depth**

No spine roadway recorded at shallow depth.

## **Mine entries**

None recorded within 100 metres of the enquiry boundary.

## **Abandoned mine plan catalogue numbers**

None available.

## **Outcrops**

No outcrops recorded.

## **Geological faults, fissures and breaklines**

No faults, fissures or breaklines recorded.

## **Opencast mines**

None recorded within 500 metres of the enquiry boundary.

## **Coal Authority managed tips**

None recorded within 500 metres of the enquiry boundary.

## Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

### Site investigations

None recorded within 50 metres of the enquiry boundary.

### Remediated sites

None recorded within 50 metres of the enquiry boundary.

### Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

### Mine gas

None recorded within 500 metres of the enquiry boundary.

### Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

## Section 3 – Licensing and future mining activity

### Future underground mining

None recorded.

### Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

### Court orders

None recorded.

### Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

### Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

### Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

## Section 4 – Further information

Based on the responses in this report, no further information has been highlighted.

### Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

**MINE GAS:** Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

## Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at [groundstability@coal.gov.uk](mailto:groundstability@coal.gov.uk)**.

### Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

### Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

### Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

### Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

### Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

### Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

### Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

### **Opencast mines**

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

### **Coal Authority managed tips**

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

### **Site investigations**

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

### **Remediated sites**

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

### **Coal mining subsidence**

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

### **Mine gas**

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

### **Mine water treatment schemes**

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

### **Future underground mining**

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

### **Coal mining licensing**

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

### **Court orders**

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

### **Section 46 notices**

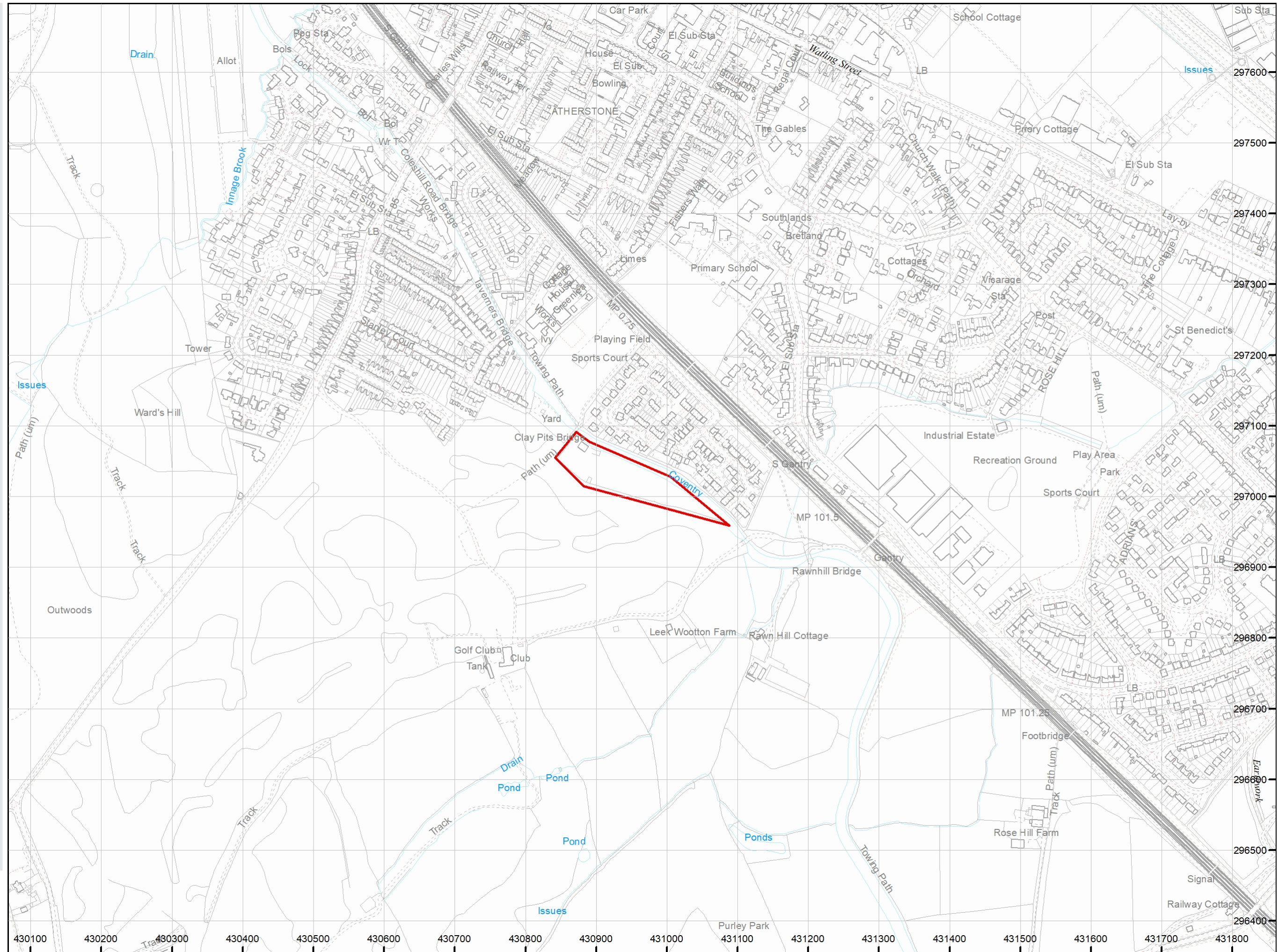
Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

### **Withdrawal of support notices**

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

### **Payment to owners of former copyhold land**

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.





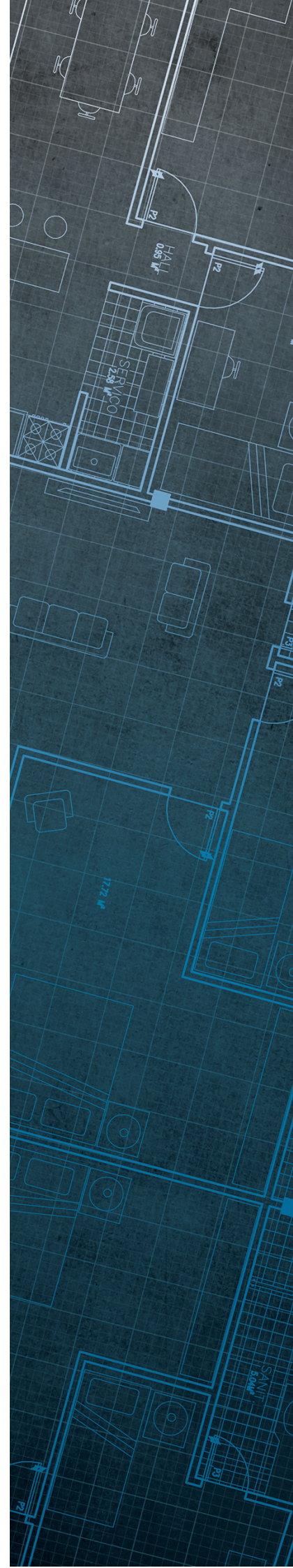
The Coal  
Authority

# Consultants Coal Mining Report

Hawkesbury  
Warwickshire

Date of enquiry: 8 September 2025  
Date enquiry received: 8 September 2025  
Issue date: 8 September 2025

Our reference: 51003523494001  
Your reference: GS-OI9-CHY-APV-RTZ



# Consultants

## Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

### Client name

GROUNDSURE LIMITED

### Enquiry address

Hawkesbury  
Warwickshire

### How to contact us

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+44 (0)1623 637 000 (International)

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Nottinghamshire  
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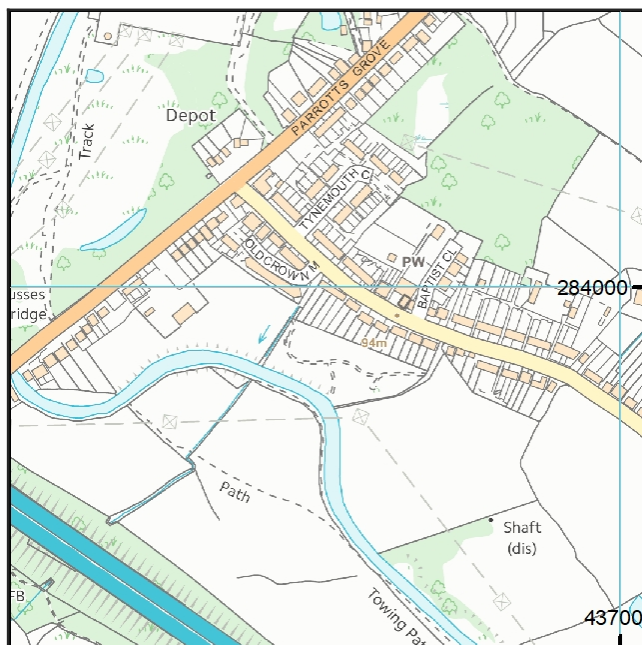
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Approximate position of property



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# Section 1 – Mining activity and geology

## Past underground mining

| Colliery           | Seam            | Mineral   | Coal Authority reference | Depth (m) | Direction to working | Dipping rate of seam worked (degrees) | Dipped direction of seam worked | Extraction thickness (cm) | Year last mined |
|--------------------|-----------------|-----------|--------------------------|-----------|----------------------|---------------------------------------|---------------------------------|---------------------------|-----------------|
| WYKEN              | RYDER           | Coal      | 4NTH                     | 66        | Beneath Property     | 16.5                                  | West                            | 107                       | 1858            |
| WYKEN              | ELL             | Coal      | 4NTL                     | 67        | Beneath Property     | 16.8                                  | West                            | 183                       | 1858            |
| WYKEN              | NINE FEET       | Coal      | 4NTQ                     | 69        | Beneath Property     | 20.0                                  | West                            | 150                       | 1858            |
| unnamed            | THICK COAL      | Coal      | 4RUH                     | 78        | Beneath Property     | 13.8                                  | West                            | 500                       | 1869            |
| WYKEN              | ELL             | Coal      | 4NTM                     | 111       | Beneath Property     | 14.9                                  | West                            | 183                       | 1858            |
| WYKEN              | RYDER           | Coal      | 4NTI                     | 116       | Beneath Property     | 14.8                                  | West                            | 107                       | 1858            |
| WYKEN              | NINE FEET       | Coal      | 4NTR                     | 119       | Beneath Property     | 14.9                                  | West                            | 150                       | 1858            |
| WYKEN              | RYDER           | Coal      | 4RU8                     | 123       | North                | 15.9                                  | East                            | 107                       | 1858            |
| WYKEN              | ELL             | Coal      | 4RU9                     | 124       | North                | 15.9                                  | East                            | 183                       | 1858            |
| FLY / NEW WINNINGS | TWO YARD        | Coal      | 4RU5                     | 125       | Beneath Property     | 14.9                                  | West                            | 167                       | 1888            |
| FLY / NEW WINNINGS | ELL RYDER       | Coal      | 4RUI                     | 129       | Beneath Property     | 15.1                                  | West                            | 322                       | 1888            |
| FLY / NEW WINNINGS | NINE FEET       | Coal      | 4RUA                     | 131       | Beneath Property     | 16.0                                  | West                            | 198                       | 1888            |
| VICTORIA           | NINE FEET       | Coal      | 4RUG                     | 137       | North                | 16.1                                  | West                            | 198                       | 1858            |
| FLY / NEW WINNINGS | WHITE IRONSTONE | Coal      | 4RUK                     | 141       | Beneath Property     | 15.7                                  | West                            | 250                       | 1850            |
| WYKEN              | BLACK IRONSTONE | Ironstone | 4UO4                     | 178       | South                | 26.6                                  | West                            | 130                       | 1881            |
| WYKEN              | WHITE FIRECLAY  | Fireclay  | 4U16                     | 209       | South-East           | 18.4                                  | West                            | 104                       | 1889            |
| VICTORIA           | TWO YARD        | Coal      | 4RU6                     | 220       | Beneath Property     | 14.9                                  | West                            | 167                       | 1870            |
| VICTORIA           | ELL RYDER       | Coal      | 4RUJ                     | 228       | Beneath Property     | 15.0                                  | West                            | 322                       | 1870            |
| VICTORIA           | NINE FEET       | Coal      | 4RUB                     | 231       | Beneath Property     | 16.1                                  | West                            | 198                       | 1870            |
| VICTORIA           | TWO YARD        | Coal      | 4RMO                     | 244       | West                 | 12.2                                  | West                            | 167                       | 1870            |
| VICTORIA           | TWO YARD        | Coal      | 4RU7                     | 247       | South-West           | 14.9                                  | West                            | 167                       | 1870            |
| VICTORIA           | TWO YARD        | Coal      | 4RMN                     | 249       | South-West           | 12.1                                  | West                            | 167                       | 1870            |

| Colliery | Seam            | Mineral   | Coal Authority reference | Depth (m) | Direction to working | Dipping rate of seam worked (degrees) | Dipped direction of seam worked | Extraction thickness (cm) | Year last mined |
|----------|-----------------|-----------|--------------------------|-----------|----------------------|---------------------------------------|---------------------------------|---------------------------|-----------------|
| WYKEN    | ELL             | Coal      | 4NTP                     | 251       | South                | 13.6                                  | West                            | 183                       | 1876            |
| WYKEN    | NINE FEET       | Coal      | 4NTU                     | 252       | Beneath Property     | 13.5                                  | West                            | 147                       | 1880            |
| WYKEN    | RYDER           | Coal      | 4NTK                     | 253       | South                | 13.8                                  | West                            | 107                       | 1880            |
| VICTORIA | NINE FEET       | Coal      | 4RMR                     | 254       | West                 | 11.5                                  | West                            | 198                       | 1870            |
| WYKEN    | WHITE IRONSTONE | Ironstone | 4U18                     | 273       | West                 | 14.0                                  | West                            | 150                       | 1889            |
| WYKEN    | WHITE IRONSTONE | Ironstone | 4U12                     | 279       | West                 | 14.0                                  | West                            | 152                       | 1889            |

### Probable unrecorded shallow workings

Yes.

### Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

## Mine entries

| Entry type | Reference  | Grid reference | Treatment description                                                                                                                                                                                                                                                   | Mineral | Conveyancing details             |
|------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------------------|
| Shaft      | 436283-001 | 436680 283333  | was capped by the National Coal Board in 1978.                                                                                                                                                                                                                          | Coal    |                                  |
| Shaft      | 436283-002 | 436693 283303  | was capped by the National Coal Board in 1978.                                                                                                                                                                                                                          | Coal    |                                  |
| Shaft      | 436283-003 | 436863 283753  | Treatment details unknown.*                                                                                                                                                                                                                                             | Coal    |                                  |
| Shaft      | 436283-007 | 436702 283291  | was capped by the National Coal Board in 1978.                                                                                                                                                                                                                          | Coal    |                                  |
| Shaft      | 436283-008 | 436901 283430  | Treatment details unknown.*                                                                                                                                                                                                                                             | Coal    |                                  |
| Shaft      | 436283-010 | 436802 283838  | was capped by RSA in January 1989.                                                                                                                                                                                                                                      | Coal    |                                  |
| Shaft      | 436284-003 | 436673 284603  | Treatment details unknown.*                                                                                                                                                                                                                                             | Coal    |                                  |
| Shaft      | 436284-004 | 436703 284526  | Treatment details unknown.*                                                                                                                                                                                                                                             | Coal    |                                  |
| Shaft      | 436284-005 | 436622 284507  | was drilled, grouted, plugged and capped under the supervision of Johnson Poole & Bloomer for the National Grid Company in 1998.                                                                                                                                        | Coal    | Courtaulds Limited<br>09/10/1951 |
| Shaft      | 436284-006 | 436666 284415  | was drilled, grouted and capped under the supervision of Johnson Poole & Bloomer for the National Grid Company in 1998.                                                                                                                                                 | Coal    | Courtaulds Limited<br>09/10/1951 |
| Shaft      | 436284-007 | 436685 284340  | was drilled, grouted, plugged and capped under the supervision of Johnson Poole & Bloomer for the National Grid Company in 1998.                                                                                                                                        | Coal    | Courtaulds Limited<br>09/10/1951 |
| Shaft      | 436284-013 | 436362 284826  | Treatment details unknown.*                                                                                                                                                                                                                                             | Coal    |                                  |
| Shaft      | 436284-014 | 436418 284726  | Treatment details unknown.*                                                                                                                                                                                                                                             | Coal    |                                  |
| Shaft      | 436284-016 | 436568 284340  | was not searched for in 1998 during an investigation under the supervision of Johnson Poole & Bloomer for the National Grid Company due to its location next to sensitive electrical equipment, we have no record of any previous treatment having been afforded to it. | Coal    |                                  |
| Shaft      | 436284-017 | 436557 284242  | was not located by probe drilling during an investigation under the supervision of Johnson Poole & Bloomer for the National Grid Company in 1998, we have no record of any previous treatment having been afforded to it.                                               | Coal    |                                  |
| Shaft      | 436284-018 | 436569 284533  | was not located by probe drilling during an investigation under the supervision of Johnson Poole & Bloomer for the National Grid Company in 1998, we have no record of any previous treatment having been afforded to it.                                               | Coal    |                                  |
| Shaft      | 436284-019 | 436718 284211  | Treatment details unknown.*                                                                                                                                                                                                                                             | Coal    |                                  |
| Shaft      | 436284-027 | 436293 284725  | Treatment details unknown.*                                                                                                                                                                                                                                             | Coal    |                                  |

| Entry type | Reference  | Grid reference | Treatment description                                                                                                                                                                                                     | Mineral | Conveyancing details |
|------------|------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------|
| Shaft      | 436284-028 | 436317 284735  | Treatment details unknown.*                                                                                                                                                                                               | Coal    |                      |
| Shaft      | 436284-029 | 436522 284522  | was drilled, grouted, plugged and capped under the supervision of Johnson Poole & Bloomer for the National Grid Company in 1998.                                                                                          | Coal    |                      |
| Shaft      | 436284-030 | 436619 284324  | was drilled, grouted, plugged and capped, the cap also covered an adjacent 4 metre deep ventilation shaft, under the supervision of Johnson Poole & Bloomer for the National Grid Company in 1998.                        | Coal    |                      |
| Shaft      | 436284-031 | 436615 284285  | was drilled, grouted and capped under the supervision of Johnson Poole & Bloomer for the National Grid Company in 1998.                                                                                                   | Coal    |                      |
| Shaft      | 436284-035 | 436541 284679  | Treatment details unknown.*                                                                                                                                                                                               | Coal    |                      |
| Shaft      | 436284-036 | 436535 284648  | Treatment details unknown.*                                                                                                                                                                                               | Coal    |                      |
| Shaft      | 436284-037 | 436519 284614  | Treatment details unknown.*                                                                                                                                                                                               | Coal    |                      |
| Shaft      | 436284-039 | 436577 284704  | Treatment details unknown.*                                                                                                                                                                                               | Coal    |                      |
| Shaft      | 436284-047 | 436571 284777  | Treatment details unknown.*                                                                                                                                                                                               | Coal    |                      |
| Shaft      | 436284-048 | 436560 284613  | Treatment details unknown.*                                                                                                                                                                                               | Coal    |                      |
| Shaft      | 436284-049 | 436588 284623  | Treatment details unknown.*                                                                                                                                                                                               | Coal    |                      |
| Shaft      | 436284-050 | 436586 284508  | was not located during an investigation by probe drilling under the supervision of Johnson Poole & Bloomer for the National Grid Company in 1998, we have no record of any previous treatment having been afforded to it. | Coal    |                      |
| Shaft      | 436284-051 | 436631 284533  | was not located by probe drilling during an investigation under the supervision of Johnson Poole & Bloomer for the National Grid Company in 1998. We have no record of any previous treatment having been afforded to it. | Coal    |                      |
| Shaft      | 436284-052 | 436647 284542  | Treatment details unknown.*                                                                                                                                                                                               | Coal    |                      |
| Shaft      | 436284-053 | 436588 284539  | was drilled, grouted and capped under the supervision of Johnson Poole & Bloomer for the National Grid Company in 1998.                                                                                                   | Coal    |                      |
| Shaft      | 436284-054 | 436687 284203  | Treatment details unknown.*                                                                                                                                                                                               | Coal    |                      |
| Shaft      | 437283-001 | 437031 283389  | Treatment details unknown.*                                                                                                                                                                                               | Coal    |                      |
| Shaft      | 437283-002 | 437002 283570  | Treatment details unknown.*                                                                                                                                                                                               | Coal    |                      |
| Shaft      | 437283-005 | 437080 283428  | Treatment details unknown.*                                                                                                                                                                                               | Coal    |                      |
| Shaft      | 437283-009 | 437026 283423  | Treatment details unknown.*                                                                                                                                                                                               | Coal    |                      |

\*For your information, before the coal industry was nationalised in 1947, there was no requirement for a mine operator to record mine entry treatment details when a mine was abandoned. Therefore, it is not unusual for us to have no treatment details for many of the 176,000 recorded mine entries on our database. Despite this lack of information, please be assured that the fact we have no treatment recorded does not necessarily mean that the mine entries were left untreated when abandoned.

### Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

|        |       |        |
|--------|-------|--------|
| 16248  | 16249 | EM1129 |
| EM1127 | 2227  | PO0    |
| 16161  | 1257  | OM0    |

Our records show we have more plans than those shown above which could affect the enquiry boundary.

**Please contact us on 0345 762 6848** to determine the exact abandoned mine plans you require based on your needs.

### Outcrops

No outcrops recorded.

### Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

### Opencast mines

None recorded within 500 metres of the enquiry boundary.

### Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

## Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

### Site investigations

None recorded within 50 metres of the enquiry boundary.

### Remediated sites

None recorded within 50 metres of the enquiry boundary.

### Coal mining subsidence

There are 2 claims within 50 metres of the property boundary that do not match the property address. These are shown on the enquiry boundary plot.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

If further subsidence damage claims information is required, please visit [www.groundstability.com](http://www.groundstability.com).

See Section 4 for further information.

### Mine gas

None recorded within 500 metres of the enquiry boundary.

### Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

## Section 3 – Licensing and future mining activity

### Future underground mining

None recorded.

### Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

### Court orders

None recorded.

### Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

### Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

### Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

## Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

### Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

**MINE GAS:** Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

### Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

### Coal mining subsidence

The site is within an area of previous interest. It is close to where the Coal Authority or licensed mine operator has investigated and where necessary remediated issues relating to coal mining subsidence.

The site requires further investigation and may influence your risk assessment. We recommend that you order the appropriate **Coal Authority Subsidence Claims Report**, which will include more information about the hazard.

**For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at [groundstability@coal.gov.uk](mailto:groundstability@coal.gov.uk).**

## Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at [groundstability@coal.gov.uk](mailto:groundstability@coal.gov.uk)**.

### Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

### Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

### Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

### Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

### Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

### Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

### Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

### **Opencast mines**

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

### **Coal Authority managed tips**

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

### **Site investigations**

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

### **Remediated sites**

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

### **Coal mining subsidence**

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

### **Mine gas**

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

### **Mine water treatment schemes**

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

### **Future underground mining**

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

### **Coal mining licensing**

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

### **Court orders**

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

### **Section 46 notices**

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

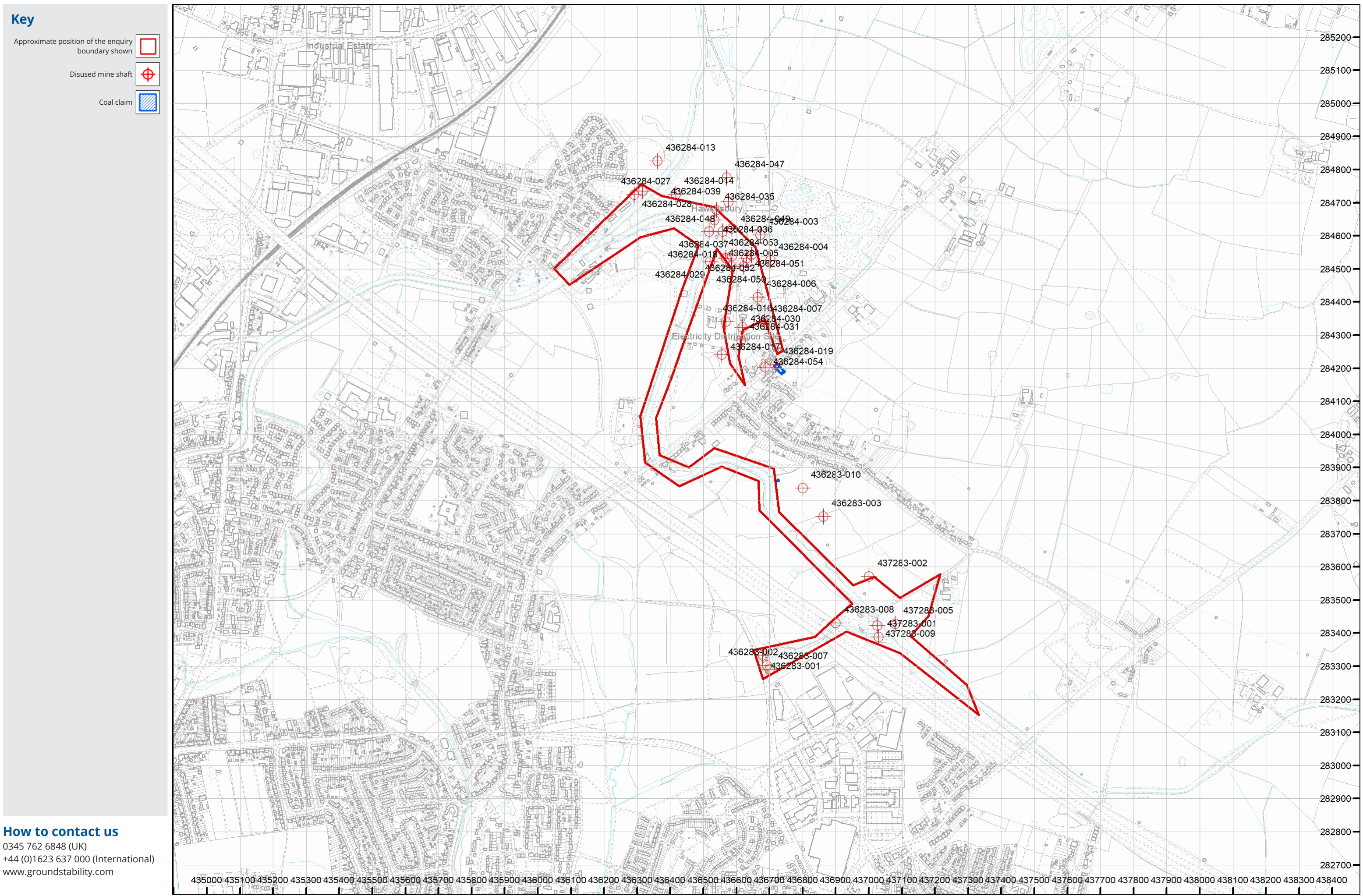
### **Withdrawal of support notices**

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

### **Payment to owners of former copyhold land**

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

The map highlights any specific surface or subsurface features within or near to the boundary of the site.



## **Annex 14-3: Current and Historical Potential Sources of Contamination**

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## Annex 14-3: Current and Historical Potential Sources of Contamination

### 1. Introduction

- 1.1.1 This annex highlights the current and historical activities that have been identified as potential sources of contamination. This includes those located within the Preliminary Order Limits (on-site), as well as those within the 250 m study area (off-site). These activities may have in turn impacted on soil, soil leachate and groundwater quality.
- 1.1.2 The potential sources of contamination for the Preliminary Order Limits have been included in this annex and are shown on **Figure 14-PD-6** in PEI Report **Volume 3**.
- 1.1.3 The sources of this information include:
- a. Current mapping (on the project GIS);
  - b. Historical mapping from Groundsure (Ref. 2):
    - i. Historical mapping has been reviewed to evaluate the potential for past activities, both on and adjacent to the Preliminary Order Limits, to have impacted upon its environment and land quality. Historical Ordnance Survey (OS) maps of the Preliminary Order Limits were obtained from Groundsure (GIS format). The available mapping dates are between 1881 - 1995. Where dates are given in the text, these refer to dates of maps on which the features appear, and do not necessarily refer to exact dates of construction, or operation of any particular facility; and
    - ii. Note that emphasis has been made on historical potentially contaminative features within 50 m from the Preliminary Order Limits. Only features determined to be 'key' have been identified between 50 m and 250 m.
  - c. Groundsure GIS data (Ref. 1) including the following layers:
    - i. Surface ground workings;
    - ii. Past land uses including historical tanks, petrol stations, military land, garages and energy features;
    - iii. Current and recent land uses including radioactive substance authorisations, pollution inventories, List 1 and 2 dangerous substances, industrial activities, hazardous substances storage, tanks, Control of Major Accident Hazards (COMAH) sites;
    - iv. Waste sites including authorised landfill sites and historic landfills, waste treatment and transfer sites; and

- v. Railway infrastructure and projects including railways, historical railways, historical tunnels.
  - d. Historical landfill sites and authorised landfill sites information provided by the Environment Agency; and
  - e. Further information on landfills and potential or known contaminated land / known or potential Part 2A sites were requested from the Local Authorities (see **Appendix 14-PD-2** in PEI Report **Volume 4**). Information has been received from West Northamptonshire, Buckinghamshire, Central Bedfordshire and Nuneaton and Bedworth and has been included within **Table 1**. No information was received from North Warwickshire, Coventry, Rugby and Milton Keynes at the time of writing.
- 1.1.4 Due to the size and nature of the Preliminary Order Limits, the information presented will necessarily be high-level in some areas with a focus on presenting relevant information in a proportionate manner. Therefore, the details of some of these regulated activities have been listed up to 50 m from the Preliminary Order Limits, including contemporary trade entries, pumping stations, electrical substations, standalone tanks, waste facilities such as tips and recycling centres.

**Table 1: Identification of current and historical potential sources of contamination**

| <b>ID Reference</b>       | <b>Name</b>                                                                                              | <b>Location</b>                                                    | <b>Current land use</b>                                                                  | <b>Historical land use</b>                                                                                                                                             | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                     |
|---------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Part 2 (Section A)</b> |                                                                                                          |                                                                    |                                                                                          |                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                          |
| P2-SA-CL01                | Current railway                                                                                          | Overlaps southern extent of the northern area at its closest point | Railway                                                                                  | Railway since pre-1900                                                                                                                                                 | No further details.                                                                                                                                                                                                                                                                                      |
| P2-SA-CL02                | Current garage                                                                                           | Adjacent to the north-east of the northern area                    | Garage                                                                                   | Garage since 1970 – 1979                                                                                                                                               | One industrial land use - vehicle repair, testing and servicing.                                                                                                                                                                                                                                         |
| P2-SA-CL03                | Current Manor Road Industrial Estate including electrical substation and historical car garage and works | Adjacent to the north-east of the northern area                    | Manor Road Industrial Estate, including furniture manufacturers, engineers, trophy store | Works in western area 1950 – 1959. Shoe factory, electrical substation, garage and other works 1970 – 1979. Labelled as Manor Road Industrial Estate since 1990 – 1995 | Six industrial land uses associated with the industrial estate: <ul style="list-style-type: none"> <li>– Industrial engineers;</li> <li>– Photographic and optical equipment;</li> <li>– Second-hand vehicles;</li> <li>– Precision engineers; and</li> <li>– Unspecified works or factories.</li> </ul> |
| P2-SA-CL04                | Current Leek Wootton Farm                                                                                | 90 m south of northern area                                        | Farm                                                                                     | Rawn Hill Cottage 1990 – 1995                                                                                                                                          | No further details.                                                                                                                                                                                                                                                                                      |
| P2-SA-CL05                | Current Quarry Farm                                                                                      | 10 m south of the central area                                     | Farm                                                                                     | Quarry Farm since pre-1900                                                                                                                                             | No further details.                                                                                                                                                                                                                                                                                      |

| <b>ID Reference</b> | <b>Name</b>                                                             | <b>Location</b>                      | <b>Current land use</b>                                        | <b>Historical land use</b>           | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------|-------------------------------------------------------------------------|--------------------------------------|----------------------------------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SA-CL06          | Current Whitegate Farm                                                  | 150 m south of the central area      | Farm                                                           | Open land until current mapping      | No further details.                                                                                                                                  |
| P2-SA-CL07          | Current Hillside Meadow Farm                                            | 110 m south-west of the central area | Farm                                                           | Open land until current mapping      | No further details.                                                                                                                                  |
| P2-SA-CL08          | Current Garden Farm                                                     | 70 m south of the central area       | Farm                                                           | Oak Tree Farm 1990 – 1995            | No further details.                                                                                                                                  |
| P2-SA-CL09          | Current Bardon Manor Farm                                               | 40 m east of the central area        | Farm                                                           | Bardon Manor Farm since 1990 – 1995  | No further details.                                                                                                                                  |
| P2-SA-CL10          | Current Stoneleigh Glebe Farm, including historical tank                | 65 m north of the southern area      | Farm                                                           | Stoneleigh Glebe Farm since pre-1900 | No further details.                                                                                                                                  |
| P2-SA-CL11          | Current Rose Hill Farm                                                  | 175 m north-east of the central area | Rose Hill Farm                                                 | Rose Hill Farm since pre-1900        | No further details.                                                                                                                                  |
| P2-SA-CL12          | Current Cherry Tree Farm and tramway sidings                            | 130 m south of the southern area     | Cherry Tree Farm                                               | Cherry Tree Farm since 1900 – 1909   | No further details.                                                                                                                                  |
| P2-SA-CL13          | Current pet food factory buildings, including electrical substation and | 250 m south-east of southern area    | Current pet and animal food factory (extends outside the study | Sewage works 1901 – 1965             | No further details.                                                                                                                                  |

| <b>ID Reference</b> | <b>Name</b>                                                     | <b>Location</b>                       | <b>Current land use</b> | <b>Historical land use</b>                                                                  | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------|-----------------------------------------------------------------|---------------------------------------|-------------------------|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     | former sewage works                                             |                                       | area to the south-east) |                                                                                             |                                                                                                                                                      |
| P2-SA-CL14          | Historical scrap yard and gas works, including historical tanks | 10 m north-west of the northern area  | Residential properties  | Historical gas works pre-1900, labelled 'works' to 1959. Scrap yard 1970 – 1979             | No further details.                                                                                                                                  |
| P2-SA-CL15          | Historical boot factory                                         | 140 m east of the northern area       | Residential properties  | Boot factory 1900 to 1929. Warehouse 1950 – 1959                                            | No further details.                                                                                                                                  |
| P2-SA-CL16          | Historical heap                                                 | 200 m south of the southern area      | Residential properties  | Heap 1910 – 1919                                                                            | No further details.                                                                                                                                  |
| P2-SA-CL17          | Unspecified works / factory and former hat works                | Adjacent to west of the northern area | Unoccupied buildings    | Historical hat works pre-1900 – 1939. Labelled as works since 1950 – 1959                   | No further details.                                                                                                                                  |
| P2-SA-CL18          | Unspecified works / factory and former hosiery works            | 15 m east of the northern area        | Factory                 | Works 1950 – 1959<br>Hosiery works and builders yard 1970 – 1979<br>Works since 1990 – 1995 | One industrial use – unspecified works.                                                                                                              |

| <b>ID Reference</b> | <b>Name</b>                                    | <b>Location</b>                      | <b>Current land use</b> | <b>Historical land use</b>                                                        | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                             |
|---------------------|------------------------------------------------|--------------------------------------|-------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SA-CL19          | Hartshill Wharf, unspecified heap              | Adjacent south of the southern area  | Wharf                   | Hartshill Wharf since pre-1900                                                    | Industrial land use: <ul style="list-style-type: none"> <li>- Crane - travelling cranes and gantries.</li> <li>- Hartshill Wharf - moorings and unloading facilities.</li> </ul> |
| P2-SA-CL20          | Electrical substation and former timber yard   | 45 m south-west of the northern area | Electrical substation   | Historical timber yard pre-1900 only.<br>Electricity substation since 1970 – 1979 | No further details.                                                                                                                                                              |
| P2-SA-CL21          | Depot and historical lime kilns                | Within the northern area             | Depot                   | Historical old lime kilns 1900 – 1909<br>Depot since 1990 – 1995                  | One licensed pollutant release (Part A2 B) historical permit for petrol vapour recovery, for 'Save'.                                                                             |
| P2-SA-CL22          | Historical hat factory, current petrol station | 190 north of the northern area       | Petrol filling station  | Hat factory 1900 – 1939<br>Unnamed large building until 1990 – 1995               | One licensed pollutant release for unloading of petrol into storage at service stations for Co-op service station.                                                               |
| P2-SA-CL23          | Historical garage                              | 170 m north of the northern area     | Residential properties  | Garage 1970 – 1979.<br>No longer present on 1990 – 1995 map                       | No further details.                                                                                                                                                              |
| P2-SA-CL24          | Current car garage and former box works        | 120 m north of the northern area     | Car garage              | Box works 1970 – 1979. No longer                                                  | No further details.                                                                                                                                                              |

| <b>ID Reference</b> | <b>Name</b>                                              | <b>Location</b>                                      | <b>Current land use</b> | <b>Historical land use</b>                                                                               | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------|----------------------------------------------------------|------------------------------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                                                          |                                                      |                         | labelled on 1990 – 1995 map                                                                              |                                                                                                                                                      |
| P2-SA-CL25          | Historical car garage                                    | 210 m north-east of the northern area                | Commercial properties   | Garage 1970 – 1979                                                                                       | No further details.                                                                                                                                  |
| P2-SA-CL26          | Historical works, builders yard and mills                | Adjacent to the west of the northern area            | Residential properties  | Possible works and mills 1950 – 1959. Builders yard 1970 – 1979. Not labelled 1990 – 1995                | One historical licensed pollutant release (Part B), associated with Save, Coleshill Road, Atherstone, for petrol vapour recovery.                    |
| P2-SA-CL27          | Historical tramway sidings                               | 20 m south of the southern area at its closest point | Path                    | Tramway sidings pre-1900 – 1929.                                                                         | No further details.                                                                                                                                  |
| P2-SA-CL28          | Historical sewage works                                  | 70 m east of the southern area                       | Green space / trees     | Sewage works – filter beds 1900. Works also shown 1950 – 1959                                            | No further details.                                                                                                                                  |
| P2-SA-CL29          | Historical shoe factory and unspecified works with tanks | Adjacent to the east of the northern area            | Residential properties  | Unspecified works with tanks 1950 – 1959. Labelled as a shoe factory 1970 – 1979. Factory in 1990 – 1995 | No further details.                                                                                                                                  |

| <b>ID Reference</b>       | <b>Name</b>                                                                                                           | <b>Location</b>                                                  | <b>Current land use</b> | <b>Historical land use</b>                                                                                                     | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SA-CL30                | Historical tramway sidings, wharf, heap                                                                               | Within the Preliminary Order Limits of the central area          | Green space / trees     | Tramway sidings, wharf, heap since pre-1900. Tank, tunnel and engine house 1920 – 1929. Mostly open land since 1950 – 1959     | No further details.                                                                                                                                  |
| P2-SA-CL31                | Historical tramway sidings                                                                                            | 210 m north of the central area                                  | Green space / trees     | Tramway sidings mapped on 1900 map                                                                                             | No further details.                                                                                                                                  |
| <b>Part 2 (Section B)</b> |                                                                                                                       |                                                                  |                         |                                                                                                                                |                                                                                                                                                      |
| P2-SB-CL01                | Historical refuse heaps                                                                                               | 10 m north of the northern area                                  | Ponds                   | Ponds and spoil heap 1970 – 1979. Additional spoil heaps 1980 – 1989.                                                          | One licensed discharge to controlled waters, associated with Jess Quarry, effective date 1900, in tributary of Coventry Canal.                       |
| P2-SB-CL02                | Current aggregates quarry with tanks, hoppers and conveyors, and historical workings, quarries, railways, refuse heap | Overlapping the Preliminary Order Limits on its westernmost spur | Crown Aggregates quarry | Historical workings – old quarry pre-1900. Tramway and other excavations 1900 – 1909. Works, spoil heaps conveyors 1970 – 1979 | Two tanks present within the site.                                                                                                                   |

| <b>ID Reference</b> | <b>Name</b>                                                                                                                                   | <b>Location</b>                           | <b>Current land use</b>                                                           | <b>Historical land use</b>                                                                                        | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SB-CL03          | Historical workings and refuse heaps                                                                                                          | Overlapping Preliminary Order Limits      | Open, vegetated land                                                              | Historical workings and refuse heaps - quarry marked pre-1900. Soil heaps 1980 – 1989                             | No further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| P2-SB-CL04          | Current Hill Farm                                                                                                                             | Adjacent to the north of the central area | Farm                                                                              | Farm at least since 1887                                                                                          | No further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| P2-SB-CL05          | Current and historical Judkins Quarry (granite), waste recycling facility, -historical landfill, including tanks, railway and tramway sidings | Overlapping in the central area           | Judkins Quarry (granite), waste recycling facility, waste soil recycling facility | Tuttle Hill Granite Quarries, Windmill Hill Quarry and tramway marked pre-1900. Landfill / refuse tip 1980 – 1989 | <p>One historical local authority landfill – Land at Tuttle Hill, Nuneaton.</p> <p>One expired licensed waste site, Judkins Landfill site.</p> <p>Two historical waste site:</p> <ul style="list-style-type: none"> <li>– household waste site; and</li> <li>– green and bio-waste transfer facility.</li> </ul> <p>Multiple entries associated with Industry Activities (Part 1A) for waste landfilling, under various permit.</p> <p>One Pollution Inventory Substances, for waste landfilling, permit JP3033YQ, operated by Crown Waste Limited, for non-hazardous landfill.</p> |

| ID Reference | Name | Location | Current land use | Historical land use | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------|------|----------|------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              |      |          |                  |                     | <p>Ten pollution incidents associated with the site, varying in dates from 2001 to 2003.</p> <p>Two tanks present within the site.</p> <p>Industrial land use:</p> <ul style="list-style-type: none"> <li>– stone quarrying and preparation;</li> <li>– waste storage, processing and disposal; and</li> <li>– gas features.</li> </ul> <p>Two licensed waste sites:</p> <ul style="list-style-type: none"> <li>– Judkins Household Waste Recycling Centre, operated by FCC Waste Services UK Ltd, issued in 2013, modified in 2024.</li> <li>– Judkins Landfill Site, operated by Waste Recycling Group Ltd, issued in 1991, modified in 2002 and 2009, closed in 2024.</li> </ul> <p>Two historical waste sites:</p> <ul style="list-style-type: none"> <li>– waste transfer facility; and</li> <li>– material recycling facility.</li> </ul> |

| <b>ID Reference</b> | <b>Name</b>                                                                                             | <b>Location</b>                                              | <b>Current land use</b>       | <b>Historical land use</b>                                                                                                              | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                    |
|---------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SB-CL06          | Current railway and historical cuttings                                                                 | Located 80 m the east of the central area                    | Railway                       | Railway since pre-1900                                                                                                                  | No further details.                                                                                                                                                                                                                                                                                                     |
| P2-SB-CL07          | Current Canal Farm                                                                                      | Located 190 m east of the central area at its closest point  | Canal Farm                    | Canal Farm since 1910 – 1919                                                                                                            | No further details.                                                                                                                                                                                                                                                                                                     |
| P2-SB-CL08          | Disused Judkins Quarry, historical refuse heaps, filter beds and electrical substation, including tanks | Overlapping the Preliminary Order Limits in the central area | Substation                    | Judkins quarry Kilns in south pre-1900. Expanded and include Tuttle Hill Granite Quarries 1950 – 1959. Stone crushing plant 1970 – 1979 | Industrial land use: <ul style="list-style-type: none"> <li>– electricity substation; and</li> <li>– energy production.</li> </ul> Two historical tanks.<br>One discharge consent– trade discharges – site drainage, associated with Judkins Quarry, Nuneaton, revoked in 1995.                                         |
| P2-SB-CL09          | Former workings and refuse heaps, current ponds                                                         | Overlapping the Preliminary Order Limits in the central area | Water ponds, undeveloped land | Soil heaps 1980 – 1989                                                                                                                  | One discharge consent – trade discharges – process effluent – not water company, associated with Judkins Quarry, Tuttle Hill, Nuneaton, issued in 1995.<br>One pollution incident of minor impact on land (category 3) from April 2002, with solvent pollutant.<br>Industrial land use – unspecified quarries or mines. |

| <b>ID Reference</b> | <b>Name</b>                                                                  | <b>Location</b>                                                        | <b>Current land use</b>                    | <b>Historical land use</b>                                                                                                              | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                         |
|---------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SB-CL10          | Current railway and historical railway sidings                               | Cutting across the southern area, overlapping Preliminary Order Limits | Railway                                    | Railway since pre-1900                                                                                                                  | No further details.                                                                                                                                                                                                                                                                                                                                                                                          |
| P2-SB-CL11          | Current storage and depot, former workings, brick works and unspecified heap | Overlapping the central area                                           | Current storage and depot                  | Former workings<br>Brick works in south pre-1900. Stone crushing plant 1930 – 1979                                                      | One unspecified tank.                                                                                                                                                                                                                                                                                                                                                                                        |
| P2-SB-CL12          | Current pond and disused workings (former quarry)                            | Adjacent to the west of the southern area                              | Water pond, locally residential properties | Former workings<br>Quarry in east pre-1900<br>Tuttle Hill Fram in centre pre-1900<br>Tramway 1920 – 1929<br>Quarry expanded 1950 – 1959 | Two discharge consents: <ul style="list-style-type: none"> <li>– trade discharges – mineral workings to Coventry Canal, issued in 1993, revoked in 2009; and</li> <li>– trade discharges – mineral workings to Coventry Canal, associated with Judkins Quarry Tuttle Hill, Nuneaton, issued in 1995, revoked in 1995.</li> </ul> One industrial land use – unspecified quarries or mines – disused workings. |

| <b>ID Reference</b> | <b>Name</b>                                                  | <b>Location</b>                                        | <b>Current land use</b> | <b>Historical land use</b>                                                  | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                              |
|---------------------|--------------------------------------------------------------|--------------------------------------------------------|-------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                                                              |                                                        |                         |                                                                             | One active List 2 Dangerous Substances, associated with B.C. Midland Quarry for iron and pH.                                                                                                                                                                                                                                                                                      |
| P2-SB-CL13          | Current depot, historical railway sidings, historical garage | 70 m east of the southern area at its closest point    | Depot                   | Scrap yard<br>Abbey Junction and railway pre-1900<br>Goods shed 1900 – 1909 | One historical licensed pollutant release (Part B) associated with Midland Quarry Products Ltd, Tuttle Hill, for quarry process.<br>One historical waste site – scrap yard.<br>One licensed waste sites - special waste transfer waste, ABS Skip Hire Ltd / Simpkins Brian, issued in 1994, surrendered in 2024.<br>Industrial land use – waste storage, processing and disposal. |
| P2-SB-CL14          | Tank                                                         | 20 m north of the western section of the northern area | Tank                    | Tank since 2022 (based on aerial photography)                               | No further details.                                                                                                                                                                                                                                                                                                                                                               |
| P2-SB-CL15          | Current car dealership                                       | Adjacent to east of the central area                   | Car dealership          | At least since 2015 (based on aerial photography)                           | No further details.                                                                                                                                                                                                                                                                                                                                                               |
| P2-SB-CL16          | Tank                                                         | Located within the eastern                             | Tank                    | Tank since 1960                                                             | No further details.                                                                                                                                                                                                                                                                                                                                                               |

| ID Reference | Name                                                         | Location                                     | Current land use     | Historical land use                                                 | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                                                                               |
|--------------|--------------------------------------------------------------|----------------------------------------------|----------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              |                                                              | section of northern area                     |                      |                                                                     |                                                                                                                                                                                                                                                                                                                                                                             |
| P2-SB-CL17   | Industrial warehouse, historical rifle range                 | Located 90 m north-west of the southern area | Industrial warehouse | Rifle range 1887 - 1900                                             | Two industrial land uses: <ul style="list-style-type: none"> <li>– Midland Chandlers - marine equipment including boats and ships; and</li> <li>– Electricity substation.</li> </ul>                                                                                                                                                                                        |
| P2-SB-CL18   | Vernons Lane Playing Fields Historic Landfill Site           | Adjacent to the east of the southern area    | Playing fields       | Farm 1889 – 1902<br>Quarry 1925 – 1936<br>Landfill site 1963 – 1972 | Landfill contains industrial waste. First input 1963, last input 1972. Also contains soil and rubble <sup>1</sup> .                                                                                                                                                                                                                                                         |
| P2-SB-CL19   | Pool Road Business Centre, historical factory including tank | Adjacent to the west of the southern area    | Industrial estate    | Warehouses and factory from 1960 – 1969                             | One historical licensed pollutant release (Part B) associated with Litecast Ltd, for use of bulk cement. Two pollution incidents: <ul style="list-style-type: none"> <li>– Minor impact on land (category 3) from September 2009, associated with construction and demolition materials and waste; and</li> <li>– Minor impact on land (category 3) from October</li> </ul> |

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<sup>1</sup> Additional information from Nuneaton and Bedworth Borough Council.

| ID<br>Reference | Name | Location | Current land use | Historical land use | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------|------|----------|------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 |      |          |                  |                     | <p>2002, associated with general biodegradable materials and wastes, natural organic material and construction and demolition materials and waste.</p> <p>One historical waste site – waste transfer station.</p> <p>Two licensed waste sites:</p> <ul style="list-style-type: none"> <li>– Canner Transport Limited, expired in 2018; and</li> <li>– Crown Waste Services Ltd, issued in 2005.</li> </ul> <p>Six industrial land uses associated with the business centre:</p> <ul style="list-style-type: none"> <li>– telecommunication mast;</li> <li>– electrical substation;</li> <li>– tools including machine shops;</li> <li>– access equipment;</li> <li>– electrical components; and</li> <li>– waste collection, processing and disposal equipment.</li> </ul> |

| <b>ID Reference</b> | <b>Name</b>                                                 | <b>Location</b>                                           | <b>Current land use</b>   | <b>Historical land use</b>                             | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------|-------------------------------------------------------------|-----------------------------------------------------------|---------------------------|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SB-CL20          | Current builders merchant, historical wharf and timber yard | 15 m south-west of the southern area at its closest point | Current builders merchant | Wharf pre-1900. Timber yard in west 1910 – 1919        | One industrial land use – wharf – mooring as and unloading facilities                                                                                |
| P2-SB-CL21          | Current tank                                                | Within the central area                                   | Current tank              | Tank possibly since 1999 (based on aerial photography) | No further details.                                                                                                                                  |
| P2-SB-CL22          | Historical landfill - Greenmoor Road tip                    | 55 m west of the southern area at its closest point       | Residential properties    | No details found on historical mapping                 | One historical BGS landfill – Greenmoor Road tip, Nuneaton.                                                                                          |
| P2-SB-CL23          | Garage                                                      | 210 m east of the central area at its closest point       | Car garage                | Garage since 1950 – 1959                               | One industrial land use –second hand vehicles.                                                                                                       |
| P2-SB-CL24          | Former Iron Works, current electrical substation            | 30 m west of the central area at its closest point        | Electrical substation     | Iron works 1900 – 1959                                 | One industrial land use – electricity substation.                                                                                                    |
| P2-SB-CL25          | Electrical substation                                       | 10 m east of the western part of the southern section     | Electrical substation     | Electrical substation since 1994                       | One industrial land use – electricity substation.                                                                                                    |
| P2-SB-CL26          | Electrical substation                                       | 40 m south of the southern area at its closest point      | Electrical substation     | Electrical substation since 1970 – 1979                | One industrial land use – electricity substation.                                                                                                    |

| <b>ID Reference</b> | <b>Name</b>                                                         | <b>Location</b>                                                   | <b>Current land use</b>                 | <b>Historical land use</b>                                   | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                        |
|---------------------|---------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SB-CL27          | Marina                                                              | Adjacent to the northern area                                     | Marina                                  | Marina at least since 1999 (based on aerial photography)     | Two industrial land uses: <ul style="list-style-type: none"> <li>– Marine equipment including boats and ships; and</li> <li>– Moorings and unloading facilities.</li> </ul> One pollution incident of significant impact on water (category 2) from June 2014, with unidentified pollutant. |
| P2-SB-CL28          | Historical tramway and railway sidings, wharf, unspecified workings | Cutting across the northern parts of the Preliminary Order Limits | Unspecified workings                    | Tramway 1900 – 1909                                          | No further details.                                                                                                                                                                                                                                                                         |
| P2-SB-CL29          | Hospital                                                            | 200 m east of the Preliminary Order Limits at its closest point   | Hospital, surgery                       | Hospital since 1900 – 1909                                   | One industrial land use – electricity substation.                                                                                                                                                                                                                                           |
| P2-SB-CL30          | Historical car garage and disused brick works                       | 200 m north-east of the southern area                             | Unoccupied land, residential properties | Car garage since 1970 - 1979, brick works disused since 1887 | One industrial land use – vehicle parts and accessories.                                                                                                                                                                                                                                    |
| P2-SB-CL31          | Current and historical car garage                                   | 190 m east of the central area                                    | Car garage                              | Car garage from 1951                                         | No further details.                                                                                                                                                                                                                                                                         |

| <b>ID Reference</b> | <b>Name</b>                                                           | <b>Location</b>                                      | <b>Current land use</b>                         | <b>Historical land use</b>                                                                                                                                                       | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------|-----------------------------------------------------------------------|------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SB-CL32          | Historical wharf                                                      | Adjacent to the west of the central area             | Residential housing                             | Wharf and historic kilns pre-1900                                                                                                                                                | No further details.                                                                                                                                  |
| P2-SB-CL33          | Historical industrial estate                                          | Adjacent to the north of the southern area           | Residential housing                             | Dairy in north 1950 – 1959. Unspecified industrial / commercial estate                                                                                                           | No further details.                                                                                                                                  |
| P2-SB-CL34          | Historical car garage, current glass and window fitter                | 185 m west of the southern area at its closest point | Glass and window fitter / merchant              | Car garage in 1996                                                                                                                                                               | No further details.                                                                                                                                  |
| P2-SB-CL35          | Historical textiles factory and unspecified works                     | Adjacent to the north of the southern area           | Residential properties                          | Silk factory 1920 – 1929 in the east. Unspecified works ('Rayon' factory) across site in 1950 – 1959. Textile processing works 1970 – 1979. Works in the north only 1990 – 1995. | No further details.                                                                                                                                  |
| P2-SB-CL36          | Historical clay pits, unspecified heaps, refuse heap, tramway sidings | Located 95 m south-west at its closest point         | Unoccupied land, overlapping onto sports centre | Historical clay pits, unspecified heaps, refuse heap, tramway sidings.                                                                                                           | No further details.                                                                                                                                  |

| ID Reference                             | Name                                                                    | Location                                                 | Current land use                             | Historical land use                                        | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                 |
|------------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                          |                                                                         |                                                          |                                              | Pits 1910 – 1919. No longer marked 1970 – 1979.            |                                                                                                                                                                                                               |
| P2-SB-CL37                               | Historical garage                                                       | 190 north-east of the southern area at its closest point | Pharmacy                                     | Car garage 1996                                            | No further details.                                                                                                                                                                                           |
| P2-SB-CL38                               | Historical hosiery factory and unspecified commercial / industrial area | 155 m east of the southern area at its closest point     | Residential properties                       | Hosiery factory 1950 – 1959. Industrial / commercial works | No further details.                                                                                                                                                                                           |
| <b>Part 2 (Sections C-D<sup>2</sup>)</b> |                                                                         |                                                          |                                              |                                                            |                                                                                                                                                                                                               |
| P2-SD-CL01                               | National Grid Electricity Distribution                                  | Adjacent to the central part of northern area            | National Grid Electricity Distribution Site, | Electrical substation since 1992                           | One discharge consent for trade discharges – site drainage to tributary of the River Sowe, associated with Coventry 275kV substation, Parrots Grove, CV2 1NL, issued in 2004, revoked in 2011 under EPR 2010. |

<sup>2</sup> Due to the proximity of Part 2 Section C and Part 2 Section D, many of the sources are within the study area of both sections; therefore, information on the sources of contamination has been provided in the same subsection of the table.

| ID Reference | Name                                       | Location                                                    | Current land use          | Historical land use          | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------|--------------------------------------------|-------------------------------------------------------------|---------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              |                                            |                                                             |                           |                              | Tanks present in association with the electricity distribution station. One industrial land use – electricity substation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| P2-SD-CL02   | Current Industrial estate, including tanks | Located 20 m south of the central area at its closest point | Current Industrial Estate | Industrial estate since 1994 | <p>One current licensed pollutant release (part B) for manufacture of fibre reinforced plastics, associated with Brett Martin Daylight Systems Ltd, Aldermans Green Industrial Estate.</p> <p>One pollution incident of minor impact on water (category 3) from May 2005, associated with diesel pollutant.</p> <p>Two tanks present within the estate.</p> <p>Eight industrial land uses associated with industrial estate:</p> <ul style="list-style-type: none"> <li>– Four electrical substations;</li> <li>– general manufacturing;</li> <li>– general construction supplies;</li> <li>– transport, storage and delivery; and</li> </ul> |

| ID Reference              | Name                                                             | Location                                           | Current land use                        | Historical land use                 | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------|------------------------------------------------------------------|----------------------------------------------------|-----------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |                                                                  |                                                    |                                         |                                     | <ul style="list-style-type: none"> <li>– rubber, silicones and plastics.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| P2-SC/D-CL03 <sup>2</sup> | Historical landfill site - Hawkesbury landfills, industrial yard | Located adjacent to the south of the northern area | Green space, buildings, industrial yard | Landfill at least from 1975         | <p>Two local authority historical landfill:</p> <ul style="list-style-type: none"> <li>– Hawkesbury Plot 1; and</li> <li>– Hawkesbury Tip.</li> </ul> <p>One Environment Agency historical landfill - Hawkesbury Landfill, for inert and industrial waste, first input in 1987, last input in 1992.</p> <p>The site was operational prior to the provisions of site licensing, possibly as early as the 1920's. Site known to have accepted industrial waste prior to licensing.<sup>3</sup></p> <p>One pollution incident - minor impact on water (category 3) from 2003 due to slurry and dilute slurry.</p> |
| P2-SC/D-CL04 <sup>4</sup> | Historical Landfill Sites – Blackhorse Road and                  | Adjacent to the north-west of the northern area    | Residential properties                  | Landfill possibly from 1923 to 1992 | Two Environment Agency historical landfills:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

<sup>3</sup> Additional information from Nuneaton and Bedworth Borough Council.

| ID Reference              | Name                                                                  | Location                                                      | Current land use | Historical land use                 | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------|------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           | Hawkesbury Colliery Farm, including electrical substation             |                                                               |                  |                                     | <ul style="list-style-type: none"> <li>– Blackhouse Road for inert and industrial waste. Not Licensed, tipped pre 1976 with overburden, colliery spoil, rubble<sup>4</sup>; and</li> <li>– Hawkesbury Colliery Farm, contains concrete and builders waste. Tipped pre-1974.<sup>5</sup></li> </ul> <p>One discharge consent for trade discharges - site drainage to Exhall Brook, associated with Hawkesbury tip, Coventry, issued in 1969, modified in 1970, revoked in 2007. One industrial land use – electricity substation.</p> |
| P2-SC/D-CL05 <sup>5</sup> | Historical Landfill Sites – Blackhorse Road, historical refuse heaps, | Located 105 m north of the northern area at its closest point | Green space      | Landfill possibly from 1923 to 1992 | Two Environment Agency historical landfill sites associated with Blackhorse Road, for inert and industrial waste.                                                                                                                                                                                                                                                                                                                                                                                                                    |

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<sup>4</sup> Additional information from Nuneaton and Bedworth Borough Council.

<sup>5</sup> Additional information from Nuneaton and Bedworth Borough Council.

| ID Reference              | Name                                                                                                       | Location                                      | Current land use   | Historical land use                 | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           | historical unspecified heaps                                                                               |                                               |                    |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| P2-SC/D-CL06 <sup>6</sup> | Historical Hawkesbury Landfill, Hawkesbury Power Station landfill and Hawkesbury Plot 1, unspecified heaps | overlapping to the north of the northern area | Green / open space | Unspecified heaps from 1923 to 1992 | <p>Two local authority historical landfill sites:</p> <ul style="list-style-type: none"> <li>– Refuse tip, Hawkesbury Tip; and</li> <li>– Hawkesbury Plot 1.</li> </ul> <p>Two Environment Agency historical landfill:</p> <ul style="list-style-type: none"> <li>– Hawkesbury Landfill for inert and industrial waste, first input in 1987, last input in 1992; and</li> <li>– Hawkesbury Landfill Site for inert and industrial waste, first input in 1920, last input in 1984.</li> </ul> <p>Hawkesbury Power Station Landfill received inert and industrial waste.<sup>7</sup></p> |

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<sup>6</sup> Additional information from Nuneaton and Bedworth Borough Council.

| ID<br>Reference | Name | Location | Current land use | Historical land use | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------|------|----------|------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 |      |          |                  |                     | <p>One licensed waste site – Lias Quarry Ltd, issued in 1997, indicated as expired.</p> <p>Two landfill sites:</p> <ul style="list-style-type: none"> <li>– Licence holder: J and H B Jackson Limited – Lias Quarries Ltd, for industrial and inert waste, first input in 1920, last input in 1979; and</li> <li>– Licence holder: Lias Quarries Ltd for industrial and inert waste, first and last input in 1987.</li> </ul> <p>Two pollution incidents:</p> <ul style="list-style-type: none"> <li>- minor impact on land (category 3) from June 2002, associated with general biodegradable material or waste; and</li> <li>– minor impact on land (category 3) from March 2002 due to household waste.</li> </ul> <p>One. inactive List 1 Dangerous Substances associated with</p> |

| <b>ID Reference</b>       | <b>Name</b>                                                                                                                                      | <b>Location</b>                                | <b>Current land use</b>                             | <b>Historical land use</b>                                                                                                   | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                                                        |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |                                                                                                                                                  |                                                |                                                     |                                                                                                                              | Hawkesbury Fields Limited, Hawkesbury Tip for cadmium. One inactive List 2 Dangerous Substances associated with Hawkesbury Fields Limited, Hawkesbury Tip for chromium, copper, lead, nickel and zinc.                                                                                                                                                                                                                                      |
| P2-SD-CL07                | Lenton's Lane Farm                                                                                                                               | Adjacent to the south-east of the central area | Farm                                                | Farm at least since 1886                                                                                                     | No further details.                                                                                                                                                                                                                                                                                                                                                                                                                         |
| P2-SC/D-CL08 <sup>4</sup> | Historical Power Station and historical landfill site - Hawkesbury Power Station, historical railway sidings and electricity distribution centre | Overlapping to the west of the northern area   | Electricity distribution centre, green / open space | Railway from 1886 to 1980<br>Historical power station 1938 – 1980<br>Electricity generating station in the south since 1950s | One local authority historical landfill site: <ul style="list-style-type: none"> <li>– Former Hawkesbury (Longford) Power Station. 1 no. Environment Agency historical landfill site:</li> <li>– Hawkesbury Power Station for industrial and inert waste 2 no. landfill sites:</li> <li>– licence holder Coventry City Council, for inert and industrial waste; and</li> <li>– Licence holder Kerlow Construction, for inert and</li> </ul> |

| ID Reference | Name                                       | Location                                                     | Current land use   | Historical land use              | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                                                                                                         |
|--------------|--------------------------------------------|--------------------------------------------------------------|--------------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              |                                            |                                                              |                    |                                  | <p>industrial waste, first input 1987, last input in 1994.</p> <p>One pollution incident of minor impact on water (category 3) from April 2002, associated with mixed / waste oils.</p> <p>Industrial land use:</p> <ul style="list-style-type: none"> <li>– furniture;</li> <li>– vehicle repair, testing and servicing;</li> <li>– electricity substation; and</li> <li>– disused shaft.</li> </ul> |
| P2-SD-CL09   | Historical Landfill Site - Hawkesbury Farm | Located 180 m east of the northern area at its closest point | Green / open space | No details on available mapping. | <p>One Environment Agency historical landfill site – Hawkesbury Farm, first input in 1970, last input in 1984.</p> <p>The site was operational without the required planning permission or Waste Disposal Licence. Materials identified as having been deposited on the site include soil, rubble,</p>                                                                                                |

| <b>ID Reference</b>       | <b>Name</b>                                                                                             | <b>Location</b>                                                    | <b>Current land use</b> | <b>Historical land use</b>                                            | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>      |
|---------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |                                                                                                         |                                                                    |                         |                                                                       | concrete, bricks, metal, plastic and tarmac. <sup>8</sup>                                                                                                 |
| P2-SD-CL10                | Historical Landfill Site - Lentons Lane, historical unspecified heaps, refuse heaps and ground workings | Located 105 m south-east of the northern area at its closest point | Green / wooded area     | Workings and heaps 1886 – 1958.<br>Landfill / refuse heap 1959 - 1980 | One local authority historical landfill site.<br>One Environment Agency historical landfill site – Lentons Lane, first input in 1985, last input in 1990. |
| P2-SD-CL11                | Grove Farm                                                                                              | Located 180 m east of the northern area at its closest point       | Farm                    | Farm at least since 1923                                              | No further details.                                                                                                                                       |
| P2-SD-CL12                | Historical landfill site                                                                                | Located adjacent to the east of the central area                   | Green / open space      | No details on available mapping.                                      | One local authority historical landfill site.                                                                                                             |
| P2-SD-CL13                | Cemetery                                                                                                | 70 m north of the southern area                                    | Cemetery                | Cemetery since 1994.                                                  | No further details.                                                                                                                                       |
| P2-SC/D-CL14 <sup>4</sup> | Unspecified works                                                                                       | Adjacent to the north-west of the northern area                    | Unspecified works       | Works since 1959.                                                     | Three industrial land uses:<br>– precision engineers;                                                                                                     |

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<sup>8</sup> Additional information from Nuneaton and Bedworth Borough Council.

| <b>ID Reference</b>       | <b>Name</b>                                                                           | <b>Location</b>                                                  | <b>Current land use</b> | <b>Historical land use</b>                                                                                           | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |                                                                                       |                                                                  |                         |                                                                                                                      | <ul style="list-style-type: none"> <li>– general construction suppliers; and</li> <li>– unspecified works.</li> </ul>                                |
| P2-SC/D-CL15 <sup>4</sup> | Unspecified works, historical works and historical timber yard                        | Located 130 m north-west of the northern area                    | Unspecified works       | Works since 1974; no details on timber yard                                                                          | Two industrial land uses <ul style="list-style-type: none"> <li>– unspecified works; and</li> <li>– seals, tapes, taps and valves.</li> </ul>        |
| P2-SC/D-CL16 <sup>4</sup> | Marina                                                                                | Located 65 m west of the northern area                           | Marina                  | Marina at least since 1999                                                                                           | One industrial land use – marina.                                                                                                                    |
| P2-SD-CL17                | Historical sewage works, including historical tanks                                   | Located 50 m north of the central area                           | Open space              | Sewage works 1923 - 1959                                                                                             | No further details.                                                                                                                                  |
| P2-SD-CL18                | Historical unspecified heaps, refuse heaps and ground working,                        | Adjacent to the east of the southern area                        | Open space              | Historical unspecified heaps, refuse heaps and ground workings 1886 - 1955                                           | No further details.                                                                                                                                  |
| P2-SD-CL19                | Historical pottery, historical colliery, brick works, railway sidings, pits and heaps | Located within the Preliminary Order Limits in the southern area | Boat yard, marina       | Historical pottery 1902<br>Brick works and colliery mapped in 1886<br>Railway sidings 1886, no longer mapped in 1950 | No further details.                                                                                                                                  |

| <b>ID Reference</b>       | <b>Name</b>                                     | <b>Location</b>                                               | <b>Current land use</b>          | <b>Historical land use</b>      | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------------|-------------------------------------------------|---------------------------------------------------------------|----------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |                                                 |                                                               |                                  | Heaps 1886 - 1955               |                                                                                                                                                      |
| P2-SD-CL20                | Disused canal                                   | Located 5 m to the south of the southern area                 | Motorway                         | Former canal since 1967         | No further details.                                                                                                                                  |
| P2-SD-CL21                | Cuttings                                        | Located 30 m south of the southern area, slightly overlapping | Motorway                         | Cuttings for motorway from 1972 | No further details.                                                                                                                                  |
| P2-SD-CL22                | Disused canal                                   | 80 m to the south-west of the southern area                   | Green open space                 | Former canal from 1967          | No further details.                                                                                                                                  |
| P2-SD-CL23                | Current and historical cemetery                 | 175 m south of the southern area                              | Cemetery, residential properties | Cemetery since 1903             | No further details.                                                                                                                                  |
| <b>Part 2 (Section E)</b> |                                                 |                                                               |                                  |                                 |                                                                                                                                                      |
| P2-SE-CL01                | Brookfield Farm and slurry beds, including tank | Located 25 m north of the western area at its closes point    | Farm                             | Farm at least since 1886        | One industrial land use – slurry lagoons.                                                                                                            |
| P2-SE-CL02                | Noonhill Farm and slurry beds                   | Located adjacent to the north of the western area             | Farm                             | Farm at least since 1886        | One industrial land use – slurry beds.                                                                                                               |

| <b>ID Reference</b>       | <b>Name</b>                             | <b>Location</b>                                                  | <b>Current land use</b> | <b>Historical land use</b>        | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------------|-----------------------------------------|------------------------------------------------------------------|-------------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SE-CL03                | Current railway and historical cuttings | Adjacent to the east of the southern area                        | Railway                 | Railway line at least since 1886  | No further details.                                                                                                                                  |
| P2-SE-CL04                | Farm, including tanks                   | Located 185 m northeast of the southern area                     | Farm, tanks             | Farm since 1982                   | No further details.                                                                                                                                  |
| P2-SE-CL05                | Historical car garage                   | Located 30 m south-west of the central area                      | Residential properties  | Historical car garage 1987 - 1992 | No further details.                                                                                                                                  |
| P2-SE-CL06                | Disused Old Oxford Canal                | Cutting across the southern area of the Preliminary Order Limits | Green space             | Disused since 1886                | No further details.                                                                                                                                  |
| <b>Part 2 (Section F)</b> |                                         |                                                                  |                         |                                   |                                                                                                                                                      |
| P2-SF-CL01                | Current railway and historical cuttings | Located 15 m to the east at its closest point                    | Railway                 | Railway at least since 1886       | No further details.                                                                                                                                  |
| P2-SF-CL02                | Colehurst Farm                          | Located 50 m the north of the northern area at its closest point | Farm                    | Farm at least since 1886          | No further details.                                                                                                                                  |
| P2-SF-CL03                | Coombe Fields Farm                      | Located 60 m north of the                                        | Farm                    | Farm at least since 1886          | No further details.                                                                                                                                  |

| <b>ID Reference</b> | <b>Name</b>                             | <b>Location</b>                                           | <b>Current land use</b> | <b>Historical land use</b>                                              | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                                |
|---------------------|-----------------------------------------|-----------------------------------------------------------|-------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                                         | northern area at its closes point                         |                         |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                     |
| P2-SF-CL04          | The Wharf Industrial Estate             | Adjacent to the east of the central area                  | Industrial estate       | Wharf 1950 – 1982, old lime kiln mapped in 1886, boat house 1926 - 1966 | Six industrial land use associated with industrial estate: <ul style="list-style-type: none"> <li>– wharf – moorings and unloading facilities;</li> <li>– fences, gates and railings;</li> <li>– vehicle repair, testing and servicing;</li> <li>– medical equipment, supplies and pharmaceuticals;</li> <li>– tools including machine shops; and</li> <li>– marine equipment including boats and ships.</li> </ul> |
| P2-SF-CL05          | Current railway and historical cuttings | Cutting across the central area                           | Railway                 | Railway at least since 1886                                             | No further details.                                                                                                                                                                                                                                                                                                                                                                                                 |
| P2-SF-CL06          | Cemetery                                | 220 m west of the central area                            | Cemetery                | Cemetery at least since 1886                                            | No further details.                                                                                                                                                                                                                                                                                                                                                                                                 |
| P2-SF-CL07          | Historical unspecified heaps            | Adjacent to the west of the central area, overlapping the |                         | Heaps 1903 - 1982                                                       | No further details.                                                                                                                                                                                                                                                                                                                                                                                                 |

| ID Reference              | Name                                | Location                                             | Current land use | Historical land use      | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                     |
|---------------------------|-------------------------------------|------------------------------------------------------|------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |                                     | Preliminary Order Limits                             |                  |                          |                                                                                                                                                                                                                                   |
| P2-SF-CL08                | Historical unspecified pit          | Located 55 m east of the northern area               | Open space, pond | Pit 1886 - 1950          | No further details.                                                                                                                                                                                                               |
| P2-SF-CL09                | Broomfield Farm                     | Adjacent to the west of the central area             | Farm             | Farm since 1950          | No further details.                                                                                                                                                                                                               |
| P2-SF-CL10                | Field Barn Farm                     | 190 m west of the central area                       | Farm             | Farm at least since 1886 | No further details.                                                                                                                                                                                                               |
| P2-SF-CL11                | Historical unspecified heap         | 20 m west of the central area                        | Field            | Heaps 1886 – 1950        | No further details.                                                                                                                                                                                                               |
| <b>Part 2 (Section G)</b> |                                     |                                                      |                  |                          |                                                                                                                                                                                                                                   |
| P2-SG-CL01                | Tuckey's Farm, engineering workshop | Located 195 m to the north-west at its closest point | Farm             | Farm at least since 1886 | One industrial land use - industrial engineers.                                                                                                                                                                                   |
| P2-SG-CL02                | Sewage works, including tanks       | Adjacent to the central area                         | Sewage works     | Sewage works since 1983  | Multiple discharge consents associated with the sewage works site: <ul style="list-style-type: none"> <li>– sewage discharges – storm overflow / storm tank water company, and for sewage discharges – final / treated</li> </ul> |

| <b>ID Reference</b> | <b>Name</b>      | <b>Location</b>                       | <b>Current land use</b> | <b>Historical land use</b> | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------|------------------|---------------------------------------|-------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                  |                                       |                         |                            | <p>effluent – water company, into Little Lawford Brook and tributary of River Avon, associated with Harborough Magna Stw, current valid until March 2026; and</p> <ul style="list-style-type: none"> <li>– sewage discharges – storm water overflow / storm tank – water company, and for sewage discharges – final / treated effluent – water company into Little Lawford Brook, revoked in 2009.</li> </ul> <p>One tank present.</p> <p>Two industrial land uses:</p> <ul style="list-style-type: none"> <li>– sewage works; and</li> <li>– unspecified works or factories.</li> </ul> |
| P2-SG-CL03          | Lime Farm        | Slightly overlapping the central area | Farm and storage area   | Farm since 1999            | One industrial land use – marina – moorings and unloading facilities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| P2-SG-CL04          | Historical wharf | Adjacent and within the northern area | Open space              | Wharf 1886 – 1955          | No further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| <b>ID Reference</b> | <b>Name</b>                              | <b>Location</b>                                             | <b>Current land use</b> | <b>Historical land use</b>              | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                            |
|---------------------|------------------------------------------|-------------------------------------------------------------|-------------------------|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SG-CL05          | Historical sawmill                       | Overlapping the northernmost area                           | Open space              | Sawmill 1926 – 1938                     | No further details.                                                                                                                                                             |
| P2-SG-CL06          | Historical tank                          | 20 m south of the central area                              | Parking lot             | Tank in 1986                            | No further details.                                                                                                                                                             |
| P2-SG-CL07          | Disused canal                            | Overlapping the southern area                               | Field                   | Mapped as disused since 1903            | No further details.                                                                                                                                                             |
| P2-SG-CL08          | Historical boat yard                     | Adjacent to the north of the southern area                  | Residential properties  | Boat yard since 1991                    | One licensed discharge to controlled waters for sewage discharges – final / treated effluent – not water company, onto Harborough Magna Brook, issued in 1981, revoked in 1996. |
| P2-SG-CL09          | Town Thorns Farm                         | Located 70 m west of the southern area at its closest point | Farm                    | Farm at least since 1886                | No further details.                                                                                                                                                             |
| P2-SG-CL10          | Historical Landfill Site - All Oaks Lane | Adjacent to the south of the southern area                  | Wooded area             | No details found on historical mapping. | No further details.                                                                                                                                                             |
| P2-SG-CL11          | Historical brickworks                    | 15 m north of the southern area                             | Pond                    | Brickworks disused since 1886           | No further details.                                                                                                                                                             |

| <b>ID Reference</b>       | <b>Name</b>                                        | <b>Location</b>                        | <b>Current land use</b>                      | <b>Historical land use</b>                            | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                             |
|---------------------------|----------------------------------------------------|----------------------------------------|----------------------------------------------|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SG-CL12                | Marina and old canal                               | 35 m south of the southern area        | Marina                                       | Canal mapped as disused since 1903. Marina since 2007 | One licensed discharge to controlled waters for sewage discharges – final / treated effluent onto tributary of Brinklow Marina, issued in 2022.                                  |
| <b>Part 2 (Section H)</b> |                                                    |                                        |                                              |                                                       |                                                                                                                                                                                  |
| P2-SH-CL01                | Current retail park, electrical substation         | Located adjacent to the south          | Retail park, electrical substation           | Retail park since 1988                                | One industrial land use – electricity substation.                                                                                                                                |
| P2-SH-CL02                | Current and historical factory / engineering works | Located 10 m south of the eastern area | Unknown disused building                     | Electrical engineering works since 1967               | Two industrial land uses: <ul style="list-style-type: none"> <li>– unspecified works; and</li> <li>– General Electric Energy Power Conversion - electronic equipment.</li> </ul> |
| P2-SH-CL03                | Industrial estate                                  | Located 60 m west of the western area  | Manufactory and clothing distribution centre | Industrial estate since 1991                          | One industrial use - precision engineers.<br>One electricity substation.                                                                                                         |
| P2-SH-CL04                | Historical engineering works                       | Located 20 m south of the central area | Residential properties                       | Electrical engineering works since 1938               | No further details.                                                                                                                                                              |
| P2-SH-CL05                | Cuttings                                           | 90 m north of the central area         | Road                                         | Mapped in 1991                                        | No further details.                                                                                                                                                              |

| <b>ID Reference</b>       | <b>Name</b>                                                | <b>Location</b>                                                                                            | <b>Current land use</b>    | <b>Historical land use</b>                                    | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SH-CL06                | Gas governor                                               | Located within the northern area                                                                           | Gas governor               | Gas governor since 1979                                       | No further details.                                                                                                                                  |
| P2-SH-CL07                | Historical wharf                                           | Located adjacent to the north of the eastern area                                                          | Open space                 | Wharf 1926 - 1967                                             | No further details.                                                                                                                                  |
| <b>Part 2 (Section I)</b> |                                                            |                                                                                                            |                            |                                                               |                                                                                                                                                      |
| P2-SI-CL01                | Current railway and historical tramway and railway sidings | Parallel to the Preliminary Order Limits, located south of the area, crossing the Preliminary Order Limits | Railway                    | Railway at least since 1886                                   | No further details.                                                                                                                                  |
| P2-SI-CL02                | Normandy Farm                                              | Located 215 m east of the eastern area at its closest point                                                | Farm                       | Farm since 1903                                               | No further details.                                                                                                                                  |
| P2-SI-CL03                | Agricultural storage                                       | Adjacent to the south of the central area                                                                  | Agricultural storage, farm | Agricultural storage since 2002 (based on aerial photography) | No further details.                                                                                                                                  |

| <b>ID Reference</b>       | <b>Name</b>                                    | <b>Location</b>                               | <b>Current land use</b>        | <b>Historical land use</b>                                   | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                |
|---------------------------|------------------------------------------------|-----------------------------------------------|--------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SI-CL04                | The Locks Industrial estate, including tank    | Adjacent to the east of the central area      | Light industrial estate        | Unspecified works 1886 - 1950, unspecified depot 1967 - 1990 | Six industrial land uses: <ul style="list-style-type: none"> <li>– unspecified works or factories;</li> <li>– crane;</li> <li>– industrial repairs and servicing, cooling and refrigeration;</li> <li>– oil and gas extraction, refinery and product manufacture;</li> <li>– structural engineers; and</li> <li>– sewage works - waste storage, processing and disposal.</li> </ul> |
| <b>Part 2 (Section K)</b> |                                                |                                               |                                |                                                              |                                                                                                                                                                                                                                                                                                                                                                                     |
| P3-P2-SK-CL01             | Dismantled railway and historical cuttings     | Within the western area                       | Pedestrian pathways, woodland  | Railway 1900 – 1970, dismantled since 1971                   | No further details.                                                                                                                                                                                                                                                                                                                                                                 |
| P3-P2-SK-CL02             | Historical Landfill Site - Drayton Fields Farm | Located 40 m to the west at its closest point | Warehouse and open green space | Heaps 1923 - 1927                                            | One Environment Agency historical landfill site - Drayton Fields Farm, first input in January 1989, last in October 1989.                                                                                                                                                                                                                                                           |

| <b>ID Reference</b> | <b>Name</b>                                      | <b>Location</b>                                              | <b>Current land use</b>    | <b>Historical land use</b>              | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------|--------------------------------------------------|--------------------------------------------------------------|----------------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P3-P2-SK-CL03       | Historical Landfill Site – Ashby Road            | Adjacent to the western area                                 | Green space and playground | No details found on historical mapping. | One Environment Agency historical landfill site – Ashby Road, first input in 1945, last in 1970.                                                     |
| P3-P2-SK-CL04       | Historical Landfill Site - Daventry Sewage Works | Located 130 m south of the western area at its closest point | Open space, wooded area    | Sewage works 1971 - 1989                | One Environment Agency historical landfill site – Daventry Sewage works, last input in 1960.                                                         |
| P3-P2-SK-CL05       | Wharf Farm                                       | Adjacent to the north of the north-eastern area              | Farm                       | Wharf 1884 - 1969<br>Farm since 1969    | No further details.                                                                                                                                  |
| P3-P2-SK-CL06       | Farm                                             | Located 65 m north at its closest point                      | Farm                       | Farm since 1927                         | No further details.                                                                                                                                  |
| P3-P2-SK-CL07       | Farm                                             | Located 95 m north-east at its closest point                 | Farm                       | Farm at least since 1884                | No further details.                                                                                                                                  |
| P3-P2-SK-CL08       | Shipyard                                         | Located 135 m north at its closest point                     | Shipyard                   | Shipyard since 1993                     | No further details.                                                                                                                                  |
| P3-P2-SK-CL09       | Farm                                             | Located 170 m north-east at its closest point                | Farm                       | Farm at least since 1923                | No further details.                                                                                                                                  |

| <b>ID Reference</b> | <b>Name</b>                                                       | <b>Location</b>                                    | <b>Current land use</b> | <b>Historical land use</b>                        | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------|-------------------------------------------------------------------|----------------------------------------------------|-------------------------|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P3-P2-SK-CL10       | Heartlands Business Park, including tanks, electrical substations | Located adjacent to the south to the southern area | Business park           | At least since 2004 (based on aerial photography) | <p>One historical licensed pollutant release (Part B), associated with Multi-Color Daventry England Ltd, Heartland Business Park, for printing, located adjacent to the south of the southern area.</p> <p>One inactive List 2 Dangerous Substances associated with B&amp;V Water Treatment Ltd for pH.</p> <p>Six pollution incidents:</p> <ul style="list-style-type: none"> <li>– three of minor impact (category 3) on water from 2002 to due to not identified pollutant and from microbiological pollutant;</li> <li>– two major impact (category 1) on water, both from 2009 due to firefighting run-off; and</li> <li>– one significant impact (category 2) on water from 2010 due to unidentified pollutant.</li> </ul> |
| P3-P2-SK-CL11       | Drayton Fields Industrial Estate                                  | Located adjacent to the                            | Industrial Estate       | Industrial Estate at least since 2004             | No further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| <b>ID Reference</b> | <b>Name</b>                                       | <b>Location</b>                                                       | <b>Current land use</b>             | <b>Historical land use</b>                   | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------|---------------------------------------------------|-----------------------------------------------------------------------|-------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                                                   | south to the southern area                                            |                                     | (based on aerial photography)                |                                                                                                                                                      |
| P3-P2-SK-CL12       | Historical brickworks                             | 95 m west of the northern area                                        | Open / green space                  | Brick field / pit 1884 – 1955                | No further details.                                                                                                                                  |
| P3-P2-SK-CL13       | Historical works with tanks                       | 170 north of the north-western area                                   | Residential properties, green space | Works since 1971                             | No further details.                                                                                                                                  |
| P3-P2-SK-CL14       | Current and historical wharf                      | Adjacent to the west and north of the north-western area              | Wharf, marina                       | Wharf since 1971                             | No further details.                                                                                                                                  |
| P3-P2-SK-CL15       | Historical engine house and unspecified heap      | Located within the north-western part of the Preliminary Order Limits | Field                               | Engine house 1883 – 1955<br>Heap 1970 - 1993 | No further details.                                                                                                                                  |
| P3-P2-SK-CL16       | Historical pump house, including historical tanks | Adjacent to the north of the north-western area                       | Historical building                 | Pump house since 1900                        | No further details.                                                                                                                                  |
| P3-P2-SK-CL17       | Unspecified pit / old quarry                      | Located within the northern area                                      | Green / open space                  | Pit 1884 - 1938                              | No further details.                                                                                                                                  |

| <b>ID Reference</b>       | <b>Name</b>                                 | <b>Location</b>                                               | <b>Current land use</b>                   | <b>Historical land use</b>                                                      | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------------|---------------------------------------------|---------------------------------------------------------------|-------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P3-P2-SK-CL18             | Unspecified pit                             | 90 m west of the eastern area                                 | Infilled land, part of green / open space | Sand pit and unspecified pit 1899 - 1938                                        | No further details.                                                                                                                                  |
| P3-P2-SK-CL19             | Rifle range                                 | Adjacent to the eastern area and cutting across it            | Green / open space                        | Rifle range 1884 - 1885                                                         | No further details.                                                                                                                                  |
| P3-P2-SK-CL20             | Cemetery                                    | 30 m west of the southern area                                | Cemetery                                  | Cemetery since 1988                                                             | No further details.                                                                                                                                  |
| <b>Part 2 (Section L)</b> |                                             |                                                               |                                           |                                                                                 |                                                                                                                                                      |
| P2-SL-CL01                | Historical Landfill Site – A5 Whilton Lodge | Located 215 m south of the northern area at its closest point | Farm                                      | No details found on historical mapping.                                         | One Environment Agency historical landfill site – Whilton Lodge, first and last input in December 1985.                                              |
| P2-SL-CL02                | Historical Landfill Site – A5 Whilton       | Located 195 m west of the northern area at its closest point  | Green space, fields                       | Unspecified pit mapped in 1969, no further details found on historical mapping. | One Environment Agency historical landfill site – A5, first input in April 1984, last input in August 1984.                                          |
| P2-SL-CL03                | Historical Landfill Site – North Field Farm | Located 90 m west of the southern area at its closest point   | Fields, houses                            | No details found on historical mapping.                                         | One Environment Agency historical landfill site – North Field Farm, first input in May 1985, last input in December 1985.                            |
| P2-SL-CL04                | Current railway and historical cuttings     | Cutting across the whole area,                                | Railway                                   | Railway since 1883                                                              | No further details.                                                                                                                                  |

| <b>ID Reference</b> | <b>Name</b>                                            | <b>Location</b>                                                      | <b>Current land use</b>          | <b>Historical land use</b>   | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                   |
|---------------------|--------------------------------------------------------|----------------------------------------------------------------------|----------------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                                                        | from north to south                                                  |                                  |                              |                                                                                                                                                                                                                        |
| P2-SL-CL05          | Historical wharf, current depot, electrical substation | Adjacent to the north of northern area                               | Depot, residential properties    | Wharf 1884 - 1900            | Industrial land use – electrical substation.                                                                                                                                                                           |
| P2-SL-CL06          | Rye Hill Farm and ponds, current glass fibre services  | Adjacent to the centre of the northern area                          | Farm, ponds, fiberglass supplier | Farm at least since 1884     | One. discharge consent for miscellaneous discharges – surface water into River Nene, associated with Rye Hill Farm, Long Buckby Wharf, issued in 1984, revoked in 1992.<br>Industrial land use – glass fibre services. |
| P2-SL-CL07          | Thrupp Grounds Farm                                    | Located 175 m to the south of the northern area at its closest point | Farm                             | Farm at least since 1884     | No further details.                                                                                                                                                                                                    |
| P2-SL-CL08          | Wharf Works industrial estate                          | Overlapping in the northern area                                     | Industrial estate                | Industrial estate since 1993 | No further details.                                                                                                                                                                                                    |
| P2-SL-CL09          | Kingston Lodge Farm                                    | Located adjacent to the west of the northern area                    | Farm                             | Farm at least since 1884     | One discharge consent, unspecified entry, issued in 1974, revoked in 1996.                                                                                                                                             |

| <b>ID Reference</b> | <b>Name</b>                          | <b>Location</b>                                             | <b>Current land use</b>         | <b>Historical land use</b>                          | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                 |
|---------------------|--------------------------------------|-------------------------------------------------------------|---------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SL-CL10          | Sewage works, including tanks        | Located 100 m to the east of the central area               | Sewage works, solar panels farm | Sewage works since 1986                             | Industrial land use: <ul style="list-style-type: none"> <li>- solar panels; and</li> <li>- sewage works.</li> </ul>                                                                                                  |
| P2-SL-CL11          | Whilton Marina and industrial estate | Within and adjacent to the western part of the central area | Industrial estate               | Unspecified depot mapped in 1969, marina since 1986 | Industrial land use: <ul style="list-style-type: none"> <li>- hoppers and silos;</li> <li>- lifting and handling equipment;</li> <li>- marina; and</li> <li>- marine equipment including boats and ships.</li> </ul> |
| P2-SL-CL12          | Four Square Farm                     | Located within the central area                             | Farm                            | Farm since 1968                                     | No further details.                                                                                                                                                                                                  |
| P2-SL-CL13          | Pump Station                         | Located within the central area                             | Pump station                    | Pump station at least since 1884                    | No further details.                                                                                                                                                                                                  |
| P2-SL-CL14          | Concrete supplier, historical farm   | Located 110 m west of the central area at it closest point  | Concrete supplier               | Farm at least since 1884                            | No further details.                                                                                                                                                                                                  |
| P2-SL-CL15          | Brooklyn Farm                        | Located 180 m west of the central area at it closest point  | Farm                            | Farm at least since 1884                            | No further details.                                                                                                                                                                                                  |

| <b>ID Reference</b> | <b>Name</b>                  | <b>Location</b>                                            | <b>Current land use</b> | <b>Historical land use</b>                | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------|------------------------------|------------------------------------------------------------|-------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SL-CL16          | Unspecified pit              | 215 m west of the southern area                            | Green / open space      | Quarry - 1883<br>Gravel pit – 1899 - 1958 | No further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| P2-SL-CL17          | Fog Cottage Farm             | Located 55 m west of the southern area at it closest point | Farm                    | Farm since 1926                           | No further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| P2-SL-CL18          | Whilton Mill industrial area | 190 m to the east of the central area                      | Business park           | Corn mill 1884 – 1969                     | <p>One active List 1 Dangerous Substances associated with K M Fishing for mercury and cadmium.</p> <p>Three active List 2 Dangerous Substances:</p> <ul style="list-style-type: none"> <li>– Whilton Stormwater for chromium, copper, iron, lead, nickel and zinc;</li> <li>– Daventry Metal Products Ltd for pH and zinc; and</li> <li>– Metokote UU Limited for nickel, pH and zinc.</li> </ul> <p>One inactive List 2 Dangerous Substances associated with Skaino Atmos Ltd for pH.</p> <p>One inactive List 2 Dangerous Substances associated with Junction Services for pH.</p> |

| <b>ID Reference</b> | <b>Name</b>                               | <b>Location</b>                            | <b>Current land use</b>                        | <b>Historical land use</b>                             | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------|-------------------------------------------|--------------------------------------------|------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SL-CL19          | Canal Farm                                | Adjacent to the east in the central area   | Farm                                           | At least since 2009                                    | No further details.                                                                                                                                  |
| P2-SL-CL20          | Unspecified pit                           | 15 m north of the northern area            | Field                                          | Pit 1884 – 1958                                        | No further details.                                                                                                                                  |
| P2-SL-CL21          | Unspecified pit, heap and ground workings | 5 m west of the northern area              | Field                                          | Pit - 1884<br>Ground workings 1958 – 1995              | No further details.                                                                                                                                  |
| P2-SL-CL22          | Historical brick works                    | Adjacent to the north of the northern area | Residential properties, pond, green open space | Brick works 1899 - 1900<br>Unspecified pit 1899 – 1976 | No further details.                                                                                                                                  |
| P2-SL-CL23          | Historical brewery                        | Adjacent to the south of the northern area | Residential properties                         | Brewery 1884 - 1900                                    | No further details.                                                                                                                                  |
| P2-SL-CL24          | Unspecified pit                           | 50 m south of the northern area            | Infilled land                                  | Pit 1968 - 1992                                        | No further details.                                                                                                                                  |
| P2-SL-CL25          | Historical wharf                          | Adjacent to the west of the northern area  | Residential properties                         | Wharf 1884 – 1966                                      | No further details.                                                                                                                                  |

| <b>ID Reference</b>       | <b>Name</b>                                 | <b>Location</b>                                                     | <b>Current land use</b> | <b>Historical land use</b>                             | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                    |
|---------------------------|---------------------------------------------|---------------------------------------------------------------------|-------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SL-CL26                | Historical malthouse and smithy             | Adjacent to the west of the northern area                           | Residential properties  | Smithy 1884 – 1885<br>Malthouse 1899 – 1927            | No further details.                                                                                                                                                     |
| P2-SL-CL27                | Historical gas works                        | 230 m west of the central area                                      | Residential properties  | Gas works 1899-1958                                    | No further details.                                                                                                                                                     |
| P2-SL-CL28                | Historical smithy                           | Located within the central area of Preliminary Order Limits         | Residential properties  | Smithy 1884 – 1900                                     | No further details.                                                                                                                                                     |
| P2-SL-CL29                | Historical corn mill                        | 250 m east of the southern area                                     | Tourist attraction      | Corn mill since 1883, mapped as disused in 1925 – 1958 | No further details.                                                                                                                                                     |
| <b>Part 2 (Section M)</b> |                                             |                                                                     |                         |                                                        |                                                                                                                                                                         |
| P2-SM-CL01                | Current railway and historical cuttings     | Adjacent to the west of the Preliminary Order Limits                | Railway                 | At least since 1883                                    | One pollution incident of minor impact on land (category 3) associated with other fuel or oil.                                                                          |
| P2-SM-CL02                | Historical Landfill Site – Dodford Landfill | Located 40 m to the north of the northern area at its closest point | Green open space        | Sand pit 1926 – 1950<br>Refuse heap mapped in 1969     | One Environment Agency historical landfill site – Dodford Landfill, issued in 1992, surrendered in 2011.<br>One licensed waste site – Dodford Former Sand Pit, for non- |

| <b>ID Reference</b> | <b>Name</b>                             | <b>Location</b>                                                    | <b>Current land use</b> | <b>Historical land use</b>                                                                    | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------|-----------------------------------------|--------------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                                         |                                                                    |                         |                                                                                               | biodegradable waste, indicated as issued and surrendered in 1992.                                                                                    |
| P2-SM-CL03          | Historical Landfill Site - Dodmoor Farm | Adjacent to the west of the northern area                          | Green open space        | Disused sand pit 1950 – 1958<br>Unspecified quarry / ground workings and sand pit 1958 - 1994 | One Environment Agency historical landfill site – Dodmoor Farm, for inert, industrial and household waste, first input in 1930, last input in 1988.  |
| P2-SM-CL04          | Landings Spinney Farm                   | Located 10 m to the west of the northern area at its closest point | Farm                    | Farm since 2004 (based on aerial photography)                                                 | No further details.                                                                                                                                  |
| P2-SM-CL05          | Watling Meadow Farm                     | Adjacent to the east of the northern area                          | Farm                    | Farm since 2004 (based on aerial photography)                                                 | No further details.                                                                                                                                  |
| P2-SM-CL06          | Farm                                    | Adjacent to the east of the central area                           | Farm                    | Farm since 2004 (based on aerial photography)                                                 | No further details.                                                                                                                                  |
| P2-SM-CL07          | Dodmoor Farm                            | Located 140 m west to the central area at its closest point        | Farm                    | Farm since 1968                                                                               | No further details                                                                                                                                   |

| <b>ID Reference</b> | <b>Name</b>                             | <b>Location</b>                                             | <b>Current land use</b> | <b>Historical land use</b>                        | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                         |
|---------------------|-----------------------------------------|-------------------------------------------------------------|-------------------------|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SM-CL08          | Historical Landfill Site – Dodmoor Farm | Overlapping to the east of the central area                 | Off-road racing track   | Landfill                                          | One Environment Agency historical landfill site – Dodmoor Farm – first input in 1982, last input in 1983.                                                                                                                    |
| P2-SM-CL09          | Pumping station                         | Located 20 m west of the central area at its closest point  | Pumping station         | Sewage pumping station since 2025                 | One discharge consent for sewage discharges – sewer storm overflow – water company, into River Nene, associated with Weedon pumping station, issued in 2025.                                                                 |
| P2-SM-CL10          | Car wash                                | Located 10 m east of the central area at its closest point  | Car wash                | Car wash since 2004 (based on aerial photography) | No further details.                                                                                                                                                                                                          |
| P2-SM-CL11          | Depot                                   | Located 10 m east of the central area at its closest point  | Depot                   | Depot since 1978                                  | No further details.                                                                                                                                                                                                          |
| P2-SM-CL12          | Car garage                              | Located 160 m east of the central area at its closest point | Car garage              | Car garage since 1978                             | Two licensed pollutant release (part B) permits, one historical and one current for unloading petrol into storage at service stations; and One inactive List 2 Dangerous Substances associated with Free Ways Motors for pH. |
| P2-SM-CL13          | Pump house                              | Located 20 m west of the                                    | Pump house              | Pump house since 1926                             | No further details.                                                                                                                                                                                                          |

| <b>ID Reference</b>     | <b>Name</b>                                                                                      | <b>Location</b>                                              | <b>Current land use</b>          | <b>Historical land use</b>                                                                         | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                      |
|-------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                                                                                                  | central area at its closest point                            |                                  |                                                                                                    |                                                                                                                                                                                                                                                                                           |
| P2-SM-CL14              | Retail and light industrial park, historical barracks, ammunition depot, tip and railway sidings | Located 35 m west of the central area at its closest point   | Retail and light industrial park | Ammunition depot 1809 - 1965<br>Barracks 1883 – 1899<br>Unspecified industrial / depot 1927 – 1994 | Industrial land use: <ul style="list-style-type: none"> <li>– travelling lanes and gantry;</li> <li>– repair and servicing; and</li> <li>– electricity substation.</li> </ul>                                                                                                             |
| P2-SM-CL15              | Disused workings, historical railway building                                                    | Located 50 m south of the southern area at its closest point | Wooded area                      | Pit 1883 - 1982                                                                                    | No further details                                                                                                                                                                                                                                                                        |
| P2-SM-CL16 <sup>9</sup> | Sewage works                                                                                     | Adjacent to the southern area                                | Sewage works                     | Sewage works since 1950                                                                            | Multiple discharge consents for sewage discharges – final / treated effluent – water company and storm overflow / storm tank - water company, onto Tributary Kislingbury branch River Nene, associated with Weedon Water Recycling Centre, first issued in 1994, effective to March 2026. |

<sup>9</sup> Source of contamination located within the study area of both Part 2 Section M and Part 2 Section N.

| <b>ID Reference</b> | <b>Name</b>                   | <b>Location</b>                                             | <b>Current land use</b>                  | <b>Historical land use</b>         | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                        |
|---------------------|-------------------------------|-------------------------------------------------------------|------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                               |                                                             |                                          |                                    | One. inactive List 2 Dangerous Substances associated with Weedon Stomwater.                                                                                                                                 |
| P2-SM-CL17          | Car garage and petrol station | Located 15 m east of the southern area at its closes point  | Car garage, petrol station               | Petrol and fuel station since 1978 | Multiple discharge consents for sewage discharge – final/ treated effluent – water company, onto Tributary Kislingbury branch River Nene, associated with Weedon STW first issued in 1964, revoked in 1995. |
| P2-SM-CL18          | Ivy House Farm                | Located 225 m west of the southern area at it closest point | Farm                                     | Farm at least since 1884           | No further details.                                                                                                                                                                                         |
| P2-SM-CL19          | Cemetery                      | Adjacent to the east of the southern area                   | Cemetery                                 | Cemetery since 1899                | No further details.                                                                                                                                                                                         |
| P2-SM-CL20          | Historical depot              | Adjacent to the east of the central area                    | Residential properties, motorhomes depot | Gas filling depot 1969 – 1995      | No further details.                                                                                                                                                                                         |
| P2-SM-CL21          | Historical smithy             | Located 170 m east of the central area                      | Road                                     | Smithy 1883 – 1899                 | No further details.                                                                                                                                                                                         |

| <b>ID Reference</b>       | <b>Name</b>                             | <b>Location</b>                                                   | <b>Current land use</b> | <b>Historical land use</b>                                | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------------|-----------------------------------------|-------------------------------------------------------------------|-------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SM-CL22                | Wharf                                   | Adjacent to the west of the southern area                         | Wharf                   | Wharf at least since 1883                                 | No further details.                                                                                                                                  |
| <b>Part 2 (Section N)</b> |                                         |                                                                   |                         |                                                           |                                                                                                                                                      |
| P2-SN-CL01                | Whitehall Farm                          | Located 90 m east of the northern area at its closest point       | Farm                    | Farm at least since 1899                                  | No further details.                                                                                                                                  |
| P2-SN-CL02                | Stanton's Barn                          | Located 220 m east of the northern area at its closest point      | Farm                    | Barn at least since 1899                                  | No further details.                                                                                                                                  |
| P2-SN-CL03                | Horse stables                           | Adjacent to the east of the central area                          | Farm, stables           | Stables at least since 2020 (based on aerial photography) | No further details.                                                                                                                                  |
| P2-SN-CL04                | Coal yard, fuel and gas merchant        | Adjacent to south-west of the central area                        | Gas and fuel merchant   | Public house 1884 – 1978<br>Coal yard since 1978          | No further details.                                                                                                                                  |
| P2-SN-CL05                | Current railway and historical cuttings | Located 220 m south-west of the central area at its closest point | Railway                 | Railway since 1883                                        | No further details.                                                                                                                                  |

| <b>ID Reference</b> | <b>Name</b>                            | <b>Location</b>                             | <b>Current land use</b>              | <b>Historical land use</b>                               | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------|----------------------------------------|---------------------------------------------|--------------------------------------|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SN-CL06          | Heyford Fields Marina                  | Adjacent to the centre of the northern area | Marina                               | Marina at least since 2009 (based on aerial photography) | No further details.                                                                                                                                  |
| P2-SN-CL07          | Heyford Fields Farm                    | Adjacent to the north of the northern area  | Farm                                 | Farm at least since 2004 (based on aerial photography)   | No further details.                                                                                                                                  |
| P2-SN-CL08          | Current wharfs                         | Adjacent to the south of the northern area  | Wharf                                | Wharf since 1983                                         | No further details.                                                                                                                                  |
| P2-SN-CL09          | Historical wharf                       | Adjacent to the east of the central area    | Residential properties               | Historical wharf since 1899                              | No further details.                                                                                                                                  |
| P2-SN-CL10          | Historical iron works, including tanks | Located 155 m south of the central area     | Residential properties, farm, fields | Iron works mapped in 1884, since 1899 mapped as disused  | No further details.                                                                                                                                  |
| P2-SN-CL11          | Historical gasometer and tank          | Located within the southern area            | Yard                                 | At least since 1950                                      | No further details.                                                                                                                                  |
| P2-SN-CL12          | Historical wharf                       | Located 120 m south of the southern area    | Open space                           | At least since 1883                                      | No further details.                                                                                                                                  |
| P2-SN-CL13          | White Hall Farm                        | Located 80 m south-east of the              | Farm                                 | Farm at least since 1883                                 | No further details.                                                                                                                                  |

| ID Reference              | Name                               | Location                                                    | Current land use           | Historical land use | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------|------------------------------------|-------------------------------------------------------------|----------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |                                    | southern area at its closest point                          |                            |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| P2-SN-CL14                | Stowe Hill Wharf and Boat Workshop | Located 90 m east of the southern area at its closest point | Boat workshop, tank, wharf | Wharf since 1883    | <p>One tank present.</p> <p>Five licensed discharge consents:</p> <ul style="list-style-type: none"> <li>– Unspecified onto land, issued in 1971, revoked in 1996;</li> <li>– Unspecified onto land, issued in 1983, revoked in 1996;</li> <li>– Unspecified onto land, issued in 1987, revoked in 1996;</li> <li>– Sewage discharges – final / treated effluent – not water company, onto land, issued in 1989; and</li> <li>– Sewage discharges – final / treated effluent – not water company, onto groundwater issued in 1994, revoked in 2011.</li> </ul> |
| <b>Part 2 (Section Q)</b> |                                    |                                                             |                            |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| <b>ID Reference</b> | <b>Name</b>                                | <b>Location</b>                                          | <b>Current land use</b>              | <b>Historical land use</b>                                     | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------|--------------------------------------------|----------------------------------------------------------|--------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SQ-CL01          | Historical works and smithy                | Adjacent to the east of the northern area                | Commercial and residential buildings | Smithy 1883 – 1957<br>Works 1957 - 1969                        | No further details.                                                                                                                                  |
| P2-SQ-CL02          | Historical brickworks and pits             | Located within and to the south-west of the central area | Infilled land                        | Pits and works 1883-1957                                       | No further details.                                                                                                                                  |
| P2-SQ-CL03          | Electrical substation                      | 50 m east of the central area                            | Electrical substation                | Electrical substation since 2017 (based on aerial photography) | No further details.                                                                                                                                  |
| P2-SQ-CL04          | Manor Farm                                 | 70 m north-east of the northern area                     | Farm                                 | Present at least from 1883                                     | No further details.                                                                                                                                  |
| P2-SQ-CL05          | Infilled pit                               | Adjacent to the east of the southern area                | Marshy land                          | Marshy pit from at least 1899<br>Unspecified pit 1899-1950     | No further details.                                                                                                                                  |
| P2-SQ-CL06          | Pumping station                            | 10 m north-east of the southern area                     | Pumping station                      | Pumping station since 1977                                     | One licensed discharge to controlled water, for agriculture – unspecified onto River Tove Grand Union Canal, revoked in 1991.                        |
| P2-SQ-CL07          | Lower Lock Barn, including pumping station | Adjacent to the east of the southern area                | Residential property                 | Present at least from 1883                                     | One licensed discharge consent for agricultural effluent onto River Tove and Grand Union Canal, issued in 1900, revoked in 1991.                     |

| <b>ID Reference</b>       | <b>Name</b>                  | <b>Location</b>                                  | <b>Current land use</b> | <b>Historical land use</b>                 | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------------|------------------------------|--------------------------------------------------|-------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Part 2 (Section S)</b> |                              |                                                  |                         |                                            |                                                                                                                                                      |
| P2-SS-CL01                | Historical railway sidings   | Adjacent to the east of the northern area        | Caravan park            | Railway sidings 1950 - 1957                | No further details.                                                                                                                                  |
| P2-SS-CL02                | Historical gravel pits       | Located 20 m north-east of the northern area     | Caravan park            | Pits from 1883 to 1957                     | No further details.                                                                                                                                  |
| P2-SS-CL03                | Pumping station              | Located within the northern area                 | Pumping station         | No details found on historical mapping.    | No further details.                                                                                                                                  |
| P2-SS-CL04                | Historical smithy            | Located 200 m west of the northern area          | Public house            | Smithy 1883-1900                           | No further details.                                                                                                                                  |
| P2-SS-CL05                | Historical brewery           | Located 125 m west of the northern area          | Residential properties  | Brewery 1883, mapped as disused since 1900 | No further details.                                                                                                                                  |
| P2-SS-CL06                | Historical unspecified works | Located 140 m west of the northern area          | Residential properties  | Unspecified works 1973-1991                | No further details.                                                                                                                                  |
| P2-SS-CL07                | Manor Farm                   | Located adjacent and within the westernmost area | Farm                    | Farm since 1971                            | No further details.                                                                                                                                  |

| <b>ID Reference</b> | <b>Name</b>                                                                                                                                                              | <b>Location</b>                                    | <b>Current land use</b>                                 | <b>Historical land use</b>                                                        | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                                                   |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SS-CL08          | Cemetery                                                                                                                                                                 | Located 145 m south of the western-central area    | Cemetery                                                | Present at least since 1881                                                       | No further details.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| P2-SS-CL09          | Historical wharf and current commercial estate                                                                                                                           | Located within the western-central area            | Commercial estate                                       | Wharf 1881 – 1991                                                                 | Industrial land uses: <ul style="list-style-type: none"> <li>– mooring and unloading facilities;</li> <li>– industrial printing; and</li> <li>– motoring / new vehicles.</li> </ul>                                                                                                                                                                                                                                                    |
| P2-SS-CL10          | Historical carriage and wagon works, railway sidings, historical gas works, historical scrap yard, cuttings and current industrial estate, railway line, including tanks | Adjacent to the south and east of the central area | Industrial estate, railway line, residential properties | Gas works – 1881 - 1900<br>Railway tracks at least since 1881<br>Works since 1881 | Multiple industrial uses: <ul style="list-style-type: none"> <li>– motoring, special purpose machinery and equipment;</li> <li>– transport, storage and delivery;</li> <li>– recycling, reclamation and disposal;</li> <li>– vehicle parts and accessories;</li> <li>– unspecified works;</li> <li>– multiple electrical substations; and</li> <li>– vehicle breakdown and recovery services.</li> </ul> Historical and current tanks. |

| ID Reference | Name | Location | Current land use | Historical land use | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------|------|----------|------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              |      |          |                  |                     | <p>Tesco Milton Keynes Wolverton Petrol Station, Wolverton Rail Station.</p> <p>Two Licensed Pollutant Release (Part B) for:</p> <ul style="list-style-type: none"> <li>– Milton Keynes Kia, for waste oil burner &lt;0.4 MW (indicated that new legislation applies); and</li> <li>– Current permit for Tesco Stores Ltd for unloading of petrol into storage at service stations.</li> </ul> <p>One licensed discharge to controlled waters for Tesco Superstore, miscellaneous discharges – surface water.</p> <p>Three pollution incidents</p> <ul style="list-style-type: none"> <li>– Category 3 (minor) impact on land, due to oils and fuel (hydraulic oils), from September 2002;</li> <li>– Category 3 (minor) impact on land, due to oils and fuel (other oil) from February 2002; and</li> </ul> |

| ID Reference | Name                                                                                        | Location                                           | Current land use                     | Historical land use                                                                                | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------|---------------------------------------------------------------------------------------------|----------------------------------------------------|--------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              |                                                                                             |                                                    |                                      |                                                                                                    | <ul style="list-style-type: none"> <li>– Category 3 (minor) impact on land and water, due to oils and fuel (diesel) from October 2003.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| P2-SS-CL11   | Historical Wolverton landfill, historical sewage works, current depot and industrial estate | Adjacent to the north and east of the central area | Railway line, residential properties | Sewage works 1900 – 1957<br>Works 1958 – 1981<br>Depot 1982 – 2004<br>Industrial estate since 2004 | One historical landfill – Wolverton, EAHLD00846.<br>One licensed discharge to controlled waters issued in 2005, revoked in 2010, for sewage discharges – sewer storm overflow – water company, receiving water – tributary of River Great Ouse.<br>Multiple industrial land uses: <ul style="list-style-type: none"> <li>– distribution and haulage;</li> <li>– textiles, fabrics, silk and machinery;</li> <li>– special purpose machinery and equipment;</li> <li>– motoring, vehicle parts and accessories;</li> <li>– medical equipment, supplies and pharmaceuticals;</li> <li>– unspecified works; and</li> <li>– electrical substations.</li> </ul> |

| ID Reference | Name                                                                           | Location                                          | Current land use                                         | Historical land use                        | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------|--------------------------------------------------------------------------------|---------------------------------------------------|----------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              |                                                                                |                                                   |                                                          |                                            | One List 2 Dangerous Substances (not active) for pH, associated with RPL Transport.                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| P2-SS-CL12   | Historical and current garages                                                 | Located 150 m south of the central area           | Car garages                                              | Garage 1970-1979                           | <p>Industrial land uses:</p> <ul style="list-style-type: none"> <li>– Wolverton Service Station – petrol station;</li> <li>– vehicle repair, testing and servicing;</li> <li>– vehicle cleaning services, motoring / second-hand vehicles; and</li> <li>– electrical substation.</li> </ul> <p>One Licensed Pollutant Release (Part B) – current permit for unloading of petrol into storage at service stations associated with Wolverton Service Station.</p> <p>One List 2 Dangerous Substances – not active, Imo Car Wash.</p> |
| P2-SS-CL13   | Historical unspecified works, factories, garage, depot, current industrial and | Located adjacent to the north of the central area | Industrial and commercial estate, residential properties | Works, factories and warehouses since 1970 | <p>Multiple industrial land uses:</p> <ul style="list-style-type: none"> <li>– distribution and haulage;</li> <li>– vehicle parts and accessories;</li> <li>– vehicle repair, testing and servicing;</li> </ul>                                                                                                                                                                                                                                                                                                                    |

| <b>ID Reference</b> | <b>Name</b>                        | <b>Location</b>                           | <b>Current land use</b> | <b>Historical land use</b> | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------|------------------------------------|-------------------------------------------|-------------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     | commercial estate, including tanks |                                           |                         |                            | <ul style="list-style-type: none"> <li>– metalworkers including blacksmiths;</li> <li>– recycling, reclamation and disposal;</li> <li>– rubber, silicones and plastics;</li> <li>– food and beverage industry machinery;</li> <li>– lifting and handling equipment; and</li> <li>– medical equipment, supplies and pharmaceuticals.</li> </ul> <p>Three unspecified factories.<br/>One historical Licensed Pollutant Release (part B), historical permit for use of bulk cement, associated with Hope Construction Materials.</p> |
| P2-SS-CL14          | Pump house                         | Adjacent to the north of the central area | Pump house              | Pump house since 1970      | No further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| P2-SS-CL15          | Unspecified heap                   | Located 90 m south of the central area    | Open / green space      | Mapped in 1986             | No further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| <b>ID Reference</b> | <b>Name</b>                                                                                              | <b>Location</b>                                   | <b>Current land use</b> | <b>Historical land use</b>                                                                                                                  | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------|----------------------------------------------------------------------------------------------------------|---------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SS-CL16          | Historical gravel pit and ground workings                                                                | Located 45 m south of the central area            | Open / green space      | Refuse heap mapped in 1885<br>Gravel pit mapped in 1900<br>Unspecified pit 1927 - 1958<br>Ground workings 1938 -1951                        | No further details.                                                                                                                                  |
| P2-SS-CL17          | Historical cuttings and former railway                                                                   | Located adjacent to the south of the central area | Pathway                 | Railway from 1881 to 1930s                                                                                                                  | No further details.                                                                                                                                  |
| P2-SS-CL18          | Historical gravel pit and quarry, historical landfill, historical railway sidings, historical scrap yard | Located adjacent to the south of the central area | Residential properties  | Refuse heap mapped in 1885<br>Ground workings 1900 – 1938<br>Unspecified pit 1938 – 1958<br>Quarry 1885 - 1958<br>Railway sidings 1885-1958 | One. historical landfill - associated with historical old gravel pit, operated by Barrat Northampton Limited.                                        |
| P2-SS-CL19          | Cemetery                                                                                                 | Located 185 m east of the central – eastern area  | Cemetery                | Cemetery present at least since 1924                                                                                                        | No further details.                                                                                                                                  |

| <b>ID Reference</b> | <b>Name</b>                                                            | <b>Location</b>                                  | <b>Current land use</b> | <b>Historical land use</b>                                                                                                                           | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------|------------------------------------------------------------------------|--------------------------------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SS-CL20          | Historical landfill, historical sewage works, filter beds refuse heaps | Located adjacent to the west of the eastern area | Open space area         | Refuse heap – 1986<br>Sewage works 1926 – 1950<br>Filter beds 1926 – 1950<br>Septic tanks 1926 – 1950<br>Unspecified works 1958<br>Heaps 1950 - 1958 | One historical landfill - New Bradwell Council Landfill, first input in December 1964, last input in March 1993.<br>One industrial land use:<br><ul style="list-style-type: none"> <li>– waste storage, processing and disposal, refuse disposal facilities.</li> </ul> Two licensed waste sites:<br><ul style="list-style-type: none"> <li>– Shanks Waste Services Ltd, household, commercial and industrial waste &lt;25000 tonnes, issued in 1992, modified in 2002; and</li> <li>– H W Martin Waste Limited, household waste amenity site, &gt;= 25000 tonnes &lt; 75000 tonnes, issued in 1992.</li> </ul> |
| P2-SS-CL21          | Retail park, including electrical substation                           | Located 5 m east of the eastern area             | Electrical substation   | Retail park since 2017                                                                                                                               | No further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| P2-SS-CL22          | Historical rifle range                                                 | Located 40 m west of the eastern area            | Pond                    | Mapped 1885-1900                                                                                                                                     | No further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| <b>ID Reference</b> | <b>Name</b>                                                            | <b>Location</b>                           | <b>Current land use</b> | <b>Historical land use</b>                                                                                                             | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                   |
|---------------------|------------------------------------------------------------------------|-------------------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SS-CL23          | Historical wharf and petrol station                                    | Adjacent to the south of the eastern area | Residential properties  | Stantonbury wharf 1899- 1992<br>Petrol filling station mapped in 1970, residential properties since 2024 (based on aerial photography) | No further details.                                                                                                                                                                                                                                                                                                    |
| P2-SS-CL24          | Historical disused workings, including tanks and electrical substation | Located 150 m north of the eastern area   | Pond, green space       | Ground workings 1986                                                                                                                   | One licensed discharge to controlled waters for miscellaneous discharges – surface water, for Linford Gravel Pits, issued in 1970, revoked in 2017.<br>One pollution incident of minor impact on land (category 3), from March 2003 due to construction and demolition materials and wastes.<br>Electrical substation. |
| P2-SS-CL25          | Historical quarry                                                      | Adjacent to the south of the eastern area | Green space             | Quarry mapped 1899 - 1958                                                                                                              | No further details.                                                                                                                                                                                                                                                                                                    |
| P2-SS-CL26          | Cemetery                                                               | Adjacent to the south of the eastern area | Cemetery                | Cemetery since 1886                                                                                                                    | No further details.                                                                                                                                                                                                                                                                                                    |

| <b>ID Reference</b>       | <b>Name</b>                                       | <b>Location</b>                                            | <b>Current land use</b> | <b>Historical land use</b>                                                     | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------------|---------------------------------------------------|------------------------------------------------------------|-------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SS-CL27                | Historical railway                                | To the north and south of the eastern area, cutting across | Path                    | Railway 1881 - 1958                                                            | No further details.                                                                                                                                  |
| P2-SS-CL28                | Dry cleaners                                      | Located 210 m south of the central area                    | Dry cleaners            | No details found on historical mapping                                         | Licensed pollutant releases (Part B) for dry cleaning (active, historical and revoked entries).                                                      |
| P2-SS-CL29                | Historical windmill                               | Located 135 m south-east of the central area               | Windmill                | Disused since 1881                                                             | No further details.                                                                                                                                  |
| P2-SS-CL30                | Historical gasometer, builders yard               | Located 45 m north-west of the central area                | Residential housing     | Gasometer 1881 – 1982<br>Yard 1982 – 1991<br>Residential properties since 1991 | No further details.                                                                                                                                  |
| <b>Part 2 (Section T)</b> |                                                   |                                                            |                         |                                                                                |                                                                                                                                                      |
| P2-ST-CL01                | Historical railway and historical railway station | Located 135 m north                                        | Walkway                 | Railway station 1886 - 1963<br>Railway line 1886 - 1963                        | No further details.                                                                                                                                  |
| P2-ST-CL02                | Unspecified works                                 | Located 60 m north                                         | Residential properties  | Works 1972 - 1993                                                              | No further details.                                                                                                                                  |

| ID Reference       | Name                                               | Location                               | Current land use                                   | Historical land use              | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                           |
|--------------------|----------------------------------------------------|----------------------------------------|----------------------------------------------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-ST-CL03         | Historical wharf                                   | Located adjacent to the north          | Residential properties                             | Wharf 1886 - 1972                | No further details.                                                                                                                                                                                                                                                                                                     |
| Part 2 (Section U) |                                                    |                                        |                                                    |                                  |                                                                                                                                                                                                                                                                                                                         |
| P2-SU-CL01         | Marina                                             | Located 120 m south                    | Marina                                             | Historical mapping not available | No Groundsure data available.                                                                                                                                                                                                                                                                                           |
| P2-SU-CL02         | Car garage and hand carwash, electrical substation | Located 85 m south-west                | Car garage and hand carwash, electrical substation |                                  |                                                                                                                                                                                                                                                                                                                         |
| Part 2 (Section V) |                                                    |                                        |                                                    |                                  |                                                                                                                                                                                                                                                                                                                         |
| P2-SV-CL01         | Historical sewage works, including tanks           | Located 240 m east of the central area | Distribution centre                                | Sewage works 1924 - 1984         | No further details.                                                                                                                                                                                                                                                                                                     |
| P2-SV-CL02         | Railway line and historical railway sidings        | Running across the central area        | Railway line                                       | Railway since 1881               | One. licensed discharge to controlled waters for Fenny Stratford Station House, revoked in October 1996<br>Industrial land uses: <ul style="list-style-type: none"><li>– Fenny Stratford train station;</li><li>– unspecified factory; and</li><li>– lifting and handling equipment.</li></ul> Two pollution incidents: |

| <b>ID Reference</b> | <b>Name</b>                                                     | <b>Location</b>                                            | <b>Current land use</b> | <b>Historical land use</b>                                            | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                                                       |
|---------------------|-----------------------------------------------------------------|------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                                                                 |                                                            |                         |                                                                       | <ul style="list-style-type: none"> <li>– Minor impact on water (category 3) from diesel from January 2002; and</li> <li>– Minor impact on water (category 3) from contaminated water from September 2002.</li> </ul>                                                                                                                                                                                                                       |
| P2-SV-CL03          | Current distribution centre                                     | Located 50 m east of the central area                      | Distribution centre     | Distribution centre since 2000                                        | One hazardous substance storage for Tesco Distribution Ltd. From November 1999.                                                                                                                                                                                                                                                                                                                                                            |
| P2-SV-CL04          | Historical brick works and historical gas works, current garage | Located within the southern part and adjacent to the south | Residential properties  | Brick works 1898 - 1900<br>Gas works 1881 – 1925<br>Garage since 1970 | Industrial land uses: <ul style="list-style-type: none"> <li>– stone quarrying and preparation; and</li> <li>– electrical substation.</li> </ul> Six licensed discharges to controlled waters: <ul style="list-style-type: none"> <li>– Miscellaneous discharges – surface water onto River Ouzel, revoked in 2001;</li> <li>– Sewage discharge – sewer storm overflow – water company onto Grand Union Canal, revoked in 2010;</li> </ul> |

| ID Reference | Name                             | Location                                 | Current land use                 | Historical land use                        | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------|----------------------------------|------------------------------------------|----------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              |                                  |                                          |                                  |                                            | <ul style="list-style-type: none"> <li>– Trade discharges – unspecified onto River Ouzel, revoked in 1995;</li> <li>– Trade discharge – process effluent – not water company onto River Ouzel, revoked in 1996;</li> <li>– Trade discharges – unspecified onto River Ouzel, revoked in 1993; and</li> <li>– Trade discharges – unspecified onto River Ouzel, revoked in 1992.</li> </ul> <p>Two licensed pollutant releases (Part B):</p> <ul style="list-style-type: none"> <li>– Schubert's Motors for waste oil burner &lt;0.1 MW, new legislation applies; and</li> <li>– BPC Magazines for coating process, historical permit.</li> </ul> |
| P2-SV-CL05   | Industrial and commercial estate | Located 125 m south of the southern area | Industrial and commercial estate | Industrial and commercial estate from 1968 | <p>Multiple industrial land uses:</p> <ul style="list-style-type: none"> <li>– electronic equipment;</li> <li>– guns and ammunition;</li> <li>– new vehicles, vehicle cleaning services;</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| ID Reference | Name                                                                                        | Location                                    | Current land use                             | Historical land use                                               | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                                       |
|--------------|---------------------------------------------------------------------------------------------|---------------------------------------------|----------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              |                                                                                             |                                             |                                              |                                                                   | <ul style="list-style-type: none"> <li>– vehicle repair, testing and servicing;</li> <li>– cleaning equipment and supplies;</li> <li>– electrical equipment repair and servicing; and</li> <li>– industrial coatings and finishings.</li> </ul> <p>One licensed pollutant release (Part b), historical permit for dry cleaning.</p> |
| P2-SV-CL06   | Historical car garage, industrial and commercial estate                                     | Adjacent to south-west of the southern area | Car garage, industrial and commercial estate | Garage and estate since 1984                                      | <p>Multiple industrial land uses:</p> <ul style="list-style-type: none"> <li>– vehicle repair, testing and servicing.</li> </ul> <p>One licensed discharge to controlled water for sewage discharges – sewer storm overflow – water company, revoked in March 2019, receiving water Grand Union Canal.</p>                          |
| P2-SV-CL07   | Historical timber yard, depot, railway sidings and current industrial and commercial estate | Adjacent to the west of the central area    | Industrial and commercial estate             | Timber yard 1924 - 1957<br>Depot 1958 – 1968<br>Estate since 1993 | <p>Multiple industrial land uses:</p> <ul style="list-style-type: none"> <li>– textiles, fabrics, silk and machinery; and</li> <li>– electrical substation.</li> </ul>                                                                                                                                                              |

| <b>ID Reference</b> | <b>Name</b>       | <b>Location</b>                               | <b>Current land use</b> | <b>Historical land use</b>   | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------|-------------------|-----------------------------------------------|-------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2-SV-CL08          | Belvedere Farm    | Located 115 m south-east of the southern area | Belvedere Farm          | Farm at least since 1881     | No further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| P2-SV-CL09          | Industrial estate | Located 30 m west of the northern area        | Industrial estate       | Industrial estate since 1968 | <p>Multiple industrial land uses:</p> <ul style="list-style-type: none"> <li>– engines;</li> <li>– vehicle repair, testing and servicing;</li> <li>– industrial coatings and finishings;</li> <li>– rubber, silicones and plastics;</li> <li>– vehicle components, vehicle parts and accessories;</li> <li>– milling, refining and food additives;</li> <li>– metalworkers including blacksmiths;</li> <li>– unspecified factories; and</li> <li>– electrical substations.</li> </ul> <p>Multiple tanks.</p> <p>Two pollution incidents:</p> <ul style="list-style-type: none"> <li>– minor impact on water (Category 3) from</li> </ul> |

| ID Reference | Name | Location | Current land use | Historical land use | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------|------|----------|------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              |      |          |                  |                     | <p>contaminated water from August 2002; and</p> <ul style="list-style-type: none"> <li>– minor impact on water (Category 3) from oils and fuel from August 2001.</li> </ul> <p>One licensed discharge to controlled waters for sewage discharges – sewer storm overflow – water company, receiving water Tributary River Ouzel, revoked in December 2023.</p> <p>One List 2 Dangerous substance (not active) for Sensient Flavours Limited.</p> <p>One licensed pollutant realise (Part B) for Sensient Flavours Ltd, historical and current permit for vegetable matter drying processes.</p> <p>One licensed waste site – Bilton Road, associated with Ano-coil Ltd, issued in 1991, surrendered in 2000.</p> |
| Part 3       |      |          |                  |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| <b>ID Reference</b> | <b>Name</b>                                      | <b>Location</b>                                              | <b>Current land use</b>        | <b>Historical land use</b>                 | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------|--------------------------------------------------|--------------------------------------------------------------|--------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P3-P2-SK-CL01       | Dismantled railway and historical cuttings       | Within the western area                                      | Pedestrian pathways, woodland  | Railway 1900 – 1970, dismantled since 1971 | No further details.                                                                                                                                  |
| P3-P2-SK-CL02       | Historical landfill site - Drayton Fields Farm   | Located 40 m to the west at its closest point                | Warehouse and open green space | Heaps 1923 - 1927                          | One Environment Agency historical landfill site - Drayton Fields Farm, first input in January 1989, last in October 1989.                            |
| P3-P2-SK-CL03       | Historical landfill site – Ashby Road            | Adjacent to the western area                                 | Green space and playground     | No details found on historical mapping     | One Environment Agency historical landfill site – Ashby Road, first input in 1945, last in 1970.                                                     |
| P3-P2-SK-CL04       | Historical landfill site - Daventry Sewage Works | Located 130 m south of the western area at its closest point | Open space, wooded area        | Sewage works 1971 - 1989                   | One Environment Agency historical landfill site – Daventry Sewage works, last input in 1960.                                                         |
| P3-P2-SK-CL06       | Farm                                             | Located 65 m north at its closest point                      | Farm                           | Farm since 1927                            | No further details.                                                                                                                                  |
| P3-P2-SK-CL07       | Farm                                             | Located 240 m north at its closest point                     | Farm                           | Farm at least since 1884                   | No further details.                                                                                                                                  |
| P3-P2-SK-CL09       | Farm                                             | Located 170 m north-east at its closest point                | Farm                           | Farm at least since 1923                   | No further details.                                                                                                                                  |

| <b>ID Reference</b> | <b>Name</b>                                                       | <b>Location</b>                                    | <b>Current land use</b> | <b>Historical land use</b>                                          | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------|-------------------------------------------------------------------|----------------------------------------------------|-------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P3-P2-SK-CL10       | Heartlands Business Park, including tanks, electrical substations | Located adjacent to the south to the southern area | Business park           | At least since 2004 (based on aerial photography)                   | <p>One historical licensed pollutant release (Part B), associated with Multi-Color Daventry England Ltd, Heartland Business Park, for printing, located adjacent to the south of the southern area.</p> <p>One inactive List 2 Dangerous Substances associated with B&amp;V Water Treatment Ltd for pH.</p> <p>Six pollution incidents:</p> <ul style="list-style-type: none"> <li>- Three minor impact (category 3) on water from 2002 to 2010 due to a non identified pollutant and from a microbiological pollutant;</li> <li>- Two major impact (category 1) on water, both from 2009 due to firefighting run-off.</li> <li>- One significant impact (category 2) on water from 2010 due to unidentified pollutant.</li> </ul> |
| P3-P2-SK-CL11       | Drayton Fields Industrial Estate                                  | Located adjacent to the south of the southern area | Industrial estate       | Industrial estate at least since 2004 (based on aerial photography) | No further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| <b>ID Reference</b> | <b>Name</b>                                       | <b>Location</b>                                        | <b>Current land use</b>                   | <b>Historical land use</b>                   | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------|---------------------------------------------------|--------------------------------------------------------|-------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P3-P2-SK-CL14       | Current and historical wharf                      | Located 250 m west and north of the north-western area | Wharf, marina                             | Wharf since 1971                             | No further details.                                                                                                                                  |
| P3-P2-SK-CL15       | Historical engine house and unspecified heap      | Located 60 m north of the north-western area           | Field                                     | Engine house 1883 – 1955<br>Heap 1970 - 1993 | No further details.                                                                                                                                  |
| P3-P2-SK-CL16       | Historical pump house, including historical tanks | Located 170 m north of the north-western area          | Historical building                       | Pump house since 1900                        | No further details.                                                                                                                                  |
| P3-P2-SK-CL17       | Unspecified pit / old quarry                      | Located 50 m north of the northern area                | Green / open space                        | Pit 1884 - 1938                              | No further details.                                                                                                                                  |
| P3-P2-SK-CL18       | Unspecified pit                                   | 90 m west of the eastern area                          | Infilled land, part of green / open space | Sand pit and unspecified pit 1899-1938       | No further details.                                                                                                                                  |
| P3-P2-SK-CL19       | Rifle range                                       | Adjacent to the eastern area and cutting across it     | Green / open space                        | Rifle range 1884 - 1885                      | No further details.                                                                                                                                  |
| P3-P2-SK-CL20       | Cemetery                                          | 250 m west of the southern area                        | Cemetery                                  | Cemetery since 1988                          | No further details.                                                                                                                                  |

| ID Reference               | Name                                                                                 | Location                                                           | Current land use                                 | Historical land use                                                                                               | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                |
|----------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Part 4a</b>             |                                                                                      |                                                                    |                                                  |                                                                                                                   |                                                                                                                                                                                              |
| P4a-CL01                   | Current marina, vehicle repair shops and car wash                                    | Adjacent to the west of western extent of Preliminary Order Limits | Boat yard and garages                            | Potentially since 1970 – 1979 (buildings present although not labelled).<br>Boat yard labelled since 1990 – 1995. | Six industrial land uses: <ul style="list-style-type: none"> <li>- Auto electrical services, – vehicle repair, testing and servicing.</li> </ul>                                             |
| P4a-CL02                   | Current vehicle wrapping service shop and Galleylane Farm                            | Adjacent to the north-east of the northern area                    | Vehicle service shop, buildings and storage area | Farm since 1878.                                                                                                  | Three industrial uses: <ul style="list-style-type: none"> <li>- – vehicle repair, testing and servicing;</li> <li>- – textiles, fabrics, silk and machinery;</li> <li>- motoring.</li> </ul> |
| <b>Part 4b (Section A)</b> |                                                                                      |                                                                    |                                                  |                                                                                                                   |                                                                                                                                                                                              |
| P4b-SA-CL01                | Current Bryerley Springs Farm, fireplace shop and Bryerley Springs Equestrian Centre | Adjacent north of the western area                                 | Farm, equestrian centre and commercial shop      | Not shown on available historical mapping.                                                                        | One industrial land use: fireplaces and mantelpieces shop                                                                                                                                    |
| P4b-SA-CL02                | Historical boat house                                                                | 25 m south-west of central area                                    |                                                  | Boat house 1923 – 1950                                                                                            | No further details.                                                                                                                                                                          |
| P4b-SA-CL03                | Current Fox Farm Equestrian Centre                                                   | 30 m north of central area                                         | Equestrian centre                                | Not shown on available historical mapping.                                                                        | No further details.                                                                                                                                                                          |

| <b>ID Reference</b> | <b>Name</b>                                                         | <b>Location</b>                                             | <b>Current land use</b> | <b>Historical land use</b>                                                                     | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------|---------------------------------------------------------------------|-------------------------------------------------------------|-------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P4b-SA-CL04         | Current George Farm                                                 | 175 m north-east of central area                            | Farm                    | Farm since 1990 – 1995 mapping.                                                                | No further details.                                                                                                                                  |
| P4b-SA-CL05         | Historical sand pit                                                 | 13 m east of central area                                   | Green open space        | 1898 – 1900 old sand pit<br>1924 – 1950 unspecified pit                                        | No further details.                                                                                                                                  |
| P4b-SA-CL06         | Current Springfield Farm                                            | Located within Part 4b (Section A) east of the central area | Farm                    | Farm since 1970 – 1979                                                                         | No further details.                                                                                                                                  |
| P4b-SA-CL07         | Historical unspecified pits (Barden pits)                           | 62 m south of the central area                              | Green / wooded area     | 1923 – 1950 Barden Pits                                                                        | One industrial land use: unspecified quarries or mines.                                                                                              |
| P4b-SA-CL08         | Current St Margarets Farm                                           | 238 m south-east of the eastern part of central area        | Farm                    | Mapping not available for majority of this area.                                               | No further details.                                                                                                                                  |
| P4b-SA-CL09         | Current reservoir, historical unspecified heaps and historical tank | 66 m north of the eastern area                              | Reservoir               | 1925 historical tanks and reservoir.<br>1950 unspecified heap.<br>Tanks not present from 1970. | No further details.                                                                                                                                  |

| <b>ID Reference</b> | <b>Name</b>                                                 | <b>Location</b>                                    | <b>Current land use</b> | <b>Historical land use</b>                 | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                            |
|---------------------|-------------------------------------------------------------|----------------------------------------------------|-------------------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P4b-SA-CL10         | Current Battle Hills Farm                                   | Adjacent south of the eastern area                 | Farm                    | Labelled as Battlehills since 1878.        | No further details.                                                                                                                                                                                             |
| Part 4b (Section B) |                                                             |                                                    |                         |                                            |                                                                                                                                                                                                                 |
| P4b-SB-CL01         | Historical cuttings                                         | Adjacent south-west of the northern extent         | A5 road                 | Cuttings alongside the road 1881 – 1950    | No further details.                                                                                                                                                                                             |
| P4b-SB-CL02         | Historical pump house                                       | 10 m north of the southern part of northern extent | Green / wooded area     | Pump house 1900 until 1990 – 1995.         | No further details.                                                                                                                                                                                             |
| P4b-SB-CL03         | Historical sand pit                                         | 12 m west of the southern part of northern extent  | Green / wooded area     | Sand pit 1881 – 1888                       | No further details.                                                                                                                                                                                             |
| P4b-SB-CL04         | Current unspecified works or factories                      | 81 m west of the southern part of northern extent  | Unspecified works       | Not shown on available historical mapping. | One industrial land use: unspecified works or factories.<br>One licensed discharge to controlled waters, associated with The Fox & Hounds Public House, effective date 2000, into tributary of Clipstone Brook. |
| P4b-SB-CL05         | Historical landfill site - Fox and Hounds Sandpit including | 35 m south of the southern                         | Green open space        | 1950 sand pit in the south                 | One EA historical landfill site:                                                                                                                                                                                |

| <b>ID Reference</b> | <b>Name</b>                                                                          | <b>Location</b>                                    | <b>Current land use</b> | <b>Historical land use</b>                                                                                   | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                                             |
|---------------------|--------------------------------------------------------------------------------------|----------------------------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     | historical sand pit/unspecified disused pit                                          | part of northern extent                            |                         | 1982 unspecified disused pit                                                                                 | <ul style="list-style-type: none"> <li>– Fox and Hounds Sandpit Landfill Site for inert waste, first input in 1964.</li> </ul> <p>One licensed waste site – Fox &amp; Hounds Sandpit, Heath &amp; Reach (landfill taking ‘other’ wastes), issued in 1988, indicated as expired.</p> <p>Two pollution incidents of minor impact on land (category 3) from August 2001, with construction and demolition materials and wastes.</p> |
| P4b-SB-CL06         | Current pump house                                                                   | Located within central area of Part 4b (Section B) | Historical building     | Pump house since 1970 – 1979.                                                                                | No further details.                                                                                                                                                                                                                                                                                                                                                                                                              |
| P4b-SB-CL07         | Current waterways Prestige Car dealer shop including historical tanks and pump house | 28 m east of the southern area                     | Auto dealer shop        | <p>Pumping station 1970 – 1979.</p> <p>1970 – 1990 Historical tanks.</p> <p>Buildings since 1980 – 1989.</p> | <p>Threelicensed discharges to controlled waters:</p> <ul style="list-style-type: none"> <li>– Trade discharge – process effluent - water company (WTW) onto trib Clapham Brook, revoked in 1996.</li> </ul> <p>2 no. licensed waste sites:</p> <ul style="list-style-type: none"> <li>– Anglian Water Services - Battlesden Pumping Station,</li> </ul>                                                                         |

| <b>ID Reference</b> | <b>Name</b>                                                                                   | <b>Location</b>                         | <b>Current land use</b>                                            | <b>Historical land use</b>                                  | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                   |
|---------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                                                                                               |                                         |                                                                    |                                                             | Lagoon waste, issued in 1977, expired.<br>– Anglian Water Services - Battlesden Pumping Station Lagoon waste <25000 tonnes, issued in 1977, expired.                                                                                   |
| P4b-SB-CL08         | Current pump house                                                                            | Located within central area             | Pump House                                                         | Pump house since 1970 – 1979.                               | One industrial land use: pump house.                                                                                                                                                                                                   |
| P4b-SB-CL09         | Current Sandhouse pumping station including historical tanks and electricity substation       | 30 m south-west of central area         | Cottage buildings and pumping station                              | Pumping station 1970 – 1992<br>Tanks 1970 – 1997            | Two recent industrial land uses: pumping station and electrical substation.<br>Two licensed pollutant release (Part A2 B) two historical for coating & enamelling process and petrol vapour recovery process.<br>Five historical tanks |
| P4b-SB-CL10         | Historical Sandhouse Quarry landfill sites, historical unspecified disused pits and sand pits | Adjacent south-west of the central part | Water filled pits surrounded by green open vegetated / wooded area | Unspecified disused pit 1947 – 1992<br>Sand pit 1960 – 1980 | Three Environment Agency recorded historical landfills:<br>– Sandhouse Quarry Landfill for industrial and commercial waste, first input in 1970, last input in 1977.                                                                   |

| <b>ID Reference</b> | <b>Name</b>                                            | <b>Location</b>                    | <b>Current land use</b>   | <b>Historical land use</b>                        | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                                                                                                                    |
|---------------------|--------------------------------------------------------|------------------------------------|---------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                                                        |                                    |                           |                                                   | <ul style="list-style-type: none"> <li>– Sand Quarry Landfill Site for inert and industrial waste, license issued in 1977.</li> <li>– Sand Quarry Landfill for inert and industrial waste, first input in 1974.</li> </ul> <p>Two licensed discharges to controlled waters:</p> <ul style="list-style-type: none"> <li>– Trade discharge – process effluent - water company (WTW) into disused gravel pit, revoked in 2009. Trade discharges – unspecified into gravel pit, revoked in 1993.</li> </ul> |
| P4b-SB-CL11         | Historical filling station and historical garage       | 8 m south-west of the central part | Vacant land               | Garage 1977 – 1980<br>1990 petrol filling station | One recent industrial land uses: Shell Milton Keynes South.<br>One inactive List 2 Dangerous Substances registration associated with TCS Milton Keynes for pH.                                                                                                                                                                                                                                                                                                                                          |
| P4b-SB-CL12         | Current Checkley Wood Farm and Praters car dealer shop | 15 m south-west of central area    | Farm and auto dealer shop | Farm since 1878                                   | No further details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| <b>ID Reference</b> | <b>Name</b>                                                                | <b>Location</b>                                   | <b>Current land use</b>                                              | <b>Historical land use</b>                       | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                              |
|---------------------|----------------------------------------------------------------------------|---------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P4b-SB-CL13         | Current Fournie Hill Farm including historical tanks                       | 63 m west of the northern part of southern extent | Farm                                                                 | Farm since 1978.<br>Historical tanks 1975 – 1993 | No further details.                                                                                                                                                                               |
| Part 4b (Section C) |                                                                            |                                                   |                                                                      |                                                  |                                                                                                                                                                                                   |
| P4b-SC-CL01         | Current Grounds Farm                                                       | Located within the central area                   | Farm                                                                 | Farm since 1970 – 1979.                          | No further details.                                                                                                                                                                               |
| P4b-SC-CL02         | Current Grange Farm                                                        | Adjacent to the east of the central area          | Farm                                                                 | Farm since 1970 – 1979.                          | No further details.                                                                                                                                                                               |
| P4b-SC-CL03         | Current Old Stock Farm including historical tanks                          | 104 m east of the southern area                   | Farm                                                                 | Farm since 1980 – 1989.<br>1990 unspecified tank | No further details.                                                                                                                                                                               |
| Part 4b (Section D) |                                                                            |                                                   |                                                                      |                                                  |                                                                                                                                                                                                   |
| P4b-SD-CL01         | Current Woodcock Hill Farm                                                 | Adjacent east of northern area                    | Farm                                                                 | Farm since 1970 – 1979.                          | No further details.                                                                                                                                                                               |
| P4b-SD-CL02         | Historical and current garages, current skip hire and engineering services | 84 m west adjacent to Leighton Road.              | Engineering works, vehicle repair shops, buildings and storage area. | Garage 1972 – 1994                               | Three recent industrial land uses: <ul style="list-style-type: none"> <li>– vehicle repair, testing and servicing;</li> <li>– construction and tool hire; Cranes washing machines; and</li> </ul> |

| ID Reference               | Name                                                                     | Location                       | Current land use                      | Historical land use                                                | Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------|--------------------------------------------------------------------------|--------------------------------|---------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            |                                                                          |                                |                                       |                                                                    | <ul style="list-style-type: none"> <li>– Electrical equipment repair and servicing;</li> </ul> One historical licensed pollutant release (Part B) associated with PLM Autos for waste oil burner <0.4 MW.                                                                                                                                                                                                                                                                                                                                           |
| <b>Part 4b (Section E)</b> |                                                                          |                                |                                       |                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| P4b-SE-CL01                | Current Stanbridgeford Sewage Treatment Works including historical tanks | Adjacent east of northern area | Stanbridgeford Sewage Treatment Works | Sewage treatment works 1970 – 1994<br>1970 – 1994 historical tanks | One recent industrial land use: sewage works.<br>18 licensed discharges to controlled waters associated with Stanbridgeford Sewage Treatment Works. The licences relate to multiple effluent types, including storm overflow, final treated effluent, and unspecified effluent, discharged to the Ouzel Brook and its tributaries.<br>Two inactive List 2 Dangerous Substances registrations associated with Reyven (Sportsfields) Ltd and Ecologia Environmental Solutions Limited for pH.<br>Two active List 2 Dangerous Substances registrations |

| <b>ID Reference</b> | <b>Name</b>                                                                        | <b>Location</b>                              | <b>Current land use</b>         | <b>Historical land use</b>                          | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b> |
|---------------------|------------------------------------------------------------------------------------|----------------------------------------------|---------------------------------|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                                                                                    |                                              |                                 |                                                     | associated with Stanbridgeford STW for iron.                                                                                                         |
| P4b-SE-CL02         | Current Lane Farm                                                                  | 22 m east of northern part of central extent | Farm                            | Farm since 1878.                                    | One industrial land use: solar panel.                                                                                                                |
| P4b-SE-CL03         | Current Bower Lane Cemetery                                                        | 107 m south-west of central area             | Cemetery                        | Cemetery since 1878.                                | No further details.                                                                                                                                  |
| P4b-SE-CL04         | Current F & F Pell Common Farm                                                     | 132 m south-west of southern area            | Farm                            | Farm since 1970 – 1979.                             | No further details.                                                                                                                                  |
| P4b-SE-CL05         | Historical whiting works and current Warehill Equestrian Centre and Freerange Farm | 87 m north-east of the southern area         | Equestrian centre and farm      | Whiting works 1879 – 1888                           | No further details.                                                                                                                                  |
| P4b-SE-CL06         | Historical corn mill                                                               | 58 m north of the southern area              | Doolittle Media Ltd - Publisher | Corn mill 1879 – 1994 (disused on 1960 – 1979 maps) | One licensed discharge to controlled waters, associated with Little Mill into River Ouzel, effective date 1964 and revocation date 1991.             |
| P4b-SE-CL07         | Current Norfolk House Farm and Barry Cato motor repair shop                        | 206 m south-west of the southern area        | Farm and vehicle repair shop    | Mapping not available for majority of this area.    | No further details.                                                                                                                                  |

| <b>ID Reference</b>        | <b>Name</b>                                                                       | <b>Location</b>                           | <b>Current land use</b> | <b>Historical land use</b>                                           | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                 |
|----------------------------|-----------------------------------------------------------------------------------|-------------------------------------------|-------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Part 4b (Section F)</b> |                                                                                   |                                           |                         |                                                                      |                                                                                                                                                                                                                                                                      |
| P4b-SF-CL01                | Current Shepherds Farm                                                            | 50 m north of the western area            | Farm                    | Farm since 1970 – 1979.                                              | No further details.                                                                                                                                                                                                                                                  |
| P4b-SF-CL02                | Historical chalk pit                                                              | 171 m north of the western area           | Green open space        | Chalk pit 1900 – 1960                                                | No further details.                                                                                                                                                                                                                                                  |
| P4b-SF-CL03                | Historical landfill site - Shepherds Farm, historical cutting and unspecified pit | Adjacent to the north of western area     | Green open space        | 1960 historical cuttings.<br>1978 unspecified pit.                   | No further details.                                                                                                                                                                                                                                                  |
| P4b-SF-CL04                | Current Icknield Way Farmhouse                                                    | 68 m south of western area                | Farm                    | Farm since 1970 – 1979.                                              | No further details.                                                                                                                                                                                                                                                  |
| P4b-SF-CL05                | Current Icknield Way Business Park including historical tanks                     | Adjacent to the south of the western area | Business Park           | Large buildings on 1970 – 1979 maps.<br>Historical tanks 1974 - 1993 | Nine. industrial land uses: <ul style="list-style-type: none"> <li>– access equipment;</li> <li>– vehicle repair, testing and servicing;</li> <li>– airlines and airline services;</li> <li>– Goodwood Joinery;</li> <li>– General construction supplies;</li> </ul> |
| P4b-SF-CL06                | Historical rifle range                                                            | 114 m west of the western area            | Green open space        | Rifle range 1879 – 1938                                              | No further details.                                                                                                                                                                                                                                                  |

| <b>ID Reference</b>        | <b>Name</b>                                                                                 | <b>Location</b>                                 | <b>Current land use</b>                                    | <b>Historical land use</b>                                   | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                        |
|----------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------|------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P4b-SF-CL07                | Current Cemex quarry including historical tanks and electrical substation                   | 150 m north of the central area                 | Quarry operations and buildings                            | 1973 – present tanks<br>1975 – present electrical substation | One recent industrial land use: electricity substation.                                                                                                                                                     |
| P4b-SF-CL08                | Current pump house and tank associated with Dunstable Downs Golf Club                       | Located within the eastern part of central area | Dunstable Downs golf course and wooded area                | 1973 – present tank                                          | One recent industrial land use: pump house - water pumping stations.                                                                                                                                        |
| P4b-SF-CL09                | Current industrial units in Allcroft Works including historical tanks and unspecified works | 53 m south of the central area                  | Retail units and buildings surrounded by green wooded area | 1975 – unspecified works<br>1971 – 1993 tanks                | Three recent industrial land uses: <ul style="list-style-type: none"> <li>– unspecified works or factories;</li> <li>– unspecified quarries or mines;</li> <li>– rubber, silicones and plastics.</li> </ul> |
| P4b-SF-CL10                | Current Isle of Wight Farm and electrical substation                                        | 50 m south of the central area                  | Farm                                                       | Farm since 1878.                                             | No further details.                                                                                                                                                                                         |
| P4b-SF-CL11                | Current Grange Farm                                                                         | Located adjacent south of eastern area          | Farm                                                       | Farm since 1878.                                             | One industrial land use: <ul style="list-style-type: none"> <li>– silo - hoppers and silos.</li> </ul>                                                                                                      |
| P4b-SF-CL12                | Current St Mary's Church Cemetery                                                           | 40 m south of the eastern area                  | Church and cemetery                                        | Farm since 1878.                                             | No further details.                                                                                                                                                                                         |
| <b>Part 4b (Section G)</b> |                                                                                             |                                                 |                                                            |                                                              |                                                                                                                                                                                                             |

| <b>ID Reference</b> | <b>Name</b>                                   | <b>Location</b>                                | <b>Current land use</b> | <b>Historical land use</b>                                  | <b>Further details (from Groundsure (Ref. 3), Environment Agency information on historical and authorised landfills, and from Local Authorities)</b>                                                                                                                                                                                                                                                                                                                                                               |
|---------------------|-----------------------------------------------|------------------------------------------------|-------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P4b-SG-CL01         | Current Brick Kiln Barns with historical pits | 41 m south of the western part of eastern area | Farm                    | Old clay pits in the south 1878.<br>Farm since 1970 – 1979. | <p>One inactive licensed discharge to controlled waters issued in 2009 and revoked in 2013 for sewage discharges - final/treated effluent - not water company to ground waters via a borehole.</p> <p>One active licensed discharge to controlled waters issued in 2013 for sewage discharges - final/treated effluent - not water company to ground waters via a borehole.</p> <p>One licensed waste site:<br/>Chaul End Road, 3/yard, Dunstable as metal recycling site (vehicle dismantler) issued in 1993.</p> |

## 1.2 Regulated Processes

- 1.2.1 Where present, regulated processes<sup>10</sup> have been identified within each the potential contaminated land sites listed in **Table 1** in the 'Further details' column (see paragraphs 1.1.3 and 1.1.4 for further details).
- 1.2.2 Within the study area of Parts 2 and 3, some of the regulated processes identified are isolated and do not appear to be associated with the identified potential contaminated land sites included in **Table 1**. This includes:
- a. licensed discharges to controlled waters and releases to surface water consents (**Table 2**); and
  - b. pollution incidents (**Table 3**).
- 1.2.3 No regulated processes have been identified within the study area of Part 4a and 4b, other than those related to the sites of potential contamination presented in **Table 1**.
- 1.2.4 It should be noted that there is a historical licensed pollutant release (part B), located 20 m east of the southern area of Part 2 (Section G), for AF Aerospace Ltd, associated with cadmium processes (electroplating and associated effluent treatment). No facilities are noted in this area based on current and historical mapping, suggesting potentially wrong co-ordinates associated with this entry. Therefore, this has not been identified as a potential contaminated land site.

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<sup>10</sup> Including licensed discharges to controlled waters and releases to surface water consents; pollution controls such as Licensed Pollutant Release (Part A2 B); pollution incidents; radioactive substance authorisations; pollution inventories; List 1 and 2 dangerous substances; industrial activities; hazardous substances storage; tanks; and COMAH sites.

## Licensed Discharges to Controlled Waters and Releases to Surface Water Consents

**Table 2: Part 2 - Summary of licensed discharges to controlled waters and releases to surface water consents**

| Number present in relation to Section |        | Details of those present within 50 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| On-site                               | 0-50 m |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Part 2 (Section C and Section D)      |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 1                                     | 0      | On-site: <ul style="list-style-type: none"><li>• one. entry located in the northern area, associated with releases to surface water (Red List) by Hawkesbury Tip, trade discharges – site drainage).</li></ul>                                                                                                                                                                                                                                                                                                                                                                                          |
| Part 2 (Section I)                    |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 0                                     | 3      | Off-site: <ul style="list-style-type: none"><li>• one entry (ref. TSC317) located 15 m south of the central area, sewage discharges – pumping station – water company into Clifton Brook, issued in 2016.</li><li>• two. entries located 20 m south-east of the central area:<ul style="list-style-type: none"><li>- Sewage discharges – sewer storm overflow – water company into Tributary Clifton Brook (ref. TSC3155), issued in 2010, revoked in 2011.</li><li>- Sewage discharges – pumping station – water company into Hillmorton Brook (ref. S/10/09115/O) issued in 1983.</li></ul></li></ul> |

| Number present in relation to Section |        | Details of those present within 50 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| On-site                               | 0-50 m |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Part 2 (Section K)                    |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1                                     | 1      | <p>On-site:</p> <ul style="list-style-type: none"><li>one entry (ref. PR5NF170) located within the northern area for sewage discharges – final / treated effluent – not water company, receiving water indicated as unknown, associated with Middlemore Cottages, Ashby Road, Daventry, issued in 1960, revoked in 1991.</li></ul> <p>Off-site:</p> <ul style="list-style-type: none"><li>one entry (ref. AW5NF47) located 5 m west of the southern area for miscellaneous discharges – surface water, into unknown tributary and Grand Union Canal, issued in 1956 and revoked in 2018.</li></ul>                                                                                                                                                                                                                                       |
| Part 2 (Section L)                    |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8                                     | 5      | <p>On-site:</p> <ul style="list-style-type: none"><li>one entry (ref. PRNNF04392) located within the northern area for sewage discharges – final / treated effluent – not water company into Grand Union Canal, issued in 1991, revoked in 1992.</li><li>two entries (ref. AW5NF5218) located within the northern area:<ul style="list-style-type: none"><li>– Licensed discharge of sewage – final / treated effluent – water company into Grand Union Canal or Tributary River Nene, first issued in 2002, revoked in 2015.</li><li>– Release to surface waters – sewage discharges – final / treated effluent – water company, onto Whilton Branch (Daventry), most recently approved in 2015.</li></ul></li><li>one unspecified entry (ref. PR5LF3092), located within the northern area, issued in 1969, revoked in 1996.</li></ul> |

| Number present in relation to Section |        | Details of those present within 50 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| On-site                               | 0-50 m |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                       |        | <ul style="list-style-type: none"> <li>• one entry (ref. AW5NF5218), located within the northern area for releases to surface waters (Red List) of sewage discharges – final / treated effluent – water company into Grand Union Canal or Tributary River Nene, issued in 2015.</li> <li>• one unspecified entry (ref. PR5LF3142), located within the central area, issued in 1971, revoked in 1996.</li> <li>• one entry (ref. PR5LF5402), located within the central area, for sewage discharges – final / treated effluent – not water company, issued in 1987, revoked in 1992.</li> <li>• one entry (re. PR5NF649), located within the central area, for sewage discharges – final / treated effluent – not water company into unknown tributary, issued in 1979, revoked in 1992.</li> </ul> <p>Off-site:</p> <ul style="list-style-type: none"> <li>• one unspecified entry (ref. PR5LF3057) located 30 m north of the northern area, discharge onto land, issued in 1967, revoked in 1996.</li> <li>• one unspecified entry (ref. PR5LF3169) located 15 m south of the northern area, discharge onto land, issued in 1972, revoked in 1997.</li> <li>• one entry (ref. PR5LF3068) located 25 m south of the northern area, for sewage discharges – final / treated effluent – not water company, issued in 1967, revoked in 1997.</li> <li>• one unspecified entry (ref. PR5LF3038), located 15 m east of the northern area, issued in 1967, revoked in 1996.</li> <li>• one entry (ref. PRNLF18024) located 45 m west of the central area, for sewage discharges – final / treated effluent – not water company onto land, issued and revoked in 2003.</li> </ul> |
| <b>Part 2 (Section M)</b>             |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 0                                     | 1      | <p>Off-site:</p> <ul style="list-style-type: none"> <li>• one entry (ref. PRNAF09638) located 30 m east of the southern area, for sewage discharges – final / treated effluent – not water company, into groundwater issued in 1994, modified in 2011.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Number present in relation to Section |        | Details of those present within 50 m                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| On-site                               | 0-50 m |                                                                                                                                                                                                                                                                                                                                                        |
| Part 2 (Section N)                    |        |                                                                                                                                                                                                                                                                                                                                                        |
| 0                                     | 2      | Off-site: <ul style="list-style-type: none"><li>• one unspecified entry (ref. PR5LF3676) located 35 m south of the northern area, for discharges to land, issued in 1980, revoked in 1996.</li><li>• one unspecified entry (ref. PR5LF3162) located 45 m east of the southern area, for discharges to land, issued in 1972, revoked in 1997.</li></ul> |
| Part 2 (Section S)                    |        |                                                                                                                                                                                                                                                                                                                                                        |
| 0                                     | 1      | Off-site: <ul style="list-style-type: none"><li>• one entry (ref. AW1NF1140), located 10 m north of the central area, for sewage discharges – final / treated effluent – water company, associated with Bradwell Road CSO, onto Loughton Brook, revoked in 2023.</li></ul>                                                                             |
| Part 3                                |        |                                                                                                                                                                                                                                                                                                                                                        |
| 0                                     | 1      | Off-site: <ul style="list-style-type: none"><li>• one entry (ref. AW5NF47) located 5 m west of the southern area, for miscellaneous discharges – surface water, into unknown tributary and Grand Union Canal, issued in 1956 and revoked in 2018.</li></ul>                                                                                            |

## Pollution Incidents

**Table 3: Part 2 - Summary of pollution incidents**

| Number present in relation to Section   |        | Details of those present within 50 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| On-site                                 | 0-50 m |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Part 2 (Section A)</b>               |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1                                       | 3      | <p><i>On-site:</i></p> <ul style="list-style-type: none"> <li>one pollution incident, located in the northern area, of minor impact for water, air and land (category 3), from March 2002, with a diesel pollutant.</li> </ul> <p><i>Off-site:</i></p> <ul style="list-style-type: none"> <li>one pollution incident, located 15 m west of the northern area, of minor impact on water (category 3) from November 2002, with an unidentified oil as a pollutant.</li> <li>one pollution incident, located 10 m west of the northern area, of minor impact on water (category 3) from March 2002, with diesel as a pollutant.</li> <li>one pollution incident, located 5 m west of the northern area, of minor impact on water (category 3) from June 2002, with contaminated water as a pollutant.</li> </ul> |
| <b>Part 2 (Section B)</b>               |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 0                                       | 2      | <p><i>Off-site:</i></p> <ul style="list-style-type: none"> <li>two entries located 15 m north of the southern area, of minor impact on water (category 3) from March 2003, polluted by animal and vegetable oil, and minor impact on water due to contaminated water.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Part 2 (Section C and Section D)</b> |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 4                                       | 4      | <p><i>On site:</i></p> <ul style="list-style-type: none"> <li>four pollution incidents in the northern area, of minor impact on water (category 3) from 2001 to 2003 due to pollution from unidentified oil, diesel and mixed / waste oil.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Number present in relation to Section |        | Details of those present within 50 m                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| On-site                               | 0-50 m |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                       |        | <i>Off-site:</i> <ul style="list-style-type: none"> <li>two pollution incidents in the northern area (5 and 15 m south of the northern area), of minor impact on water or air (category 3) both from 2003 due to pollution from diesel and smoke, respectively.</li> <li>two pollution incidents 20 m north of the central area, of minor impact on water (category 3) from February and March 2002 due to pollution with unidentified oil.</li> </ul> |
| <b>Part 2 (Section I)</b>             |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1                                     | 0      | <i>On-site:</i> <ul style="list-style-type: none"> <li>one pollution incident of minor impact on water (category 3) from September 2001, due to other oil or fuel pollution.</li> </ul>                                                                                                                                                                                                                                                                |
| <b>Part 2 (Section M)</b>             |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1                                     | 1      | <i>On-site:</i> <ul style="list-style-type: none"> <li>one pollution incident located within the central area, of minor impact on water (category 3) from December 2002 from crude sewage.</li> </ul> <i>Off-site:</i> <ul style="list-style-type: none"> <li>one pollution incident located 10 m west of the central area, of minor impact on land (category 3) from March 2003 from crude sewage.</li> </ul>                                         |
| <b>Part 2 (Section N)</b>             |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Number present in relation to Section |        | Details of those present within 50 m                                                                                                                                                                                      |
|---------------------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| On-site                               | 0-50 m |                                                                                                                                                                                                                           |
| 0                                     | 1      | <i>Off-site:</i> <ul style="list-style-type: none"> <li>one pollution incident located 25 m north of the northern area, of minor impact on land (category 3) from April 2002, associated with household waste.</li> </ul> |
| <b>Part 2 (Section S)</b>             |        |                                                                                                                                                                                                                           |
| 2                                     | 0      | <i>On-site:</i> <ul style="list-style-type: none"> <li>two pollution incidents located within the central area, of minor impact on water (category 3) from January 2002), associated with oils and fuel.</li> </ul>       |

## 1.3 References

- Ref. 1 Groundsure Site Sensitivity Data (GIS format), Ref. GS-L4D-PCR-CHS-QF9, September 2025.
- Ref. 2 Groundsure Historical Mapping (GIS format), October 2025.