Great North Road Solar and Biodiversity Park

Environmental Statement Report

Volume 4 – Technical Appendices

TA A10.4 – Desk Study and Preliminary Risk Assessment Study – Area 4

Document reference – EN010162/APP/6.4.10.4

Revision number 1

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Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009, APFP Regulation 5(2)(a)

Contents

A10.4.1. INTRODUCTION

A10.4.1.1. PREAMBLE

1 RPS Consulting Services Ltd (RPS) was commissioned by Elements Green Trent Ltd to undertake a Phase 1 Desk Study and Preliminary Risk Assessment (DTS and PRA) of The Great North Road Solar and Biodiversity Park (GNR; "the Development"), within the Order Limits. The report has been commissioned prior to the submission of the application for DCO consent for the Development.

2 The Development would be located to the north-west of Newark, in the Newark and Sherwood district, Nottinghamshire, East Midlands. The Development would be within an area bound by the Order Limits. The Order Limits are to the west of the A1, north of the A617, east of Eakring, and south of Egmanton, to the north and north-west of Staythorpe. The Development essentially consists of discrete land parcels proposed to be occupied by solar PV panels, BESS and associated infrastructure, and connected by cable route areas. The eastern side of the Development runs from the north of Norwell to Egmanton in the north (with additional parcels of land for mitigation/enhancement around North Muskham). The western side of the Development runs north-west from Staythorpe Power Station and then splits at Maplebeck, with spurs running to Eakring in the north-west and Kneesall to the north-north-east, then connecting with the eastern side of the Development.

3 A plan showing the location and Order Limits for the Development is provided as Figure 10.1: Site Desk Study Zoning Plan in Volume 2 Chapter 10 – Ground Conditions and Land Contamination [EN010162/APP/6.2.10]. In order to provide sufficient detail for the PRA, the Development has been subdivided by RPS into eight study areas (referenced as Study Areas 1 – 8). It should be noted that the split of the Study Areas are based on the previous Order Limits for PEIR and therefore the DTS and PRA presents an assessment of an area that is inclusive of the current Order Limits. It should be noted that where cable routes extend beyond the Study Area, along existing public highway, these cable routes have not been subject to specific desk based review or considered within the conceptual site model on the basis that these public highways would have been constructed to adoptable standards and therefore are not considered to represent potentially contaminated areas.

4 This report presents the Desk Top Study (DTS) information and Preliminary Risk Assessment (PRA) for Study Area 4 as shown in Figure A10.4.1: Study Area 4 Boundaries. It includes the following Field Parcel ID's 22, 129, 130, 132, 140, 232, 253, 254, 257, 502, 545 and 546, and are shown in Figure A10.4.2: Study Area 4 Field Boundaries.

5 The wider area within and surrounding the Order Limits are generally composed of agricultural land, interspersed by occasional woodlands. Surrounding villages and hamlets are connected by rural roads and public rights of way. Smaller fields and tree cover are more common close to the villages and along water courses, with larger and more open fields set further away. The total area of the Development Site is approximately 1,765

hectares (ha), the majority of which is currently used for arable crops or is otherwise down to pasture.

6 The Desk Study assessment is based upon a review of published information available from local, regional, and national agencies. The desk study information is derived from Insight Reports provided by Groundsure, Ref. GSIP-2024-16448-21124_D_1 and GSIP-2024-16448-21124_E_1 which are presented as Annexes E and F within Volume 4 Technical Appendix A10.11 – Desk Study and Preliminary Risk Assessment Groundsure Data [EN010162/APP/ 6.4.10.11]. Please note the terms and conditions attached to the supply of data from Groundsure. It should be noted that the Study Area boundaries presented within the Groundsure Insights Reports are based on the previous Preliminary Environmental Information Report site boundary which was provided at the time of purchasing the Groundsure data. Only information relating to the Study Areas and a data search buffer of 250 m, where relevant, has been included within this assessment.

A10.4.1.2. OBJECTIVES

7 The principal objectives of this assessment were as follows:

- Establish from published sources the geological sequence for Study Area 4 and potential for ground instability to occur through the Development;
- To assess potential sources of contamination associated with historical and current land uses both on Study Area 4 and within a data search area of 250 m radius;
- To review the environmental setting to assess the sensitivity of the surrounding area to contamination/pollution;
- To produce an outline Conceptual Site Model (CSM) detailing how any contamination may impact the identified receptors via pollutant linkages; and
- To conclude on the likely requirement for any further assessment and ground investigation required in support of the DCO application.

8 The PRA methodology utilised in the preparation of this assessment is presented in detail in Annex B.

A10.4.1.3. LEGISLATION AND GUIDANCE

9 The assessment has been undertaken in general accordance with British Standard BS EN ISO 21365:2020[1] and is considered suitable to meet the initial requirements of planning as outlined within the National Planning Policy Framework (NPPF)[2]. The assessment also reflects the

[1] British Standards Institution (2020). BS EN ISO 21365:2020 soil quality. Conceptual site models for potentially contaminated sites. Available at: https://standardsdevelopment.bsigroup.com/projects/2017-02617 (accessed 21.05.2025).
[2] Ministry of Housing, Communities and Local Government, National Planning Policy Framework (Dec 2024/ Amended Feb 2025) Available at: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf (accessed 21.05.25)

recommendations of Environment Agency guidance, Land Contamination: Risk Management, (LCRM, 2023)[3].

10 This report has been produced in general accordance with:

- Contaminated Land (England) Regulations 2006 (as amended);
- DEFRA Environmental Protection Act 1990: Part 2A – Contaminated Land Statutory Guidance (2012);
- Environment Agency (2023) Land Contamination: Risk Management (LCRM 2023);
- National Planning Policy Framework (2024);
- CIRIA Document C665 (2007): Assessing Risks Posed by Hazardous Ground Gases to Buildings;
- British Standard requirements for the 'Investigation of potentially contaminated sites – Code of practice' (ref. BS10175:2011+A2:2017);
- British Standard requirements for the 'Code of practice for ground investigations' (ref. BS5930:2015+A1:2020); and
- British Standard requirements for the 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings' (ref BS8485:2015+A1:2019).

11 Details of the limitations of this type of assessment are described in Annex C.

A10.4.2. DESCRIPTION OF STUDY AREA 4 AND DESK STUDY

12 Study Area 4 is located between Kelham to the south-west, and North Muskham to the north-east and comprises the south-eastern section of the Order Limits. It is divided by the village of South Muskham. See Figure A10.4.1: Study Area 4 Boundaries for the extent of Study Area 4.

13 Study Area 4 currently comprises mainly undeveloped agricultural land. Study Area 4 is noted as being generally level and flat with topography ranging from 13 m Above Ordnance Datum (AOD) in the south-west, to 11 m AOD in the north-east.Given the absence of potentially significant contaminative land uses / sources, as identified from environmental data searches, within the Study Area, a target site inspection has not been required of this Study Area.

14 Study Area 4 is located in an area of mixed agricultural and residential land use. Based on the images reviewed the neighbouring land consisted of the following:

Table A10.4.1: Neighbouring Land Uses

Direction	Description
South	River Trent, Kelham village, agricultural land, Study Area 3.
West	A616, Little Carlton village, agricultural land.

[3] Environment Agency (2023). Land Contamination: Risk Management (LCRM). Available at: https://www.gov.uk/government/publications/land-contamination-risk-management;lcrm (accessed on 25.01.2025).

Direction	Description
East	South Muskham, railway line, Great North Road, Pits, A1, agricultural land, lakes including sailing club and South Muskham Fisheries.
North	North Muskham, agricultural land, Study Area 5.

A10.4.2.1. THE DEVELOPMENT

A10.4.2.1.1. The Great North Road Solar and Biodiversity Park (GNR) ("the Development")

15 Full details and a detailed description of The Development are outlined in Environmental Statement (ES) Volume 2 Chapter 5 - Development Description [EN010162/APP/6.2.5].

A10.4.2.1.2. Study Area 4

16 The fields comprising Study Area 4 are designated as Work Area 3 environmental mitigation / enhancement areas. These areas may contain the following principal Development components/activities;

- Site preparation and/or clearance;
- Access tracks;
- Fencing/gates;
- Archaeological investigations;
- SuDS measures;
- Planting and vegetation management, and other mitigation/enhancement measures;
- Laying down of permissive paths and bridleways, cycle routes, signage and information boards;
- Temporary Public Rights of Way diversions (during the construction and decommissioning phases);
- Permanent Public Rights of Way diversions (during the operational phase and thereafter); and
- Enabling works, including construction compounds, for the above.

17 As such construction works will be limited to the above and will be managed by a Landscape and Ecological Management Plan (LEMP), presented within Volume 4 TA A5.1 – LEMP [EN010162/APP/6.4.5.1].

A10.4.2.2. SITE HISTORY

A10.4.2.2.1. Historical Map Review

18 The following review is based on past editions of readily available Ordnance Survey (OS) maps. These include scales of 1:1,250, 1:2,500, 1:10,560 and 1:10,000 dated 1884 to 2024. Extracts from the historical maps are included within Volume 4 TA A10.11 – Desk Study and Preliminary Risk Assessment Groundsure Data [EN010162/APP/6.4.10.11]. Historical site uses are presented in Table A10.4.2, below.

Table A10.4.2: Historical Site Uses within Study Area 4

Study Area 4 Land Use and Features	Dates
Undeveloped agricultural land, fields, ponds, hedgerows and tree-lined boundaries.	1884-2024

19 Pertinent historical site uses within 250 m of Study Area 4 are presented below.

Table A10.4.3: Historical Neighbouring Land Uses within 250 m

Surrounding Land Use	Orientation	Distance from Study Area 4	Dates	
			From	To
Sand and Gravel Pits - flooded by 1992	East	37 m 166 m 154 m 115 m	1971	2024
Railway line to east of South Muskham	East	165 m	1884	2024
Newark Water Works	East	49 m	1884	1956
Smithy	East	18 – 176 m	1899	1921

A10.4.2.2.2. Planning History

20 There are no available planning records for Study Area 4 on the Newark and Sherwood District Council planning website as of November 2024.

A10.4.2.3. ENVIRONMENTAL SETTING

21 The Groundsure Insight Reports used in preparation of the environmental setting assessment are presented within Volume 4 TA A10.11 – Desk Study and Preliminary Risk Assessment Groundsure Data [EN010162/APP/6.4.10.11].

A10.4.2.3.1. Geology

22 Based on British Geological Survey (BGS) mapping (1:50,000-scale)[4] and the Environment Agency (EA) Groundwater Vulnerability mapping (1:100,000-scale), the stratigraphic sequence and aquifer classifications beneath the Study Area are indicated to be as follows:

[4] British Geological Survey (2025). Geoindex Onshore. Available at: https://www.bgs.ac.uk/map-voewers/geoindex-onshore/ (accessed on 21.05.2025).

Table A10.4.4: Descriptions of Geological Strata

Stratum	Description & approx. thickness (based upon BGS Lexicon of Rock Units and borehole data)	Aquifer Classification
Superficial Deposits		
Alluvium	Unconsolidated clay, silt, sand, and gravel. Thickness not proven.	Secondary A
Holme Pierrepont Sand And Gravel Member	Pinkish, poorly sorted immature sandy cross bedded river gravels with syn-depositional ice-wedge casts. Gravel is dominated by round pebbles of quartz, flints, and carboniferous sandstones. Variable thickness across the development site. Thicker in the north. (Proven to 7.00 m depth)	Secondary A
Bedrock		
Mercia Mudstone Group - Mudstone	Dominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas.	Secondary B

23 BGS borehole log (ref SK75NE/84) located in the south of the Study Area indicates sands and gravel with a depth of approximately 7.30 m recorded. The sand and gravel deposits are assumed to be the Holme Pierrepont Member and are described as clayey to very clayey sandy gravel in the upper 4.20 m tending to coarse quartzitic gravel towards the base. The sands and gravels overlie bedrock strata of the Mercia Mudstone Group.

24 It is evident that there was a period of extensive oil well drilling from the deeper lying Carboniferous strata to the west of Study Area 4 between the 1940s and 1970s. There is no indication that these workings extended within the boundaries of the Study Area.

A10.4.2.3.2. Hydrogeology

25 Study Area 4 is located above a Secondary A Aquifer of high vulnerability relating to the superficial cover of Alluvium and Holme Pierrepont Member

and Secondary B aquifer also of high vulnerability relating to the Mercia Mudstone bedrock across the remainder of the Study Area. These are defined below:

- Secondary A Aquifer: These formations are formed of permeable layers capable of supporting water supplies at a local scale, in some cases forming an important source of base flow to rivers; and
- Secondary B Aquifer: These formations are generally formed of lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons, and weathering and allow fracture flow.

26 High Vulnerability aquifers are able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.

27 According to EA data, Study Area 4 is not located in a groundwater Source Protection Zone (SPZ).

28 Information provided by the EA indicates that there are three records of active licensed groundwater abstractions on or within 250 m of Study Area 4. These are detailed in the table below:

Table A10.4.5: Groundwater Abstractions

Licence Holder	**Approx Distance and direction from Study Area 4**	**Source**	**Use**
James Miller (Kelham) Limited	Onsite	Groundwater Midlands Region	Spray Irrigation - Direct
Staniforth	Onsite	Groundwater Midlands Region	Spray Irrigation - Direct
J & J Burnett Ltd	144 m north-east	Groundwater Midlands Region	Spray Irrigation - Direct

A10.4.2.3.3. Surface Water

29 There is one watercourse within 250 m of Study Area 4 which is classified within a River Basin Management Plan published by the EA under the European Water Framework Directive (2000). A list of readily identifiable nearby watercourses and water bodies is as follows:

Table A10.4.6: Nearby Watercourses and Water Bodies

Watercourse/Body	**Quality Classification (2019)**	**Approx Distance and direction from Study Area 4**
River Trent	Overall rating 'Moderate'	10 m south-east

30 In addition to the River Trent there are a number of minor drains and ponds within the Study Area.

31 Information provided by the EA indicates that there are no records of active licensed surface water abstractions within 250 m of Study Area 4.

A10.4.2.3.4. Ecologically Sensitive Sites

32 Natural England data indicates that there are no ecologically sensitive sites, that constitute environmental receptors as defined within Table 1 of the DEFRA Environmental Protection Act 1990: Part 2A - Contaminated Land Statutory Guidance (2012)[5], located within 250 m radius of Study Area 4.

A10.4.2.3.5. Radon

33 According to the online Indicative Atlas of Radon in England and Wales published by the UK Health Security Agency (UKHSA)[6] and BGS, Study Area 4 lies within a kilometre grid square with maximum radon potential of less than 1 %. The Indicative Atlas is based upon Radon Potential Data and classifies areas based upon the likelihood of a property having a radon action level at or above the Action Level of 200 Bq m3 based upon a dataset of over 500,000 records provided by the UKHSA and geology provided by the BGS. The Radon Potential is calculated from statistics (geometric mean and geometric standard deviation) of indoor radon measurements collected over each geological unit.

34 The higher resolution Radon Potential dataset, as included within the Groundsure GeoInsight report, provides a more accurate assessment of the level of risk and the requirements for inclusion of preventative measures during construction based upon BGS Geology (1:50,000 scale) geological map data. This indicates a maximum radon potential of less than 1 % of properties having a radon level at or above the Action Level in Great Britain.

A10.4.2.3.6. Mining Remediation Authority

35 The Interactive Map Viewer on the Mining Remediation Authority[7] website indicates that Study Area 4 is not located in a coal mining reporting area or within a Development High Risk Area.

A10.4.2.3.7. Non-coal Mining

36 BGS sources indicate that Study Area 4 is not located in an area of recorded non-coal mining (vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and ‘other’ commodities including ball clay, jet, black marble, graphite, and chert).

[5] DEFRA (2012). Contaminated Land Statutory Guidance. Available at: www.gov.uk/government/publications/contaminated-land-statutory -guidance (accessed on 21.05.2025).
[6] UK Health Security Agency (2022). UK maps of radon. Available at: https://www.ukradon.org/information/ukmaps (accessed 21.05.2025).
[7] Mining Remediation Authority (2025). Map Viewer. Available at: https://datamine-cauk.hub.arcgis.com (accessed 21.05.25).

A10.4.2.3.8. Brit Pits

37 BGS sources indicate two former Brit Pits within the Study Area, named Kelham Hills Pit (clay and shale) and Debdale Hill Pit (Sandstone) as well as two former Brit Pits for clay and shale within 250 m of Study Area 4.

A10.4.2.3.9. BGS Ground Stability Hazard Ratings

38 BGS Ground Stability Hazard ratings for the Study Area are summarised as follows:

Table A10.4.7: BGS Ground Stability Hazards

Ground Stability Hazard	BGS Risk Rating
Collapsible Ground	Negligible – Very Low
Compressible Ground	Negligible – Moderate (alluvium)
Ground Dissolution	Negligible
Landslide	Very low – Low
Running Sand	Negligible – Very low
Shrinking or Swelling Clays	Negligible – Very Low

A10.4.2.4. AUTHORISED PROCESSES AND POLLUTION INCIDENTS

A10.4.2.4.1. Landfill and Waste Sites

39 Data provided by the EA, Local Authority and BGS indicates that there is one recorded licensed or known historical landfill site located within 250 m of Study Area 4. This is described within the following table.

Table A10.4.8: Landfill / Waste Transfer / Waste Treatment Sites

Source	Approx Distance and direction from Study Area 4	Licence Details	Waste Type and details
EA/LA Records	44 m East	Operator: Biffa Waste Services Name: Newark Quarry Site Reference: 3/77/19/75NE,E/55/193	Inert, Industrial, Special, Liquid sludge

A10.4.2.4.2. Environmental Permits

40 EA and Local Authority data indicates that there are no processes currently regulated by an Environmental Permit (under the Environmental Permitting Regulations (2010)) on or within 250 m of the Study Area.

A10.4.2.4.3. COMAH Sites

41 There are no records of any operations under the Control of Major Accident Hazards (COMAH) Regulations 1999, located within 250 m radius.

A10.4.2.4.4. Pollution Incidents

42 Environment Agency data indicates that there are no records of ‘major’ or ‘significant’ pollution incidents within 250 m of the Study Area.

A10.4.2.5. UNEXPLODED ORDNANCE

43 CIRIA Report C681[8] (Stone *et al.,* (2009)) outlines recommendations for dealing with the potential risk associated with the legacy of Unexploded Ordnance Risk, largely relating to WWII bombing and military sites.

44 A detailed desk based UXO Risk Assessment was undertaken by Tetra Tech RPS Energy for The Development dated 28th August 2024. The findings of the assessment identifies that Study Area 4 is in a low risk UXO area. No further measures are considered necessary other than provision of tool box talks during site inductions for construction staff and inclusion of UXO in Risk Assessments and emergency plans at pre-construction stage. The Tetra Tech RPS Energy UXO Risk Assessment report is presented in Volume 4 TA A10.10 – Detailed Desk Study (Stage 2) for Potential UXO Contamination [EN010162/APP/6.4.10.1].

A10.4.3. OUTLINE CONCEPTUAL SITE MODEL

A10.4.3.1. BACKGROUND

45 An outline conceptual site model (CSM) consists of an appraisal of the source-pathway-receptor ‘contaminant linkages' which is central to the approach used to determine the existence of ‘contaminated land' according to the definition set out under Part 2A of the Environmental Protection Act, 1990. For a risk to exist (under Part 2A), all three of the following components must be present to facilitate a potential 'pollutant linkage'.

- **Source** referring to the source of contamination (Hazard).
- **Pathway** for the contaminant to move/migrate to receptor(s).
- **Receptor** (Target) that could be affected by the contaminant(s).

46 Receptors include human beings, controlled waters, and buildings / structures. The National Planning Policy Framework, used to address contaminated land through the planning process, follows the same principles as those set out under Part 2A.

47 As part of the assessment, the potential risks to receptors from potential sources are given one of the following classifications:

- **Low risk** - it is considered unlikely that issues within the category will give rise to significant harm to identified receptors.
- **Moderate risk** - it is possible, but not certain that issues within the category will give rise to significant harm to receptors.
- **High risk** - there is a high potential that issues within the category will give rise to significant harm to identified receptors.

[8] CIRIA (2009). Unexploded Ordnance C681: A Guide for the Construction Industry. Available at: https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductcode=C681 (accessed on 21.05.2025).

A10.4.3.2. POTENTIAL POLLUTION LINKAGES

48 Each stage of the potential pollutant linkage sequence has been assessed individually based on information obtained from the desk study exercise and are discussed in the following section.

A10.4.3.2.1. Potential Contaminant Sources

Onsite Current

49 Study Area 4 currently comprises predominantly agricultural fields. Whilst there is potential for contaminants such as pesticides, herbicides and insecticides to have been used on-site and in its proximity, these chemicals typically have a low residency time in soils and they degrade rapidly in compliance with the requirements for crops and grazing prior to products being used for human consumption. Therefore, agricultural uses are not considered a potential significant source of contamination.

Onsite Historical

50 No historical onsite potential sources of contamination have been identified.

Offsite Current

51 No current offsite potential sources of contamination have been identified.

Offsite Historical

52 Newark Quarry landfill located within 50 m to the east and operational between 1976 and 1989 was licensed for the disposal of various waste streams including Special Waste and may represent a source of contaminants however the location is separated from Study Area 7 by the River Trent which is likely to act as a barrier to migration of contaminants from this source.

A10.4.3.2.2. Potential Pathways

53 The majority of Study Area 4 has fluvial superficial cover deposits of Alluvium and Holme Pierrepont Sand And Gravel Member that are predominantly granular and within which there is potential for mobilisation of gaseous or leachable contaminants of concern via granular horizons or via shallow groundwater. These may impact on controlled waters receptors or human heath receptors via the dermal contact, ingestion and vapour inhalation pathways.

54 The superficial deposits are indicated to be underlain by mudstone strata belonging to the Mercia Mudstone Group, which also outcrops across the west of this Study Area. This is considered to be relatively impermeable and is likely to retard the downward or lateral migration of contaminants of concern via shallow groundwater (where present) or as gases or vapours.

55 For future site users (maintenance workers), pathways for direct contact/ingestion with residual soils or inhalation of airborne dust may exist in areas of soft landscaping.

A10.4.3.2.3. Potential Receptors

56 The superficial Alluvium and Holme Pierrepont Sand and Gravel Member, evident across the majority of the Study Area, are classed as Secondary A highly vulnerable Aquifers. The underlying Mercia Mudstone Group bedrock is classed as a high vulnerability Secondary B Aquifer. Study Area 4 is not within any SPZ's, however there are groundwater abstractions within 250 m of the study area for spray irrigation.

57 A number of surface water features have been identified on or within 250 m of Study Area 4. The River Trent, identified 10 m south-east of Study Area 4, is considered to represent the main surface water receptor, and is likely to be in hydraulic continuity with shallow groundwater within the superficial deposits. The proposed use of this Study Area for mitigation and enhancement under an agreed LEMP would suggest no viable risk to Controlled Waters from proposed activities.

58 During operation of the Development it is not envisaged that there would be any full-time occupancy within Study Area 4 and it is expected that the risks posed to any maintenance workers are considered to be negligible given the historical site usage and adoption of best working practises. Future Site Users are therefore discounted as a viable receptor.

59 The assessment does not consider the risk to construction workers. These risks would be managed through appropriate Health & Safety legislation via the H&S At Work Act (1974) and in accordance with Construction Design and Management (CDM, 2015) regulations.

60 Based on the identified potential sources, nature of proposed usage for this Study Area and the site setting there is not considered to be a significant risk to ecological receptors, crops/vegetation, or archaeological receptors from contamination.

A10.4.3.3. OUTLINE CONCEPTUAL SITE MODEL

61 An outline CSM has been developed on the basis of the desk study. The CSM is used to identify potential sources, pathways, and receptors (i.e. potential pollutant linkages) post development and is summarised in the table below.

Table A10.4.9: Outline Conceptual Site Model

Potential Source	Contaminants Of Concern	Via	Potential Pathways	Linkage Potentially Active?	Receptors	Qualitative Risk Assessment	Notes
Offsite: historical (Newark Quarry)	Hydrocarbons Volatile Organic Compounds Ground gases	Groundwater/soils	Inhalation of volatiles or ground gases	No	Future site users	-	No proposed site occupation or buildings. Location is downgradient of groundwater flow direction and on the opposite side of the River Trent.
Offsite: historical/current (railway)	Metals, asbestos, Polycyclic Aromatic Hydrocarbons	Airborne	Direct contact, Ingestion,	No	Future site users	-	No proposed site occupation or buildings.

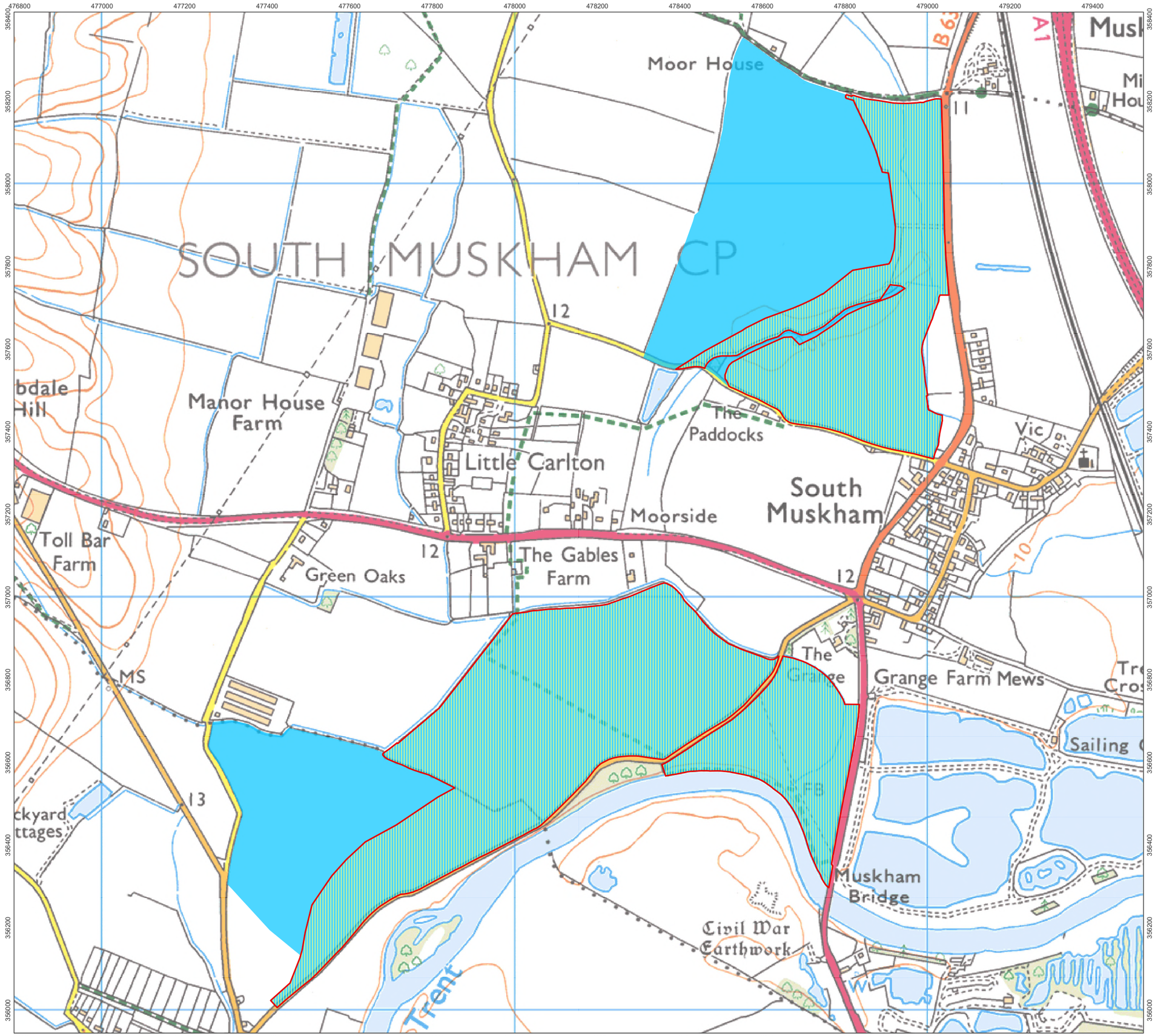
N.B. If a Moderate or High Qualitative Risk Rating is identified further assessment is recommended

A10.4.4. CONCLUSIONS AND RECOMMENDATIONS

A10.4.4.1. PRELIMINARY GEO-ENVIRONMENTAL CONCLUSIONS

62 The outline CSM produced upon completion of the desk study assessment has identified no viable source-pathway-receptor linkages that would be active following the proposed development activities in this land parcel. No further assessment is considered necessary.

ANNEX A – FIGURES

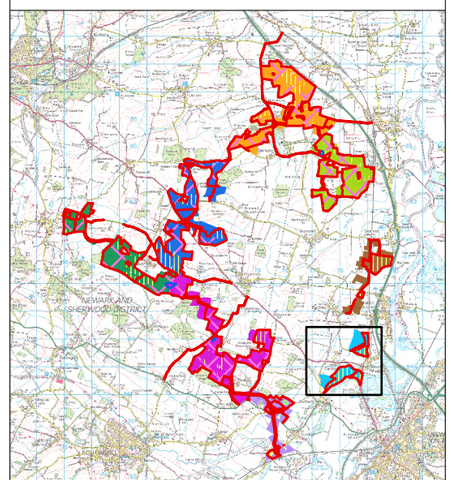


Order Limits

Study Area 4

Works Areas

Works Area 3 Mitigation



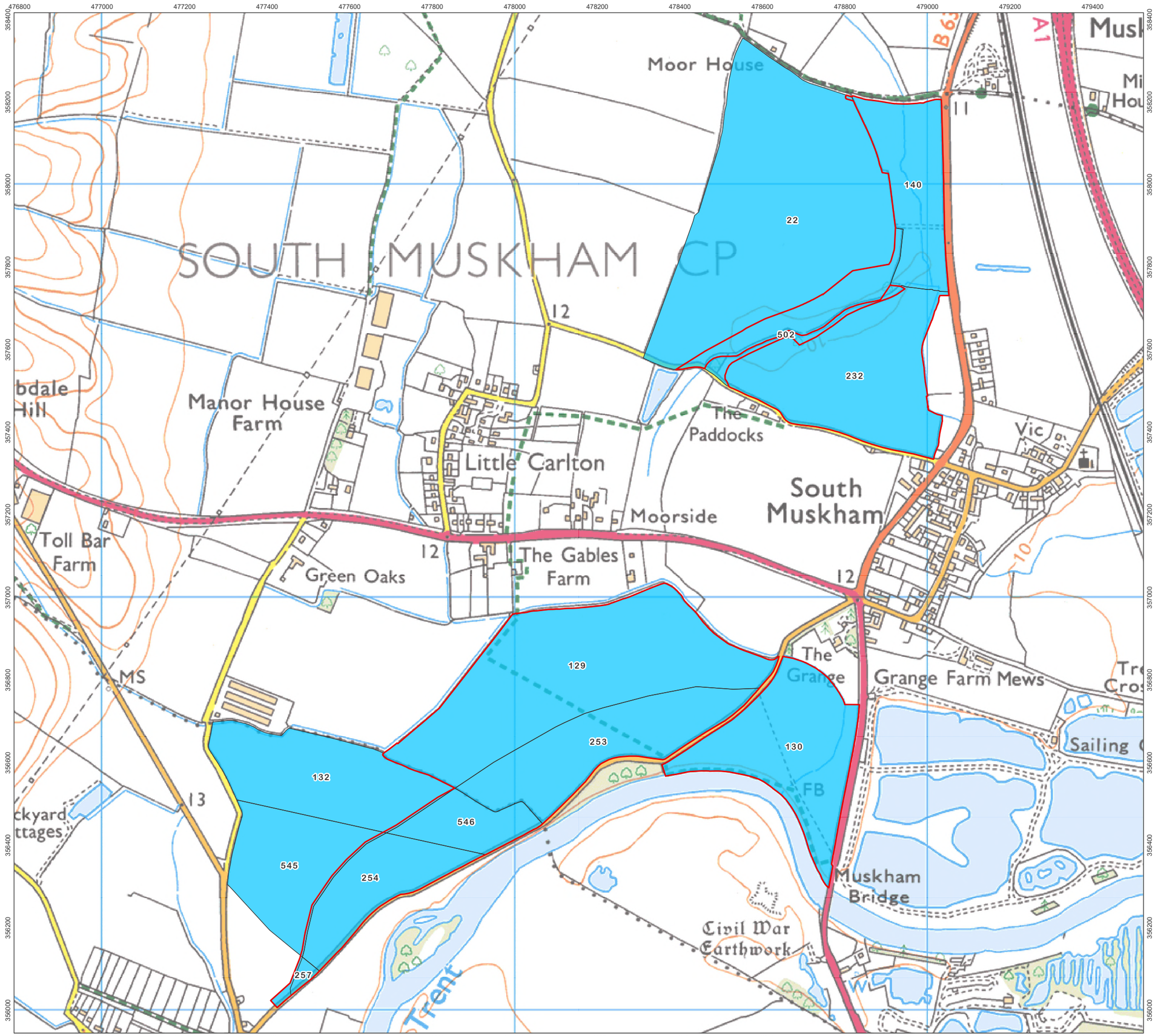
1:9,000 Scale @ A3

0 0.07 0.15 0.3 km

Ref: NP12850 | Date: 11/06/2025

Study Area 4
Figure A10.4.1

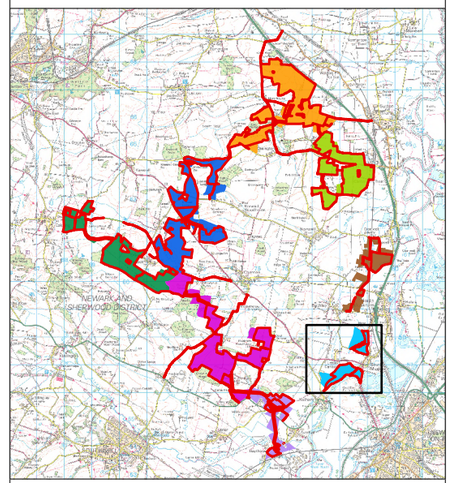
Great North Solar and Biodiversity Park Environmental Statement



Order Limits

Field Boundaries

Study Area 4



1:9,000 Scale @ A3

0 0.07 0.15 0.3 km

Ref: NP12850 | Date: 11/06/2025

Study Area 4 Field Boundaries
Figure A10.4.2

Great North Solar and Biodiversity Park
Environmental Statement

P:\eur-mpfs-02.eur.rpsgroup.com\Projects\12850 DCO Great North Road Solar\Tech\Drawings\12850-0024-02.aprx\12850-0024-02

ANNEX B - PRA METHODOLOGY

Introduction

63 This report provides available factual data for the site obtained only from the sources described below and related to the site on the basis of the location provided by the Applicant. The desk study information is not necessarily exhaustive and further information relevant to the site may be available from other sources.

64 This report is written in the context of an agreed scope of work and should not be used in a different context. Furthermore, new information and changes in legislation may necessitate a re-interpretation of the report in whole or in part after its original submission. The report is provided for sole use by the client and is confidential to them and their professional advisors. No reliance whatsoever is provided to any party other than the Applicant unless otherwise agreed.

Information Sources

Current and Historical Land Use

65 This section establishes the former and current uses of the Study Area and within a 250 m data search radius, which could have caused contamination. Details of the Development including current land use and location provided by the Applicant.

66 Information about the history of the Study Area and a 250 m radius has been obtained through an inspection of historical maps at 1:10,000, 1:10,560, 1:2,500 and 1:1,250 scales and historical aerial photographs (where available). The accuracy of maps cannot be guaranteed, and it should be recognised that different conditions on-site may have existed between, and subsequent to, the map survey dates.

Regulatory Records

67 Regulatory records including landfills, pollution incidents (‘major’ and ‘significant’ only), industry authorisations and licensed water abstractions are derived from information purchased from Groundsure Ltd (unless otherwise specified).

Environmental Setting

68 The geological sequence underlying the Study Area and the approximate depths of strata are provided by maps published by the British Geological Survey (BGS) 1:50,000 scale and available borehole records held by the BGS.

69 The hydrogeological classification is obtained from Groundwater Vulnerability mapping by the BGS/EA/National Resources Wales (NRW). The vulnerability of groundwater is determined from this mapping and geological information.

70 The location of surface watercourses has been obtained from an inspection of current OS maps. Flood risk details and information on groundwater Source Protection Zones were obtained from readily available EA/NRW information published on-line and supplied by Groundsure Ltd.

71 Details of sensitive ecosystems/habitats and coal mining areas were supplied by Natural England and the Coal Authority respectively via Groundsure Ltd and inspection of the MAGIC website.

72 Radon is a radioactive gas produced naturally by certain types of geology. This report uses the Indicative Atlas of Radon in England and Wales (2007) produced by the Health Protection Agency (HPA) and the British Geological Survey (BGS) to determine whether the Study Area is located in an area at risk from radon gas. Where potential issues are identified, a site-specific radon report is obtained from the HPA and BGS to provide a more accurate estimate of the probability of the site being affected by radon gas ingress.

ANNEX C – ASSUMPTIONS AND LIMITATIONS

73 A "desk study" means that no site visits have been carried out as part of an assessment, unless otherwise specified.

74 This report provides available factual data for the Study Area obtained only from the sources described in the text and related to the Study Area and a 250 m radius, where relevant, on the basis of the location information provided by the Applicant.

75 The desk study information is not necessarily exhaustive and further information relevant to the Study Area may be available from other sources.

76 The accuracy of maps cannot be guaranteed, and it should be recognised that different conditions within the Study Area may have existed between and subsequent to the various map surveys.

77 No sampling or analysis has been undertaken in relation to this desk study.

78 Any borehole data from British Geological Survey sources is included on the basis that: "The British Geological Survey accept no responsibility for omissions or misinterpretation of the data from their Data Bank as this may be old or obtained from non-BGS sources and may not represent current interpretation".

79 Where any data supplied by the Applicant or from other sources, including that from previous site investigations, have been used it has been assumed that the information is correct. No responsibility can be accepted by RPS for inaccuracies in the data supplied by any other party.

80 This report is prepared and written in the context of an agreed scope of work and should not be used in a different context. Furthermore, new information, improved practices and changes in legislation may necessitate a re-interpretation of the report in whole or in part after its original submission.