RWE Renewables UK Dogger Bank South (West) Limited

RWE Renewables UK Dogger Bank South (East) Limited

Dogger Bank South Offshore Wind Farms

Environmental Statement

Volume 7

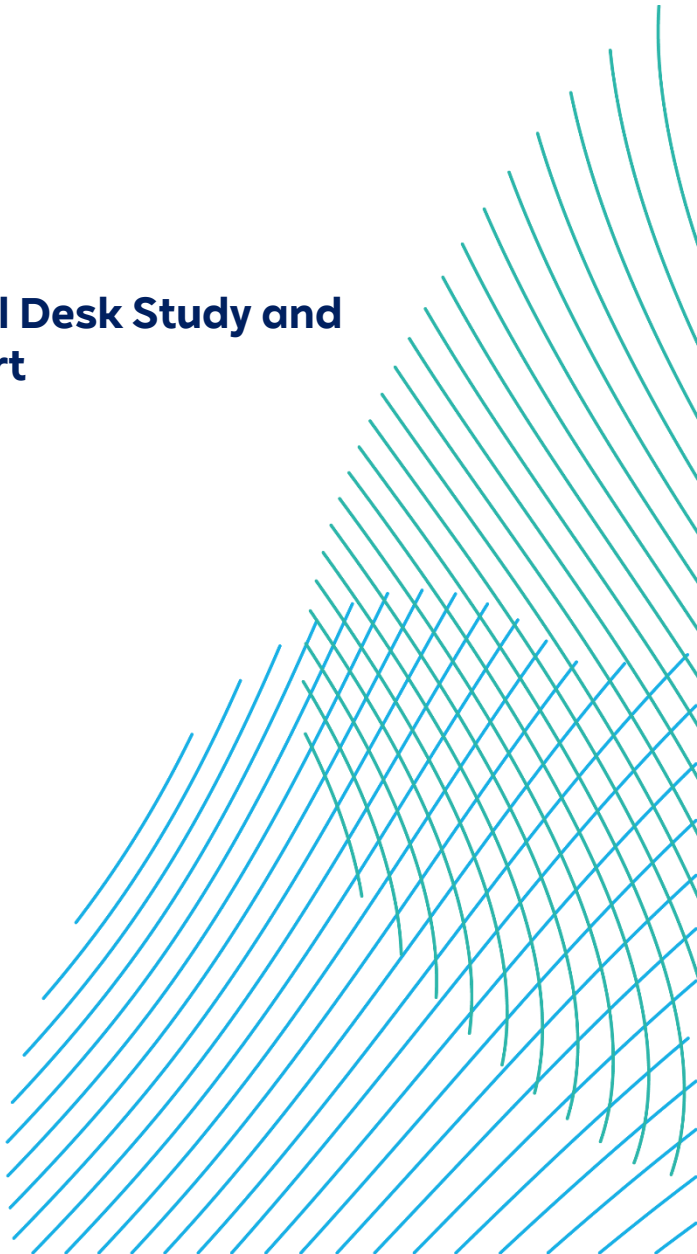
Appendix 19-2 Geo-Environmental Desk Study and Preliminary Risk Assessment Report

June 2024

Application Reference: 7.19.19.2

APFP Regulation: 5(2)(a)

Revision: 01



Unrestricted

Company:	**RWE Renewables UK Dogger Bank South (West) Limited and RWE Renewables UK Dogger Bank South (East) Limited**	Asset:	**Development**
Project:	**Dogger Bank South Offshore Wind Farms**	Sub Project / Package:	**Consents**
Document Title or Description:	Environmental Statement - Appendix 19-2 Geo-Environmental Desk Study and Preliminary Risk Assessment		
Document Number:	004300160-01	Contractor Reference Number:	PC2340-RHD-XX-ZZ-AX-Z-0029

Rev No.	Date	Status / Reason for Issue	Author	Checked by	Approved by
01	June 2024	Final for DCO Application	RHDHV	RWE	RWE

Contents

Tables

Figures

Annexes

Glossary

Term	Definition
Agricultural Land Classification	Agricultural Land Classification is a grading system used to assess and compare the quality of agricultural land in England and Wales. A combination of climate, topography and soil characteristics and their unique interaction determines the grade of the land. The grades range from 1 to 5. Grade 1 being excellent, Grade 2 very good, Grade 3a and 3b good to moderate (no subdivide), Grade 4 poor and Grade 5 very poor.
Countryside Stewardship Scheme	The Countryside Stewardship Scheme provides financial incentives for farmers, woodland owners, foresters and land managers to look after and improve the environment. Mid Tier Scheme agreements provide a range of options to help deliver environmental benefits. The Higher Tier agreements require more complex management tailored to individual sites.
Environmental Stewardship Scheme	Environmental Stewardship is an agri-environment scheme run by DEFRA which aims to secure widespread environmental benefits through improving water quality, reducing soil erosion, improving conditions for farmland wildlife, maintaining and enhancing landscape character and protecting the historic environment. The Entry Level aims to encourage large numbers of farmers to deliver effective environmental management in exchange for pay-outs. The Higher Level is designed to support more specific and environmentally beneficial management practices.
Grade II Listed Building	A property or building listed as Grade II has particular historic and / or cultural significance and is subject to regulations that protect its unique character.
High Groundwater Vulnerability	High Groundwater Vulnerability areas can easily transmit pollution to groundwater. They are characterised by high-leaching soils and the absence of low-permeability superficial deposits.

Term	Definition
Licensed industrial activities (Part A(1))	A1 installations are facilities which carry out industrial processes like refineries, food and drink factories and intensive farming activities (for example large-scale chicken farms). They also include certain waste activities like disposing of waste to landfill, hazardous waste treatment and waste incineration.
Licensed pollutant release (Part A(2) / B))	A2 or B installations are facilities that carry out processes like foundries, solvent coating installations, dry cleaners, concrete batching plants and petrol stations.
Low Groundwater Vulnerability	Low Groundwater Vulnerability 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.
Medium Groundwater Vulnerability	Medium Groundwater Vulnerability areas offer some groundwater protection from the transmission of pollution to groundwater.
Mineral Safeguarding Area	Areas of known mineral resources that are of sufficient value (economically or of conservation value) to warrant protection.
Onshore Export Cable Corridor	This is the area which includes cable trenches, haul roads, spoil storage areas, and limits of deviation for micro-siting. For assessment purposes, the cable corridor does not include the onshore converter stations, Transition Joint Bays or temporary access routes; but will include cable construction compounds (purely for the cable route).
Onshore Substation Zone	Parcel of land within the Onshore Development Area where the Onshore Converter Station infrastructure (including the haul roads, Temporary Construction Compounds and associated cable routeing) would be located.
Onward Cable Connection	The cable corridor between the Onshore Substation Zone and the Proposed Birkhill Wood National Grid Substation.

Term	Definition
Principal aquifer	These are layers of rock or drift deposits that have high intergranular and / or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and / or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifers.
Sand and Gravel Area of Search	Areas where knowledge of mineral resources may be less than in a Preferred Area, but within which planning permissions could be granted.
Sand and Gravel Preferred Area	Areas of known resource where planning permission might reasonably be anticipated.
Secondary A aquifer	These are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.
Secondary B aquifer	These are predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.
Secondary undifferentiated aquifer	These are assigned in cases where it has not been possible to attribute either a Secondary A or B aquifer to the soil type due to the variable characteristics. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifers in different locations due to the variable characteristics of the rock type.
Source Protection Zone I	Inner protection zone - defined as the 50-day travel time from any point below the water table to the abstraction source. This zone has a minimum radius of 50 metres.

Term	Definition
Source Protection Zone II	Outer protection zone - defined by a 400-day travel time from a point below the water table. This zone has a minimum radius of 250 or 500 metres around the abstraction source, depending on the size of the abstraction.
Source Protection Zone III	Source catchment protection zone - defined as the area around an abstraction source within which all groundwater recharge is presumed to be discharged at the abstraction source.

Acronyms

Term	Definition
AONB	Area of Outstanding Natural Beauty
BGS	British Geological Survey
BRE	Building Research Establishment
CDM	Construction Design Management
CIRIA	Construction Industry Research Information Association
CL:AIRE	Contaminated Land: Applications in Real Environments
CoCP	Code of Construction Practice
COMAH	Control of Major Accident Hazard sites
CSM	Conceptual Site Model
DBS	Dogger Bank South
DCO	Development Consent Order
DEFRA	Department for Environment, Food and Rural Affairs
GIS	Geographical Information System
GQRA	Generic Quantitative Risk Assessment
HDD	Horizontal Directional Drilling
IDB	Internal Drainage Board
LNR	Local Nature Reserve
MAGIC	Multi Agency Government Information for the Countryside
MHWS	Mean High Water Springs
MSA	Mineral Safeguarding Area

Term	Definition
NNR	National Nature Reserve
NVZ	Nitrate Vulnerable Zone
OS	Ordnance Survey
PCL	Potential Contaminant Linkage
PEIR	Preliminary Environmental Information Report
PRA	Preliminary Risk Assessment
PRoW	Public Rights of Way
RoFRaS	Risk of Flooding from Rivers and Sea
SAC	Special Area of Conservation
SPA	Special Protection Area
SPZ	Source Protection Zone
SSSI	Site of Special Scientific Interest
UXB	Unexploded Bomb
UXO	Unexploded Ordnance
WER	Water Environment Regulations

19.2 Geo-Environmental Desk Study and Preliminary Risk Assessment Report

19.2.1 Introduction

1. Royal HaskoningDHV has been commissioned by the Applicants, which are RWE Renewables UK DBS East Ltd and RWE Renewables UK DBS West Ltd. The Applicants are themselves jointly owned by the RWE Group of companies (51% stake) and Masdar (49% stake), to carry out a Geo-Environmental Desk Study and Preliminary Risk Assessment (PRA). The report has been written to support the Environmental Statement (ES) for the Onshore Development Area for the Dogger Bank South Offshore Wind Farms (hereafter referred to as the Projects). The Onshore Development Area for this PRA is described within section 19.2.5 of **Volume 7, Chapter 19 Geology and Land Quality (application ref: 7.19)**.
2. The Projects will consist of offshore and onshore elements. These elements include offshore wind turbines and subsea array cables, offshore and onshore export cables and onshore converter stations to accommodate the connection to the transmission grid. A full description of the Projects is provided within **Volume 7, Chapter 5 Project Description (application ref: 7.5)**.

19.2.2 Objectives

3. The overall objectives of the PRA are as follows:
   - Provide information on the current conditions of the site with respect to the potential for ground contamination;
   - Provide an initial Conceptual Site Model (CSM) to identify and assess potential contaminant linkages associated with the Onshore Development Area; and
   - Provide high level recommendations for further work and assessments.

19.2.3 Methodology

4. The PRA has been completed in general accordance with the Environment Agency '*Land Contamination Risk Management Framework*', 2023.
5. The PRA is a desk-based study and forms the initial step in the assessment of potentially contaminated land.

6. The main purpose of the PRA is to identify potential contamination sources and assist in identifying potential liabilities that may be present which may have consequences for the Projects.

7. The following desk-based information sources have been reviewed to inform the PRA:

- Environmental Database (Envirocheck™) GIS data comprising environmental sensitivity data, historical mapping and permitting records within the Onshore Development Area, December 2022 (Order Reference GSIP-2022-13169-12044) and October 2023 (Order Reference GSIP-2023-14107-15747);
- British Geological Survey (BGS) Onshore Geoindex web portal (accessed October 2023);
- BGS Geological Map for Flamborough and Bridlington Solid and Drift (Sheet number 55 and 65), 1985, 1:50,000;
- BGS Geological Map for Beverley Solid and Drift (Sheet number 72), 1995, 1:50,000;
- BGS Geological Map for Hornsea Solid and Drift (Sheet number 73), 1998, 1:50,000;
- BGS Hydrogeological Map of East Yorkshire (Sheet number 10), 1980, 1:100,000;
- Google Earth, accessed October 2023;
- Multi Agency Government Information for the Countryside (MAGIC) map application (accessed October 2023);
- UK Health Security Agency UK maps of Radon;
- Zetica UXO Unexploded Bomb (UXB) Risk Map accessed October 2023;
- Information provided from East Riding of Yorkshire Council with respect to private domestic potable groundwater abstractions which are registered with them;
- Information provided from the Environment Agency with respect to private groundwater abstractions i.e. for irrigation / farming purposes and public potable groundwater supplies; and
- Draft information from the ground investigation pertaining to exploratory holes adjacent to a historical landfill.

19.2.4 Limitations

8. The direct assessments and judgements given in this report are limited by both the finite data on which they are based and the proposed works to which they are addressed. The acquisition of data is constrained by both physical and economic factors and, by definition, is subject to limitations. Conditions at the site will change over time due to natural variations and may be affected by human activities.

9. This document has been prepared for the titled project and should not be relied upon or used for any other project. Royal HaskoningDHV accepts no responsibility or liability for the consequences of this document being used for a purpose other than that purpose for which it was commissioned. The assessments and judgements contained herein should not be relied upon as legal opinion.

10. The findings and opinions are relevant to the dates of the information reviewed and should not be relied upon to represent conditions at later dates. The opinions included herein are based on the information obtained from the assessments undertaken in the study area and from the experience of the reviewers.

11. This Geo-environmental Desk Study and Preliminary Risk Assessment utilised a variety of publicly available data sources such as the Environment Agency, Envirocheck™, historical maps and the British Geological Survey. Therefore, the study is limited by the age and limitations inherent in the data described.

19.2.5 Study Area

12. The study area for the PRA, located within the East Riding of Yorkshire, consists of the Onshore Development Area for the Projects plus a 250m buffer as illustrated on **Figure 19-2-1**. A 100m buffer zone is also included on **Figure 19-2-1** to illustrate the spatial extent in relation to a review of historical mapping (see section 19.2.6.9). Due to the agricultural nature of the surrounding area and based on professional judgement, a 100m buffer zone has been deemed appropriate.

13. The buffer zone around the Onshore Development Area is extended to 1km for assessing the presence of Control of Major Accident Hazard (COMAH) sites and public potable groundwater abstraction wells. This is due to the higher risk posed by COMAH sites and the sensitivity of groundwater abstraction wells and SPZs.

14. The Onshore Development Area, which is located landward of mean high water springs (MHWS), includes landfall, the Onshore Export Cable Corridor and the Onshore Substation Zone.

15. For the purposes of this report, references to on site features refers exclusively to features located within the Onshore Development Area boundary. References to off site features refer to those within the 250m or 1km buffer zone.

19.2.6 Environmental Setting

19.2.6.1 Introduction

16. Regulatory authority information relevant to the Onshore Development Area for the Projects and their surroundings has been obtained from the undertaking of an environmental database search. The information is summarised in subsequent sections. Distances stated are approximate and are taken from the Onshore Development Area boundary to the database recorded entries.

17. The following summary is generally limited to locations within 250m of the Onshore Development Area boundary unless it is considered that installations or activities beyond that range could potentially have an impact on or be affected by the Projects, for example in relation to public potable groundwater abstraction wells.

19.2.6.2 Pollution Control

18. The presence (or absence) of active pollution controls related to industrial processes at or within 250m of the Onshore Development Area boundary has been summarised in **Table 19-2-1** with further details provided in **Table 19-2-2**. Identified pollution controls are illustrated on **Figure 19-2-5**.

Table 19-2-1 Summary of Pollution Controls

Control Type	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
Sites determined as Contaminated Land	No	No	No	No
Historical licensed industrial activities (IPC)	No	No	No	No

Control Type	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
Licensed industrial activities (Part A(1))	No	No	No	Yes
Licensed pollutant release (Part A(2) / B)	No	No	No	Yes

Table 19-2-2 Details of Off Site Pollution Controls

Control Type – Offsite	Site Name and Location	Location and Direction from Onshore Development Area	Detail
Licensed industrial activities (Part A(1))	Westfield Farm Poultry Unit, West Road, HU11 5QL.	100m north east of the Onshore Export Cable Corridor – to the north of West Road.	Operator name: Cullingworth Commercials and Freight Services Limited. Activity: Intensive farming - >40,000 poultry. Permit number: TP3409SD. Permit Issued: 06 / 10 / 2020. Status: Effective .
Licensed pollutant release (Part A(2) / B))	Imerys, Queensgate Quarry, Walkington Road, Beverley, HU17 8RX.	150m east of Onshore Export Cable Corridor – south east of the junction of Broadgate and Walkington Road.	Permit type: B. Process: Other mineral processes. Status: Current permit.

19.2.6.3 Waste

19. The presence (or absence) of waste facilities at or within 250m of the Onshore Development Area boundary has been summarised in **Table 19-2-3** with further detail provided in **Table 19-2-4** and **Table 19-2-5**. Identified waste facilities are illustrated on **Figure 19-2-2**.

Table 19-2-3 Summary of Waste Facilities

Facility Type	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
Active or recent landfill	No	No	No	No
Historical landfill (BGS records)	No	No	No	No
Historical Landfill (LA / mapping records)	No	No	No	No
Historical Landfill (Environment Agency records)	No	No	No	Yes
Licenced waste sites	No	No	No	No
Waste exemptions	No	Yes	No	Yes

Table 19-2-4 Details of On Site Waste Exemptions

Facility Type – On Site	Name	Location	Detail	Figure 19-2-2 Reference
Waste exemptions (Storage of sludge unless otherwise stated)	Not recorded.	Onshore Export Cable Corridor – adjacent to Eske Lane.	Reference: WEX235266.	1
	Not recorded.	Onshore Export Cable Corridor – south of Sisterbeck Drain.	Reference: WEX255052.	2
	Molescroft Grange Farm, Grange Way, Beverley, HU17 9FS.	Onshore Export Cable Corridor – adjacent to Constitutional Hill.	Reference: WEX118356.	3
		Onshore Export Cable Corridor – adjacent to Constitutional Hill.	Reference: EPR / NF0405UT / A001.	4
	Not recorded.	Onshore Export Cable Corridor – to the east of Grange Lane.	Reference: WEX193516, WEX254886.	5
	Worlaby Hall, The Hill, Brigg, DN20 0NP.	Onshore Export Cable Corridor – to the west of Driffield Road.	Reference: EPR / RH0479SX / A001. Category: Burning of waste as a fuel in a small appliance. Burning waste in the open. Use of waste in construction. Spreading waste on agricultural land to confer benefit.	6
	Not recorded.	Onshore Export Cable Corridor – adjacent to Constitutional Hill.	Reference: WEX283065.	7

Table 19-2-5 Details of Off Site Waste Exemptions

Facility Type – Offsite	Site Name and Location	Location and Distance from Onshore Development Area	Detail	Figure 19-2-2 Reference
Historical Landfill (Environment Agency records)	Catfoss.	Immediately adjacent to the western boundary of Onshore Export Cable Corridor.	Licence holder: Humberside County Council. Permitted waste: Inert, Industrial, Commercial, Household, Liquid sludge. First input: 01 / 01 / 1957; Last input: 01 / 02 / 1977; Permit Reference: EAHLD05752.	8
	Catwick Crossroads, Catwick.	160m west of Onshore Export Cable Corridor.	Licence holder: Caird Environmental Limited. Permitted waste: Inert, Industrial, Commercial, Household, Special, Liquid sludge. First input: 01 / 01 / 1977; Last input: 31 / 12 / 1993; Permit Reference: EAHLD05752. Due to the proximity to the landfill described above, it is anticipated that the Caird Environmental Limited landfill forms an extension to the Humberside County Council historical landfill.	9
	West End Farm, Bentley.	60m south west of Onshore Substation Zone.	Licence holder: Stoneledge Plant and Transport Limited. Permitted waste: Inert, Industrial. First input: 31 / 12 / 1983; Last input: 31 / 12 / 1990; Permit Reference: EAHLD34377.	10
Waste exemptions	Skipsea Sands Holiday Park, Mill Lane, Skipsea, Driffield, YO25 8TZ.	220m west of landfall	Reference: WEX090605, WEX236308; Category: Burning waste in the open.	11
	Mill Lane, Skipsea, YO25 8TZ.	220m west of landfall.	Reference: WEX236308; Category: Burning waste in the open.	12
	Not recorded.	Adjacent to, 10m north, 40m south of the Onshore Export Cable Corridor.	Reference: WEX283058, WEX231140, WEX231139; Category: Storage of sludge.	13
	Butt Farm Victoria Road Beverley North Humberside HU17 8PJ.	20m west of the Onshore Export Cable Corridor.	Reference: EPR / YF0901KC / A001, WEX133511; Category: Use of waste in construction. Deposit of waste from dredging of inland waters. Spreading waste on agricultural land to confer benefit. Deposit of agricultural waste consisting of plant tissue under a Plant Health notice. Spreading of plant matter to confer benefit. Burning waste in the open. Use of waste for a specified purpose. In addition to the above permit WEX133511 also allows for storage of waste in a secure place.	14

Facility Type – Offsite	Site Name and Location	Location and Distance from Onshore Development Area	Detail	Figure 19-2-2 Reference
	Molescroft Grange Farm, Grange Way, Beverley, HU17 9FS.	20m east, 30m south, 90m south of the Onshore Export Cable Corridor.	Reference: WEX160858, WEX118337, WEX118347; Category: Storage of sludge.	15
	Tamara Hall, Field: 28.	30m north of the Onshore Export Cable Corridor.	Reference: WEX268807; Category: Storage of sludge.	16
	Nunkeeling, Driffield, YO25 8EH.	30m south of the Onshore Export Cable Corridor (access road).	Reference: WEX187712, WEX268449, WEX316126, WEX122455, WEX262439; Category: Use of waste in construction. Storage of waste in a secure place. Burning waste in the open. Deposit of waste from dredging of inland waters. Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Deposit of agricultural waste consisting of plant tissue under a Plant Health notice. Spreading waste on agricultural land to confer benefit. Spreading of plant matter to confer benefit.	17
	Rise Park, Rise, Hull, HU11 5BL.	40m west, 150m south, 180m south, 210m south, 240m south of the Onshore Export Cable Corridor.	Reference:, WEX152984, EPR/YF0509NQ/A001, EPR/RF0739ZF/A001, EPR/RF0239ZB/A001, EPR/YF0909NG/A001; Category: Storage of sludge.	18
	Molescroft Grange Farm, Grange Way, Beverley, HU17 9FS.	40m south, 70m west , 90m south of the Onshore Export Cable Corridor.	Reference: WEX118341, WEX125512, WEX132559, Category: Storage of sludge.	19
	Catfoss Airfield, Brandesburton, Driffield, YO25 8EJ.	50m east of the Onshore Export Cable Corridor.	Reference: WEX095555; Category: Storage of sludge.	20
	Not recorded (anticipated to be associated with Poplar Farm due to location of record).	60m west of the Onshore Export Cable Corridor.	Reference: WEX306086; Category: Use of waste in construction.	21
	Stephen Caley Field: 32.	60m north of the Onshore Export Cable Corridor – adjacent to Whitecross Road.	Reference: WEX264778; Category: Storage of sludge.	22
	Stables, Burton gates, Walkington, Beverley, HU17 8EF.	70m north east of the Onshore Export Cable Corridor.	Reference: WEX114594; Category: Recovery of textiles. Preparatory treatments (baling, sorting, shredding etc).	23

Facility Type – Offsite	Site Name and Location	Location and Distance from Onshore Development Area	Detail	Figure 19-2-2 Reference
	Poplar Farm, Park Lane, Cottingham, HU16 5SA.	80m west of the Onshore Export Cable Corridor.	Reference: WEX194656, WEX032688; Category: Use of waste in construction. Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Deposit of waste from dredging of inland waters. Burning waste in the open. In addition to the above, WEX194656 also permits the spreading waste on agricultural land to confer benefit. WEX137569 permits the spreading waste on agricultural land to confer benefit only.	24
			Reference: EPR / ME5981PV / A001; Category: Deposit of waste from dredging of inland waters. Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Burning waste in the open.	25
	Stephen Caley Field: 34.	100m south of the Onshore Export Cable Corridor – adjacent to Whitecross Road.	Reference: WEX264798; Category: Storage of sludge.	26
	Cobble Hall Farm Rise Lane Beverley North Humberside HU17 5PN.	120m south east of the Onshore Export Cable Corridor.	Reference: EPR/SF0631FJ/A001; Category: Spreading waste on agricultural land to confer benefit. Storage of waste in a secure place. Spreading of plant matter to confer benefit. Use of waste in construction. Deposit of waste from dredging of inland waters. Reference: EPR/UF0609HE/A001; Category: Burning of waste as a fuel in a small appliance.	27
	Field House Farm Rise Lane Beverley East Riding of Yorkshire HU17 5PN.	130m south east of the Onshore Export Cable Corridor.	Reference: EPR/UF0609HE/A001; Category: Burning of waste as a fuel in a small appliance	28
	Acron Hill Farm Driffield North Humberside YO25 8EH.	140m north of the Onshore Export Cable Corridor.	Reference: EPR / EH0078AZ / A001; Category: Burning waste in the open. Preparatory treatments (baling, sorting, shredding etc). Spreading waste on agricultural land to confer benefit. Deposit of waste from dredging of inland waters.	29
			Reference: WEX039523; Category: Use of waste in construction.	30
	Southfield Farm, Hornsea Road, Skipsea, Driffield, YO25 8SY.	160m east of the Onshore Export Cable Corridor.	Reference: WEX032746, WEX321623, WEX191414; Category: Use of waste in construction	31
			Reference: WEX191414, WEX032746, WEX321623; Category: Burning waste in the open	32

Facility Type – Offsite	Site Name and Location	Location and Distance from Onshore Development Area	Detail	Figure 19-2-2 Reference
			Reference: WEX321623, WEX191414, WEX032746; Category: Spreading waste on agricultural land to confer benefit	33
			Reference: WEX321623; Category: Burning waste in the open. Use of waste in construction. Spreading waste on agricultural land to confer benefit.	34
	Manor House Farm, Nunkeeling, Driffield, YO25 8EH.	170m north of the Onshore Export Cable Corridor.	Reference: WEX018302; Category: Burning of waste as a fuel in a small appliance. Burning waste in the open. Deposit of waste from dredging of inland waters. Use of waste in construction. Spreading waste on agricultural land to confer benefit.	35
	Not recorded but assumed to be Manor House Farm, Nunkeeling, Driffield, YO25 8EH due to location of the record.	170m north of the Onshore Export Cable Corridor.	Reference: WEX306578; Category: Spreading waste on agricultural land to confer benefit. Recovery of scrap metal. Deposit of waste from dredging of inland waters. Burning waste in the open. Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Anaerobic digestion at premises used for agriculture and burning of resultant biogas. Storage of waste in a secure place.	36
			Reference: WEX306578, WEX306617; Category: Deposit of agricultural waste consisting of plant tissue under a Plant Health notice	37
	Molescroft Grange Farm, Grange Way, Beverley, HU17 9FS.	180m south west of the Onshore Export Cable Corridor.	Reference: WEX304049, WEX170746 WEX007076; Category: Storage of waste in secure containers. Sorting mixed waste. Deposit of waste from dredging of inland waters. Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Burning waste in the open. Recovery of scrap metal. Storage of sludge.	38
			Reference: WEX304049 WEX170746 WEX007062; Category: Spreading waste on agricultural land to confer benefit. Use of waste for a specified purpose. Use of waste in construction. Spreading of plant matter to confer benefit. Incorporation of ash into soil.	39
			Reference: WEX304049 WEX170746; Category: Cleaning, washing, spraying or coating relevant waste. Deposit of agricultural waste consisting of plant tissue under a Plant Health notice. Use of waste in the construction of entertainment or educational installations etc. Use of mulch. Burning of waste as a fuel in a small appliance.	40
			Reference: WEX007076; Category: Disposal by incineration. Treatment of waste in a bio bed or biofilter. Manual treatment of waste.	41

Facility Type – Offsite	Site Name and Location	Location and Distance from Onshore Development Area	Detail	Figure 19-2-2 Reference
	Manor House Farm, Meaux Lane, Routh, Beverley, HU179SR.	180m north of the Onshore Export Cable Corridor.	Reference: WEX171489, WEX304484; Category: Deposit of waste from dredging of inland waters. Burning waste in the open. Spreading waste on agricultural land to confer benefit. In addition to the above, permit WEX012424 also allows for: Use of waste in construction. Use of mulch. Permit EPR / HH0277BR / A001 also allows for: Spreading of plant matter to confer benefit. Use of waste for a specified purpose.	42
	The Barn Pasture Field House, Nunkeeling, Driffield, YO25 8EH	190m north of the Onshore Export Cable Corridor.	Reference: WEX021593; Category: Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Deposit of waste from dredging of inland waters. Deposit of agricultural waste consisting of plant tissue under a Plant Health notice. Storage of waste in a secure place. Storage of waste in secure containers. Use of waste in construction. Burning waste in the open.	43
			Reference: EPR/XF0101UU/A001; Category: Incorporation of ash into soil. Spreading waste on agricultural land to confer benefit. Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Pig and poultry ash. Spreading waste on non-agricultural land to confer benefit. Use of mulch. Deposit of waste from dredging of inland waters. Burning waste in the open. Spreading of plant matter to confer benefit.	44
			Reference: EPR/KE5551QM/A001; Category: Burning waste in the open. Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Deposit of waste from dredging of inland waters. Use of waste in construction.	45
	Manor Farm Beverley North Humberside HU17 8PP.	200m south west of the Onshore Substation Zone.	Reference: EPR / VH0977JG / A001; Category: Use of waste in construction. Deposit of waste from dredging of inland waters. Spreading waste on agricultural land to confer benefit. Burning waste in the open. Use of waste for a specified purpose. Cleaning, washing, spraying or coating relevant waste. Storage of waste in a secure place. Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Aerobic composting and associated prior treatment.	46
	Criftin Farm, Catwick Lane, Long Riston, Hull, HU11 5JR.	200m south of the Onshore Export Cable Corridor.	Reference: WEX176537; Category: Use of waste in construction. Burning waste in the open.	47
			Reference: WEX009168 Burning waste in the open. Use of waste in construction. Spreading waste on agricultural land to confer benefit	48

Facility Type – Offsite	Site Name and Location	Location and Distance from Onshore Development Area	Detail	Figure 19-2-2 Reference
	Southfield Farm, Hornsea Road, Skipsea, Driffield, YO25 8SY.	210m east Onshore Export Cable Corridor.	Reference: EPR / UH0271CY / A001; Category: Deposit of waste from dredging of inland waters, Screening and blending of waste, Storage of waste in a secure place, Storage of waste in secure containers, Use of waste in construction, Aerobic composting and associated prior treatment, Burning waste in the open, disposal by incineration. All exemptions for agricultural waste only.	49
	Molescroft Grange Farm, Grange Way, Beverley, HU17 9FS.	220m south west of the Onshore Export Cable Corridor.	Reference: EPR / BH0417JR / A001; Category: Spreading of plant matter to confer benefit. Burning waste in the open. Use of waste for a specified purpose. Incorporation of ash into soil. Treatment of waste in a bio bed or biofilter. Spreading waste on agricultural land to confer benefit. Deposit of waste from dredging of inland waters. Storage of waste in a secure place. Use of waste in construction.	50
	Not recorded.	230m east of the Onshore Export Cable Corridor.	Reference: WEX285908; Category: Use of waste in construction. Treatment of waste aerosol cans. Use of mulch.	51
	Stephen Caley Field: 33.	250m south of the Onshore Export Cable Corridor – adjacent to Whitecross Road.	Reference: WEX264791; Category: Storage of sludge.	52

19.2.6.4 Hazardous Substances and Health & Safety

20. The presence (or absence) of sites subject to restrictions in relation to Health & Safety at or within 250m of the Onshore Development Area boundary, or in the case of COMAH sites within 1km of the Onshore Development Area, has been summarised in **Table 19-2-6**.

Table 19-2-6 Summary of Facilities Subject to Active Consents

Facility Type	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m/1km)
Control of Major Accident Hazard sites (COMAH)	No	No	No	No
Regulated explosive sites	No	No	No	No
Hazardous substance storage / usage	No	No	No	No
Radioactive Substance Authorisations (RSA)	No	No	No	No

19.2.6.5 Environmentally Sensitive Areas and Visual / Cultural Designations

21. The presence (or absence) of environmentally sensitive areas as well as visual and cultural designations at or within 250m of the Onshore Development Area boundary has been summarised in **Table 19-2-7** with further details provided in **Table 19-2-8** and **Table 19-2-9**. Identified environmentally sensitive areas are illustrated on **Figure 19-2-3**.

Table 19-2-7 Summary of Environmentally Sensitive Areas and Visual / Cultural Designations

Feature / Designation	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
Sites of Special Scientific Interest (SSSI)	No	No	No	Yes
Conserved wetland sites (Ramsar)	No	No	No	No
Special Areas of Conservation (SAC)	No	No	No	No
Special Protected Areas (SPA)	Yes	No	No	Yes
National Nature Reserves (NNR)	No	No	No	No
Local Nature Reserves (LNR)	No	No	No	No
Designated ancient woodland	No	No	Yes	Yes
Biosphere reserves	No	No	No	No
Forest parks	No	No	No	No
Marine Conservation Zones (MCZ)	No	No	No	No
Green belt	No	No	No	No
Proposed Ramsar sites	No	No	No	No
Possible SACs (pSAC)	No	No	No	No
Potential SPAs (pSPA)	No	No	No	No
Nitrate sensitive areas	No	No	No	No
Nitrate vulnerable zones (NVZ)	Yes	Yes	Yes	Yes
SSSI impact risk zones	Yes	Yes	Yes	Yes
SSSI Units	No	No	No	Yes

Feature / Designation	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
World heritage sites	No	No	No	No
Areas of Outstanding Natural Beauty (AONB)	No	No	No	No
National parks	No	No	No	No
Listed buildings	No	No	No	Yes
Conservation areas	No	No	No	No
Scheduled ancient monuments	No	No	No	Yes
Registered parks and gardens	No	No	No	No
Priority habitat inventory	Yes	Yes	Yes	Yes
Habitat networks	Yes	Yes	No	Yes
Open mosaic habitat	No	No	No	Yes
Limestone pavement orders	No	No	No	No
Local Geological Sites (LoGS)	Yes	Yes	No	Yes

Table 19-2-8 Details of On Site Environmentally Sensitive Areas and Visual / Cultural Designations

Feature / Designation	Name and Location	Detail
SPA	Greater Wash – landfall.	Habitats: Marine areas, Sea inlets; Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins). Species of interest present: Red-throated diver; Black (common) scoter; Little gull; Sandwich tern; Common tern; Little tern. Present along the entire coastal edge of landfall.
Designated ancient woodland	Unnamed – Onshore Substation Zone.	Area located to the west of the junction of Beverley Road and A1079.
Nitrate vulnerable zones	Barmston Sea Drain from Skipsea Drain to North Sea NVZ.	Present within landfall and the Onshore Export Cable Corridor.
	River Hull from Arram Beck to Humber NVZ.	Present within the Onshore Export Cable Corridor and Onshore Substation Zone.
	Holderness Drain from Fordyke Stream to Humber NVZ.	Present within the Onshore Export Cable Corridor.
	Yorkshire Chalk.	Present within the Onshore Export Cable Corridor and Onshore Substation Zone.
SSSI impact risk zones	Landfall, Onshore Export Cable Corridor and Onshore Substation Zone.	SSSI impact risk zones are present throughout the Onshore Development Area.
Priority habitat inventory	Landfall.	Main habitat present: maritime cliff and slope.
	Onshore Export Cable Corridor.	Main habitat present: deciduous woodland. Present at the junction of Catwick Heads and the A1035.
		Main habitat present: coastal and floodplain grazing marsh. Present in the areas surrounding the River Hull and Beverley and Barmston Drain (north of Tickton).
		Main habitat present: no main habitat but additional habitats present. Present in the areas surrounding South Bullock Dike (north west of Tickton).
		Main habitat present: traditional orchard. Present in the area to the south of the A164 and A1079 junction.
	Onshore Substation Zone.	Main habitat present: deciduous woodland. Present within the Bentley Moor Wood area.
Habitat networks	Landfall.	Primary habitat: maritime Cliff and slope. Network Enhancement Zone 1 and 2: habitat not specified.

Feature / Designation	Name and Location	Detail
	Onshore Export Cable Corridor.	Network Enhancement Zone 2: habitat not specified. Restorable habitat: habitat not specified. The above are present in the areas surrounding the River Hull and Beverley and Barmston Drain (north of Tickton).
LoGS	Onshore Export Cable Corridor.	Skipsea Drain located to the north of Hornsea Road extending towards Steam Dike.

Table 19-2-9 Details of Off Site Environmentally Sensitive Areas and Visual / Cultural Designations

Feature / Designation	Site Name and Location	Location and Distance from the Onshore Development Area	Detail
SSSI and designated ancient woodland	Burton Bushes.	120m east of Onshore Export Cable Corridor - located between York Road and Newbald Road.	Designated due to presence of oak woodland >200 years in age. The woodland canopy contains about 50% oak (mainly *Quercus robur*), with a range of other tree species including birch *Betula pubescens*, field maple *Acer campestre* and wych elm *Ulmus glabra*. The understorey is well developed and dominated by holly *Ilex aquifolium*.
Designated ancient woodland	Birkhill Wood / Unknown.	150m south of the Onshore Export Cable Corridor – located to the east of Beverley Road.	Area of ancient and semi-natural / ancient replanted woodland.
SPA	Greater Wash.	Adjacent to the east of landfall.	Habitats: Marine areas, Sea inlets; Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins). Species of interest present: Red-throated diver; Black (common) scoter; Little gull; Sandwich tern; Common tern; Little tern.
Nitrate vulnerable zones	Barmston Sea Drain from Skipsea Drain to North Sea.	Adjacent to landfall and Onshore Export Cable Corridor.	Present to the north and south of landfall and the Onshore Export Cable Corridor.
	Holderness Drain from Fordyke Stream to Humber.	Adjacent to the Onshore Export Cable Corridor.	Present to the north, east, south and west of the Onshore Export Cable Corridor.
	River Hull from Arram Beck to Humber.	Adjacent to the Onshore Export Cable Corridor and Onshore Substation Zone.	Present to the north, east, south and west of the Onshore Export Cable Corridor and Onshore Substation Zone.
	Yorkshire Chalk.	Adjacent to the Onshore Export Cable Corridor and Onshore Substation Zone.	Present to the north, east, south and west of the Onshore Export Cable Corridor and Onshore Substation Zone.

Feature / Designation	Site Name and Location	Location and Distance from the Onshore Development Area	Detail
SSSI impact risk zones	N/A	Adjacent to landfall, Onshore Export Cable Corridor and Onshore Substation Zone.	Present to the north, east, south and west of landfall, Onshore Export Cable Corridor and Onshore Substation Zone.
SSSI Units	Burton Bushes.	120m east of the Onshore Export Cable Corridor.	A favourable SSSI unit is located between York Road and Newbald Road.
Listed buildings (All Grade II listed)	Catfoss Hall, Seaton, HU11.	160m east of the Onshore Export Cable Corridor.	List date: 26 / 11 / 1985; List entry: 1249759; Located east of Catfoss Lane.
Scheduled ancient monuments	Royal Observer Corps underground monitoring post and World War II visual spotting post, 200m north of Southfield House.	60m east of the Onshore Export Cable Corridor.	List entry: 1021192; Located to the east of Hornsea Road.
	Romano-British enclosure and two adjoining fields on Westwood Common, 510m south west of Blackmill.	70m north east of the Onshore Export Cable Corridor.	List entry: 1013999; Located south east of Newbald Road.
	Beverley sanctuary limit stone, Bentley cross.	90m south of the Onshore Export Cable Corridor.	List entry: 1012590; Located adjacent to Beverley Road.
	Hallgarth medieval hall and moat.	160m north west of the Onshore Export Cable Corridor.	List entry: 1013705; Located to the east of Hornsea Road.
	Moated grange at Moor Grange.	180m west of the Onshore Export Cable Corridor.	List entry: 1007971; Located north east of Towns Lane.
	Beverley sanctuary limit stone, Bishop Burton cross.	200m west of the Onshore Export Cable Corridor.	List entry: 1012589; Located south of York Road, east of A1079.
	Heavy Anti-aircraft gunsite, 350m west of Butt Farm.	Adjacent to Onshore Substation Zone.	List entry: 1019186; Located north east of Bentley Lane, south west of A1079.
Priority habitat inventory (Deciduous woodland unless otherwise stated)	N/A	Adjacent to landfall.	Maritime cliff and slope; Located to the north and south of landfall.
			Present to the east of Catfoss Lane.

Feature / Designation	Site Name and Location	Location and Distance from the Onshore Development Area	Detail
		Adjacent to the Onshore Export Cable Corridor.	Coastal and floodplain grazing marsh; Present in the areas surrounding the River Hull and Beverley and Barmston Drain (north of Tickton).
			No main habitat but additional habitats present; Present in the areas surrounding South Bullock Dike (north west of Tickton).
			Coastal and floodplain grazing marsh; Present to the south of Hull Bridge Road.
			Present to the south of Newbald Road.
			Present to the east of Beverley Road.
		20m south west of the Onshore Export Cable Corridor.	Present to the north of Hornsea Road.
		100m east of the Onshore Export Cable Corridor.	Present to the south of Broadgate.
		110m north of the Onshore Export Cable Corridor.	Present to the north east of Eske Lane.
		120m east of the Onshore Export Cable Corridor.	Present to the south of York Road.
		150m south of the Onshore Export Cable Corridor.	Traditional orchard; Present to the east of Catwick Lane.
		200m east of the Onshore Export Cable Corridor.	Present to the east of Catfoss Lane.
		210m west of the Onshore Export Cable Corridor.	Present to the west of Catfoss Lane.
		240m north of the Onshore Export Cable Corridor.	Present to the north west of Hornsea Road.
		240m north of the Onshore Export Cable Corridor.	Present to the east of Whitecross Road.
		Adjacent to the Onshore Substation Zone.	Present to the north east of Bentley Lane.

Feature / Designation	Site Name and Location	Location and Distance from the Onshore Development Area	Detail
		Adjacent to the Onshore Substation Zone.	Present to the east of Bentley Lane.
		140m south of the Onshore Substation Zone.	Traditional orchard; Present to the north of Bentley Road.
Habitat networks	N/A	Adjacent to landfall.	Primary habitat: maritime Cliff and slope; Network Enhancement Zone 1 and 2: habitat not specified; The priority habitats extend to the north and south of landfall.
		Adjacent to the Onshore Export Cable Corridor.	Network Enhancement Zone 1 and 2: habitat not specified; Restorable habitat: habitat not specified. The priority habitats are present to the north and south of the Onshore Export Cable Corridor in the areas surrounding the River Hull and Beverley and Barmston Drain (north of Tickton).
Open mosaic habitat	N/A	70m east of the Onshore Export Cable Corridor.	Site reference: 123500; Identification confidence: low.
LoGS	Skipsea Drain.	Adjacent to the Onshore Export Cable Corridor.	The Skipsea Drain LoGS extends northwards from the Onshore Export Cable Corridor.

19.2.6.6 Agricultural Designations

22. The presence (or absence) of agricultural designations at or within 250m of the Onshore Development Area boundary has been summarised in **Table 19-2-10** with further details provided in **Table 19-2-11** and **Table 19-2-12.**

Table 19-2-10 Summary of Agricultural Designation

Designation Type	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
Agricultural designation	Yes	Yes	Yes	Yes
Tree felling license	No	Yes	No	Yes
Environmental stewardship schemes	No	Yes	Yes	Yes
Countryside stewardship schemes	Yes	Yes	Yes	Yes

Table 19-2-11 Details of On Site Agricultural Designations

Designation Type – Onsite	Location	Detail
Agricultural designation (as illustrated on **Volume 7, Chapter 21 Land Use, Figure 21-2-2 (application ref: 7.21.1)**)	Landfall	Agricultural Land Classification (ALC) Grades 2 and 3 are present within the Landfall Zone.
	Onshore Export Cable Corridor	ALC Grades 2 and 3 are present throughout the Onshore Export Cable Corridor. An area of non-agricultural land is located between the settlements of Tickton and Arram.
	Onshore Substation Zone	The Onshore Substation Zone is located entirely within land designated as ALC Grade 2, based on provisional ALC data. However, results of Agricultural Land Survey conducted within the area of the Onshore Substation Zone is Grade 3b land and so is not considered to be BMV land, as detailed in **Appendix A** of the **Outline Code of Construction practice (OCoCP) (Volume 8, application ref: 8.9)**.
Tree felling license	Onshore Export Cable Corridor	Tree Felling Licences: Selective Fell / Thin (Unconditional); Reference: 012 / 174 / 08-09; Date: 08 / 04 / 2009; Located east of Catfoss Lane, north of West Road.
Environmental stewardship schemes (as illustrated on **Volume 7, Chapter 21 Land Use, Figure 21-2-3 (application ref: 7.21.1)**)	Onshore Export Cable Corridor	Entry Level plus Higher Level; Reference: AG00418410; Start date: 01 / 03 / 2013; End date: 28 / 02 / 2023. Located to the east of Catfoss Lane, north of West Road. Also present to the west of Catwick Lane, east of Whitecross Road.
		Entry Level plus Higher Level; Reference: AG00451023; Start date: 01 / 07 / 2013; End date: 30 / 06 / 2023. Located to the north of Hornsea Road, east and west of Main Street.
	Onshore Substation Zone	Entry Level plus Higher Level; Reference: AG00305272; Start date: 01 / 03 / 2010; End date: 28 / 02 / 2021.
Countryside stewardship schemes (as illustrated on **Volume 7, Chapter 21 Land Use, Figure 21-2-3 (application ref: 7.21.1)**)	Landfall	Middle Tier; Reference: 524081; Start date: 01 / 01 / 2017; End date: 31 / 12 / 2021.
	Onshore Export Cable Corridor	Middle Tier; Reference: 1031343; Start date: 01 / 01 / 2021; End date: 31 / 12 / 2025; Located to the north of West Road, east of Catfoss Lane.
		Woodland Management Plan; Reference: 831782; Start date: 01 / 11 / 2019; End date: 31 / 10 / 2021.
		Higher Tier; Reference: 307188; Start date: 01 / 01 / 2017; End date: 31 / 12 / 2026. Located to the north and south of Sisterbeck Dike and Carr Road. Also present to east and west of Driffield Road, as well as to the north and south of Constitutional Hill.

Designation Type – Onsite	Location	Detail
	Onshore Substation Zone	Middle Tier; Reference: 646343; Start date: 01 / 01 / 2019; End date: 31 / 12 / 2023. Located to the east and west of the A1079, also extends into the Onshore Export Cable Corridor.
		Middle Tier; Reference: 1014915; Start date: 01 / 01 / 2021; End date: 31 / 12 / 2025; Located to the north of Bentley Road.

Table 19-2-12 Details of Off Site Agricultural Designations

Designation Type – Offsite	Site Name and Location	Location and Distance from the Onshore Development Area	Detail
Agricultural designation (as illustrated on **Volume 7, Chapter 21 Land Use, Figure 21-2-2 (application ref: 7.21.1)**)	N/A	Adjacent to landfall	Grades 2 and 3 ALC land extend to the north, south and west of the landfall.
		Adjacent to the Onshore Export Cable Corridor	Grades 2 and 3 ALC land extends in all directions along the boundary of the Onshore Export Cable Corridor.
			Grade 4 ALC land is present adjacent to the southern boundary of the Onshore Export Cable Corridor at Hull Bridge Road.
			Non-agricultural ALC land extends to the north of the Onshore Export Cable Corridor between the settlements of Tickton and Arram. Non-agricultural ALC land is also present 160m east of the Onshore Export Cable Corridor at York Road and Newbald Road.
			Urban ALC land is present adjacent to the eastern boundary of the Onshore Export Cable Corridor at Keldgate Road.
		90m south west of the Onshore Export Cable Corridor	Urban ALC land is located to the north east and south west of Grange Way.
		230m west of the Onshore Export Cable Corridor	Urban ALC land is located to the north and south of Woodhall Way.
		Adjacent to the Onshore Substation Zone	Grade 2 ALC extends in all directions along the boundary of the Onshore Substation Zone.

Designation Type – Offsite	Site Name and Location	Location and Distance from the Onshore Development Area	Detail
Tree felling license	N/A	120m south of the Onshore Export Cable Corridor	Tree Felling Licence: Selective Fell / Thin (Conditional); Reference: 012/85/17-18; Date: 20 / 11 / 2017; Located to the west of Meaux Lane.
Environmental stewardship schemes (as illustrated on **Volume 7, Chapter 21 Land Use, Figure 21-2-3) (application ref: 7.21.1)**)	N/A	50m south of landfall	Entry Level plus Higher Level; Reference: AG00472712; Start date: 01 / 10 / 2013; End date: 30 / 09 / 2023. Located to the east of Hornsea Road, south of Cliff Road.
		Adjacent to the Onshore Export Cable Corridor	Entry Level plus Higher Level; Reference: AG00418410; Start date: 01 / 03 / 2013; End date: 28 / 02 / 2023. Located to the east and west of Catfoss Lane, north and south of West Road. Also present to the north west of Catwick Lane.
			Entry Level plus Higher Level; Reference: AG00451023; Start date: 01 / 07 / 2013; End date: 30 / 06 / 2023. Located to the north and south of Hornsea Road, east and west of Main Street.
		Adjacent to the Onshore Substation Zone	Entry Level plus Higher Level; Reference: AG00305272; Start date: 01 / 03 / 2010; End date: 28 / 02 / 2022. Located to the east Bentley Lane, south of Broadgate. Also present to the west of Beverley Road.
Countryside stewardship schemes (as illustrated on **Volume 7, Chapter 21 Land Use, Figure 21-2-3 (application ref: 7.21.1)**)	N/A	Adjacent to landfall	Middle Tier; Reference: 524081; Start date: 01 / 01 / 2017; End date: 31 / 12 / 2021. Extends northwards from landfall crossing North Turnpike.
		Adjacent to Onshore Export Cable Corridor	Middle Tier; Reference: 1031343; Start date: 01 / 01 / 2021; End date: 31 / 12 / 2025. Located east of Catfoss Lane, north of West Road.
			Middle Tier; Reference: 1073576; Start date 01 / 01 /2021; End date: 31 / 12 /2025. Located west of New Road.
			Woodland Management Plan; Reference: 831782; Start date: 01 / 11 / 2019; End date: 31 / 10 / 2021. Located north of West Road. Also located 210m west of the Onshore Export Cable Corridor, west of Catfoss Lane.

Designation Type – Offsite	Site Name and Location	Location and Distance from the Onshore Development Area	Detail
			Higher Tier; Reference: 307188; Start date: 01 / 01 / 2017; End date: 31 / 12 / 2026. Located to the south of Sisterbeck Dike and South Bullock Dike. Also present to the north and south of Carr Road, to the north of Grange Way and to south of Constitution Hill.
		180m south of the Onshore Export Cable Corridor	Middle Tier; Reference: 1060831; Start date: 01 / 01 / 2021; End date: 31 / 12 / 2025; Located south of Stream Dike.
		170m east of the Onshore Export Cable Corridor	Middle Tier; Reference: 1052477; Start date: 01 / 01 / 2021; End date: 31 / 12 / 2025. Located north of Harsall Lane.
		Adjacent to the Onshore Export Cable Corridor and Onshore Substation Zone	Middle Tier; Reference: 646343; Start date: 01 / 01 / 2019; End date: 31 / 12 / 2023. Located to the north east and south west of the A1079.
		Adjacent to Onshore Substation Zone	Middle Tier; Reference: 1014915; Start date: 01 / 01 / 2021; End date: 31 / 12 / 2025. Located to the north of Bentley Road and east of Bentley Lane.

19.2.6.7 Historical Industrial Land Use

23. The presence (or absence) of historical industrial land uses, tanks, energy features (e.g. electricity substations and gas works), petrol stations, garages and military land at or within 250m of the Onshore Development Area boundary has been summarised in **Table 19-2-13** with further details provided in **Table 19-2-14** and **Table 19-2-15**. The locations of potentially contaminative historical land uses are illustrated on **Figure 19-2-4**.

Table 19-2-13 Summary of Historical Industrial Land Uses

Features	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
Industrial land uses	No	Yes	Yes	Yes
Tanks	No	No	No	Yes
Energy features	No	No	No	Yes
Petrol stations	No	No	No	No
Garages	No	No	No	No
Military land	No	No	No	No

Table 19-2-14 Details of On Site Historical Industrial Land Uses

Feature – Onsite	Name	Location	Detail	Figure 19-2-4 Reference
Industrial land uses	N/A	Onshore export cable corridor	Feature: Pumping station; Date: 1909 – 1988 (recorded as disused from 1974); Located between the River Hull and Beverley & Barnston Drain.	1
			Feature: Unspecified pit; Date: 1889 – 1992; Located south east of Newbald Road.	2
		Onshore export cable corridor and Onshore Substation Zone	Feature: Cuttings; Date: 1981 – 1992; Located along the route of the A1079.	3
		Onshore Substation Zone	Feature: Chalk pit; Date: 1908 – 1952; Located to the south west of the A1079.	4

Table 19-2-15 Details of Off Site Historical Industrial Land Uses

Feature – Offsite	Location and Distance from Onshore Development Area	Detail	Figure 19-2-4 Reference
Industrial land uses	30m and 90m west of landfall – east of Southfield Lane.	Feature: Coastguard station; Date: 1909 – 1952.	5
	Adjacent to the Onshore Export Cable Corridor – extending north westwards from the Onshore Development Area west of Driffield Road.	Feature: Cuttings; Date: 1908 – 1952.	6
	Adjacent to the Onshore Export Cable Corridor – extending northwards of the Onshore Development Area, south east of Newbald Road.	Feature: Unspecified pit; Date: 1889 – 1992.	7
	Adjacent to the Onshore Export Cable Corridor – south of Carr Road, east of Ings Road.	Feature: Sewage works and unspecified tanks; Date: 1952 – 1993.	8
	Adjacent to the Onshore Export Cable Corridor – to the west of Catfoss Lane.	Feature: Airfield; Date: 1952 – 1982 (recorded as disused in 1982).	9
	Adjacent to and 180m east of the Onshore Export Cable Corridor – adjacent to Hull Bridge Road.	Feature: Nurseries; Date: 1973 – 1993.	10
	10m west of the Onshore Export Cable Corridor – south of Broadgate.	Feature: Mental hospital / hospital; Date: 1889 – 1981.	11
	20m east of the Onshore Export Cable Corridor - north of York Road.	Feature: Old butts; Date: 1938 – 1952.	12
	30m north west of the Onshore Export Cable Corridor - north east of the A1079.	Feature: Sewage works; Date: 1908.	13

Feature – Offsite	Location and Distance from Onshore Development Area	Detail	Figure 19-2-4 Reference
	40m south west of the Onshore Export Cable Corridor – south of Grange Way.	Feature: Railway building; Date 1938 – 1952.	14
	40m east of the Onshore Export Cable Corridor- south of Broadgate.	Feature: Whiting works; Date: 1889 – 1981.	15
		Feature: Unspecified heap; Date: 1889 – 1908.	16
		Feature: Chalk pit; Date: 1938 – 1992.	17
		Feature: Water works; Date: 1889 – 1992.	18
	70m east of the Onshore Export Cable Corridor – east of Beverley Road.	Feature: Unspecified pit / old chalk pit; Date: 1908 – 1970.	19
	80m east of the Onshore Export Cable Corridor - east of Catfoss Lane, north of West Road.	Feature: Old sand pit / unspecified pits; Date: 1909 – 1952.	20
	110m north of the Onshore Export Cable Corridor - north of Carr Road.	Feature: Airfield; Date: 1973 – 1993 (recorded as discussed in 1993).	21
	120m north east of the Onshore Export Cable Corridor – south east of Newbald Road.	Feature: Unspecified ground workings / pit; Date: 1889 – 1992.	22
	130m west of landfall – centred around South Field.	Feature: Unspecified holes; Date: 1909 – 1981.	23
	130m west of landfall – at the junction of Green Lane and Mill Lane.	Feature: Pump house; Date: 1981.	24
	160m west of landfall – west of Southfield Lane.	Feature: Pump house; Date: 1981.	25
	160m west of the Onshore Export Cable Corridor – north of A1035, West of Catfoss Lane.	Feature: Refuse heap; Date: 1982.	26
	170m east of landfall – to the east of Hornsea Road.	Feature: Disused brickworks; Date: 1909.	27
	180m west of the Onshore Export Cable Corridor – south of York Road.	Feature: Unspecified ground workings; Date: 1908 – 1948.	28
	170m west of the Onshore Export Cable Corridor – north of York Road.	Feature: Old chalk pits / unspecified pits / unspecified heap; Date: 1908 – 1952.	29
	190m west of the Onshore Export Cable Corridor – north of A1035, west of Catfoss Lane.	Feature: Sand pit; Date: 1909.	30
	210m north of the Onshore Export Cable Corridor – west of Leconfield Road.	Feature: Garage; Date: 1973 – 1993.	31

Feature – Offsite	Location and Distance from Onshore Development Area	Detail	Figure 19-2-4 Reference
	Adjacent to the Onshore Export Cable Corridor and Onshore Substation Zone – extending northwards and southwards of the Onshore Development Area along the route of the A1079.	Feature: Cuttings; Date: 1981 – 1992.	32
	Adjacent to the Onshore Substation Zone – extending westward of the Onshore Development Area south west of the A1079.	Feature: Chalk pit; Date: 1908 – 1952.	33
	40m west of the Onshore Substation Zone – north east of Bentley Lane.	Feature: Unspecified pit; Date: 1952 – 1992.	34
	70m south of the Onshore Substation Zone – North of Bentley Road.	Feature: Unspecified pit / Chalk pit; Date: 1889 – 1992.	35
	230m south of the Onshore Substation Zone – north of Bentley Road.	Feature: Unspecified ground workings; Date: 1908 – 1992.	36
Tanks	130m east of the Onshore Export Cable Corridor – south of Broadgate.	Date 1910 – 1996.	37
	180m east of the Onshore Export Cable Corridor – east of Newbald Road.	Date 1909 – 1946.	38
	230m north west of the Onshore Export Cable Corridor – south of Newbald Road.	Date: 1965 – 1967.	39
	90m south of the Onshore Substation Zone – east of Bentley Lane.	Date 1994.	40
	100m north east of the Onshore Substation Zone – west of Oriel Close.	Gasometer / gas works; Date: 1893 – 1910.	41
Energy features	60m west of landfall – east of Green Lane, south of Mill Lane.	Feature: Electricity substation; Date: 1975.	42
	180m west of landfall – north of Sand Lane.	Feature: Electricity substation; Date: 1975 – 1994.	43
	190m west of landfall – north of Mill Lane, west of Central Avenue.	Feature: Electricity substation; Date: 1995.	44
	130m north of the Onshore Export Cable Corridor – east of Driffield Road.	Feature: Electricity substation; Date: 1971 – 1994.	45
	140m east of the Onshore Export Cable Corridor – south of Broadgate.	Feature: Electricity substation; Date: 1996.	46
	110m north east of the Onshore Substation Zone – west of Oriel Close.	Gasometer / gas works; Date: 1893 – 1910.	47
	180m south of the Onshore Export Cable Corridor – north of Lockwood Road.	Feature: Electricity substation; Date: 1996 – 1999.	48
	200m west of the Onshore Export Cable Corridor – south of Grange Way.	Feature: Electricity substation; Date: 1971.	49

19.2.6.8 Current Industrial Land Use

24. The presence (or absence) of current potentially contaminative industrial land uses, petrol stations, electricity cables and gas pipelines at or within 250m of the Onshore Development Area boundary has been summarised in **Figure 19-2-5** and **Table 19-2-16** with further details provided in **Table 19-2-17** and **Table 19-2-18**. The locations of potentially contaminative land uses are illustrated on **Figure 19-2-5**.

Table 19-2-16 Summary of Current Industrial Land Uses

Features	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
Industrial land uses	No	Yes	Yes	Yes
Current or recent petrol stations	No	No	No	Yes
Electricity cables*	No	No	No	No
Gas pipelines*	No	Yes	Yes	Yes
*As defined by the database and does not constitute a utility search.				

25. An area identified within the East Riding of Yorkshire Council, East Riding Local Plan 2012 – 2029 (2016) as a Military and Technical Site Consultation Zone (Leconfield) bisects the Onshore Export Cable Corridor to the north of Carr Road. The consultation area extends northwards offsite extending to distances >250m.

26. The boundary of the consultation area corresponds to that of the Ministry of Defence's Defence School of Transport (DTS). The facility, established in 1996, provides driver training for Army, Royal Airforce and Royal Marines personnel (MOD, 2020). The southern end of the DTS is located within the 250m buffer of the Onshore Development Area but does not intersect the Onshore Export Cable Corridor.

Table 19-2-17 Details of On Site Current Industrial Land Uses

Feature – Onsite	Name	Location	Detail	Figure 19-2-5 Reference
Industrial land uses	HU16 and HU17	Onshore Export Cable Corridor	Electrical features – pylon (one records – all running parallel to the A1079); Located south west of the A1079.	1
	HU17	Onshore Substation Zone	Electrical features – pylon (one record –running parallel to the A1079); Located south west of the A1079.	2
Gas pipelines	Pipe name – Burton Agnes to Paull.	Onshore Export Cable Corridor	National Grid high pressure gas pipeline running north south bisecting the Onshore Export Cable Corridor at Catfoss Road and west of Dunnington Lane.	3
	Pipe name – Easington to Asselby.	Onshore Export Cable Corridor and Onshore Substation Zone	National Grid high pressure gas pipeline running north east to west.	4

Table 19-2-18 Details of Off Site Current Industrial Land Uses

Feature – Offsite	Site Name and Location	Location and Distance from Onshore Development Area	Detail	Figure 19-2-5 Reference
Industrial land uses	YO25	140m west of landfall – west of Green Lane.	Sewage pumping station / pumping station.	5
	YO25	160m west of landfall – west of Southfield Lane.	Water pumping stations – pump house.	6
		180m west of landfall – north of Sand Lane.	Electrical features – electricity substation.	7
	Land South East of Poplar Farm, Park Lane, Cottingham, HU16 5SA	Adjacent to the Onshore Export Cable Corridor.	Energy production – Poplar Farm turbine.	8
	HU17	Adjacent to the Onshore Export Cable Corridor - west of Hornsea Road.	Electrical features – pylon.	9
		Adjacent to the Onshore Export Cable Corridor – south west of the A1079.	Electrical features – pylon.	10
		10m west of the Onshore Export Cable Corridor - west of A1079.	Gas features – gas distribution station.	11

Feature – Offsite	Site Name and Location	Location and Distance from Onshore Development Area	Detail	Figure 19-2-5 Reference
		20m north west of the Onshore Export Cable Corridor – north west of Hornsea Road.	Electrical features – electricity substation.	12
		20m and 240m north of the Onshore Export Cable Corridor – east of Main Road.	Electrical features – pylon.	13
		30m north east of the Onshore Export Cable Corridor - north of the A1079.	Electrical features – electricity poles.	14
		40m north of the Onshore Export Cable Corridor – west of Meaux Lane.	Sheep dips and washes – sheep dip.	15
		70m east of the Onshore Export Cable Corridor -south of Broadgate.	Tanks (Generic) – tank.	16
	Imerys Keldgate Road, Beverley, HU17 8RQ	80m east of the Onshore Export Cable Corridor.	Unspecified quarries or mines - extractive industries.	17
	YO25	90m west of the Onshore Export Cable Corridor – north of Catfoss Road.	Waste storage, processing and disposal - slurry lagoon.	18
	HU16	90m south of the Onshore Export Cable Corridor – south west of the A1079.	Electrical features – pylon.	19
	HU17	90m south of the Onshore Export Cable Corridor – north of Hornsea Road.	Electrical features – pylon.	21
		90m south west of the Onshore Export Cable Corridor – south west of the A1079.	Electrical features – pylon.	22
		110m south west of the Onshore Export Cable Corridor – north of Grange Lane.	Energy production - solar panels.	23
	H N Sinkler & Son Havers Manor House Farm, Meaux Lane, Routh, HU17 9SR	110m north of the Onshore Export Cable Corridor.	Livestock farming – farming.	24
	HU17	130m east of the Onshore Export Cable Corridor -south of Broadgate.	Electrical features – electricity substation.	25

Feature – Offsite	Site Name and Location	Location and Distance from Onshore Development Area	Detail	Figure 19-2-5 Reference
		130m north of the Onshore Export Cable Corridor – east of Driffield Road.	Electrical features – electricity substation.	26
	North West of Magdalen Cottage, Main Road, Bewholme, East Riding of Yorkshire, YO25 8EH	130m east of the Onshore Export Cable Corridor.	Energy production – wind turbine.	27
	HU11	140m west of the Onshore Export Cable Corridor – east of Catfoss Lane.	Hoppers and silos – hopper.	28
	Mr Moo's Real Dairy Ice Cream Southfield House Farm, Hornsea Road, Skipsea, YO25 8SY	150m east of the Onshore Export Cable Corridor.	Dairy products – foodstuffs.	29
	HU17	180m south west of the Onshore Export Cable Corridor – located between Pighill Land and Lockwood Road.	Gas features – gas governor.	30
		180m south of the Onshore Export Cable Corridor – north of Lockwood Road.	Electrical features – electricity substation.	31
		180m north west of the Onshore Substation Zone – west of the A1079.	Electrical features – pylon.	32
		180m south west of the Onshore Export Cable Corridor – south west of the A1079.	Electrical features – pylon.	33
	Car Body & Paint Centre Ltd Hull Bridge Road, Beverley, HU17 9RS	170m west of the Onshore Export Cable Corridor.	Vehicle repair, testing and servicing - repair and servicing.	34
	HU17	200m west of the Onshore Export Cable Corridor – north of Hornsea Road.	Electrical features – pylon.	35
	Staal Smokehouse Ltd, The Cottage Riston Grange, White Cross Road, Long Riston, HU11 5SA	230m north of the Onshore Export Cable Corridor.	Fish, meat and poultry products – foodstuffs.	36
	East Riding of Yorkshire, HU17	230m north of the Onshore Export Cable Corridor – north west of Hornsea Road.	Electrical features – pylon.	37
	HU17	230m west of the Onshore Export Cable Corridor – north of Hull Bridge Road.	Telecommunications features – mast.	38

Feature – Offsite	Site Name and Location	Location and Distance from Onshore Development Area	Detail	Figure 19-2-5 Reference
	HU17	Adjacent to the Onshore Substation Zone – south west of the A1079.	Electrical features – pylon.	39
		30m west of the Onshore Substation Zone – south west of the A1079.	Electrical features – pylon.	40
		70m west of the Onshore Substation Zone – south west of the A1079.	Hoppers and silos – silo.	41
		120m east of the Onshore Substation Zone – south of the A1079.	Electrical features – pylon.	42
		140m north west of the Onshore Substation Zone – south of Broadgate.	Electrical features – pylon.	43
		180m north west of the Onshore Substation Zone – west of A1079.	Electrical features – pylon.	44
		190m west of the Onshore Substation Zone – east of Bentley Lane.	Unspecified quarries or mines – pit.	45
		210m south of the Onshore Substation Zone – north of Bentley Road.	Sheep dips and washes – sheep dip.	46
Current or recent petrol stations	Hornsea Road, Skipsea, Driffield, YO25 8ST	200m west of landfall.	Status: obsolete.	47

19.2.6.9 Built Environment

27. A review of the built environment (e.g. commercial and residential buildings and transport infrastructure) within the Onshore Development Area and 250m buffer has been undertaken using information available from Ordnance Survey (OS) maps and Google Earth imagery.

28. The eastern edge of the Landfall Zone interacts with the King Charles III England Coastal Path (Easington to Filey Brigg branch). The route of the Onshore Export Cable Corridor crosses several public roads, private accesses, Public Rights of Way (PRoW), and a railway line. The Onshore Substation Zone intersects a PRoW and an area of woodland.

29. In addition to the above, which extend beyond the Onshore Development Area boundary, commercial, residential / holiday properties, public open spaces, a school and hospital are located within 250m of the Onshore Development Area. These features are not present along the entirety of the Onshore Development Area boundary but at isolated locations. The greatest concentration of buildings within 250m of the Onshore Development Area are around the settlement of Beverly.

19.2.7 Historical Land Use

19.2.7.1 Introduction

30. The historical development of the Onshore Development Area has been assessed using information available from historical OS maps within the Environmental Database GIS data.

31. In the context of the summary of historical development of the surrounding area, the descriptions are limited to within approximately 100m of the Onshore Development Area boundary, unless specified in the following section.

19.2.7.2 Site History

Table 19-2-19 Summary of On Site Historical Data

Feature	Map years	Notes	Figure 19-2-4 Reference
Landfall			
Agricultural land	1890 – present.	Agricultural land is present throughout the Landfall Zone.	N/A

Feature	Map years	Notes	Figure 19-2-4 Reference
Potential pit / pond / infilled land	1852 – 1976.	Located north east of North Road.	50
Onshore Export Cable Corridor			
Potential pit / pond / infilled land	1893 – present.	Located throughout the Onshore Export Cable Corridor.	51
Agricultural land	1854 – present.	Agricultural land is located throughout the Onshore Export Cable Corridor.	N/A
Potential pit / pond	1891 – 1982 (latest available map).	Located to east and west of Catwick Heads.	52
South Bullock Pumping Station	1891 – 1988 (latest map available).	Located between the Rive Hull and Beverley and Barstom Drain. Recorded as disused by 1972.	53
Hull and Scarborough Railway	1854 – present.	Located north and south of Grange Way.	54
York, Market Weighton and Beverley Railway	1893 – 1972.	Railway runs north west to south east. Located to the west of Ings Road. Recorded as dismantled by 1972.	55
Springs and potential pond	1893 – 1966.	Located north of Burton Bushes.	56
	1855 – 1891.	Located west of Beverley and Barmston Drain.	57

Feature	Map years	Notes	Figure 19-2-4 Reference
	1893 – 1927.	Located north of Grange Way.	58
Well	1855 – 1889.	Located west of the A1079.	59
Old gravel pit	1893 – 1910.	Located west of the A1079.	60
Onshore Substation Zone			
Potential pit / pond / infilled land	1893 – present.	Located throughout the Onshore Substation Zone.	61

19.2.7.3 Surrounding History

32. There are a number of potentially contaminative land uses identified within the Onshore Development Area, the main ones within 100m of the Onshore Development Area boundary are listed in **Table 19-2-20**.

Table 19-2-20 Summary of Off Site Historical Data

Feature	Map years	Distance	Notes	Figure 19-2-4 reference
Unknown buildings	1972 – 1988 (latest available map).	Adjacent to the Onshore Export Cable Corridor.	Located to the west of Eske Lane.	62
Potential pits / ponds / chalk pits / old gravel pits	1854 – present.	Adjacent – 100m.	Potential pits / ponds, and therefore potentially infilled areas are located throughout the 250m area surrounding the Onshore Development	63

Feature	Map years	Distance	Notes	Figure 19-2-4 reference
			Area.	
Sheep wash	1891 – 1927.	Adjacent to Onshore Export Cable Corridor.	Located to the north of West Road.	64
York, Market Weighton and Beverley Railway	1893 – 1972.	Adjacent to Onshore Export Cable Corridor.	Rail line extends north west and south east of the Onshore Development Area. Recorded as dismantled by 1972.	65
Sewage works	1952 – 1995 (latest map available).	Adjacent to the east of the Onshore Export Cable Corridor.	Located to the north east of Ings Road. Recorded as disused by 1994.	66
	1908 – 1926.	30m north west of the Onshore Export Cable Corridor.	Located to the north east of the A1079.	67
Old Butts (potential pit)	1926 – 1966.	30m east of the Onshore Export Cable Corridor.	Located north of Burton Bushes.	68
Chalk pit, Kilns and Victoria Whiting Works	1854 – present.	60m east of the Onshore Export Cable Corridor.	N/A	69
Slurry lagoon	1995 – present.	60m west of the Onshore Export Cable Corridor.	Located north of Catfoss Road.	70

Feature	Map years	Distance	Notes	Figure 19-2-4 reference
Beverley Water Works and Reservoir	1889 – present.	80m south east of the Onshore Export Cable Corridor.	N/A	71
Old Sand Pit	1891 – 1970.	90m east of the Onshore Export Cable Corridor.	Located to the north of West Road.	72

19.2.7.4 Unexploded Ordnance

33. An unexploded ordnance (UXO) risk map has been obtained from Zetica and is presented in **Annex A**. The map indicates that the Onshore Development Area is located within an area deemed as containing a low risk of encountering a UXO.

19.2.8 Geology, Soil Background Chemistry, Groundwater, Hydrology and Radon

19.2.8.1 Geology

34. Information on geological conditions within the Onshore Development Area has been collated from BGS datasets, including 1:50,000 scale geological mapping, historical BGS borehole records and Environmental Database GIS data. Geological conditions are summarised in **Table 19-2-21**. It must be noted, however, that the proportions of each stratum may be variable along the length of the Onshore Development Area. Geological conditions within the Onshore Development Area, including Source Protection Zones (discussed in section 19.2.8.4.3), are illustrated on **Figure 19-2-6**.

35. Pre-construction ground investigation works have been undertaken where the Onshore Export Cable Corridor is located adjacent to a historical landfill (Adjacent to Catfoss Lane). Preliminary results indicate that the Onshore Development Area at this location is not impacted by the adjacent historical landfill.

Table 19-2-21 Anticipated Geology

Stratum	Unit	Description
Superficial deposits	Lacustrine Deposits.	Isolated areas of Lacustrine Deposits within the Onshore Export Cable Corridor.
	Alluvium.	Isolated areas of Alluvium within landfall, the Onshore Export Cable Corridor and Onshore Substation Zone.
	Head.	Located between Beverley Road and Bentley Lane within the Onshore Substation Zone.
	Glaciofluvial Deposits.	Isolated areas of Glaciofluvial Deposits within landfall and the Onshore Export Cable Corridor.
	Glacial Till.	Located throughout landfall, the Onshore Export Cable Corridor and Onshore Substation Zone.
	Sand and gravel (of uncertain age and origin).	Located to the north of Grange Way within the Onshore Export Cable Corridor.
Bedrock	Rowe Chalk Formation.	Located throughout landfall and within the initial section of the Onshore Export Cable Corridor east of Dunnington.
	Flamborough Chalk Formation.	Located throughout the Onshore Export Cable Corridor (west of Dunnington) and Onshore Substation Zone. Recorded on BGS geological cross sections as underlying the Rowe Chalk Formation.
	Burnham Chalk Formation.	Located along the southern edge of the Onshore Substation Zone. Recorded on BGS geological cross sections as underlying the Flamborough Chalk Formation.

36. BGS logs have been referred to for information only. The presence (or absence) of BGS logs at or within 100m of the Onshore Development Area boundary has been summarised in **Table 19-2-22** with further details provided in **Table 19-2-23** and **Table 19-2-24**. Copies of the BGS borehole logs are presented as **Annex B**. All coordinates are to National Grid Eastings and Northings.

Table 19-2-22 Summary of BGS Borehole Logs

Features	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 100m)
BGS borehole logs	No	Yes	Yes	Yes

Table 19-2-23 Details of On Site BGS Borehole Logs

Reference Number (Hole Type and Depth) Coordinates – On Site	Details
Onshore Export Cable Corridor	
TA04SE2 (Borehole, 23m below ground level (bgl)) 505332E, 442639N	Soil and clay: to 1.8m bgl; Very soft black warp: to 10.4m bgl; Thin bed of flinty gravel: to10.5m bgl; Very soft Chalk: > 23.0m bgl.
TA04SW17 / F (Borehole, 5.5m bgl) 502591E, 441596N	Topsoil: to 0.8m bgl; Sandy clay: to 1.5m bgl; Sand: to 2.1m bgl; Gravel: to 3.7m bgl; Red clay: to 4.3m bgl; White gravel: to 4.4m bgl; Chalky marl: to >5.5m bgl.

Table 19-2-24 Details of Off Site BGS Borehole Logs

Reference Number (Hole Type and Depth) Coordinates – Of Site	Distance (Direction)	Details
TA04SE21 (Borehole, 27.43m bgl) 506808E, 442321N	Adjacent to the Onshore Export Cable Corridor.	Brown clay: to 2.44m bgl; Boulder Clay: to 6.71m bgl; Green Clay: to 8.84m bgl; Putty Chalk: to 9.75m bgl; Chalk: to >27.43m bgl.
TA04SE3 (Borehole, 24m bgl) 506548E, 442842N	Adjacent to the Onshore Export Cable Corridor.	Topsoil: to 0.3m bgl; Gravel and sand: to 1.2m bgl; Clay and marl: to 7.9m bgl; Chalk and gravel: to 11.0m bgl; Chalk: 11.0 – >24.4m bgl.

Reference Number (Hole Type and Depth) Coordinates – Of Site	Distance (Direction)	Details
TA14NW85 (Borehole, 20.0m bgl) 514530E, 446070N	Adjacent to the Onshore Export Cable Corridor.	Topsoil: to 1.0mbgl; Sandy silt Clay: to 1.5m bgl; Silt: to 1.6mbgl; Sand: to 1.8m bgl; Stiff silty Clay: to 3.2m bgl; Sand: to 3.3m bgl; Firm to stiff clay: to >20.0m bgl.
TA04SE37 (Borehole, 24.38m bgl) 506540E, 442850N	10m (east of the Onshore Export Cable Corridor).	Topsoil: to 0.30m bgl; Gravel and Sand: to 1.22m bgl; Clay and Marl: to 7.92m bgl; Chalk and Gravel: to 10.97m bgl; Chalk: to >24.38m bgl.
TA04SE38 (Borehole, 27.43m bgl) 506720E, 442600N	10m (east of the Onshore Export Cable Corridor).	Brown Clay: to 2.44m bgl; Boulder Clay: to 6.71m bgl; Green Clay: to 8.84m bgl; Putty Chalk: to 9.75m bgl; Chalk: to >27.43m bgl.
TA14NW84 (Borehole, 20.5m bgl) 514460E, 446500N	20m (west of the Onshore Export Cable Corridor).	Topsoil: to 0.2mbgl; Stiff brown sandy silt Clay: to 1.8m bgl; Sand: to 1.9m bgl; Stiff silty Clay: > 20.5m bgl.
TA04SW15 (Borehole, 6.7m bgl) 501987E, 441604N	40m (north of the Onshore Export Cable Corridor).	Boulder Clay: to 6.1m bgl; Chalk: > 6.7m bgl.
TA04SW17 / A (Borehole, 5.5m bgl) 502652E, 441540N	60m (south of the Onshore Export Cable Corridor).	Topsoil: to 0.3m bgl; Sandy clay: to 0.6m bgl; Red clay: to 1.5m bgl; Sand: to 2.1m bgl; Blue clay: to 4.3m bgl; White gravel: to 4.9m bgl; Marl and gritty chalk: to >5.5m bgl.
TA04SW17 / B (Borehole, 15.2m bgl) 502654E, 441540N	60m (south of the Onshore Export Cable Corridor).	Topsoil: to 0.8m bgl; Sandy clay: to 1.1m bgl; Brown to blue clay: to 4.4m bgl; White gravel: to 5.6m bgl; Chalky marl: to 6.1m bgl; Yellow sand: to 7.0m bgl; Chalk: to >15.2m bgl.
TA03NW150 (Borehole, 33.53m bgl) 503630E, 435660N	60m (west of the Onshore Export Cable Corridor).	Topsoil: to 0.61m bgl; Yellow Clay: to 6.71m bgl; Boulder Clay: to 10.67m bgl; Chalk: to >33.53m bgl.

Reference Number (Hole Type and Depth) Coordinates – Of Site	Distance (Direction)	Details
TA03NW7 (Borehole, 71.2m bgl) 502030E, 437990N	70m (east of the Onshore Export Cable Corridor).	Drift: to 1.8m bgl; Flamborough Chalk: to 53.6m bgl; Burnham Chalk: to >71.2m bgl.
TA04SW17 / D (Borehole, 5.0m bgl) 502618E, 441531N	70m (south of the Onshore Export Cable Corridor).	Topsoil: to 0.8m bgl; Sandy clay: to 1.4m bgl; Sand: to 1.7m bgl; Yellow gravel: to 2.6m bgl; Blue clay: to 4.3m bgl; Red clay: to 4.4m bgl; White gravel: to 4.7m bgl; Chalky marl: to >5.0m bgl.
TA03NW3 (Borehole, 38.5m bgl) 503619E, 435653N	80m (east of the Onshore Export Cable Corridor).	Topsoil: to 0.6m bgl; Yellow clay: to 6.7m bgl; Boulder Clay: to 10.7m bgl; Chalk: to >38.5m bgl.
TA04SW33 (Borehole, 7.0m bgl) 504492E, 442283N	90m (south of the Onshore Export Cable Corridor).	Topsoil (peaty): to 1.8m bgl; Warp: to 3.7m bgl; Gravel: to 3.8m bgl; Marly clay: to 4.7m bgl; Yellow marl: to 6.4m bgl; Chalk: to >7.0m bgl.

37. Additional boreholes are located on and within 100m of the Onshore Development Area, however the logs are marked as confidential or not available online and so cannot be viewed.

38. The potential ground stability hazards on site, as obtained from the environmental database have been summarised in **Table 19-2-25**.

Table 19-2-25 Ground Stability Hazards

Ground Stability Hazard	Risk		
	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone
Shrinking / swelling of clays	Negligible to low.	Negligible to low.	Negligible to very low.
Running sands	Very low to low.	Very low to low.	Negligible to low.

Ground Stability Hazard	Risk		
	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone
Compressible deposits	Negligible to moderate.	Negligible to moderate.	Negligible to moderate.
Collapsible deposits	Negligible to very low.	Negligible to very low.	Negligible to very low.
Landslides	Very low to moderate.	Very low.	Negligible to very low.
Ground dissolution of soluble rocks	Negligible to very low.	Negligible to very low.	Negligible to very low.

39. Structural geological features have been identified within the Onshore Development Area, as obtained from the BGS data sets and have been summarised in **Table 19-2-26** with further details provided in **Table 19-2-27**.

Table 19-2-26 Summary of Structural Geological Features

Features	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 100m)
Linear features	No	Yes	Yes	Yes

Table 19-2-27 Details of On and Off Site Structural Features

Feature	Location	Details
Linear feature	Onshore Export Cable Corridor - Located between Ings Road and Driffield Road.	Category: Landform.

Feature	Location	Details
	Onshore Substation Zone – Located between Minister Way and the A1079.	Details: Back-feature marking former coastline. North south orientation. A review of geological maps indicates that the linear feature is a single continuous feature of Ipswichian age. This feature extends to the north and south of the Onshore Development Area.
	Onshore Export Cable Corridor and Onshore Substation Zone – south west of the A1079, north of Bentley.	A fault with an east west orientation bisects the southern reaches of the Onshore Export Cable Corridor and Onshore Substation Zone. The fault appears to correlate with the boundary between the Flamborough Chalk Formation and Burnham Chalk Formation.

19.2.8.2 Mining and Mineral Extraction

40. The site is not located in an area which may be affected by coal mining.

41. The presence (or absence) of mining, ground workings and natural cavities at or within 250m of the Onshore Development Area boundary have been summarised in **Table 19-2-28** with further details provided in **Table 19-2-29** and **Table 19-2-30**. The locations of Mineral Safeguarding Areas are illustrated on **Figure 19-2-7**.

42. Features such as ponds which are still present and identifiable on Google Earth have not been included within **Table 19-2-29** and **Table 19-2-30**.

Table 19-2-28 Summary of Ground Workings and Natural Cavities

Features	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
Natural cavities	No	No	No	No
British Pits (BritPits)	No	Yes	Yes	Yes

Features	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
Surface ground workings	Yes	Yes	Yes	Yes
Underground workings	No	No	No	No
Historical mineral planning areas	No	Yes	No	Yes
Non-coal mining activities	No	No	No	No
Mining cavities	No	No	No	No
JBA mining areas	No	No	No	No
Coal Mining	No	No	No	No
Brine areas	No	No	No	No
Gypsum areas	No	No	No	No
Tin mining	No	No	No	No
Clay mining	No	No	No	No
Mineral Safeguarding Areas	Yes	Yes	Yes	Yes

Table 19-2-29 Details of On Site Features / Cavities

Feature – Onsite	Name	Location	Detail
BritPits (Surface Working)	Washdike Bridge Pit.	Catwick, Beverley, East Riding of Yorkshire. Located within the Onshore Export Cable Corridor to the north of West Road and west of Catfoss Lane.	Commodity: Sand and gravels; Status: Ceased.
	Wood Dike; Beverley.	Beverley, East Riding of Yorkshire. Located on the western boundary of Onshore Substation Zone – west of the A1079, south of Broadgate.	Commodity: Chalk; Status: Ceased.
Surface ground workings (Ponds)	For further details of onsite surface ground workings, including pits and cuttings, please see **Table 19-2-14** and **Figure 19-2-5.** Table 19-2-16		
Historical mineral planning areas	Hall Farm.	Onshore Export Cable Corridor - north of West Road, east of Catfoss Lane.	Commodity: Sand and gravel surface mineral working. Grant date: 16 / 04 / 1948; Status: Valid. Historical mapping indicates the presence of an 'Old Sand Pit' within the mineral planning area. This feature, however, was recorded on maps from the 1890s and so predates the grant date in 1948. It is possible that this feature was reworked following planning approval, however, this is not recorded on historical records. A review of Google Earth imagery shows a covering of trees in the former sand pit area which appears to be topographically lower than the surrounding land suggesting it has not been infilled.
Mineral Safeguarding Areas	Mineral Safeguarding Areas are located in isolated areas throughout the Onshore Development Area, covering an area of approximately 32ha (30ha within the Onshore Export Cable Corridor and 2ha within the Onshore Converter Station which equates to 0.03% and 0.002% respectively of the total MSA within the ERYC boundary). Sand and gravel preferred areas are located within the Onshore Export Cable Corridor between Riston Road and A165, Catwick. Sand and gravel areas of search are also located within the Onshore Export Cable Corridor to the north west of Sigglesthorne, between Riston Road and A165, Catwick and to the east and west of Whitecross Road.		

Table 19-2-30 Details of Off Site Features / Cavities

Feature – Offsite	Site Name & Location	Location & distance from Onshore Development Area	Detail
BritPits (Surface Workings)	Bentley Moor Wood, Bentley, Beverley.	40m north east of Onshore Substation Zone – south east of Beverley Road.	Commodity: Chalk; Status: Ceased.
	Bentley Chalk Pit, Cottingham, Hull.	80m south of Onshore Substation Zone – north of Bentley Road.	Commodity: Chalk; Status: Ceased.
	Acorn Hill Brick Yard, Bewholme, Driffield.	120m west of the Onshore Export Cable Corridor - north of Catfoss Road, east of Bilinings Lane.	Commodity: Clay and shale; Status: Ceased.
	Catfoss Grange Gravel Pit, Brandesburton, Driffield.	130m west of the Onshore Export Cable Corridor – north east of Remington Avenue.	Commodity: Sand and gravels; Status: Ceased.
	Catfoss Hall Pit Catwick, Beverley.	130m east of the Onshore Export Cable Corridor to the north of West Road and east of Catfoss Lane.	Commodity: Sand and gravels; Status: Ceased.
	Catwick Mill Farm; Catwick, Driffield.	190m west of the Onshore Export Cable Corridor – to the west of Catfoss Lane and north of A1035.	Commodity: Sand and gravels; Status: Ceased.
	Skipsea Brick Works, Driffield.	230m south east of the Onshore Export Cable Corridor – to the east of Hornsea Road.	Commodity: Clay and shale; Status: Ceased.
Surface ground workings (Ponds unless otherwise stated)	N/A	20m east of landfall - located on the beach.	The ponds located to the east of landfall are recorded as 'Tidal Pond's on historical mapping. A review of Google Earth imagery indicates that these ponds are no longer present. It is, however, possible that these ponds appear intermittently depended on tidal conditions.
		Adjacent to the Onshore Export Cable Corridor – west of Catfoss Lane.	Historical mapping indicates that this feature is no longer present by 1970. Google Earth imagery indicates that the pond is no longer present and has been infilled.
		30m south east of the Onshore Export Cable Corridor – east of Bewholme Lane.	Historical mapping indicates that this feature was no longer present in 1975, historical mapping between 1956 and 1975 is not available to review and so the feature may no longer have been present prior to 1975. Google Earth imagery indicates that this feature has been infilled.

Feature – Offsite	Site Name & Location	Location & distance from Onshore Development Area	Detail
		50m north of the Onshore Export Cable Corridor – north of Sisterbeck Drain.	Historical maps indicate that the feature as still present in 1993, historical mapping of this area following 1993 is not available to review. Google Earth imagery shows a covering of vegetation in the area of the pond, therefore the is the potential for this area to have been infilled.
		60m west of the Onshore Export Cable Corridor – north of Catfoss Road.	Historical mapping indicates that this feature is no longer present by 1970. Google Earth imagery indicates that the pond is no longer present and has been infilled.
		70m north of the Onshore Export Cable Corridor – west of Meaux Lane.	Historical mapping indicates that this feature as no longer present by 1972. Google Earth imagery indicates that the pond is no longer present and has been infilled.
		80m south of the Onshore Export Cable Corridor – south of Sisterbeck Drain.	Historical maps indicate that the feature is still present in 1993, historical mapping of this area following 1993 is not available to review. Google Earth imagery shows a covering of vegetation in the area of the pond, therefore the is the potential for this area to have been infilled.
		100m north west of the Onshore Export Cable Corridor – west of Catfoss Lane.	Historical mapping indicates that this feature as no longer present by 1970, historical mapping between 1956 and 1970 is not available to review and so the feature may no longer have been present prior to 1970. Google Earth imagery indicates that this feature has been infilled.
		150m north west of the Onshore Export Cable Corridor – east of Dunnington Sewer.	Historical mapping covers this area until 1981, following this date maps for this area are not available for review. Google Earth imagery indicates that the pond is no longer present and the area is used as agricultural land. Therefore, indicating that the area has been infilled.
		160m north of the Onshore Export Cable Corridor – west of Eske Lane.	Historical maps indicate that the feature was present in 1988, historical mapping of this area following 1988 is not available to review. Google Earth imagery shows a drain present within the area recorded as a pond, therefore indicating that this area has not been infilled.
		180m west of the Onshore Export Cable Corridor – west of Billings Lane.	Historical mapping indicates that the feature was present in 1981, historical mapping of this area following 1981 is not available to review. Google Earth imagery shows the area recorded as a pond is still present and therefore has not been infilled.
		190m north of the Onshore Export Cable Corridor – west of Meaux Lane.	Historical maps indicate that the feature was present in 1988, historical mapping of this area following 1988 is not available to review. Google Earth imagery shows the area of the pond to be covered in an area of trees that are topographically lower than the surrounding land. Therefore, there is the potential that this feature has not been infilled.

Feature – Offsite	Site Name & Location	Location & distance from Onshore Development Area	Detail
		200m north of the Onshore Export Cable Corridor – north of Carr Road.	Historical mapping indicates that this feature as no longer present by 1993, historical mapping between 1973 and 1993 is not available to review and so the feature may no longer have been present prior to 1993. Google Earth imagery indicates that this feature has been infilled.
		200m north west of the Onshore Substation Zone– west of Oriel Close.	Historical mapping indicates that the feature was no longer present in 1966. A review of Google Earth imagery shows the location previously occupied by the reservoir is now a residential area. Therefore indicating the reservoir has been infilled.
	For further details of offsite surface ground workings, including pits and cuttings, please see **Table 19-2-15** and **Table 19-2-18**.		
Historical mineral planning areas	Catwick Mill Farm.	Adjacent to the Onshore Export Cable Corridor – west of Catfoss Lane.	Commodity: Sand and gravel surface mineral working; Grant date: 08 / 10 / 1947; Status: Valid. This area corresponds with that of Humberside County Council Catfoss Landfill (see **Table 19-2-4**).
	Hall Farm.	Adjacent to the Onshore Export Cable Corridor – extending eastwards of the Onshore Development Area north of West Road, east of Catfoss Lane.	Commodity: Sand and gravel surface mineral working; Grant date: 16 / 04 / 1948; Status: Valid. Historical mapping does not suggest this area has been worked and ground remains topographically level with its surroundings.
	Victoria Whiting Works.	40m east of the Onshore Export Cable Corridor – south of Keldgate Road, west of Victoria Road.	Commodity: Chalk surface mineral working; Grant date: 22 / 09 / 1947; Status: Valid. Extraction of mineral resources remains active at this site, land has not been infilled.
	Victoria Road	210m north of the Onshore Export Cable Corridor – west of Victoria Road.	Commodity: Chalk surface mineral working; Grant date 22 / 09 / 1947; Status: Valid. This area overlaps with Cosalt Quarry Landfill Site
	Bently.	40m south of the Onshore Substation Zone – north of Bentley Road.	Commodity: Chalk surface mineral working; Grant date: 17 / 09 / 1947; Status: Valid. This area corresponds with that of Stoneledge Plant and Transport Limited landfill
Mineral Safeguarding Areas	N/A	Adjacent – 250m.	Isolated areas of Mineral Safeguarding Areas are located within 250m of the Onshore Development Area.

19.2.8.3 Soil Background Chemistry

43. The Environmental Report also provides Soil Chemistry Averages for the Onshore Development Area (source: Urban Soil and Soil Chemistry data provided by the BGS). The information is summarised in **Table 19-2-31**.

Table 19-2-31 BGS Soil Chemistry Data

Determinand	**Estimated Background Soil Chemistry**		**Estimated Urban Soil Chemistry**		**Measured Urban Soil Chemistry**
	Soil Concentration Range (mg / kg)				
	Min	**Max**	**Min**	**Max**	**Measure concentrations within Topsoil***
Arsenic (As)	15	25	11	12	9.2
Bio accessible As	N/A		1.9	2.1	N/A
Lead (Pb)	100	300	71	85	60.8
Bio accessible Pb	60	240	49	58	N/A
Cadmium	1.8	1.8	0.3	0.8	0.5
Chromium	40	120	60	60	61.0
Nickel	15	45	20	21	19.9
Copper	N/A	N/A	33	44	21.3
Tin	N/A	N/A	9	11	10.6
Zinc	N/A				

*(data point >500m south of the Onshore Development Area).

19.2.8.4 Groundwater

19.2.8.4.1 Hydrogeology and Groundwater Vulnerability

19.2.8.4.1.1 Hydrogeology

44. Hydrogeological information for land within the Onshore Development Area boundary has been collated from the Environmental Database GIS data, BGS hydrogeological maps and DEFRA MAGIC map application. Superficial and bedrock strata are classified by the Environment Agency according to their resource value and vulnerability as shown in **Table 19-2-32**.

Table 19-2-32 Environment Agency Groundwater Classification

Stratum	Unit	Class
Superficial deposits	Lacustrine Deposits.	Secondary B Aquifer.
	Alluvium.	Secondary A Aquifer.
	Head.	Secondary Undifferentiated Aquifer.
	Glaciofluvial Deposits.	Secondary A Aquifer.
	Glacial Till.	Secondary Undifferentiated Aquifer.
	Sand and gravel.	Secondary A Aquifer.
Bedrock	Rowe Chalk Formation.	Principal Aquifer.
	Flamborough Chalk Formation.	
	Burnham Chalk Formation.	

19.2.8.4.2.1 Groundwater Vulnerability

45. The Environmental Database GIS data indicates that the groundwater vulnerability within the Onshore Development Area ranges from medium to high. Areas associated with the superficial Glacial Till deposits, which are the dominant superficial deposit, are predominantly of medium vulnerability. The Head deposits and sand and gravel deposits are also classified as medium vulnerability.

46. Areas associated with Lacustrine Deposits, Alluvium and Glaciofluvial Deposits are classified as high vulnerability areas.

47. The Principal Aquifers associated with bedrock formations have a low to high groundwater vulnerability.

19.2.8.4.2 Groundwater Abstractions

48. The presence (or absence) of groundwater abstraction wells at or within 1km of the Onshore Development Area have been summarised in **Table 19-2-33** with further detail provided in **Table 19-2-34**.

Table 19-2-33 Summary of Groundwater Abstraction Wells

Feature	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 1km)
Public Potable abstraction well under the jurisdiction of the EA.	No	No	No	Yes
Abstraction wells related to farming, irrigation and commercial usage i.e. not potable under the jurisdiction of the EA.	No	No	No	Yes
Domestic Potable abstraction well under the jurisdiction of the LA.	No	No	No	Yes

Table 19-2-34 Details of Active Off Site Abstraction Wells

Licence Number	Location and Distance from Onshore Development Area	Details	Potable Abstraction
2 / 26 / 32 / 221	80m west of the Onshore Export Cable Corridor.	Details: Spray irrigation – direct. Source: Borehole – Chalk; Name: L Burnett & Sons; Coordinates: 506716 442480.	No

Licence Number	Location and Distance from Onshore Development Area	Details	Potable Abstraction
Not applicable	Cottingham HU16 5SA – 90m west of the Onshore Export Cable Corridor.	Details: Single dwelling domestic abstraction. Source: Borehole; Coordinates: 503612 435662.	Yes
2 / 26 / 32 / 380	200m east of the Onshore Export Cable Corridor.	Details: General use relating to secondary category (medium loss). Source: Borehole – Chalk; Name: Imerys Minerals Ltd; Coordinates: 502100 438120.	No
Not applicable	Tickton HU17 9SG - 200m north of the Onshore Export Cable Corridor.	Details: Single dwelling domestic abstraction. Source: Borehole; Coordinates: 506948 443250.	Yes
Not applicable	Tickton HU17 9SG - 260m north of the Onshore Export Cable Corridor.	Details: Single dwelling domestic abstraction. Source: Borehole; Coordinates: 506506 443170.	Yes
Not applicable	Molescroft HU17 7JZ – 280m north of the Onshore Export Cable Corridor.	Details: Single dwelling domestic abstraction. Source: Borehole; Coordinates: 503518 442446.	Yes

Licence Number	Location and Distance from Onshore Development Area	Details	Potable Abstraction
Not applicable	Molescroft HU17 7JZ – 290m north of the Onshore Export Cable Corridor.	Details: Single dwelling domestic abstraction. Source: Borehole; Coordinates: 503518 442446.	Yes
Not applicable	Tickton HU17 9SF - 290m south of the Onshore Export Cable Corridor.	Details: Single dwelling domestic abstraction. Source: Borehole; Coordinates: 506669 441869.	Yes
Not applicable	Tickton HU17 9SF - 300m south west of the Onshore Export Cable Corridor.	Details: Single dwelling domestic abstraction. Source: Borehole; Coordinates: 506669 441869.	Yes
2 / 26 / 32 / 003	330m and 400m east of the Onshore Export Cable Corridor.	Details: Drinking, cooking, sanitary, washing, (small garden) - commercial / industrial / public services; spray irrigation – direct. Source: Borehole – Chalk; Name: Beverley Race Co Ltd; Coordinates: 501265 439717; 501343 439763.	Yes

Licence Number	Location and Distance from Onshore Development Area	Details	Potable Abstraction
Not applicable	Bishop Burton HU17 8QY – 340m west of the Onshore Export Cable Corridor.	Details: Single dwelling domestic abstraction. Source: Borehole; Coordinates: 500606 440081.	Yes
2 / 26 / 32 / 424	440m east of the Onshore Export Cable Corridor.	Details: Spray irrigation – direct. Source: Borehole – Chalk; Name: Beverley and East Riding Golf Club; Coordinates: 502140 438520.	No
Not applicable	Tickton HU17 9SG - 530m north of the Onshore Export Cable Corridor.	Details: Single dwelling domestic abstraction. Source: Borehole; Coordinates: 505736 443235.	Yes
NE / 026 / 0032 / 011	560m north west of the Onshore Export Cable Corridor.	Details: Drinking, cooking, sanitary, washing, (small garden) - commercial / industrial / public services. Source: Borehole – Chalk; Name: High Farm Ltd; Coordinates: 509102 443552.	Yes

Licence Number	Location and Distance from Onshore Development Area	Details	Potable Abstraction
Not applicable	Tickton HU17 9SG - 570m north of the Onshore Export Cable Corridor.	Details: Single dwelling domestic abstraction. Source: Borehole; Coordinates: 505885 443277.	Yes
Not applicable	Beverley HU17 8PJ – 580m north of the Onshore Substation Zone.	Details: Unknown abstraction, status unknown. Source: Unknown; Coordinates: 502808 437349.	Yes*
Not applicable	Beverley HU17 8QZ – 630m east of the Onshore Export Cable Corridor.	Details: Commercial abstraction; estimated average daily abstraction $10m^3$ to $100m^3$. Source: Borehole; Coordinates: 501572 439751.	No
2 / 26 / 32 / 283	650m north of the Onshore Export Cable Corridor.	Details: Spray irrigation – direct; general farming & domestic. Source: Borehole – Chalk; Name: T Soanes & Sons; Coordinates: 500950 442000.	Yes
2 / 26 / 32 / 372	650m north east of the Onshore Export Cable Corridor.	Details: General farming & domestic. Source: Borehole – Chalk; Name: Clive Soanes Broilers Ltd; Coordinates: 500950 442000.	Yes

Licence Number	Location and Distance from Onshore Development Area	Details	Potable Abstraction
Not applicable	Arram HU17 7NR – 700m north of the Onshore Export Cable Corridor.	Details: Single dwelling domestic abstraction. Source: Borehole; Coordinates: 504851 443387.	Yes
Not applicable	Beverley HU17 8QZ – 710m east of the Onshore Export Cable Corridor.	Details: Unknown abstraction, status unknown. Source: Unknown; Coordinates: 501615 439659.	Yes*
Not applicable	Tickton HU17 9SG - 890m north of the Onshore Export Cable Corridor.	Details: Commercial abstraction; estimated average daily abstraction <10m^3. Source: Borehole; Coordinates: 505915 443588.	No
Not applicable	Beverley HU17 0RN – 920m north east of the Onshore Export Cable Corridor.	Details: Single dwelling domestic abstraction. Source: Borehole; Coordinates: 503814 437221.	Yes
Not applicable	Tickton HU17 9SG - 940m north of the Onshore Export Cable Corridor.	Details: Unknown abstraction, status unknown. Source: Unknown; Coordinates: 505911 443647, 505907 443650, 505899 443657.	Yes*

Licence Number	Location and Distance from Onshore Development Area	Details	Potable Abstraction
Not applicable	Cottingham HU16 4JR – 1km south east of the Onshore Export Cable Corridor.	Details: Unknown abstraction, status unknown. Source: Borehole; Coordinates: 505009 435150.	Yes*
*Assumed to be a potable groundwater abstraction as a worst case scenario.			

49. It should be noted that the data search in relation to Environment Agency licensed abstractions has not included identification of unlicensed water supplies abstracting less than 20m^3 of water per day. For abstractions below 20m^3 per day a Environment Agency abstraction license is not required provided that the abstraction is part of a single operation. Where "not applicable" is recorded in **Table 19-2-34** these records relate to abstractions registered with East Riding of Yorkshire Council. It is likely that the groundwater abstractions registered with the council abstract <20m^3 per day and so do not require a license.

19.2.8.4.3 Groundwater Source Protection Zones

50. Groundwater Source Protection Zones (SPZs) are defined around abstraction boreholes used for potable water supply to delineate the area where release of a contaminant into the aquifer could impact on the abstraction. The locations of abstractions are illustrated on **Figure 19-2-8**.

51. Landfall and the Onshore Export Cable Corridor located to the east of Whitecross Road (A165) are not located within an SPZ. The Onshore Export Cable Corridor to the west of the A165 through to Newbald Road is located within an SPZ 3 Total Catchment. The Onshore Export Cable Corridor to the south of Newbald Road, and the Onshore Substation Zone (up to the area surrounding Park Lane) are located within an SPZ 2 Outer Catchment. The area of the Onshore Export Cable Corridor 200m southwards of the intersection of Park Lane and the A1079 is designated as an SPZ 1 Inner Catchment.

52. The SPZ 1 relates to a borehole located >1km from the Onshore Substation Zone at Cottingham whereby groundwater is extracted from the underlying chalk aquifer for use as a potable water supply by Yorkshire Water Services Limited.

53. It should also be noted that where potable groundwater abstractions are present an automatic SPZ 1 with a 50m buffer (or 250m if supplying multiple properties) is applied around the abstraction. The buffer zones applied to the potable groundwater abstractions identified in **Table 19-2-34** do not intersect with the Onshore Development Area.

19.2.8.4.4 Groundwater Bodies

54. The presence (or absence) of groundwater bodies at or within 250m of the Onshore Development Area boundary have been summarised in **Table 19-2-35** with further details provided in **Table 19-2-26** and **Table 19-2-27**.

Table 19-2-35 Summary of Groundwater Bodies

Features	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
WER groundwater bodies	Yes	Yes	Yes	Yes

Table 19-2-36 Details of On Site Groundwater Bodies

Feature	Details
WER groundwater bodies	Located throughout the Onshore Development Area. Name: Hull and East Riding Chalk (Waterbody ID: GB40401G700700). Overall waterbody classification: Poor.

Table 19-2-37 Details of Off Site Groundwater Bodies

Feature	Location	Details
WER groundwater bodies	Adjacent (all directions)	Name: Hull and East Riding Chalk (Waterbody ID: GB40401G700700). Overall waterbody classification: Poor.

19.2.8.5 Hydrology

19.2.8.5.1 Surface Waters

The presence (or absence) of surface water features within 250m of the Onshore Development Area boundary have been summarised in **Table 19-2-38** with further details provided in **Table 19-2-39** and **Table 19-2-40**.

Table 19-2-38 Summary of Surface Water Features

Features	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
Surface water features	Yes	Yes	Yes	Yes

Features	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
WER surface water body catchments	Yes	Yes	Yes	Yes
WER surface water bodies	No	Yes	Yes	Yes

Table 19-2-39 Details of On Site Surface Water Features

Feature	Details
Surface water features (Onshore Export Cable Corridor unless otherwise stated).	Streams and ditches associated with agriculture are present throughout the Onshore Development Area. The following Main Rivers located within the Onshore Development Area include: • Stream Dike; • Monk Dike; • Meaux and Routh East Drain; • Foredyke Stream Upper; • Holderness Drain; • River Hull; • Beverley and Bramston Drain; • High Hunsley to Arram Area; and • Catchwater Drain. The Onshore Development Area also crosses the following drains which are part of the Beverley and North Holderness Internal Drainage Board (IDB): • Skipsea Drain (West Branch); • Dunnington Sewer; • Arnold and Riston Drain; • Turf Gutter; • Turf Gutter and Eske River Side Drain; • Storkhill Drain;

Feature	Details
	• South Bullock (N. Branch – Diggins Arms); • South Bullock (S. Branch – Chalk Arm); and • Storkhill Drain. There are a number of ponds and lakes located within the Onshore Development Area.
WER surface water body catchments (Ecological and WER classification 2022 all Moderate unless otherwise stated).*	Name: Coastal Catchment (name not recorded); Waterbody ID: 291; Location: Present across the Landfall Zone.
	Name: Barmston Sea Drain / Skipsea Drain to Confluence; Waterbody ID: GB104026077770; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and polybrominated diphenyls ethers (PBDE); Location: Present across the Landfall Zone and Onshore Export Cable Corridor east of Dunnington Sewer.
	Name: Old Howe / Frodingham Beck to R Hull; Waterbody ID: GB104026067021; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Present within the Onshore Export Cable Corridor west of Dunnington Sewer to the south of Billings Lane.
	Name: Mickley Dike Catchment; Waterbody ID: GB104026066990; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Present within the Onshore Export Cable Corridor to the west of the Old Howe / Frodingham Beck to R Hull surface water catchment.
	Name: Catchwater Drain; Waterbody ID: GB104026066970; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Present within the Onshore Export Cable Corridor south of Billings Lane to the east of Catwick Heads Lane.
	Name: Foredyke Stream Upper; Waterbody ID: GB104026066890; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Present within the Onshore Export Cable Corridor west of Catwick Heads Lane to the east of Whitecross Road.

Feature	Details
	Name: Foredyke Stream Lower to Holderness Dr; Waterbody ID: GB104026066910; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds), perfluorooctane sulphonate (PFOS) and PBDEs; Location: Present within the Onshore Export Cable Corridor west of Whitecross Road to the east of Meaux Lane.
	Name: Holderness Drain Source to Foredyke Stream; Waterbody ID: GB104026066950; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Present within the Onshore Export Cable Corridor east of Meaux Road to the east of the River Hull.
	Name: Hull from Arram Beck to Humber; Waterbody ID: GB104026067212; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds), PBDEs, tributyltin compounds, benzo(b)fluoranthene, benzo(g,h,i)perylene and benzo(k)fluoranthene. Location: Present within the Onshore Export Cable Corridor in the area of the River Hull.
	Name: Beverley and Barmston Drain; Waterbody ID: GB104026067211; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Present within the Onshore Export Cable Corridor west of the River Hull to the east of Driffield Road. Also present north of Newbald Road to Broadgate. Present within the Onshore Substation Zone south of Shepherds Lane to beyond the southern boundary of the Onshore Development Area.
	Name: High Hunsley to Arram Area; Waterbody ID: GB104026066841; Chemical classification: Fail (2019) due to concentrations of benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, mercury (and its compounds) and PBDEs; Location: Present within the Onshore Export Cable Corridor east of Driffield Road to the north of Newbald Road.
	Name: High Hunsley to Woodmansey Area; Waterbody ID: GB104026066820; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Present within the Onshore Export Cable Corridor and Onshore Substation Zone from Broadgate to the south of Shepherds Lane.

Feature	Details
WER surface water bodies (Ecological and WER classification 2022 all Moderate unless otherwise stated).*	Name: Yorkshire South; Waterbody ID: GB640402491000; Type: Coastal catchment; Chemical classification: Fail (2019) due to concentrations of benzo(g,h,i)perylene, mercury (and its compounds), PBDEs and tributyltin compounds; Location: landfall.
	Name: Barmston Sea Drain / Skipsea Drain to Conf; Waterbody ID: GB104026077770; Type: River; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Onshore Export Cable Corridor.
	Name: Foredyke Stream Upper; Waterbody ID: GB104026066890; Type: River; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Onshore Export Cable Corridor.
	Name: Foredyke Stream Lower to Holderness Dr; Waterbody ID: GB104026066910; Type: River; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds), PFOS and PBDEs; Location: Onshore Export Cable Corridor.
	Name: Holderness Drain Source to Foredyke Stream; Waterbody ID: GB104026066950; Type: River; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Onshore Export Cable Corridor.
	Name: Hull from Arram Beck to Humber; Waterbody ID: GB104026067212; Type: River; Chemical classification: Fail (2019) due to concentrations of benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, mercury (and its compounds), PBDEs and tributyltin compounds; Location: Onshore Export Cable Corridor.
	Name: Beverley and Barmston Drain; Waterbody ID: GB104026067211; Type: River; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Onshore Export Cable Corridor.
	Name: High Hunsley to Arram Area; Waterbody ID: GB104026066841; Type: River; Chemical classification: Fail (2019) due to concentrations of benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, mercury (and its compounds) and PBDEs; Location: Onshore Export Cable Corridor.

Feature	Details
**Although Ecological and WER classification for each feature are available for 2022, assessment of chemical classification was not required and so data from 2019 has been included in the table above.*	

Table 19-2-40 Details of Off Site Surface Water Features

Feature	Location	Details
Surface water features.	Adjacent – 250m.	Streams and ditches are located within 250m of landfall, Onshore Export Cable Corridor and Onshore Substation Zone. Named features include: • Skipsea Drain (West Branch); • Stream Dike; • Catfoss Drain; • Dunnington Sewer; • Nunkeeling Drain; • Stonleygaat Dike; • Arnold and Riston Drain; • Monk Dike; • Meaux and Routh East Drain; • River Hull; • Beverley and Barmston Drain; • South Bullock Dike; • Ings Drain; • Field Drain; • Sisterbeck Drain; and • Autherd Drain.
		Ponds are located within 250m of the Onshore Development Area.
	Adjacent.	The North Sea is located immediately east of landfall.

Feature	Location	Details
WER surface water body catchments.	Adjacent – 250m.	The WER surface waterbody catchments identified within the Onshore Development Area in **Table** 19-2-39 also extend 250m in all directions. No additional catchments are located within 250m.
WER surface water bodies.	Adjacent – 250m.	The WER surface waterbodies identified within the Onshore Development Area in **Table** 19-2-39 also extend to distances up to 250m. No additional WER surface waterbodies are located within 250m.

19.2.8.5.2 Flooding

55. The presence (or absence) of flood potential and events at or within 250m of the Onshore Development Area boundary have been summarised in **Table 19-2-41** with further details provided in **Table 19-2-42** and **Table 19-2-43**.

Table 19-2-41 Summary of Flooding Potential and Events

Designation Type	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
Flooding from groundwater	Yes	Yes	Yes	Yes
Risk of Flooding from Rivers and Sea (RoFRaS)	Yes	Yes	No	Yes
Flood Zone 2	Yes	Yes	No	Yes
Flood Zone 3	Yes	Yes	No	Yes
Historical flood events	No	Yes	No	Yes
Flood defences	No	Yes	No	Yes

Designation Type	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
Areas benefiting from flood defences	No	Yes	No	Yes
Flood storage areas	No	No	No	No

Table 19-2-42 Details of On Site Flooding Potential and Events

Designation Type	Detail
Flooding from groundwater	Low to high risk at landfall.
	Predominantly low to high risk within the Onshore Export Cable Corridor. Negligible risk in the area around the River Hull.
	Low to high risk at the Onshore Substation Zone.
Risk of Flooding from Rivers and Sea (RoFRaS)	High risk along the eastern edges of landfall.
	Low to high risk in the area surrounding Stream Dike within the Onshore Export Cable Corridor.
	Low to high risk in the area surrounding Dunnington Sewer within the Onshore Export Cable Corridor.
	Low to high risk in the area surrounding Rise Lane within the Onshore Export Cable Corridor.
	Low to medium risk in the area to the east of the A165 within the Onshore Export Cable Corridor.
	Low to high risk in the areas surrounding Monk Dike and Meaux and Routh Drain, extending westwards towards Eske Lane within the Onshore Export Cable Corridor.

Designation Type	Detail
	Low risk within the area between Eske Lane and the River Hull increasing to medium to high risk in the areas in and westwards of the River Hull, Beverley and Barmston Drain, South Bullock Dike and Sisterbeck Drain. All located within the Onshore Export Cable Corridor.
	Medium to high risk within the area to the south west of the A1079 within the Onshore Export Cable Corridor.
Flood Zone 1 (see **Volume 7, Figure 20-4 (application ref: 7.20.1)**)	The majority of the Onshore Export Cable Corridor from Skipsea to Long Riston is located within a Flood Zone 1.
	The Onshore Export Cable Corridor from the A164 Driffield Road to the Onshore Substation Zone.
	Onshore Substation Zone is located wholly within Flood Zone 1.
Flood Zone 2 and 3 (see **Volume 7, Figure 20-4 (application ref: 7.20.1)**)	Landfall is located within a Flood Zone 2 and 3.
	• There are three isolated areas within the Onshore Export Cable Corridor between Skipsea and Long Riston that are located within Flood Zones 2 and 3. These locations pass through the watercourses of Skipsea Drain, Dunnington Sewer and Stream Dike. • The area west of the A165 and to the east of A164 Driffield Road is primarily located within Flood Zones 2 and 3. This area of the Onshore Development Area passes through several watercourses and five statutory main rivers.
Historical flood events (see **Volume 7, Figure 20-4 (application ref: 7.20.1)**)	Historical flood events are recorded within the Onshore Export Cable Corridor in isolated areas located between Stream Dike and Carr Road.
Flood defences	Flood defences are located along the following waterbodies: • Monk Dike (Onshore Export Cable Corridor); and • River Hull (Onshore Export Cable Corridor).

Designation Type	Detail
Areas benefiting from flood defences	Areas benefiting from flood defences within the Onshore Export Cable Corridor include: • The areas surrounding Monk Dike and the Meaux and Routh East Drain; • Area between Hornsea Road and Eske Lane; and • Area surrounding and to the west of the River Hull, Beverley and Barmston Drain, South Bullock Dike and Sisterbeck Drain. Extending towards Carr Road.

Table 19-2-43 Details of Off Site Flooding Potential and Events

Designation Type	Location	Detail
Flooding from groundwater	Adjacent – 250m.	The areas surrounding the Onshore Development Area are located within zones designated as negligible to high risk in relation to flooding from groundwater.
RoFRaS	Adjacent – 250m.	The areas at RoFRaS located within the Onshore Development Area (**Table 19-2-42**) also extend to distances of up to 250m.
Flood Zone 2 and 3 (see **Volume 7, Figure 20-4 (application ref: 7.20.1)**)	Adjacent – 250m.	Flood Zone 2 and 3 areas located within the Onshore Development Area (**Table 19-2-42**) also extend to distances of up to 250m.
Historical flood events (see **Volume 7, Figure 20-4 (application ref: 7.20.1)**)	Adjacent – 250m.	Historical flooding events have occurred in isolated areas within 250 of the Onshore Export Cable Corridor and Onshore Substation Zone.
Flood defences	The flood defences located along Monk Dike and the River Hull extend to the north and south of the Onshore Export Cable Corridor. No additional flood defences are located within 250m of the Onshore Development Area.	

Designation Type	Location	Detail
Areas benefiting from flood defences	Adjacent – 250m.	The areas benefiting from flood defences identified in **Table 19-2-42** extend to distances >250m of the Onshore Development Area.

19.2.8.5.3 Surface Water Abstractions

56. The presence (or absence) of surface water abstraction wells at or within 250m of the Onshore Development Area have been summarised in **Table 19-2-44** with further detail provided in **Table 19-2-45**.

Table 19-2-44 Summary of Surface Abstraction

Feature	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 100m)
Surface water abstractions	No	No	No	Yes

Table 19-2-45 Details of Active Off Site Surface Abstractions

Licence Number	Location	Details
2 / 26 / 32 / 189	Adjacent to the Onshore Export Cable Corridor.	Details: Spray irrigation – direct; Source: Holderness Drain Reach 4; Name: Albanwise Farming Ltd; Coordinates: 506637 442736.
2 / 26 / 32 / 253	80m east of the Onshore Export Cable Corridor.	Details: Spray irrigation – direct; Source: Bullock Dyke-Barmston-Sisterbeck; Name: Molescroft Farms Ltd; Coordinates: 504000 442000.
2/26/31/101	290m south of the Onshore Export Cable Corridor.	Details: Spray irrigation – direct; Source: River Hull; Name: P Warkup & Son; Coordinates: 505320, 442320.

57. It should be noted that the data search has not included identification of unlicensed water supplies abstracting less than 20m^3 of water per day. For abstractions below 20m^3 per day a license is not required provided that the abstraction is part of a single operation.

19.2.8.5.4 Discharges to Controlled Waters

58. The presence (or absence) of discharges to controlled waters at or within 250m of the Onshore Development Area boundary have been summarised in **Table 19-2-46** with further details provided in **Table 19-2-47**.

Table 19-2-46 Summary of Discharges to Controlled Waters

Features	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
Licensed Active Discharges	No	No	No	Yes
Pollutant release to surface waters (red list)	No	No	No	No
Pollutant release to public sewer	No	No	No	No
Discharge of List 1 dangerous substances	No	No	No	No
Discharge of List 2 dangerous substances	No	No	No	No

Table 19-2-47 Details of Off Site Discharges to Controlled Waters

Feature	Location and Direction from Onshore Development Area	Details
Licensed Active Discharges	50m west of the Onshore Export Cable Corridor.	Address: Molescroft Sps, Molescroft, Beverley; Effluent type: Sewage discharges - pumping station - water company; Permit reference: WADC307; Effective date: 14 / 04 / 2009; End date: Not recorded, assumed active; Receiving water: Nearby ditch.
	160m south west of the Onshore Export Cable Corridor.	Address: Molescroft Grange Farm & Cottages, Grange Way, Beverley, HU17 9FS; Effluent type: Sewage discharges - final / treated effluent - not water company; Permit reference: EPRNP3422GN; Effective date: 26 / 09 / 2011; End date: Not recorded, assumed active; Receiving water: Groundwater via an infiltration system.
	200m east of the Onshore Export Cable Corridor.	Address: 245 Hull Bridge Road, Tickton, Beverley, HU17 9RS; Effluent type: Sewage & trade combined – unspecified; Permit reference: WRA8116; Effective date: 27 / 11 / 2003; End date: Not recorded, assumed active; Receiving water: Tributary of Beverley & Barmston Drain.
	250m west south of the Onshore Export Cable Corridor.	Address: Finch Park CSO, rear of No 12, Beverley; Effluent type: Sewage discharges - sewer storm overflow - water company; Permit reference: 3105; Effective date: 30 / 03 / 2004; End date: Not recorded, assumed active; Receiving water: Pighill Lane Sewer (drain).
	250m south east of the Onshore Export Cable Corridor.	Address: Sub Station, Long Lane, Beverley; Effluent type: Sewage discharges - final / treated effluent - not water company; Permit reference: H231; Effective date: 19 / 11 / 1964; End date: Not recorded, assumed active; Receiving water: Tributary of the River Hull.

19.2.8.5.5 Pollution Incidents and Inventories

59. The presence (or absence) of pollution incidents at or within 250m of the Onshore Development Area boundary have been summarised in **Table 19-2-48** with further details provided in **Table 19-2-49**.

Table 19-2-48 Summary of Incidents and Inventories

Features	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone	Offsite (within 250m)
Pollution Incidents	No	No	No	Yes
Pollutant inventory substances	No	No	No	Yes
Pollutant inventory waste transfers	No	No	No	Yes

Table 19-2-49 Details of Off Site Incidents and Inventories

Feature	Location and Direction from Onshore Development Area	Details
Pollution Incidents	60m west of landfall – east of Green Lane.	Category: 3 (minor) to land; Date: 30 / 08 / 2002; Pollutant type: Specific waste materials; Pollutant: Household waste; Incident ID: 104108.
	10m north of the Onshore Export Cable Corridor – adjacent to Dunnington Sewer.	Category: 1 (major) to water; Date: 24 / 02 / 2013; Pollutant type: Agricultural materials and wastes; Pollutant: Slurry and dilute slurry; Incident ID: 1089119; Location: Onshore export cable corridor – Dunnington Sewer.
	200m west of the Onshore Export Cable Corridor – south of Grange Way, west of Lockwood Road.	Category: 3 (minor) to water; Date: 06 / 02 / 2002; Pollutant type: Sewage materials; Pollutant: Crude sewage; Incident ID: 56841.
Pollutant inventory substances & pollutant inventory waste transfers	100m north east of the Onshore Export Cable Corridor.	Operator name: Cullingworth Commercials and Freight Services Limited; Activity description: Intensive farming; > 40,000 poultry; Permit ID: GP3834TT; Location: Westfield Farm, Poultry Unit, Sigglesthorne, HU11 5QI.

19.2.8.6 Radon Gas

60. The presence of radon gas is assessed in the UK according to the number of homes likely to be above the Action Level (200 Becquerel per cubic metre (Bq m^3)). Under Building Regulations, the requirement for protection measures (as described in BRE, 2001) in the construction of new buildings, conversions or extension is dependent on Radon Potential.

61. BGS data indicates that the Onshore Development Area is located within a lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Therefore, no protective measures are necessary in the construction of new buildings.

19.2.9 Preliminary Conceptual Site Model and Qualitative Risk Assessment

62. Land contamination is assessed through the identification of Potential Contaminative Linkages (PCLs) The assessment involves the development of a Conceptual Site Model (CSM) which describes the relationship between on and offsite potential sources of contamination (and contaminants), potential receptors to such contamination and anticipated pathways between the two. Where all three (source-pathway-receptor linkage) are present, they are described as a PCL which can be subject to the risk assessment process.

63. The following discusses the potential sources, pathways and receptors present.

19.2.9.1 Potential Sources, Receptors and Pathways

64. The potential sources of contamination and contaminants of concern are summarised below in **Table 19-2-50** and **Table 19-2-51**. Potential receptors and pathways are outlined in **Table 19-2-52**.

Table 19-2-50 Potential On site Sources

Potential Source	Associated Contaminants	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone
Agricultural land / practices for fertilisers, pesticides and herbicides.	Herbicides and pesticides, in addition it is not uncommon for discarded material to be buried on farmland which could potentially contain a range of contaminants including asbestos. Although not recorded on historical mapping, there is the potential for sheep dips to be present within the Onshore Development Area. Contaminants associated with sheep dipping include, but are not limited to, metals, organophosphorus and synthetic pyrethroids.	✓	✓	✓
Potentially infilled pits / ponds.	Localised Made Ground may be present in areas associated with the backfilling of former pits and / or ponds should this have been undertaken within the Onshore Development Area. Potential contaminants include, but are not limited to, asbestos, metals and metalloids, polycyclic aromatic hydrocarbons (PAHs), fuel and oil hydrocarbons, volatile and semi-volatile organic compounds (VOCs and SVOCs), inorganic and organic contaminants, herbicides, polychlorinated biphenyls (PCBs) and ground gas.	✓	✓	✓
Made Ground (including potentially demolished infrastructure).	Asbestos containing materials and associated fibres are commonly identified in Made Ground deposits, particularly localised to where building demolition has occurred, and material has been buried / used. Other contaminants of concern that may be present are dependent on the nature of the Made Ground materials present within the Onshore Development Area.	✓	✓	✓
Railway land.	Railway land (both current and historical) is a potential source of contamination and Made Ground. Contaminants associated with railway land includes herbicides, metals and metalloids, fuel and oil hydrocarbons, PAHs, PCBs, glycols and sulphates. Asbestos can also be associated with the materials used within the track bedding material, fill used in the formation of embankments and within the trains themselves.	X	✓	X
Pumping station.	Lubricants and greases, PAHs and metals.	X	✓	X

Table 19-2-51 Potential Off Site Sources

Potential Source	Associated Contaminants
Agricultural land and historical practices (including sheep dipping and intensive poultry farming).	Herbicides, pesticides and fertilisers, in addition it is not uncommon for discarded material to be buried on farmland which could potentially contain a range of contaminants. Contaminants associated with sheep dipping include, but are not limited to, metals, organophosphorus and synthetic pyrethroids. In addition to the above, potential contaminants associated with intensive poultry farming includes nitrates.
Slurry lagoon.	Potential contaminants include, but are not limited to, nitrates, phosphorous, metals, pathogens and ground gas.
Landfill.	Potential contaminants include, but are not limited to, asbestos, metals and metalloids, PAHs, fuel and oil hydrocarbons, VOCs and SVOCs, inorganic and organic contaminants, PCBs, polyfluoroalkyl substances (PFAS), landfill leachate and ground gas.

Potential Source	Associated Contaminants
Potentially infilled pits / ponds. Made Ground.	Asbestos, metals and metalloids, PAHs, fuel and oil hydrocarbons, VOCs and SVOCs, inorganic and organic contaminants, PCBs vapours and ground gas.
Railway land.	Contaminants associated with railway land includes herbicides, metals and metalloids, fuel and oil hydrocarbons, PAHs, PCBs, glycols and sulphates. Asbestos can also be associated with the materials used within the track bedding material, fill used in the formation of embankments and within the trains themselves.
Airfield.	Potential contaminants may include metals, VOCs and SVOCs, glycols, fuel / oil hydrocarbons, phenols, PFAS and PCBs.
Unspecified tanks.	A number of unspecified tanks have been recorded within 250m of the Onshore Development Area, therefore a range of potential contaminants of concern may be associated with these areas. These may include, but are not limited to, fuel and oil hydrocarbons, PAHs, VOCs and SVOCs. Vapour risks may also be present.
Gasometer / gas works / gas governor.	Contaminants of concern include, but are not limited to, asbestos, metals and metalloids, inorganic and organic compounds, fuels, and oil hydrocarbons, PAHs and phenols.
Sewage works.	The processing of sewage could release contaminants into the environment depending on the site's full operational history and usage. Potential contaminants could include, but are limited to, metals, cyanides, nitrates, sulphates, asbestos, fuel and oil hydrocarbons, VOCs and SVOCs, PCBs and PFAS. Biological contaminants, such as pathogens, may also be associated with the sewage works.
Brickworks. Whiting works.	Potential contaminants could include, but are limited to, metals and metalloids, fuel and oil hydrocarbons, VOCs, SVOCs, organic and inorganic contaminants, PCBs, PAHs, PFAS and asbestos.
Water works.	Potential contaminants could include, but are limited to, metals and metalloids, nitrates, sulphates, fuel and oil hydrocarbons, VOCs, SVOCs, organic and inorganic contaminants, PCBs, PAHs and PFAS.
Garages.	Metals and metalloids, PAHs, fuel and oil hydrocarbons, glycols, VOCs and SVOCs, asbestos, inorganic and organic contaminants.
Electricity substation.	Asbestos, metals and metalloids, PAHs, fuel and oil hydrocarbons and PCBs.
Pumping station.	Lubricants and greases, PAHs and metals.

Table 19-2-52 Potential Receptors and Pathways

Receptors	Pathways	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone
Human health				
Future site users not involved with the project (e.g. farmers) during operation.	Direct exposure through dermal contact, ingestion or inhalation of soils / dusts and asbestos fibres. Inhalation of ground gas and volatile contaminants.	✓	✓	✓
Neighbouring site users (commercial and residential) during construction.		✓	✓	✓
Construction / maintenance workers.	Direct exposure through dermal contact, ingestion or inhalation of soils and dusts during ground-breaking activities. Inhalation of asbestos containing soils and dusts. Inhalation of ground gas and volatile contaminants.	✓	✓	✓
Controlled Waters				
Alluvium and Glaciofluvial Deposits – Secondary A Aquifers.	Leaching, dissolution and migration of contaminants from existing unsaturated soils. Vertical migration through the creation of preferential pathways.	✓	✓	✓
Lacustrine Deposits – Secondary B Aquifer.		✓	✓	X
Head and Glacial Till – Secondary Undifferentiated Aquifers.		✓	✓	✓
Rowe Chalk Formation and Flamborough Chalk Formation – Principal Aquifers.		✓	✓	✓
SPZ 1.		X	✓	X
SPZ 2.		X	✓	✓
SPZ 3.		X	✓	X
Surface waters.	Lateral migration and discharge of groundwater and surface water runoff.	✓	✓	✓
Buildings and utilities				
Future buildings / utilities.	Direct contact with building foundations. Diffusion into services.	X	X	✓

Receptors	Pathways	Landfall	Onshore Export Cable Corridor	Onshore Substation Zone
	Explosion due to ground gas accumulation.	X	X	✓
Other				
Environmentally sensitive areas –Greater Wash SPA.	Migration of dissolved contaminants in groundwater and discharge to surface water.	✓	X	X

19.2.9.2 Preliminary Conceptual Site Model and Qualitative Risk Assessment

65. The CSM and Preliminary Risk Assessment are presented in **Table 19-2-53**. Definitions of probability and consequence have been based on guidance in CIRIA 552 and are summarised in **Annex C**.

66. A combination of probability and consequences produces a risk level based on the risk evaluation and likely action required. The land contamination risk, which is a function of the probability and the consequence, can be defined using the risk matrix.

Table 19-2-53 Preliminary Conceptual Site Model

Source	Pathway	Receptor	Associated Hazard	Potential Consequence of Contaminant Linkage	Likelihood of Contaminant Linkage	Risk Classification	Justification
Onsite sources as discussed in **Table 19-2-50**.	Dermal contact, ingestion and inhalation of soils, dust and asbestos fibres. Inhalation of volatile contaminants.	Future site users not involved with the project (e.g. farmers) during operation.	Human health.	Medium	Low likelihood	Moderate to low	The Onshore Development Area is located within an area comprising predominantly of agricultural or undeveloped land. This represents the potential for contaminants associated with the usage of herbicides and pesticides to be present. Regulations associated with the chemical composition of herbicides and pesticides have evolved over time reducing their impacts to both the environment and human health. It is anticipated that the contaminants associated with past and current usage of herbicides and pesticides may have diluted over time and are considered unlikely to pose an unacceptable risk to human health. In localised areas where potential contamination has been identified there is the potential for buried contaminants to be disturbed and brought to the surface during the construction and operational phases. These activities have the potential to pose a risk to current neighbouring site users during the construction phase and future site users during the operational phase. The potential risks to neighbouring and future site users could be reduced to low through the implementation of appropriate mitigation measures. These measures may include, but are not limited to, targeted ground investigations in areas of potential concern, this would confirm the presence (or absence) of contamination. Should contamination be confirmed, appropriate mitigation measures would be implemented to either reduce or break the contaminant linkage.
		Neighbouring site users (commercial and residential) during construction.		Medium	Low likelihood	Moderate to low	

Source	Pathway	Receptor	Associated Hazard	Potential Consequence of Contaminant Linkage	Likelihood of Contaminant Linkage	Risk Classification	Justification
		Construction / maintenance workers.		Medium	Likely	Moderate	Without the implementation of appropriate mitigation measures there is the potential for construction and maintenance workers to encounter buried contaminants within the localised areas of concern. Where it is not possible to avoid a potential area of contamination, risks to construction and maintenance workers could be reduced to low with the use of appropriate working methods incorporated into a Code of Construction Practice (CoCP) which will be built from the **Outline Code of Construction Practice (OCoCP) (Volume 8, application ref: 8.9)** and use of personal protective equipment (PPE). The **OCoCP (Volume 8, application ref: 8.9)** and the later CoCP would also include measures to be implemented should unforeseen contamination be encountered. Likewise, potential impacts to maintenance workers during the operational phase can be mitigated through the development, and adherence to, task specific method statements and risk assessments. Implementation of the above measures would reduce the likelihood of a contaminant linkage to unlikely.
	Leaching, dissolution and migration of contaminants from existing unsaturated soils.	Groundwater within superficial deposits: • Alluvium and Glaci-ofluvial Deposits – Secondary A Aqui-fers;	Controlled waters.	Medium	Low likelihood	Moderate to low	The potential sources of contamination identified within the Onshore Development Area have the potential to be disturbed and mobilised as a result of the intrusive nature of the construction phase. Mobilisation of pre-existing contamination has the potential to result in the migration of contaminants into groundwater bearing strata. The potential sources of contamination are in localised areas within the Onshore Development Area and not present

Source	Pathway	Receptor	Associated Hazard	Potential Consequence of Contaminant Linkage	Likelihood of Contaminant Linkage	Risk Classification	Justification
	Vertical migration through the creation of preferential pathways.	• Lacustrine Deposits – Secondary B Aquifer; and • Head and Glacial Till – Secondary Undifferentiated Aquifers.		Medium	Low likelihood	Moderate to low	throughout. Therefore, potential risks to groundwater associated with the Secondary A, B and Undifferentiated Aquifers from the disturbance of pre-existing contamination is limited. The creation of preferential pathways could occur during the construction of the Onshore Export Cable Corridor, however, any works are likely to be above the water table. If piling is required within the Onshore Development Area then there is the potential for preferential pathways to be created albeit the potential sources of contamination within these areas are minimal. If required a piling risk assessment will be completed. There are no potable groundwater abstractions recorded within the Onshore Development Area, however several are recorded within 1km. Several records do not contain information in relation to which strata the groundwater is abstracted from, therefore the potential consequence of contaminant linkage has been conservatively determined as medium. Should further information become available during the DCO process with regards to which strata the potable abstractions are taken from, i.e. if they are taken from the underlying chalk and not superficial deposits, the potential consequence could be lowered to mild resulting in a low risk classification.
	Leaching, dissolution and migration of contaminants from existing unsaturated soils.	Groundwater within bedrock: Rowe Chalk Formation and Flamborough Chalk Formation – Principal Aquifers. SPZs 1, 2 and 3.		Severe	Low likelihood	Moderate	The bedrock formations underlying the entirety of the Onshore Development Area are designated as Principal Aquifers. Areas of the Onshore Export Cable Corridor to the west of Whitecross Road through to Newbald Road is located within a SPZ 3 Total Catchment. The Onshore Export Cable Corridor to the south of Newbald Road, and the Onshore Substation Zone (up to the area surrounding Park Lane) are located within a SPZ 2 Outer Catchment. The area of the Onshore Export Cable Corridor 200m

Source	Pathway	Receptor	Associated Hazard	Potential Consequence of Contaminant Linkage	Likelihood of Contaminant Linkage	Risk Classification	Justification
	Vertical migration through the creation of preferential pathways.			Severe	Low likelihood	Moderate	southwards of the intersection of Park Lane and the A1079 is designated as a SPZ 1 Inner Catchment. These zones are not considered to be at risk from the general cable construction works as excavations would generally be shallow in nature, maximum burial depth where restriction are not present would be 2m, with an indicative burial depth of 1.6m. Where trenchless crossing techniques (e.g. Horizontal Directional Drilling (HDD)) or pilling are to be undertaken these could present a risk to the Principal Aquifers and SPZs. There is the risk of creating preferential pathways albeit the sources of contamination are limited within the Onshore Development Area. A suitable risk assessment will be undertaken prior to construction which will further lower the risk.
	Lateral migration and discharge of groundwater and surface water runoff.	Surface waters and Environmentally Sensitive Areas.		Medium	Low likelihood	Moderate to low	Potential sources of contamination have been identified in close proximity to surface water bodies. Contaminants present within soils have the potential to be disturbed as a result of construction and maintenance works. There is the potential for these contaminants to be mobilised as a result of disturbance and leach into the surrounding surface water bodies. Mobilisation of contaminated groundwater also has the potential to impact surface water bodies via direct discharge into the feature. Ecological receptors within and adjacent to landfall may be impacted both directly and indirectly by the Projects. The sensitive sites are designated due to the unique habitats and species that are supported. Migration of contaminated groundwater into these areas may impact the functionality of the site and render it unsuitable for the species that inhabit it. The specific nature of the species associated with the designations determines how plausible the potential contaminant linkage is. Targeted pre-construction ground investigations would allow for the appropriate management of the risks posed to surface water bodies as a result of the construction and operation of the Projects. This would be stipulated in the **OCoCP (Volume 8, application ref: 8.9)** and later built upon in the CoCP to reduce the potential risk.
	Migration of dissolved contaminants in groundwater and discharge to surface water.			Medium	Low likelihood	Moderate to low	

Source	Pathway	Receptor	Associated Hazard	Potential Consequence of Contaminant Linkage	Likelihood of Contaminant Linkage	Risk Classification	Justification
	Direct contact and diffusion through drinking water pipes.	Future buildings / utilities.	Building and foundation corrosion and impact to potable water.	Medium	Low likelihood	Moderate to low	Potential contamination within the Onshore Substation Zone has the potential to impact the integrity of concrete foundations through creating aggressive ground conditions. Potential organic contaminants could permeate potable water supplies (if proposed in the future) and have detrimental impacts on human health.
	Gas and vapour migration and accumulation in buildings.	Future onsite users working within confined spaces (assumed to be buildings associated with the onshore substation only).	Health risk (methane, carbon dioxide and volatiles).	Severe	Low likelihood	Moderate	There is the potential for ground gas and vapours to be produced from materials used in localised areas associated with potentially infilled pits / ponds within the Onshore Substation Zone. In these areas, contaminants may be brought to the surface or mobilised during construction, which if not mitigated could present an unacceptable risk to human health. The excavation of the Onshore Export Cable Corridor has the potential to create a preferential pathway for any gases or vapours to migrate and accumulate in enclosed spaces and present a risk of asphyxia and / or explosion. Re-instating material excavated where possible as part of the construction of the Onshore Export Cable Corridor could lower the potential risks associated with creating a preferential pathway as these soils are likely to have a similar porosity to the surrounding soils not directly impacted by the works. The **OCoCP (Volume 8, application ref: 8.9)**, later to be built upon in the CoCP and the commitments register will further support lowering the risk.
			Explosion (methane).	Severe	Low likelihood	Moderate	
		Construction / ground workers.	Health risk (methane, carbon dioxide and volatiles).	Severe	Low likelihood	Moderate	The potential to create contaminant pathways during construction and maintenance activities exist through the excavation works required to create the Onshore Export Cable Corridor and the onshore substations. Potential ground gas and vapours could

Source	Pathway	Receptor	Associated Hazard	Potential Consequence of Contaminant Linkage	Likelihood of Contaminant Linkage	Risk Classification	Justification
		Maintenance workers during the operational phase.	Explosion (methane).	Severe	Low likelihood	Moderate	migrate and, without the implementation of mitigation measures, result in acute or chronic effects to workers. Within the onshore converter stations potential ground gas and vapours could accumulate within the buildings which would be accessed by maintenance workers during the operational phase of the Projects. Targeted pre-construction ground investigations and / or a multiple lines of evidence approach could be adopted to determine the plausibility of potential ground gas or vapour sources identified at the specific locations the risks relate to. This will be incorporated into the **OCoCP (Volume 8, application ref: 8.9)** and later built upon in the CoCP. To mitigate the risks to construction workers during excavation activities (particularly if entry into confined spaces is required) the use of appropriate working methods incorporated into the **OCoCP (Volume 8, application ref: 8.9)** and later built upon in the CoCP and use of PPE would reduce the potential risk to low. The potential risks to maintenance workers could also be reduced to low through the use of appropriate working methods and PPE.
		Future buildings / utilities.	Explosion (methane).	Severe	Low likelihood	Moderate	There is the potential for ground gas and vapours to be produced from materials used in localised areas associated with potentially infilled pits / ponds within the Onshore Substation Zone. Therefore, there is the potential for ground gases and vapours generated to accumulate within buildings during the operational phase of the Projects which could lead to destruction of the building through explosion. Targeted pre-construction ground investigations and / or a multiple lines of evidence approach could be adopted to determine the plausibility of potential ground gas or vapour sources identified at the specific locations the risks relate to. The information gathered through targeted ground investigation / multiple lines of evidence will allow for appropriate mitigation measures to be identified, e.g. installation of ground gas protection measures. This would reduce the potential risks to buildings to low.

Source	Pathway	Receptor	Associated Hazard	Potential Consequence of Contaminant Linkage	Likelihood of Contaminant Linkage	Risk Classification	Justification
Offsite sources as discussed in **Table 19-2-51**.	Lateral migration of dissolved phase contaminants in groundwater and migration. Leaching and migration from unsaturated contaminated soils.	Groundwater within superficial deposits (Secondary A, B and Undifferentiated Aquifers).	Controlled waters.	Medium	Low likelihood	Moderate to low	Areas of localised potential contamination lie adjacent to the Onshore Development Area (e.g. landfills and potentially infilled pits). There is the potential for contaminants within soils, leachates or groundwater to migrate into the Onshore Development Area and be encountered, exposed of mobilised during construction works. Pre-construction ground investigation works have been undertaken where the Onshore Export Cable Corridor is located adjacent to a historical landfill (Adjacent to Catfoss Lane). Preliminary results indicate that the Onshore Development Area at this location is not impacted by the adjacent historical landfill. Where potential offsite sources of contamination have been identified, additional pre-construction targeted ground investigations would help to establish whether areas of the Onshore Development Area have been impacted by offsite sources. This will be incorporated in the **OCoCP (Volume 8, application ref: 8.9)**, later to be built upon in the CoCP and the commitment register.
		Bedrock (Principal Aquifers), SPZs 1, 2 and 3.		Severe	Low likelihood	Moderate	
	Gas and vapour migration.	Construction / ground workers.	Health risk (methane, carbon dioxide and volatiles). Explosion (methane).	Severe	Low likelihood	Moderate	There is the potential for ground gas and vapours to migrate into the Onshore Development Area from offsite sources (e.g. where landfilling is adjacent to work areas) through permeable strata. Without mitigation, construction workers working in confined spaces may be exposed to the migrating ground gas and vapours during excavation works. Maintenance workers could also be exposed to migrating ground gas and vapours should they be required to enter confined spaces (e.g. onshore substations and Joint Bays along the Onshore Export Cable Corridor). The potential risks to construction and maintenance workers could be lowered through the implementation of appropriate working methods and correct usage of PPE.
		Maintenance workers during the operational phase.		Severe	Low likelihood	Moderate	

Source	Pathway	Receptor	Associated Hazard	Potential Consequence of Contaminant Linkage	Likelihood of Contaminant Linkage	Risk Classification	Justification
		Future buildings / utilities.	Explosion (methane).	Severe	Low likelihood	Moderate	Migrating ground gases from offsite sources have the potential to accumulate within the buildings associated with the onshore substations. Without mitigation, there is the potential for accumulated gases to result in destruction of the buildings through explosions. The potential risks to the onshore buildings could be lowered by developing an understanding of the ground gas regime through pre-construction ground investigations / adoption of a multiple lines of evidence approach to determine whether plausible pathways are present. This will be incorporated in the **OCoCP (Volume 8, application ref: 8.9)** and later built upon in the CoCP.

19.2.10 Conclusions and Recommendations

19.2.10.1 Conclusions

67. The key objectives of the desk study and PRA were to provide information on the current condition of the Onshore Development Area with respect to contamination, characterise the environmental setting and identify potential land quality risks and constraints associated with the proposed Projects.

19.2.10.2 Summary of Human Health Risk Assessment

68. Based on the findings of the PRA, the risk posed to future and neighbouring site users from localised potential onsite sources of contamination is considered to be **moderate to low**. Potential risks to future onsite users in relation to ground gas and vapours from onsite of contamination is considered **moderate**. Potential risks to construction and maintenance workers from both onsite and offsite sources of contamination are considered to be **moderate**, inclusive of risks associated with ground gas.

19.2.10.3 Summary of Controlled Waters Risk Assessment

69. Based on the findings of the PRA, the potential risks posed to superficial Secondary A, B and Undifferentiated Aquifers from localised potential onsite and offsite sources of contamination are considered to be **moderate** to **low**. Potential risks to the Principal Aquifers associated with the bedrock of the Onshore Development Area and SPZs 1, 2 and 3 are considered to be **moderate** in relation to potential onsite and offsite sources of contamination.

70. Potential risks to surface water bodies from potential onsite sources of contamination are considered to be **moderate to low**.

19.2.10.4 Summary of Other Receptors

71. The risks posed to environmentally sensitive areas from potential onsite sources of contamination are considered to be **moderate to low**.

72. The risks posed to future buildings and utilities from potential sources of contamination and ground gas accumulation are considered to be **moderate to low** in relation to potential onsite sources of contamination. Potential risks to future buildings in relation to ground gas and vapours is considered to be **moderate** from both potential onsite and offsite sources of contamination.

19.2.10.5 Other Identified Risks

73. The risk posed by UXO is considered to be **low**.

19.2.10.6 Recommendations and Next Steps

74. Based on the findings of the PRA the following recommendations are made:

- A post consent targeted intrusive ground investigation in potential source areas and generic quantitative risk assessment (GQRA) to help better determine the presence, magnitude and extent of contaminants within the study area and inform discussions on appropriate mitigation measures to lower the risk to the potential receptors identified within this PRA;
- Continued engagement and consultation with the Regulators (e.g. Environment Agency) at an early stage (pre intrusive ground investigation) to agree a scope of works and gain agreement to the proposed approach;
- Refinement of the **OCoCP (Volume 8, application ref: 8.9)** to produce a CoCP for use during construction works to protect construction workers, neighbouring site users, groundwater and surface water. The report should be informed by the results of the targeted intrusive ground investigation;
- To protect construction workers, the works should be undertaken in accordance with the requirements of the Health and Safety at Work Act 1974 and the Construction (Design and Management) (CDM) Regulation 2015;
- Protocols for dealing with unexpected contamination should be set in place prior to construction to ensure that procedures are known and agreed with the Regulators should unexpected, contaminated materials be encountered;
- Should contamination be identified and piling be required in a sensitive water environment receptor, such as Principal Aquifer or SPZ, a post consent hydrogeological piling risk assessment to be undertaken (potentially associated with the construction of the onshore substation) to protect the water environment;
- Should contamination be identified and trenchless crossings be required in a sensitive water environment receptor, such as a watercourse, a post consent hydrogeological risk assessment to be undertaken protect the water environment;
- The movement and reuse of materials on site should be undertaken in accordance with the CL:AIRE Code of Practice (CL:AIRE 2011) '*The definition of waste: Development Industry Code of Practice*', where

applicable; or an environmental permit that authorises the deposit of excavated material for recovery; and

- The management of any waste material off-site must be at a site with an environmental permit and any waste activity must consider the waste hierarchy; hazardous waste must be managed in accordance with Hazardous Waste Regulations 2005; and any disposal of materials off-site to landfill should be undertaken in accordance with the Landfill Regulations 2002.

References

BGS Onshore Geoindex Viewer. Available at URL: https: / / mapapps2.bgs.ac.uk / geoindex / home.html

BGS, 1985. Geological Map for Flamborough and Bridlington Solid and Drift (Sheet number 55 and 65), Scale 1:50,000

BGS, 1995. Geological Map for Beverley Solid and Drift (Sheet number 72), Scale 1:50,000

BGS, 1998. Geological Map for Hornsea Solid and Drift (Sheet number 73), Scale1:50,000

BGS, 1980. Hydrogeological Map of East Yorkshire (Sheet number 10), Scale1:100,000

East Riding of Yorkshire Council, 2016. East Riding Local Plan 2012 - 2029

Google Earth, 2023. Available at URL: https: / / earth.google.com / web /

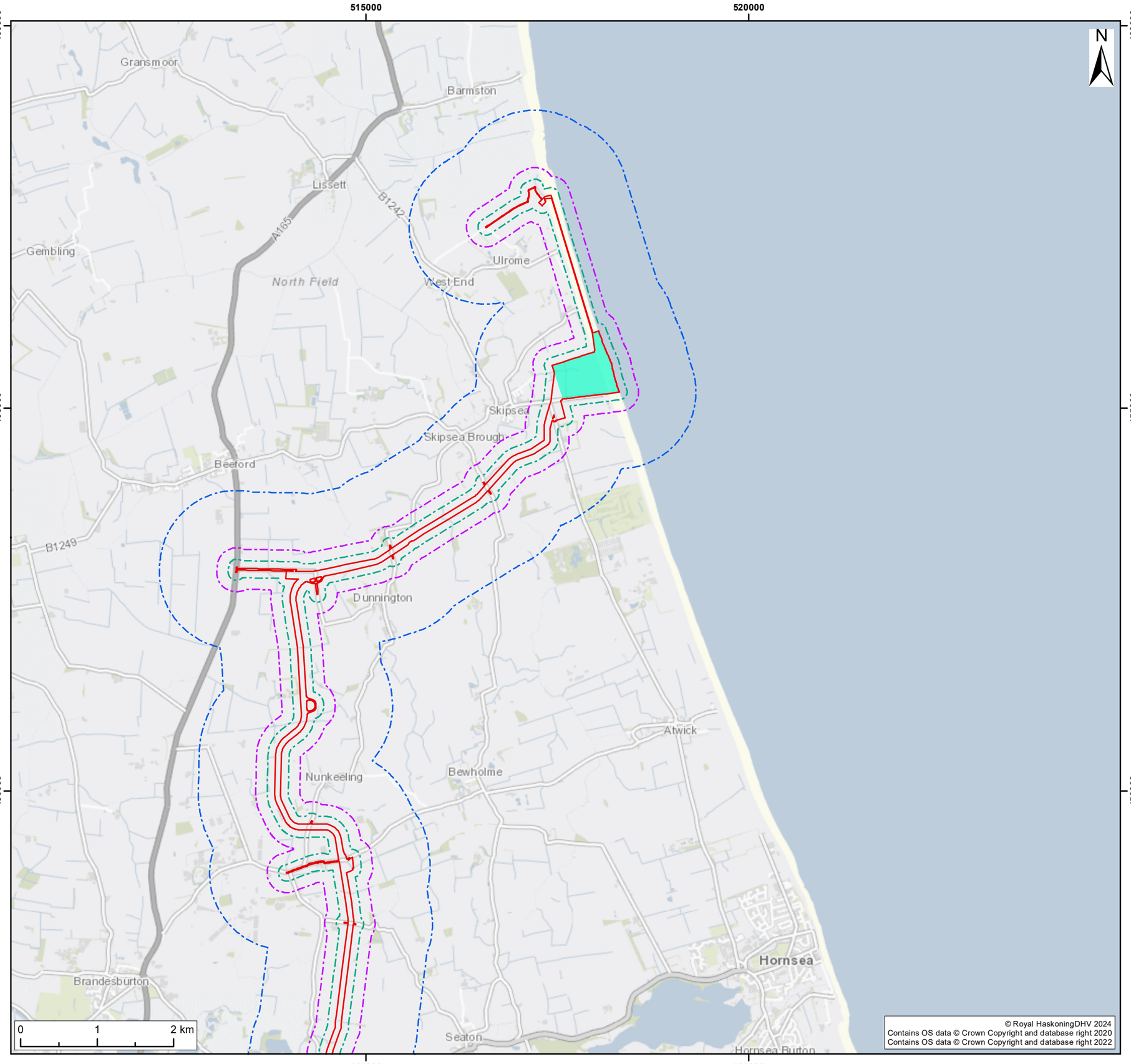
Ministry of Defence, 2020. Defence School of Transport. Available at URL: https: / / www.army.mod.uk / who-we-are / our-schools-and-colleges / transport /

Multi Agency Government Information for the Countryside (MAGIC) map application. Available at URL:https: / / magic.defra.gov.uk / MagicMap.aspx

UK Health Security Agency, undated. UK Maps of Radon. Available at URL: https: / / www.ukradon.org / information / ukmaps

Zetica UXO Risk Map. Available at URL: https: / / zeticauxo.com / downloads-and-resources / risk-maps /

Figures 19-2-1 to 19-2-9



Legend:

- Onshore Development Area
- Onshore Development Area 100m Buffer
- Onshore Development Area 250m Buffer
- Onshore Development Area 1km Buffer
- Substation Zone 4
- Landfall Zone 8

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	23/11/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Onshore Development Area

Figure: 19-2-1a | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0636

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:

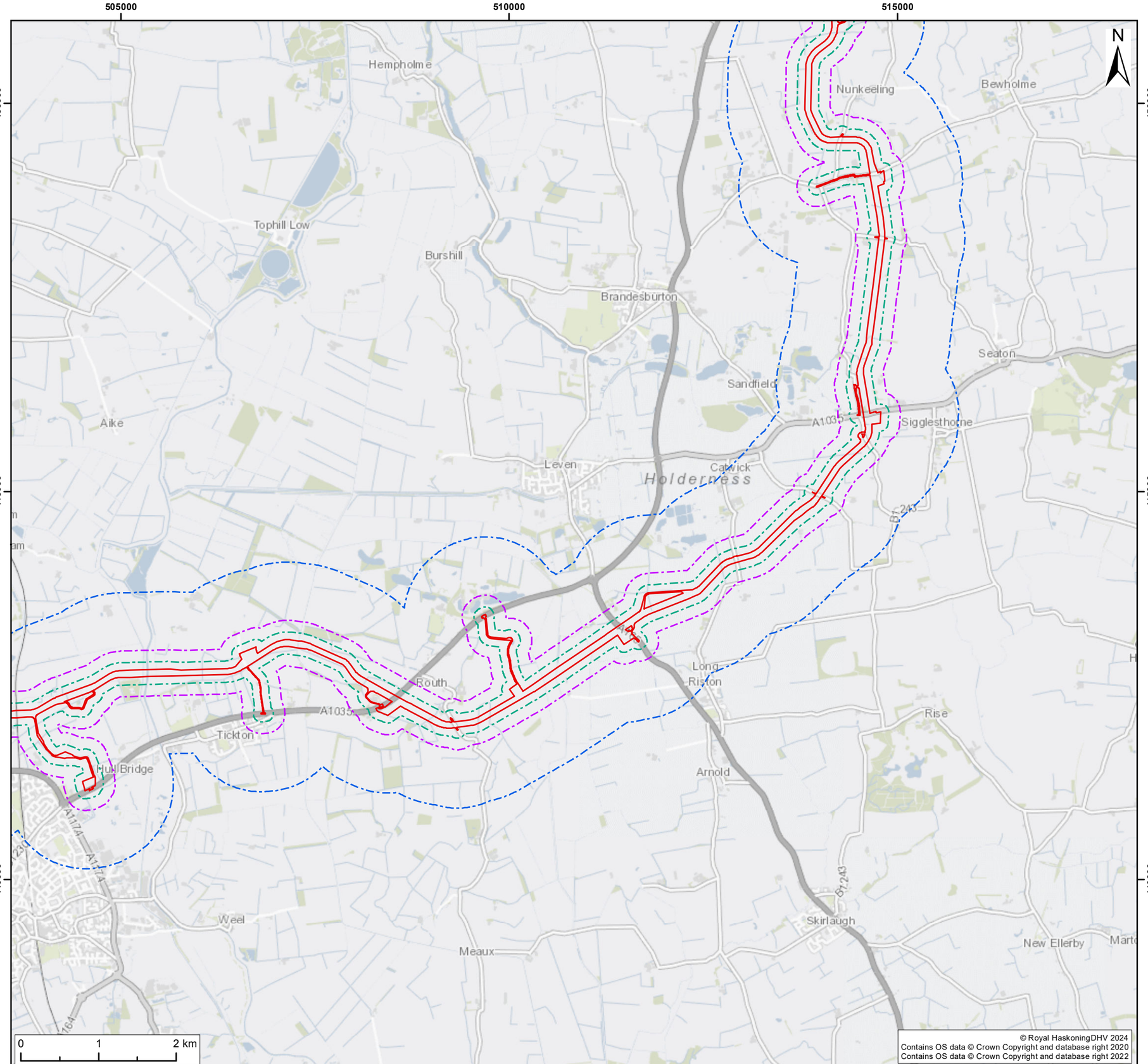
Dogger Bank South Offshore Wind Farms

Report:

Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend:

- Onshore Development Area
- Onshore Development Area 100m Buffer
- Onshore Development Area 250m Buffer
- Onshore Development Area 1km Buffer
- Substation Zone 4
- Landfall Zone 8

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	23/11/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Onshore Development Area

Figure: 19-2-1b | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0636

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:

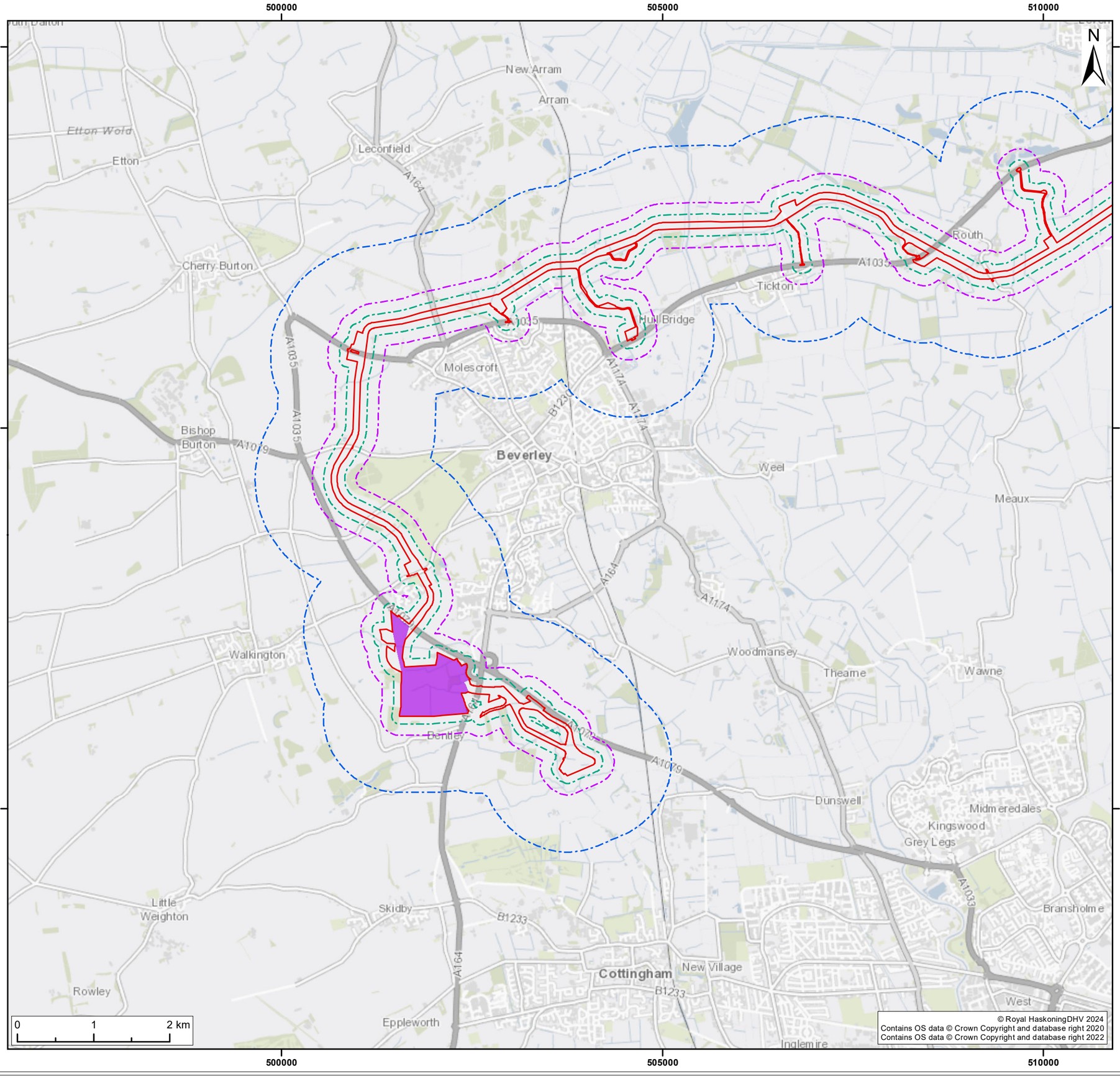
Dogger Bank South Offshore Wind Farms

Report:

Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend:

- Onshore Development Area
- Onshore Development Area 100m Buffer
- Onshore Development Area 250m Buffer
- Onshore Development Area 1km Buffer
- Substation Zone 4
- Landfall Zone 8

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	23/11/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Onshore Development Area

Figure: 19-2-1c | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0636

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:

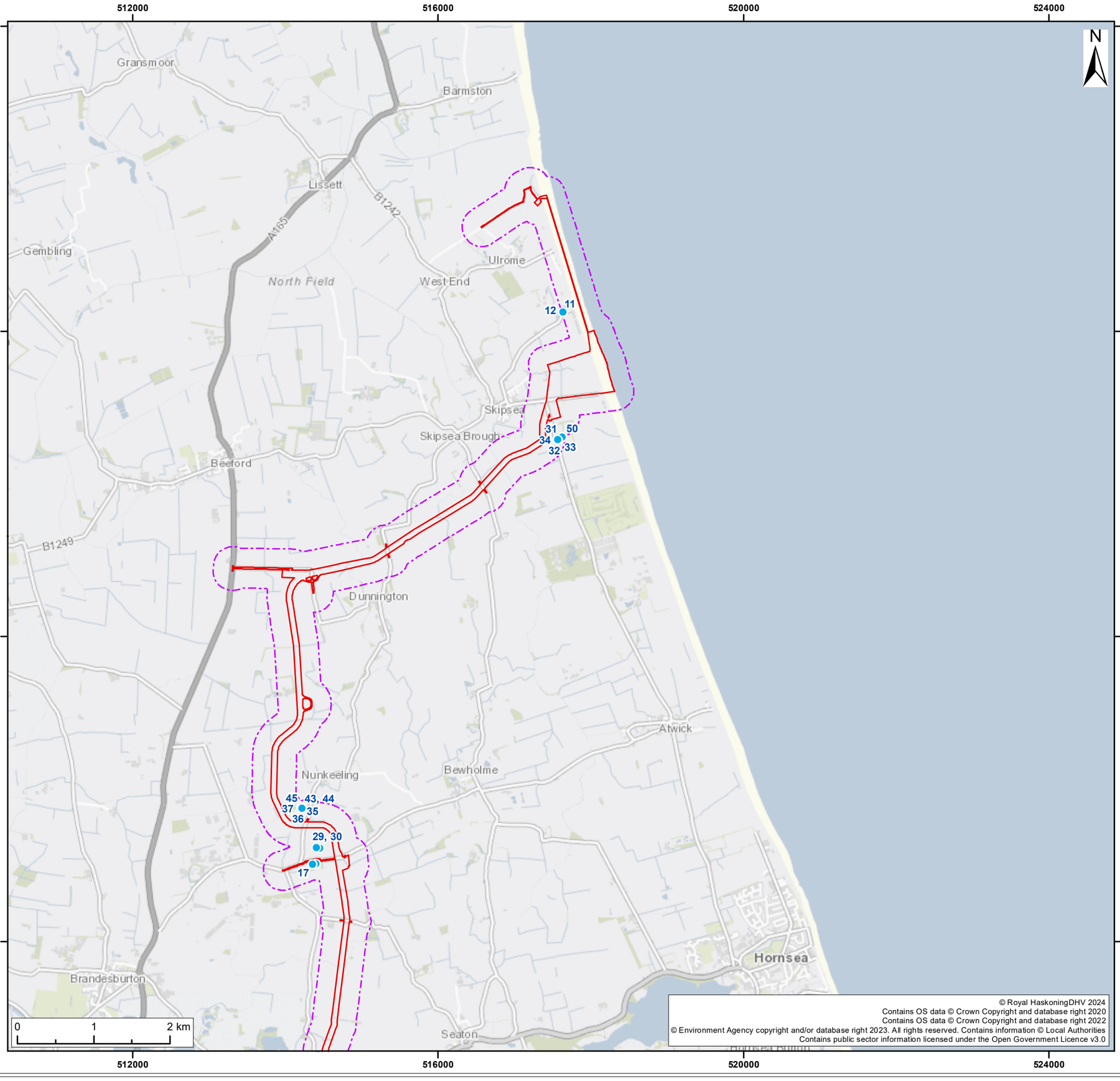
Dogger Bank South Offshore Wind Farms

Report:

Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend:

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Historical Landfill (EA records)
- Waste Exemptions (EA records)

Features reference tables 19-4 and 19-5 in the report

SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR
S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	29/11/2023	Suitable for Information	SB	KD	ND

Title:

Identified Waste Facilities

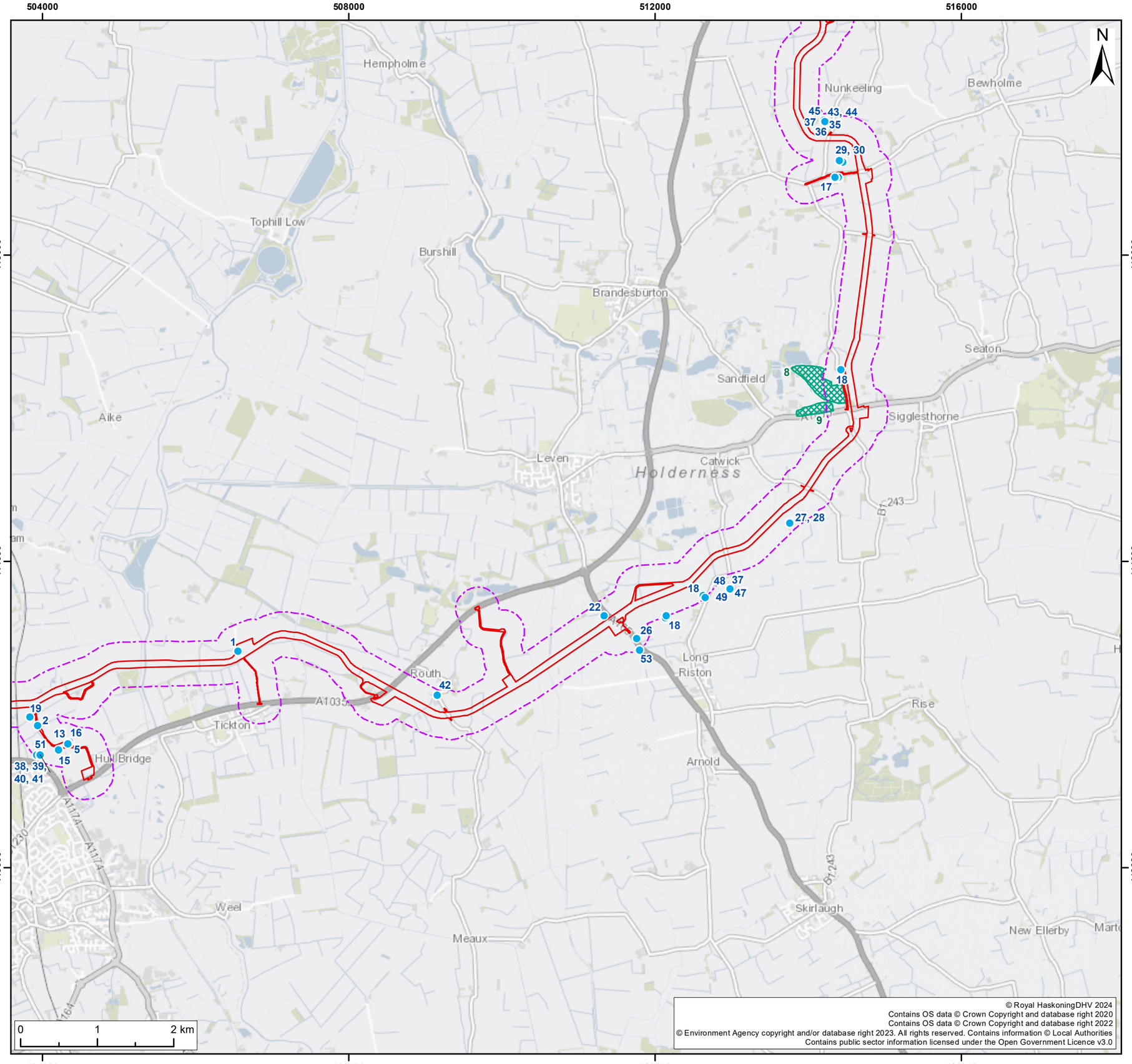
Figure: 19-2-2a | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0640

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:	Report:
Dogger Bank South Offshore Wind Farms	Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend:

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Historical Landfill (EA records)
- Waste Exemptions (EA records)

Features reference tables 19-4 and 19-5 in the report

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	29/11/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Identified Waste Facilities

Figure: 19-2-2b | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0640

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:

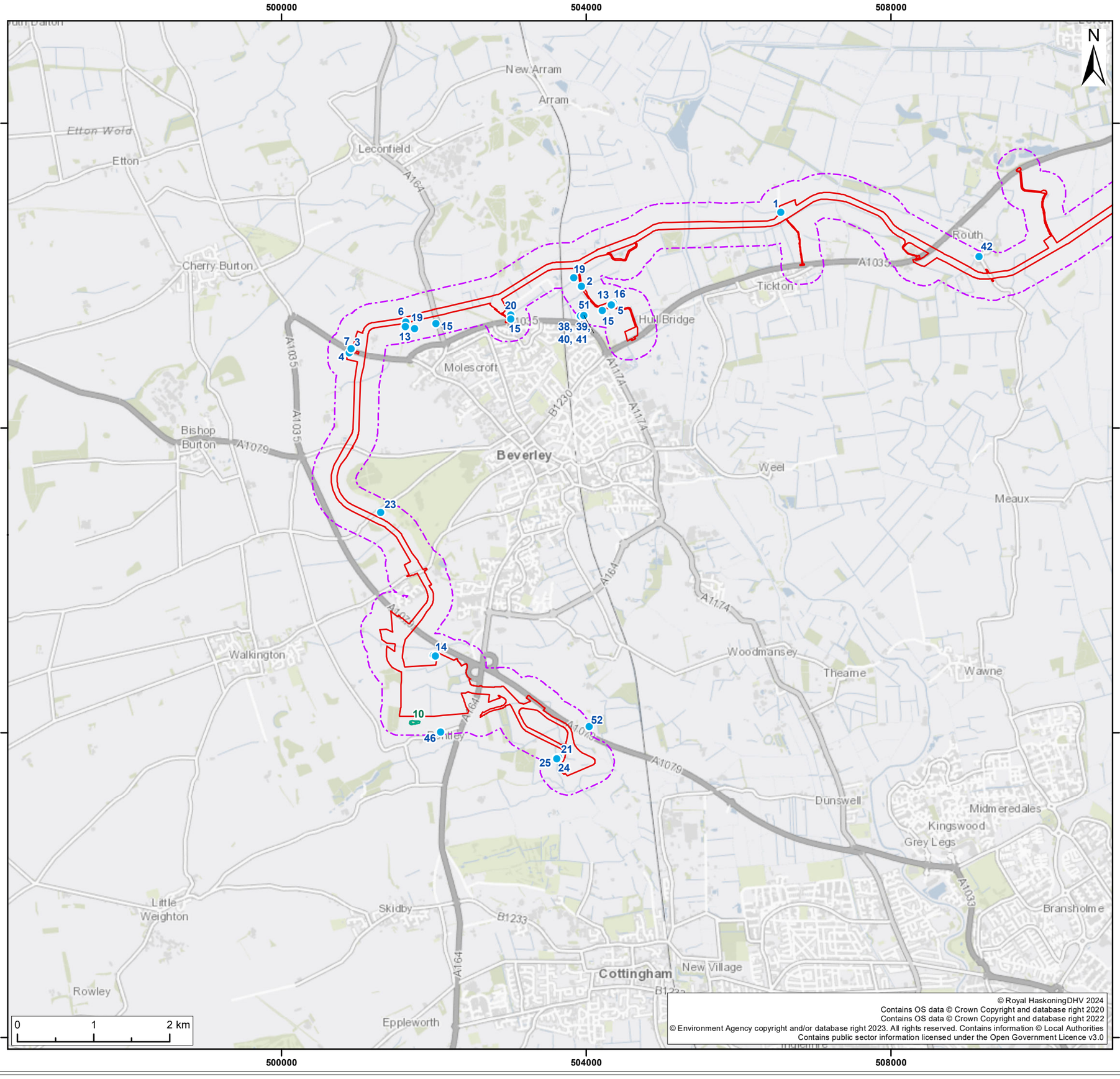
Dogger Bank South Offshore Wind Farms

Report:

Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend:

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Historical Landfill (EA records)
- Waste Exemptions (EA records)

Features reference tables 19-4 and 19-5 in the report

SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR
S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	29/11/2023	Suitable for Information	SB	KD	ND

Title:

Identified Waste Facilities

Figure: 19-2-2c | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0640

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:

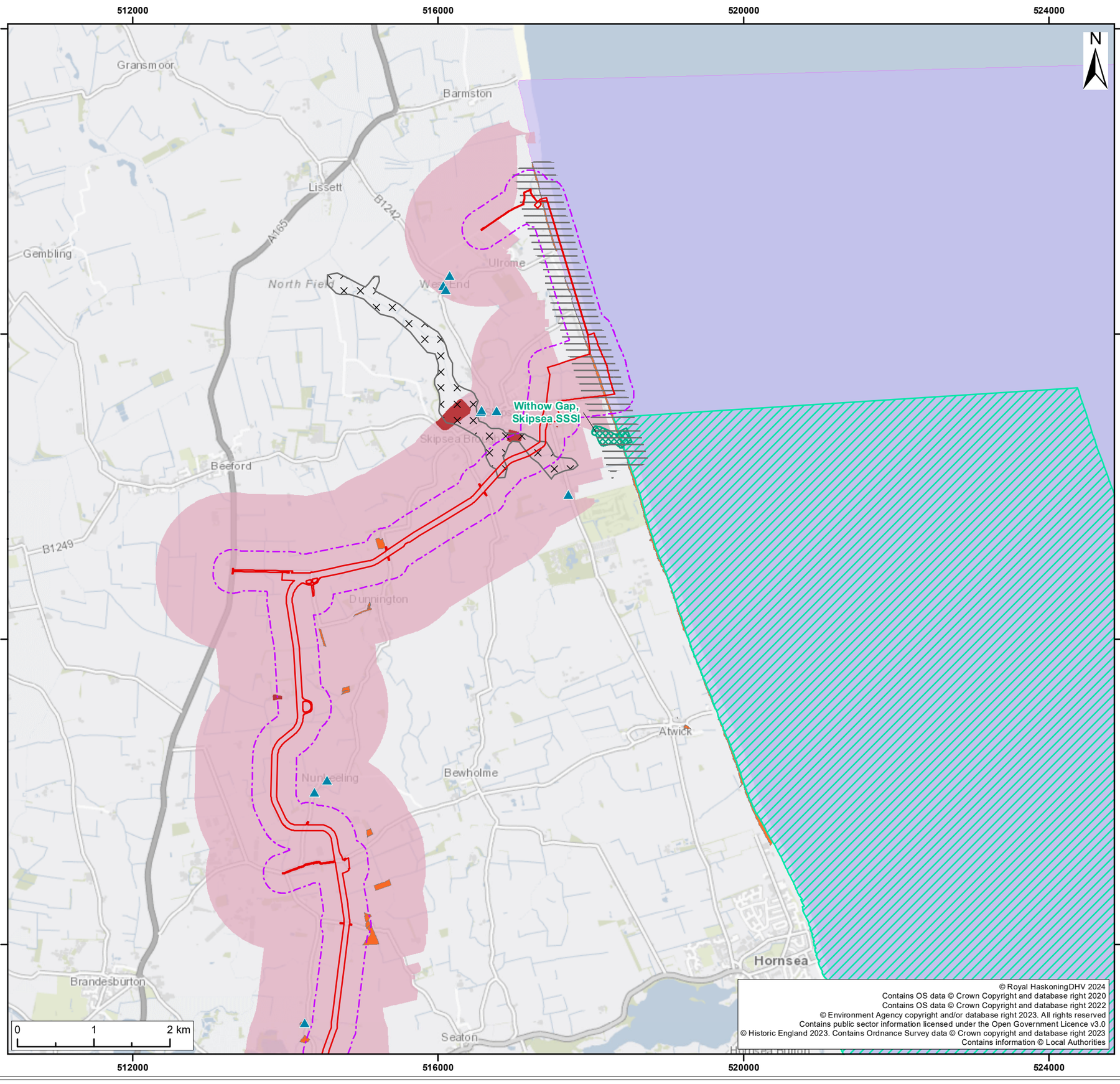
Dogger Bank South Offshore Wind Farms

Report:

Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend:

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Sites of Special Scientific Interest
- Special Protection Area
- Ancient Woodland
- Marine Conservation Zone
- Priority Habitat Inventory
- Habitat Networks
- Local Geological Sites
- Local Nature Reserve
- Listed Buildings
- Scheduled Monuments
- Open Mosaic Habitat

Nitrate Vulnerable Zones

- Groundwater
- Surface Water

Note: The whole route is impacted by SSSI impact Risk Zones

Features reference tables 19-8 and 19-9 in the report

SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR
S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	23/11/2023	Suitable for Information	SB	KD	ND

Title:

Environmentally Sensitive Land Uses

Figure: 19-2-3a | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0637

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project: Dogger Bank South Offshore Wind Farms

Report: Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE

504000 508000 512000 516000

448000 444000 440000

N

Hempholme
Tophill Low
Burshill
Nunkeeling
Bewholme
Brandesburton
Sandfield
Seaton
Aike
Leven
Catwick
Holderness
Sigglesthorne
Tickton
Riston
Rise
Arnold
Weel
Meaux
Skirlaugh
New Ellerby

0 1 2 km

Legend:

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Sites of Special Scientific Interest
- Special Protection Area
- Ancient Woodland
- Marine Conservation Zone
- Priority Habitat Inventory
- Habitat Networks
- Local Geological Sites
- Local Nature Reserve
- Listed Buildings
- Scheduled Monuments
- Open Mosaic Habitat

Nitrate Vulnerable Zones

- Groundwater
- Surface Water

Note: The whole route is impacted by SSSI impact Risk Zones

Features reference tables 19-8 and 19-9 in the report

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	23/11/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Environmentally Sensitive Land Uses

Figure: 19-2-3b | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0637

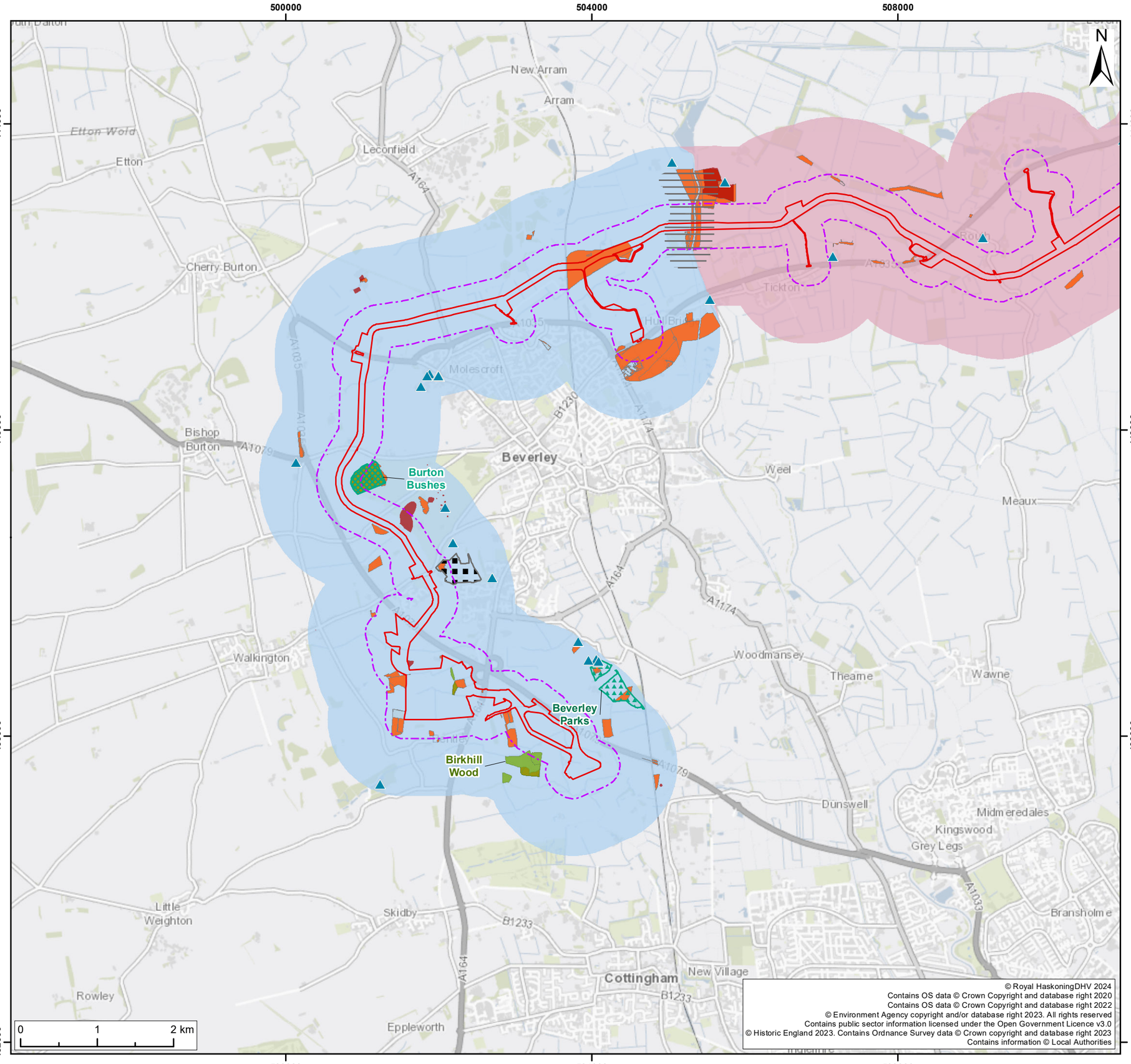
Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project: Dogger Bank South Offshore Wind Farms

Report: Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend:

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Sites of Special Scientific Interest
- Special Protection Area
- Ancient Woodland
- Marine Conservation Zone
- Priority Habitat Inventory
- Habitat Networks
- Local Geological Sites
- Local Nature Reserve
- Listed Buildings
- Scheduled Monuments
- Open Mosaic Habitat

Nitrate Vulnerable Zones

- Groundwater
- Surface Water

Note: The whole route is impacted by SSSI impact Risk Zones

Features reference tables 19-8 and 19-9 in the report

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	23/11/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Environmentally Sensitive Land Uses

Figure: 19-2-3c | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0637

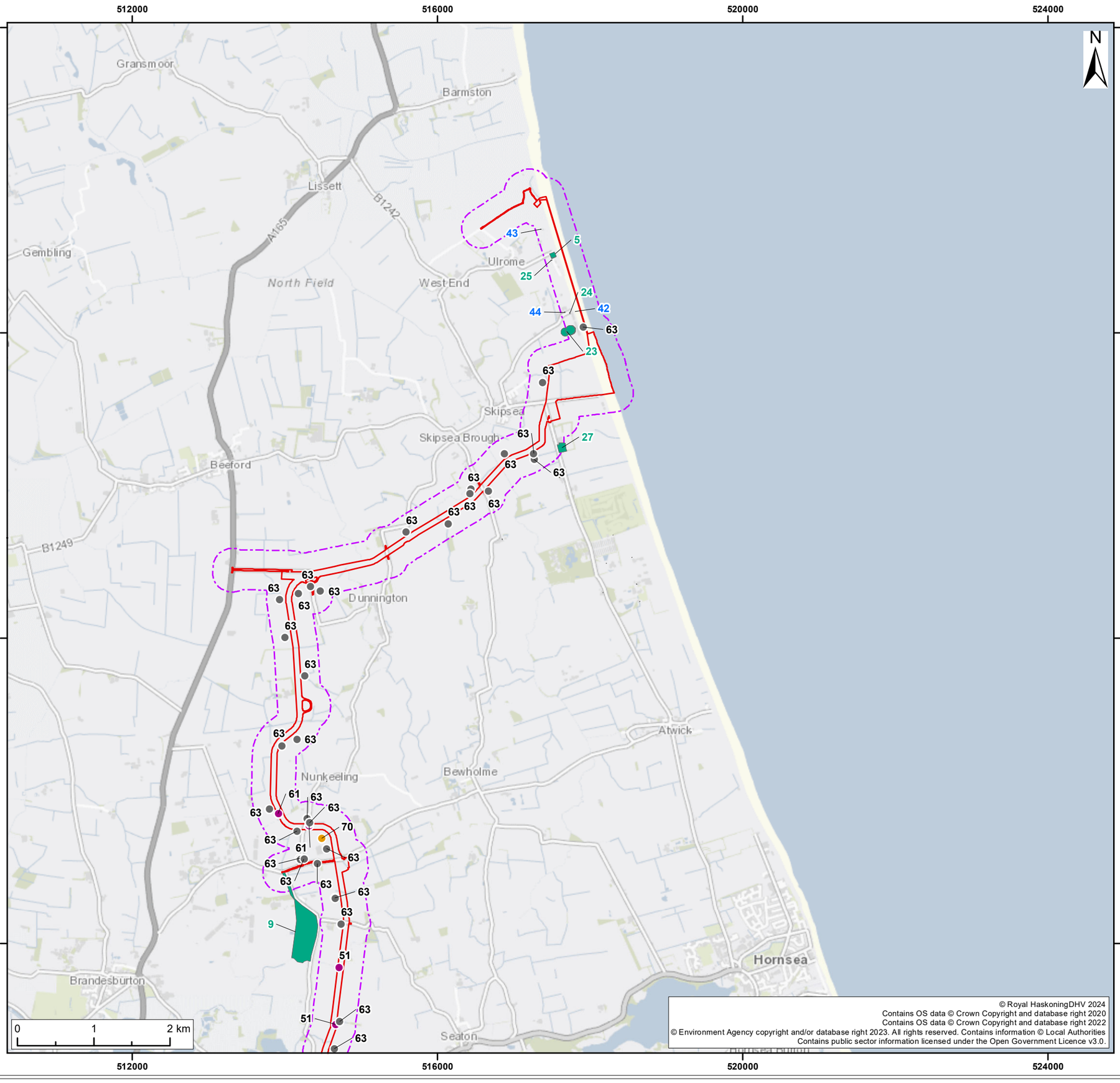
Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project: Dogger Bank South Offshore Wind Farms

Report: Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



- Onshore Development Area
- Onshore Development Area 250m Buffer
- Historical Energy Features
- Historical Tanks
- Historical Industrial Landuse
- Potential pit / pond / infilled land
- Potential pits / ponds / chalk pits / old gravel pits
- Slurry lagoon

Features reference tables 19-14, 19-15, 19-9, 19-20, 19-27 & 19-28 in the report

SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR
S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	29/11/2023	Suitable for Information	SB	KD	ND

Title:

Potentially Contaminative Historical Land Uses

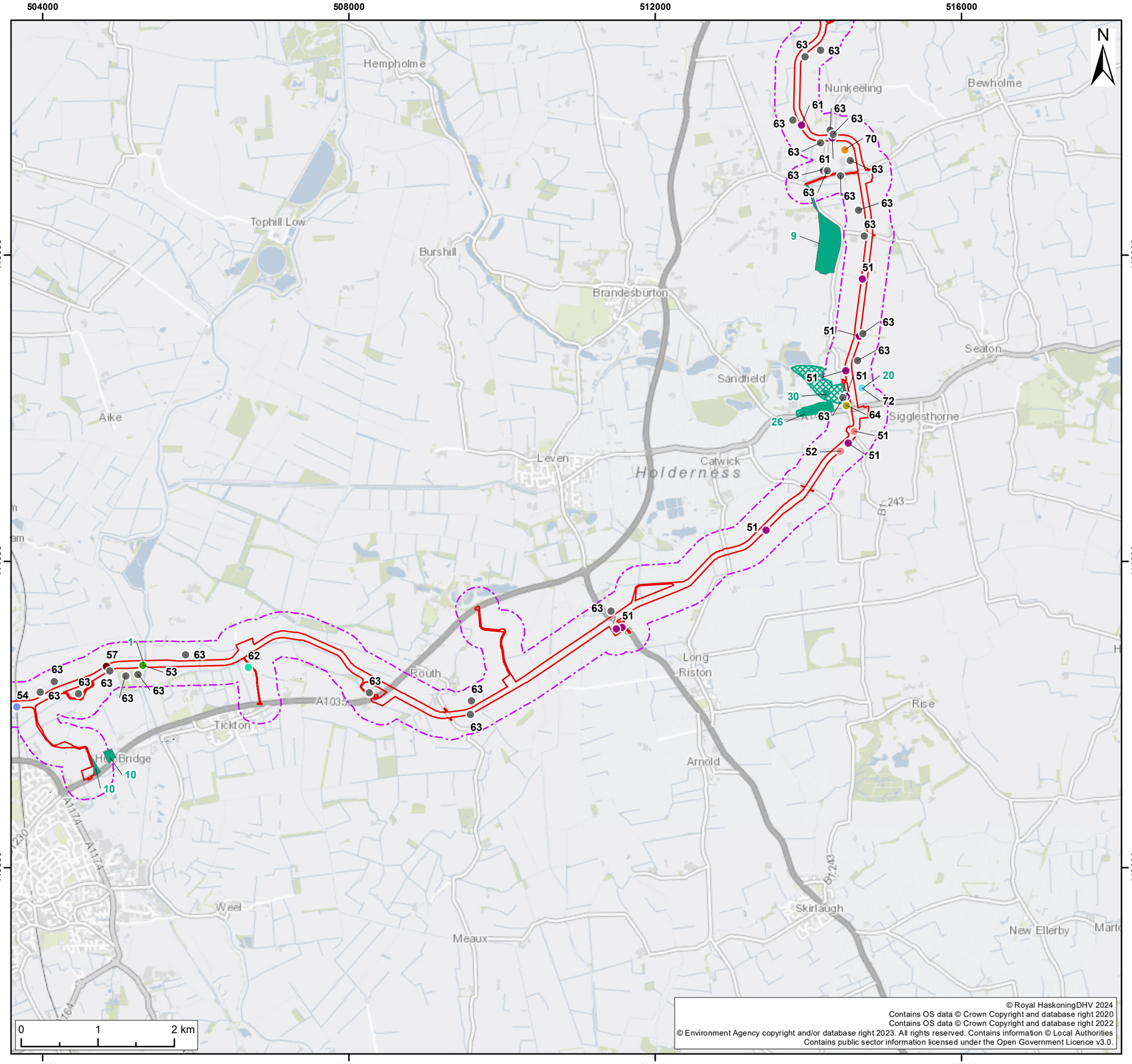
Figure: 19-2-4a | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0673

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:	Report:
Dogger Bank South Offshore Wind Farms	Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



- Onshore Development Area
- Onshore Development Area 250m Buffer
- Historical Landfill (EA records)
- Historical Energy Features
- Historical Tanks
- Historical Industrial Landuse
- Hull and Scarborough Railway
- Old Sand Pit
- Potential pit / pond
- Potential pit / pond / infilled land
- Potential pits / ponds / chalk pits / old gravel pits
- Sheep wash
- Slurry lagoon
- South Bullock Pumping Station
- Springs and potential pond
- Unknown buildings

Features reference tables 19-14, 19-15, 19-9, 19-20, 19-27 & 19-28 in the report

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	29/11/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Potentially Contaminative Historical Land Uses

Figure: 19-2-4b | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0673

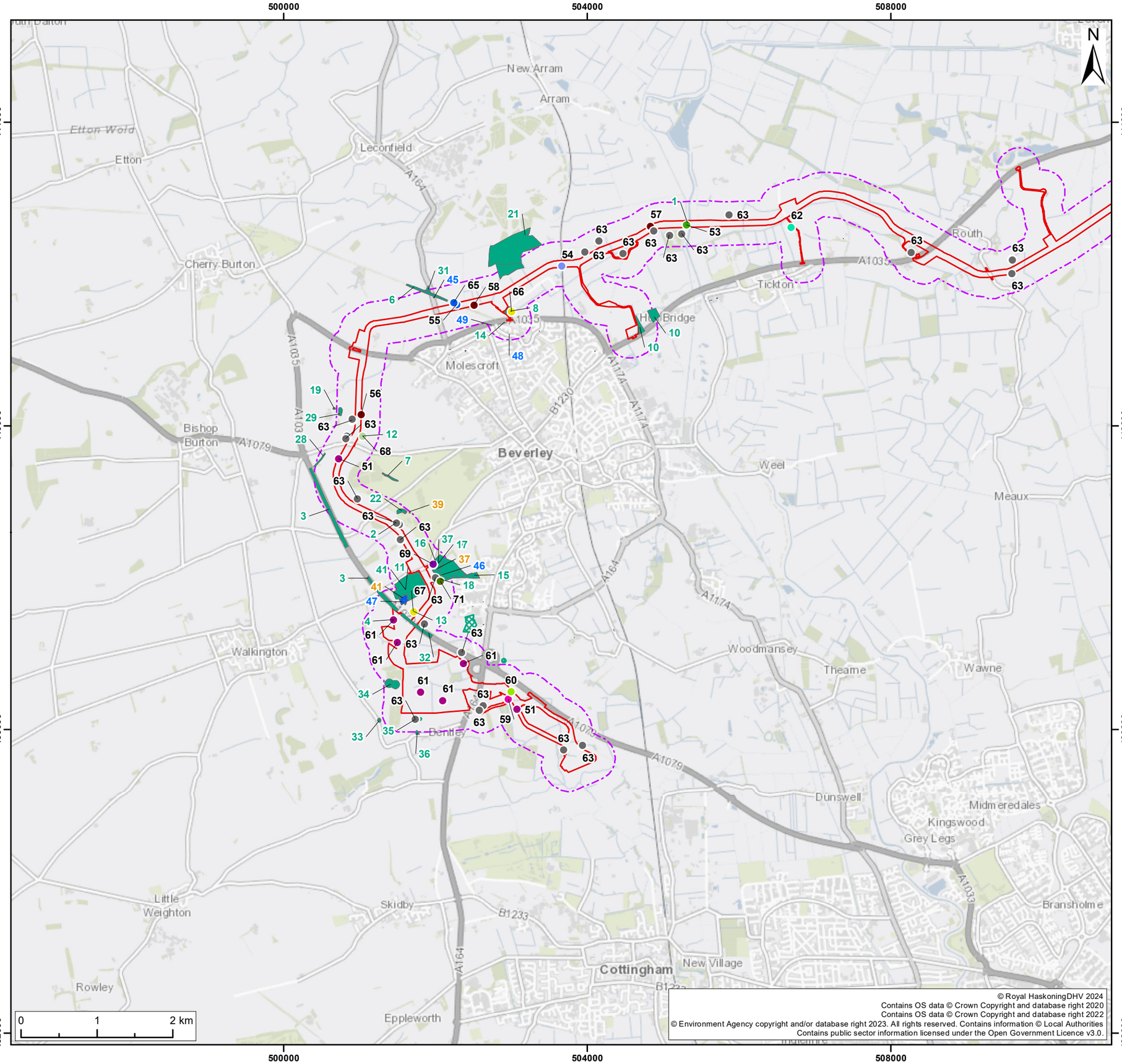
Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project: Dogger Bank South Offshore Wind Farms

Report: Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



- Onshore Development Area
- Onshore Development Area 250m Buffer
- Historical Landfill (EA records)
- Historical Energy Features
- Historical Tanks
- Historical Industrial Landuse
- Beverley Water Works and Reservoir
- Chalk pit, Kilns and Victoria Whiting Works
- Hull and Scarborough Railway
- Old Butts (Potential Pit)
- Old Gravel Pit
- Potential pit / pond / infilled land
- Potential pits / ponds / chalk pits / old gravel pits
- Sewage works
- South Bullock Pumping Station
- Springs and potential pond
- Unknown buildings
- Well
- York, Market Weighton and Beverley Railway

Features reference tables 19-14, 19-15, 19-9, 19-20, 19-27 & 19-28 in the report

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	29/11/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Potentially Contaminative Historical Land Uses

Figure: 19-2-4c | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0673

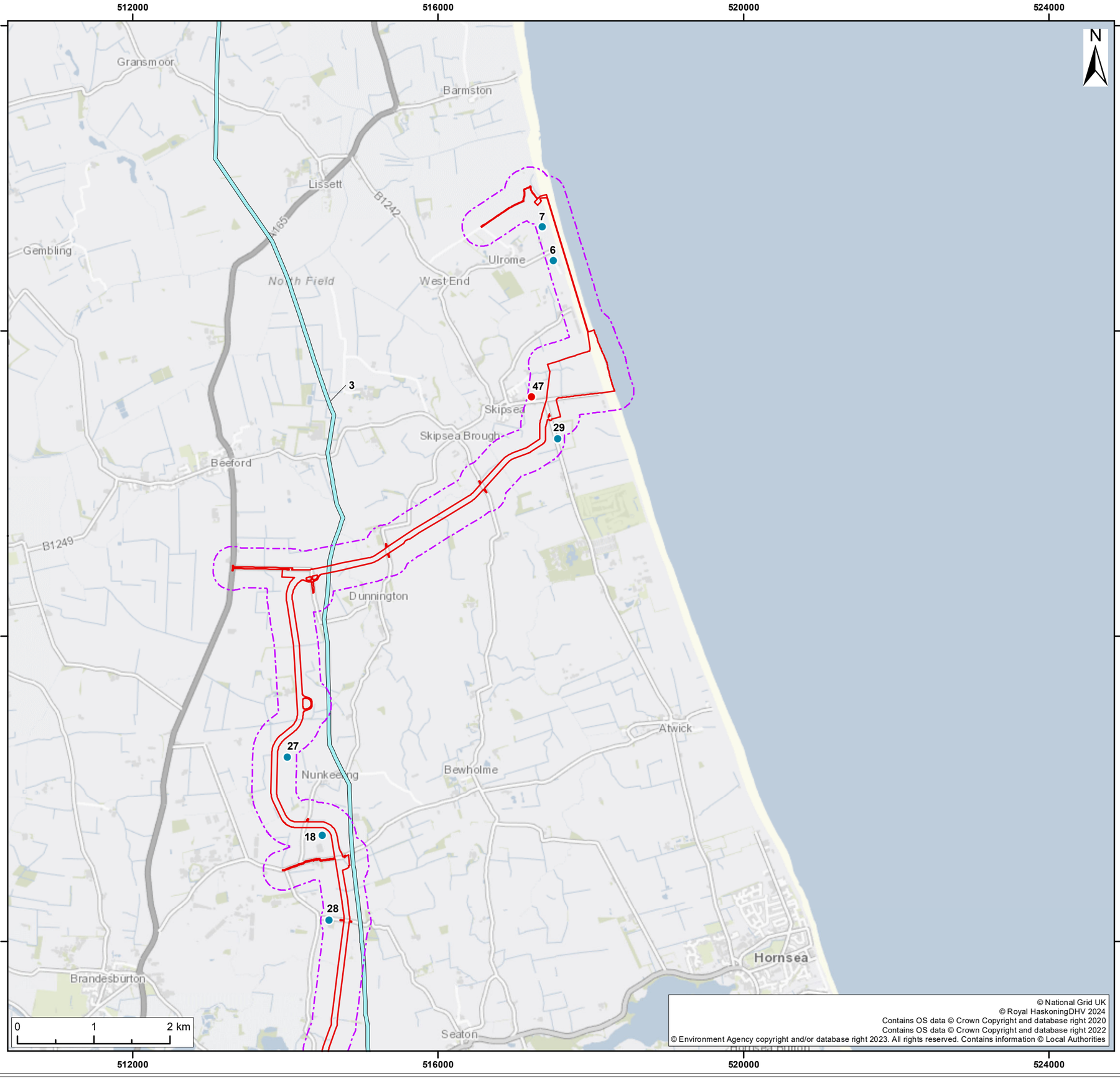
Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project: Dogger Bank South Offshore Wind Farms

Report: Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Current or recent petrol stations
- Industrial land uses

National Grid High Pressure Gas Pipeline

- Burton Agnes to Paull

Features reference tables 19-17 and 19-18 in the report

SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR
S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	13/12/2023	Suitable for Information	SB	KD	ND

Title:

Potentially Contaminative Current Land Uses

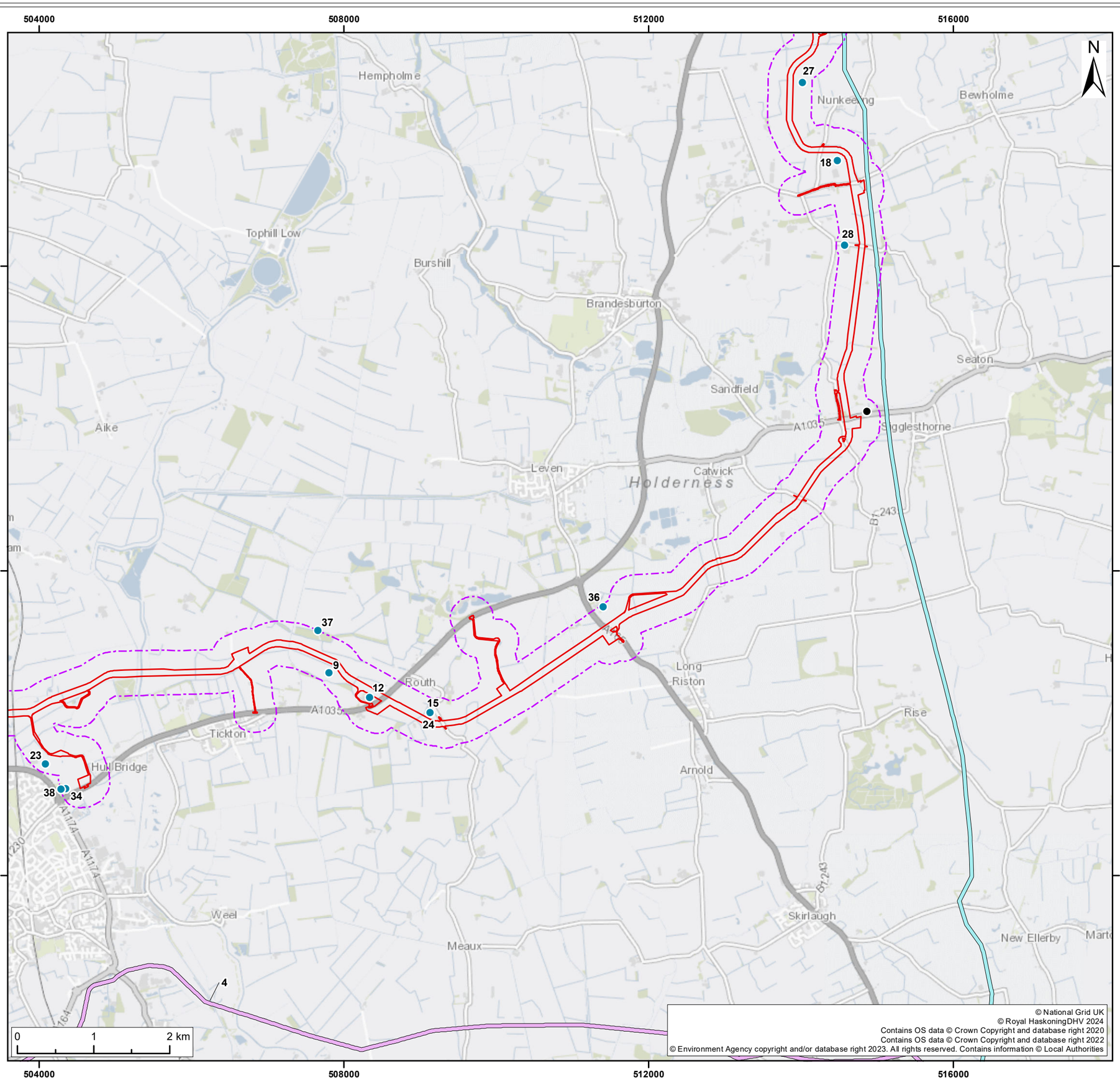
Figure: 19-2-5a | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0680

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:	Report:
Dogger Bank South Offshore Wind Farms	Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Industrial land uses
- Licensed industrial activities (Part A(1))

National Grid High Pressure Gas Pipeline

- Burton Agnes to Paull
- Easington to Asselby

Features reference tables 19-17 and 19-18 in the report

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	13/12/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Potentially Contaminative Current Land Uses

Figure: 19-2-5b | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0680

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:

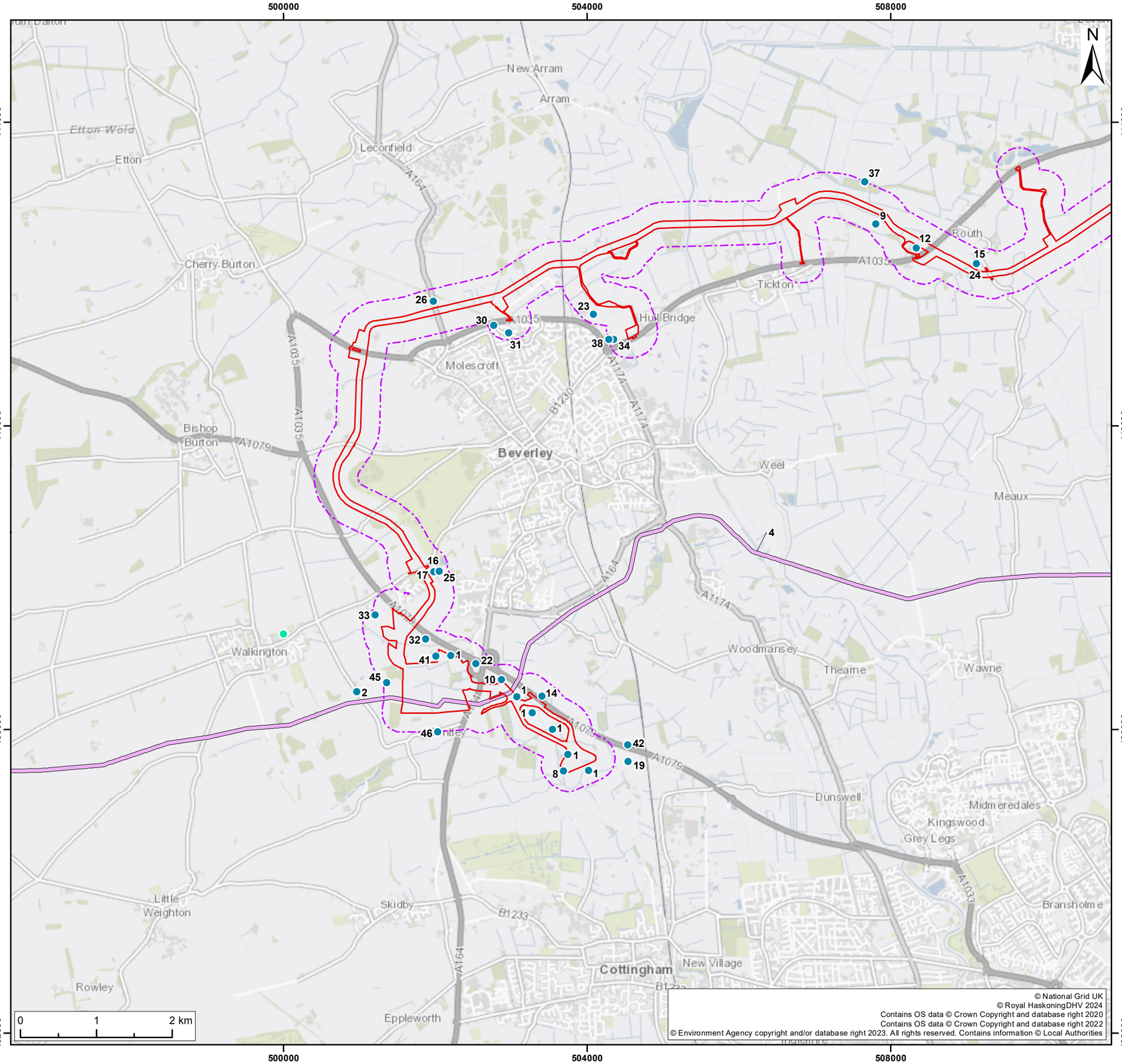
Dogger Bank South Offshore Wind Farms

Report:

Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Industrial land uses
- Licensed pollutant release (Part A(2)/B)

National Grid High Pressure Gas Pipeline

- Easington to Asselby

Features reference tables 19-17 and 19-18 in the report

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	13/12/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

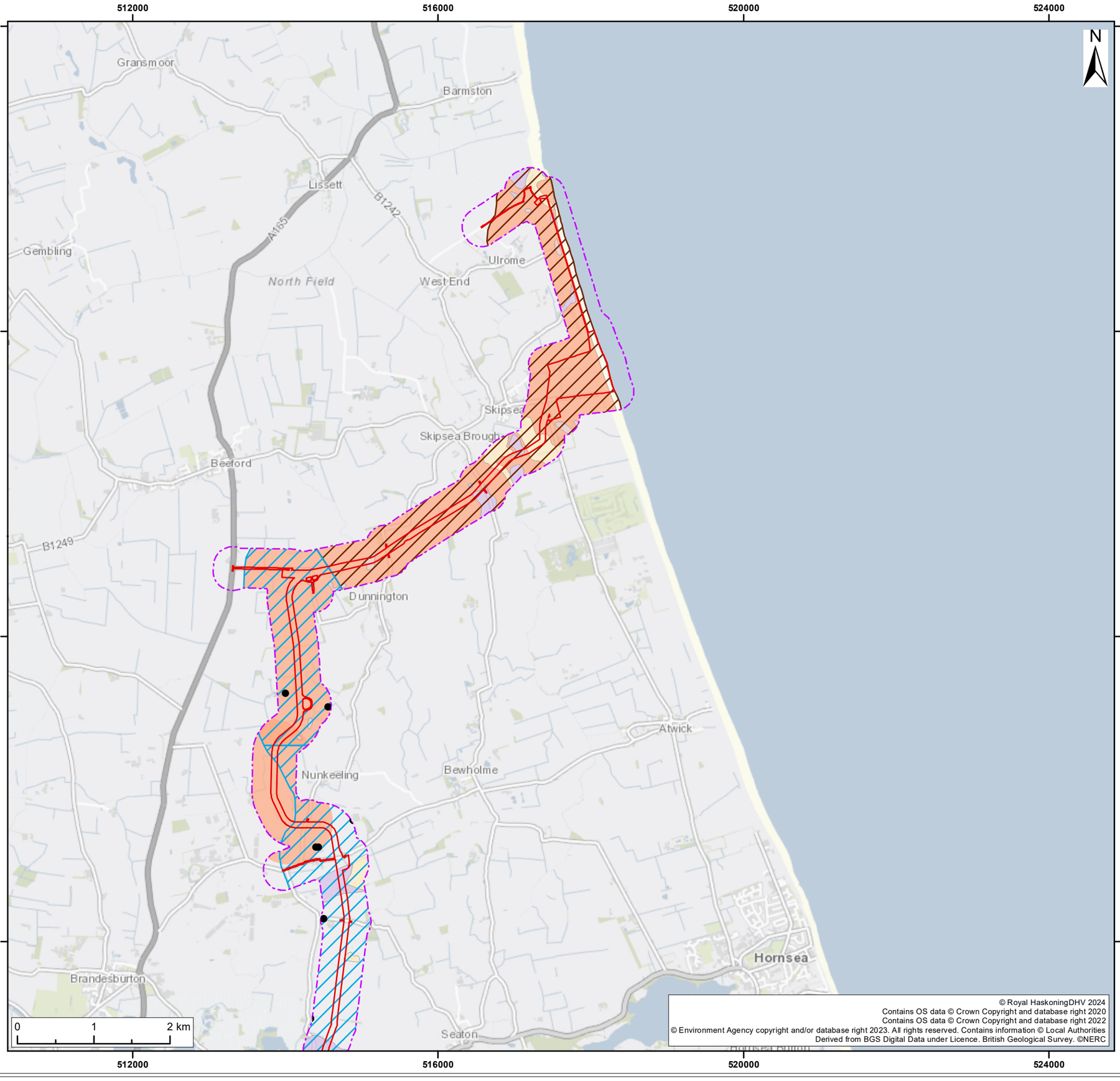
Title:

Potentially Contaminative Current Land Uses

Figure: 19-2-5c	Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0680	
Co-ordinate system: British National Grid	Page Size: A3	Scale: 1:50,000
Project: Dogger Bank South Offshore Wind Farms	Report: Environmental Statement	

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend

- Onshore Development Area
- Onshore Development Area 250m Buffer
- BGS Boreholes

50k Bedrock Geology

- Burnham Chalk Formation
- Flamborough Chalk Formation
- Rowe Chalk Formation

50k Superficial Geology

- Alluvium
- Glaciofluvial Deposits
- Head
- Lacustrine Deposits
- Marine Beach Deposits
- Storm Beach Deposits
- Sand and Gravel
- Till

SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR
S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	23/11/2023	Suitable for Information	SB	KD	ND

Title:

Geology and Ground Conditions

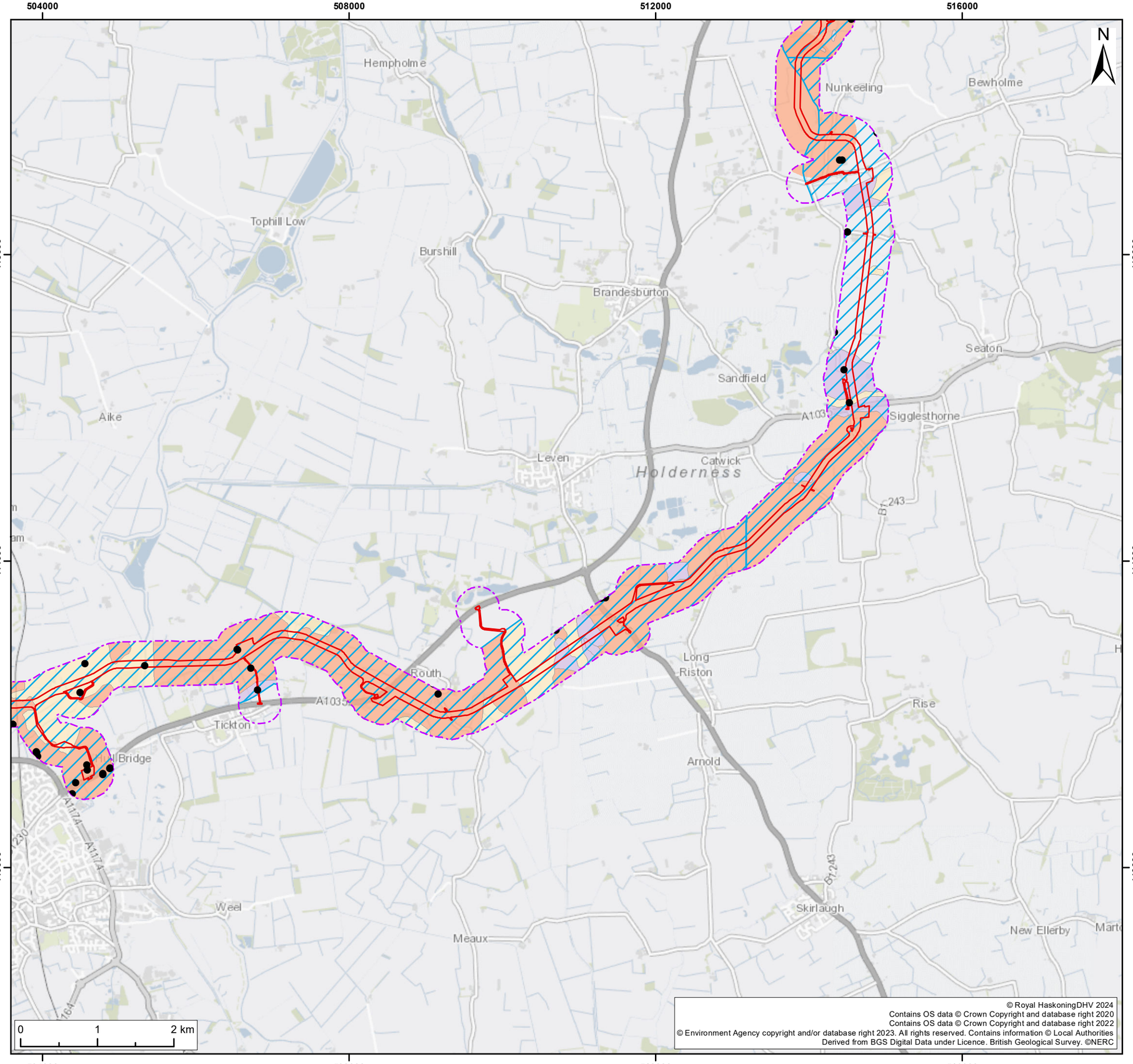
Figure: 19-2-6a | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0638

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:	Report:
Dogger Bank South Offshore Wind Farms	Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend

- Onshore Development Area
- Onshore Development Area 250m Buffer
- BGS Boreholes

50k Bedrock Geology

- Burnham Chalk Formation
- Flamborough Chalk Formation
- Rowe Chalk Formation

50k Superficial Geology

- Alluvium
- Glaciofluvial Deposits
- Head
- Lacustrine Deposits
- Marine Beach Deposits
- Storm Beach Deposits
- Sand and Gravel
- Till

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	23/11/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Geology and Ground Conditions

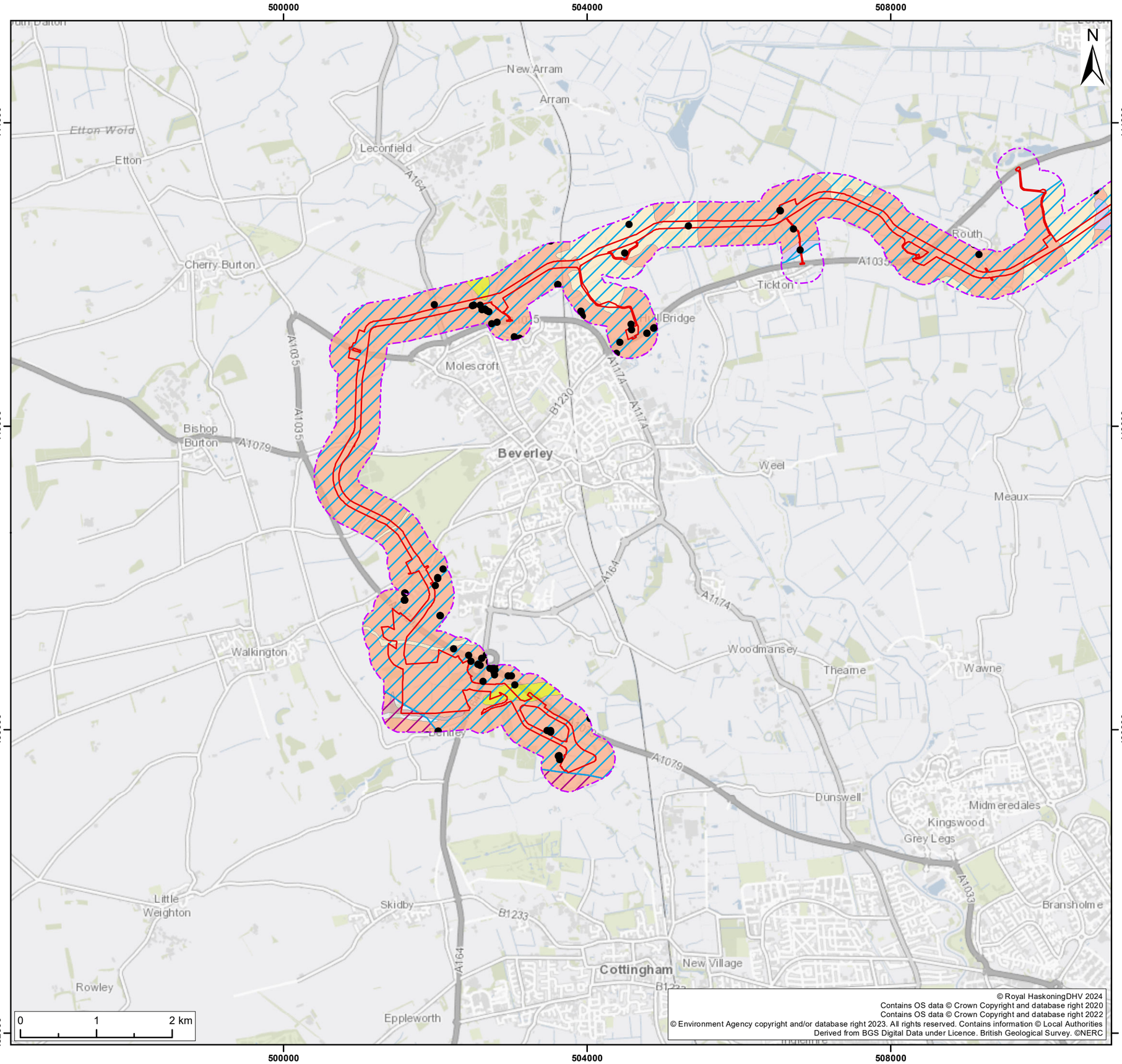
Figure: 19-2-6b | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0638

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:	Report:
Dogger Bank South Offshore Wind Farms	Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend

- Onshore Development Area
- Onshore Development Area 250m Buffer
- BGS Boreholes

50k Bedrock Geology

- Burnham Chalk Formation
- Flamborough Chalk Formation
- Rowe Chalk Formation

50k Superficial Geology

- Alluvium
- Glaciofluvial Deposits
- Head
- Lacustrine Deposits
- Marine Beach Deposits
- Storm Beach Deposits
- Sand and Gravel
- Till

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	23/11/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Geology and Ground Conditions

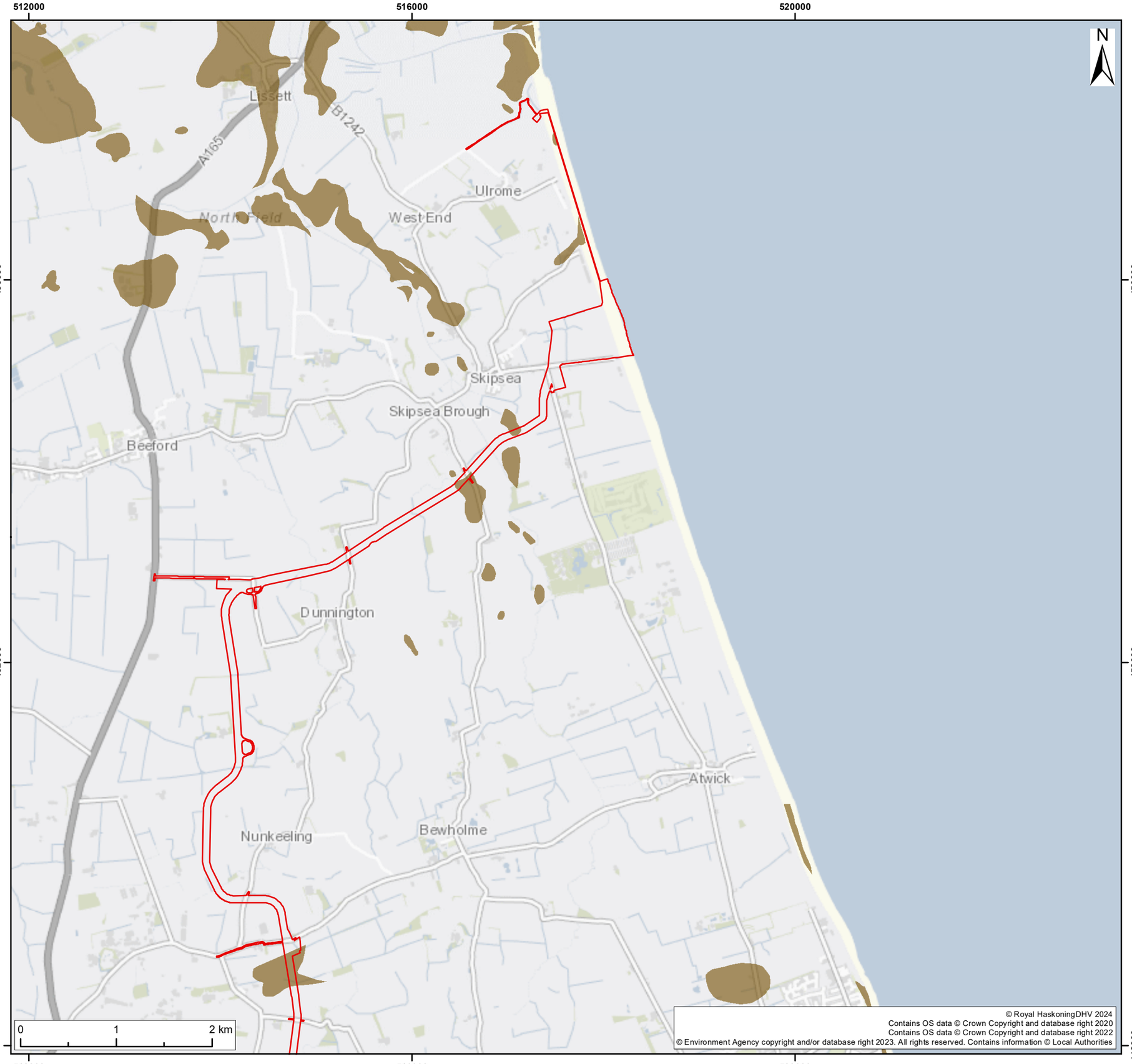
Figure: 19-2-6c | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0638

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:	Report:
Dogger Bank South Offshore Wind Farms	Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend

- Onshore Development Area
- Mineral Safeguarding Areas

SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR
S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	23/11/2023	Suitable for Information	SB	KD	ND

Title:

Mineral Safeguarding Areas

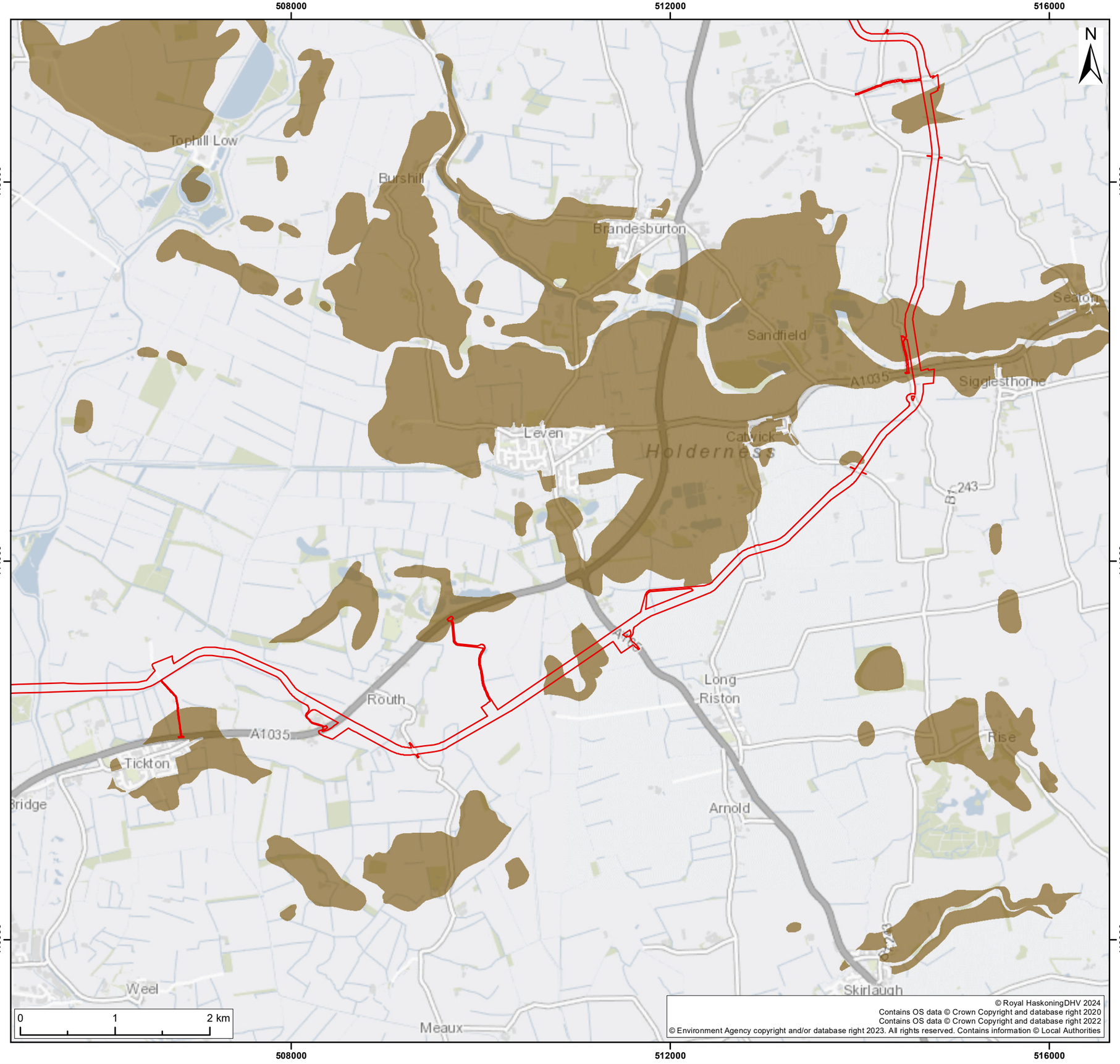
Figure: 19-2-7a	Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0639

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:40,000

Project:	Report:
Dogger Bank South Offshore Wind Farms	Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend

- Onshore Development Area
- Mineral Safeguarding Areas

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	23/11/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Mineral Safeguarding Areas

Figure: 19-2-7b | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0639

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:40,000

Project:

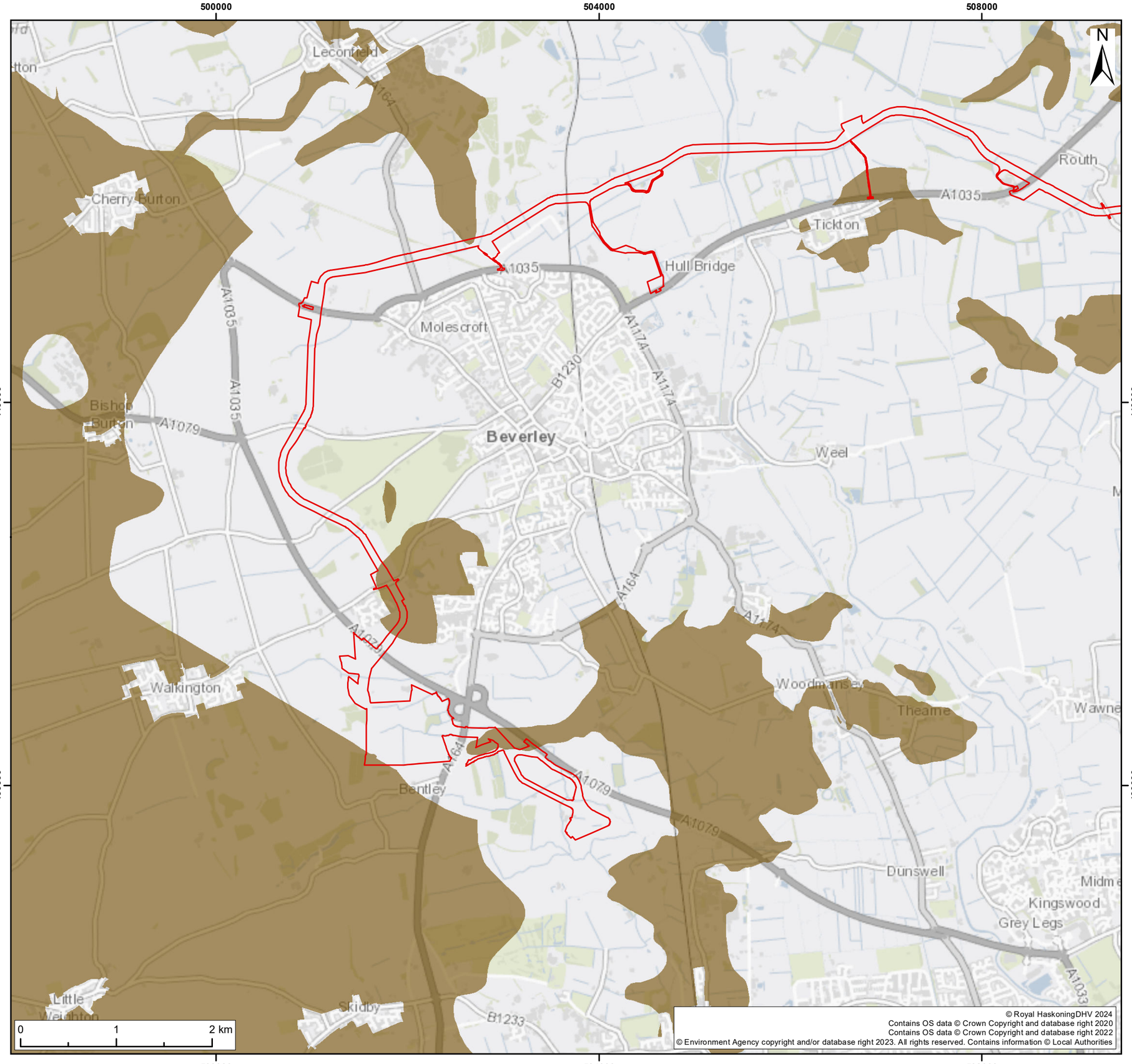
Dogger Bank South Offshore Wind Farms

Report:

Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend

- Onshore Development Area
- Mineral Safeguarding Areas

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	23/11/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Mineral Safeguarding Areas

Figure: 19-2-7c | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0639

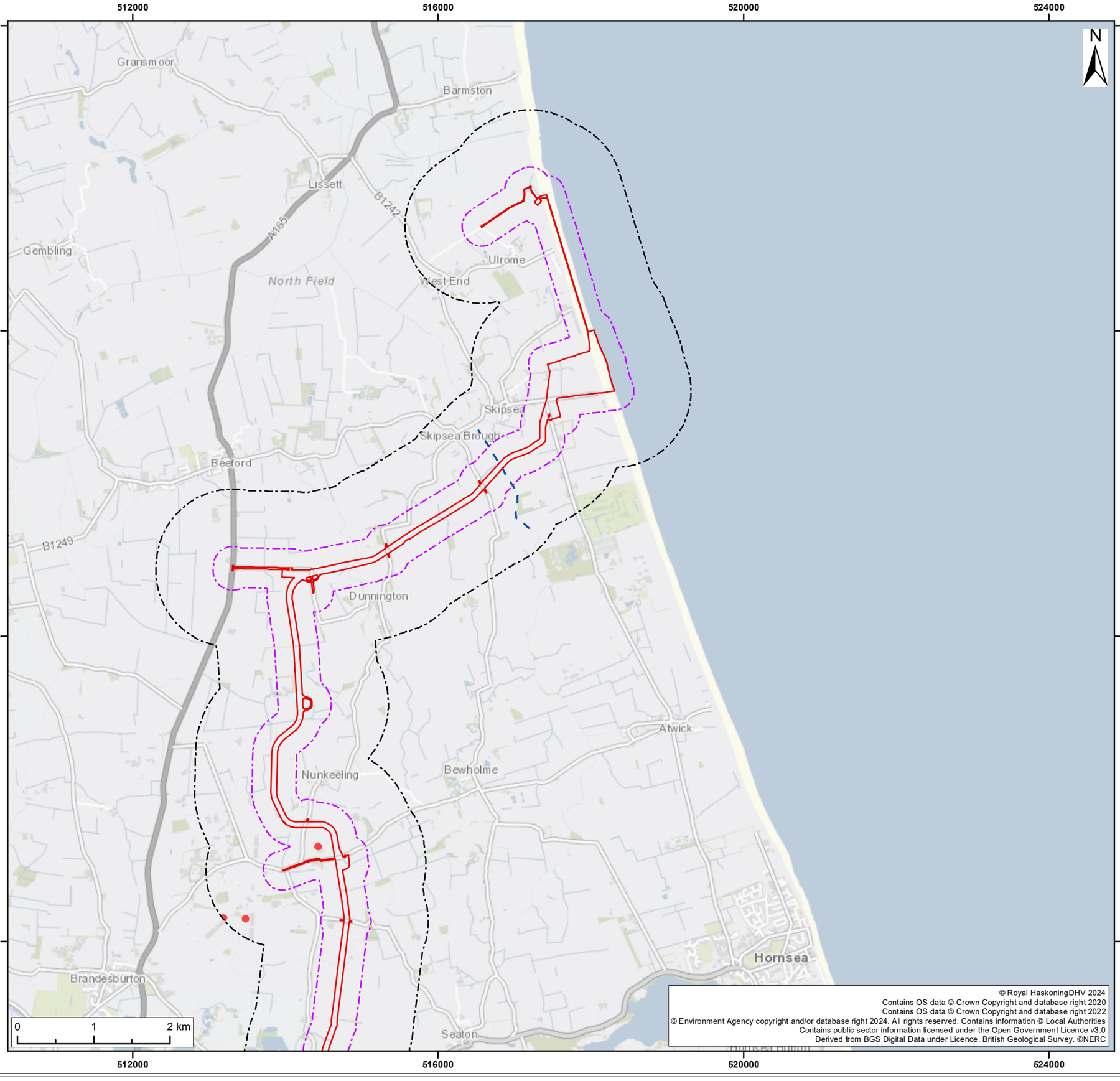
Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:40,000

Project: Dogger Bank South Offshore Wind Farms

Report: Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Onshore Development Area 1km Buffer
- WFD Surface Water Body Linear Features
- Substation Zone 4

Source Protection Zone

- SPZ1
- SPZ2
- SPZ3
- Commercial abstraction well under the jurisdiction of the Local Authority
- Domestic Potable abstraction well under the jurisdiction of the Local Authority

Licensed groundwater & surface water abstractions (labelled licence number eg. 2/26/30/049)

- Groundwater - non potable
- Groundwater - potable
- Surface water - non potable

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	11/12/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Hydrogeology and Hydrology

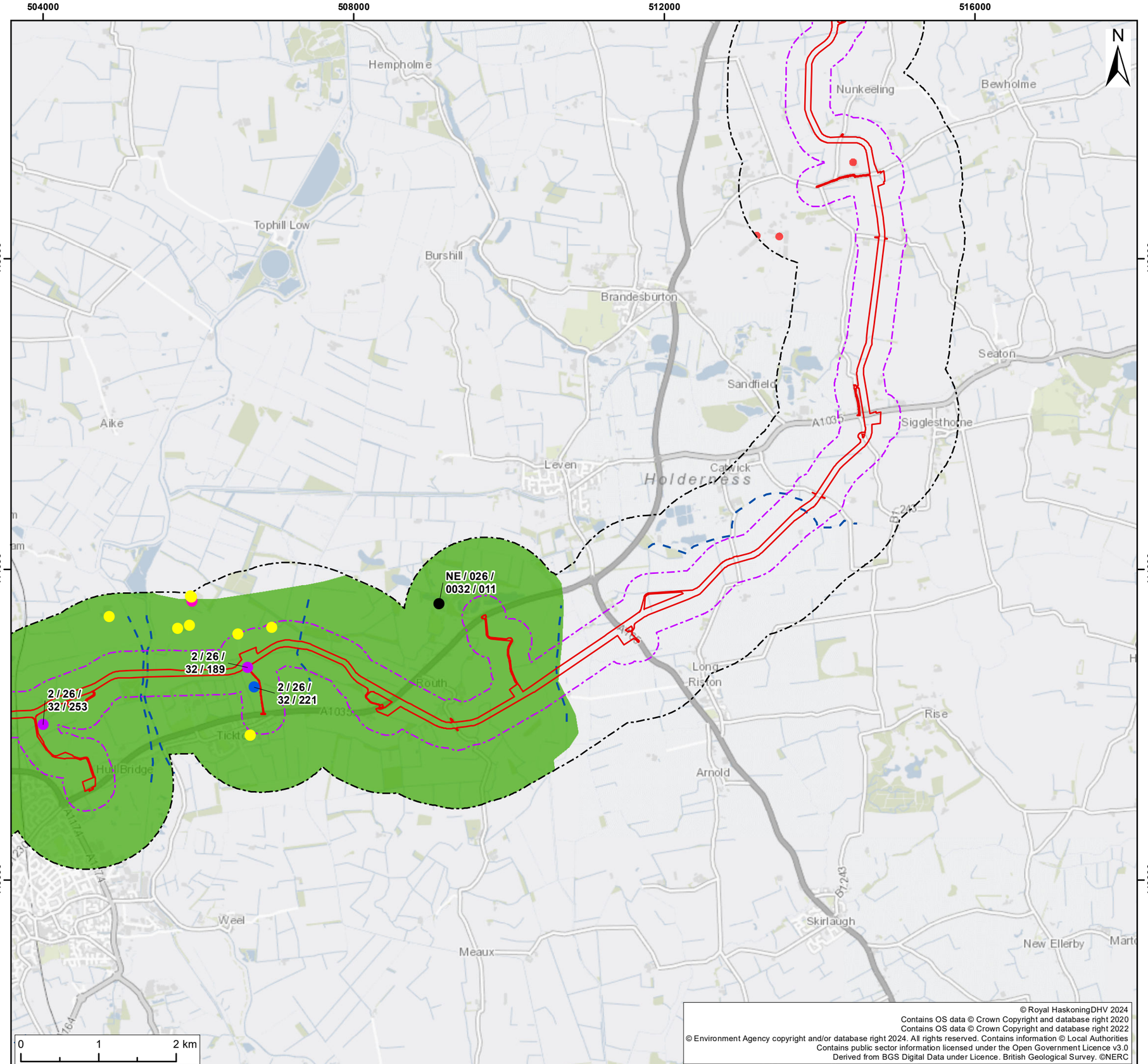
Figure: 19-2-8a | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0681

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:	Report:
Dogger Bank South Offshore Wind Farms	Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Onshore Development Area 1km Buffer
- WFD Surface Water Body Linear Features
- Substation Zone 4

Source Protection Zone

- SPZ1
- SPZ2
- SPZ3
- Commercial abstraction well under the jurisdiction of the Local Authority
- Domestic Potable abstraction well under the jurisdiction of the Local Authority

Licensed groundwater & surface water abstractions (labelled licence number eg. 2/26/30/049)

- Groundwater - non potable
- Groundwater - potable
- Surface water - non potable

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	11/12/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Hydrogeology and Hydrology

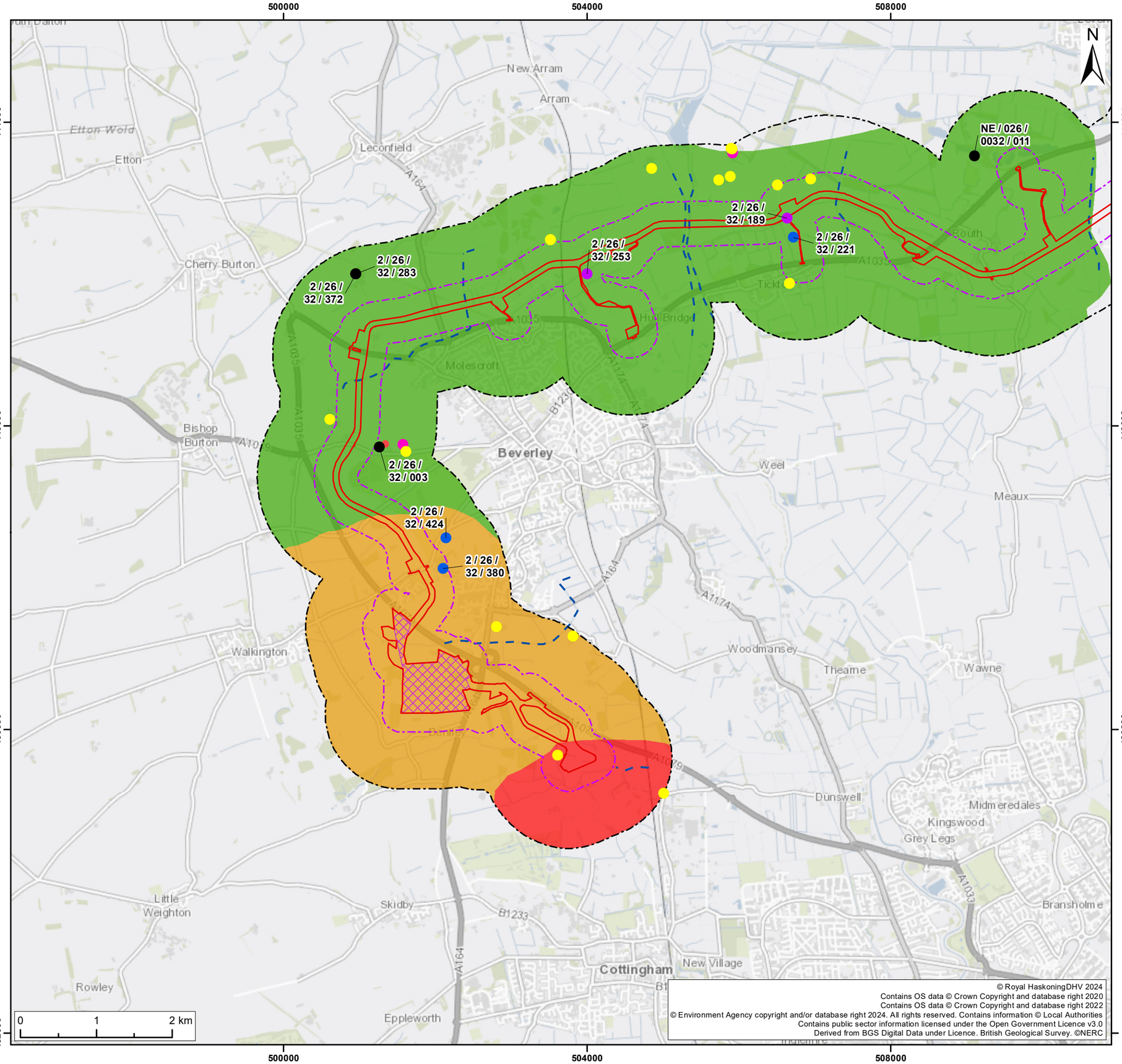
Figure: 19-2-8b | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0681

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:	Report:
Dogger Bank South Offshore Wind Farms	Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Onshore Development Area 1km Buffer
- WFD Surface Water Body Linear Features
- Substation Zone 4

Source Protection Zone

- SPZ1
- SPZ2
- SPZ3
- Commercial abstraction well under the jurisdiction of the Local Authority
- Domestic Potable abstraction well under the jurisdiction of the Local Authority

Licensed groundwater & surface water abstractions (labelled licence number eg. 2/26/30/049)

- Groundwater - non potable
- Groundwater - potable
- Surface water - non potable

SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR
S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	11/12/2023	Suitable for Information	SB	KD	ND

Title:

Hydrogeology and Hydrology

Figure: 19-2-8c

Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0681

Co-ordinate system: British National Grid

Page Size: A3

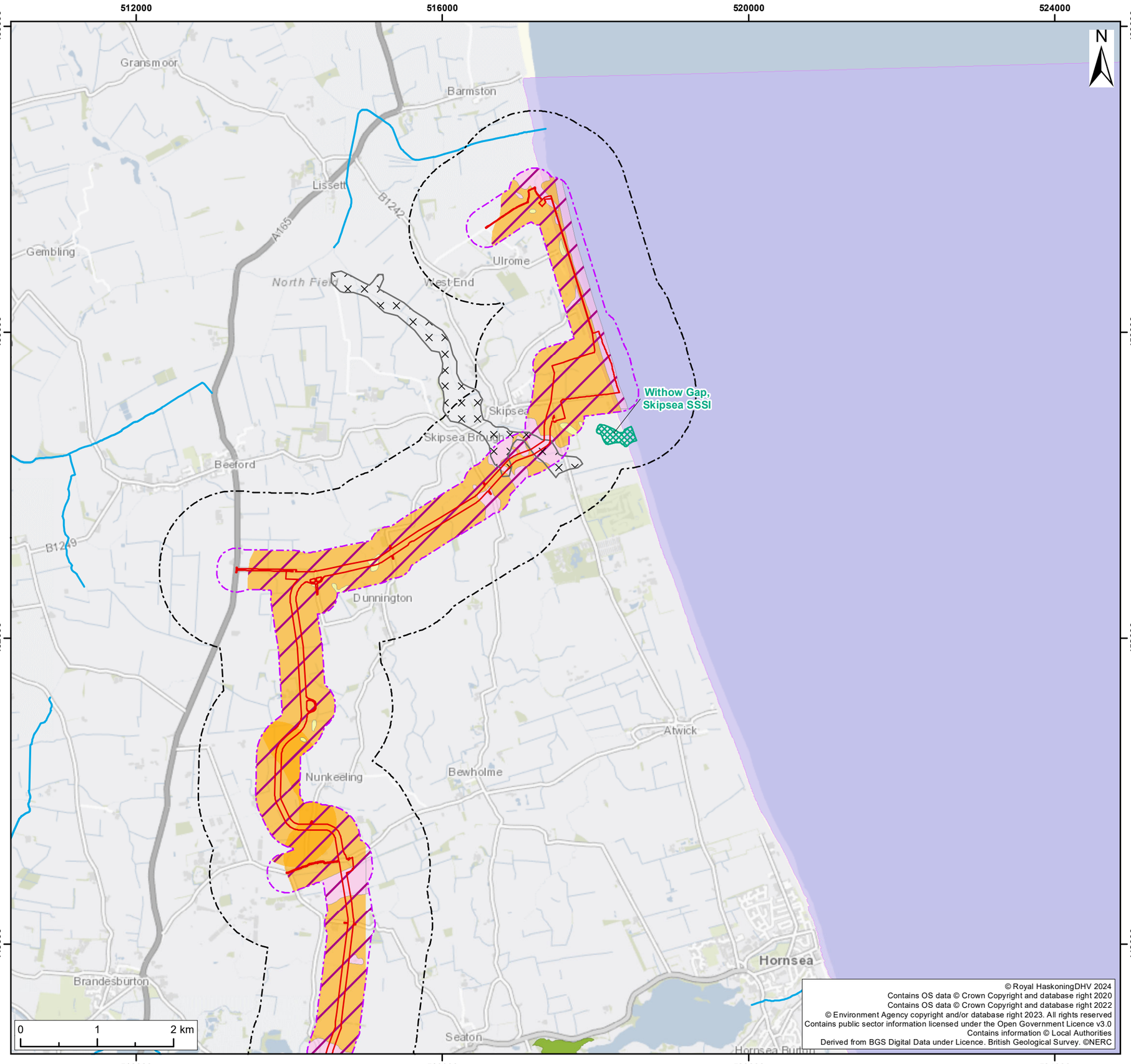
Scale: 1:50,000

Project: Dogger Bank South Offshore Wind Farms

Report: Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Onshore Development Area 1km Buffer
- Statutory Main Rivers
- Special Protection Area
- Local Geological Site
- Ancient Woodland
- Sites of Special Scientific Interest
- Principal Bedrock Aquifer
- Secondary A Superficial Aquifer
- Secondary B Superficial Aquifer
- Secondary Superficial Aquifer Undifferentiated

Licensed groundwater abstractions (labelled licence number eg. 2/26/30/049)

- Non potable
- Potable

Features reference table 19.45

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	11/12/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Potential Receptors

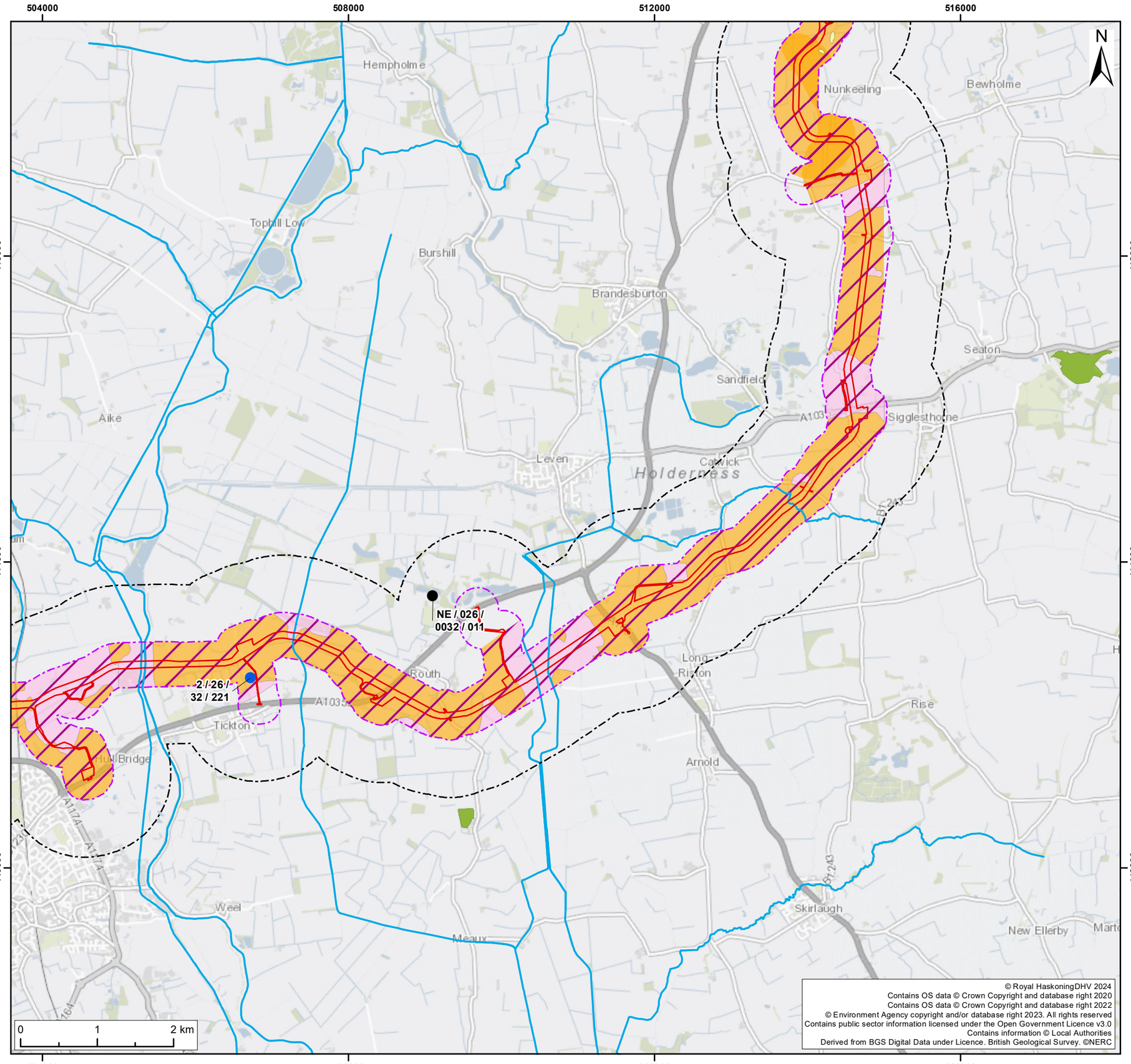
Figure: 19-2-9a | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0682

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:	Report:
Dogger Bank South Offshore Wind Farms	Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Onshore Development Area 1km Buffer
- Statutory Main Rivers
- Special Protection Area
- Local Geological Site
- Ancient Woodland
- Sites of Special Scientific Interest
- Principal Bedrock Aquifer
- Secondary A Superficial Aquifer
- Secondary B Superficial Aquifer
- Secondary Superficial Aquifer Undifferentiated

Licensed groundwater abstractions (labelled licence number eg. 2/26/30/049)

- Non potable
- Potable

Features reference table 19.45

SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR
S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	11/12/2023	Suitable for Information	SB	KD	ND

Title:

Potential Receptors

Figure: 19-2-9b | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0682

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:

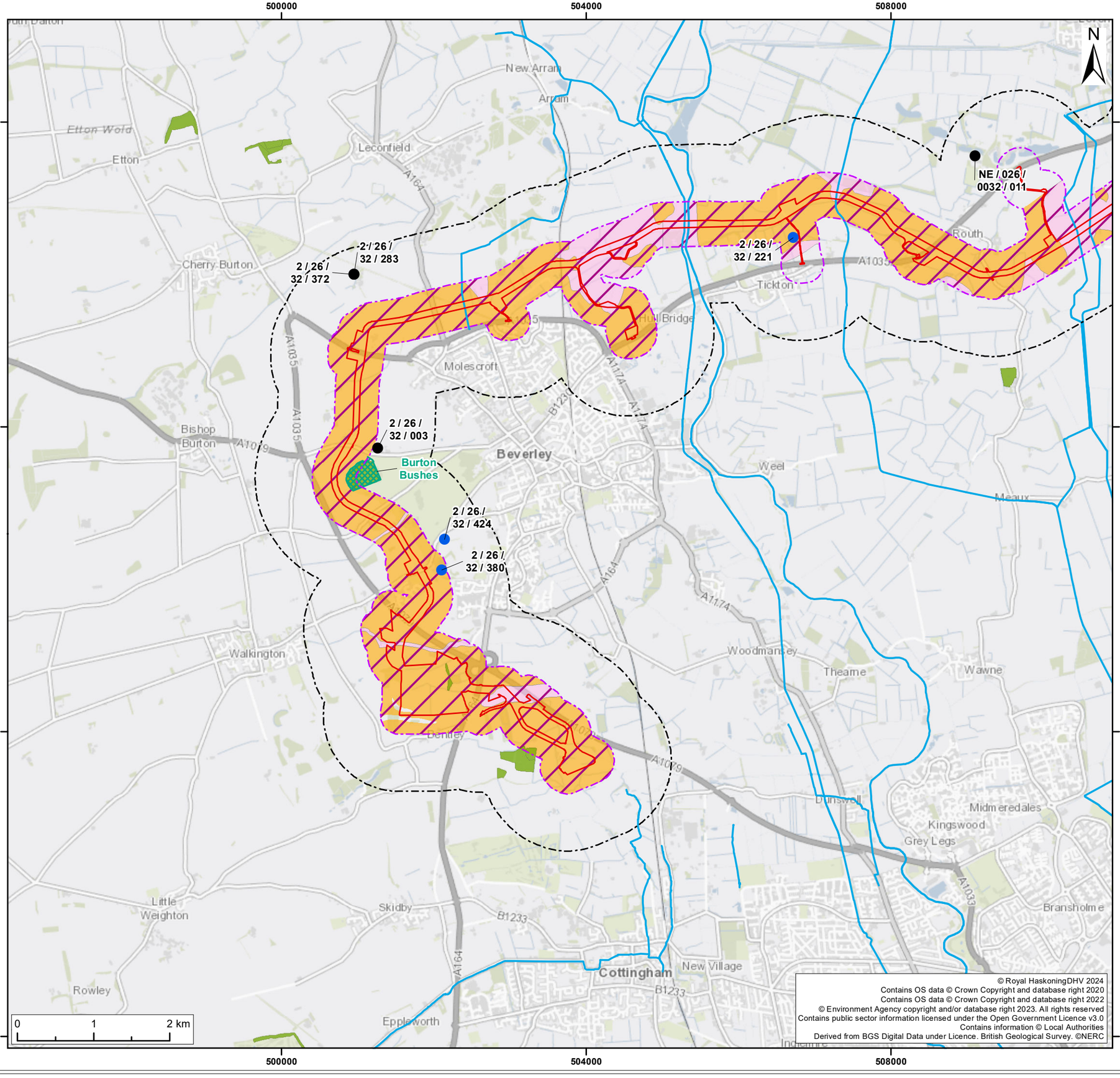
Dogger Bank South Offshore Wind Farms

Report:

Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE



Legend

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Onshore Development Area 1km Buffer
- Statutory Main Rivers
- Special Protection Area
- Local Geological Site
- Ancient Woodland
- Sites of Special Scientific Interest
- Principal Bedrock Aquifer
- Secondary A Superficial Aquifer
- Secondary B Superficial Aquifer
- Secondary Superficial Aquifer Undifferentiated

Licensed groundwater abstractions (labelled licence number eg. 2/26/30/049)

- Non potable
- Potable

Features reference table 19.45

S3	P02	19/03/2024	Suitable for review & comment	SB	KD	ND
S2	P01	11/12/2023	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:

Potential Receptors

Figure: 19-2-9c | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0682

Co-ordinate system:	Page Size:	Scale:
British National Grid	A3	1:50,000

Project:	Report:
Dogger Bank South Offshore Wind Farms	Environmental Statement

Royal HaskoningDHV
Enhancing Society Together

RWE

Annex A
UXO Risk Maps

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 500987,437567

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 501051,439880

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 501397,441401

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary	**industry**	**UXO find**
transport	**dock**	**Luftwaffe targets**
utilities	**Bombing decoy**	**other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 501752,438309

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary	**industry**	**UXO find**
transport	**dock**	**Luftwaffe targets**
utilities	**Bombing decoy**	**other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 502434,436981

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 502923,441955

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

zeticaUXO

SITE LOCATION

Map Centre: 503150,437523

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 503412,436082

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 504301,442860

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 504508,441768

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 505822,443118

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 507566,442931

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 509265,442229

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 511171,442387

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary	**industry**	**UXO find**
transport	**dock**	**Luftwaffe targets**
utilities	**Bombing decoy**	**other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 512613,443473

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 513986,444392

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 514520,451308

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary	**industry**	**UXO find**
transport	**dock**	**Luftwaffe targets**
utilities	**Bombing decoy**	**other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 514697,447365

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

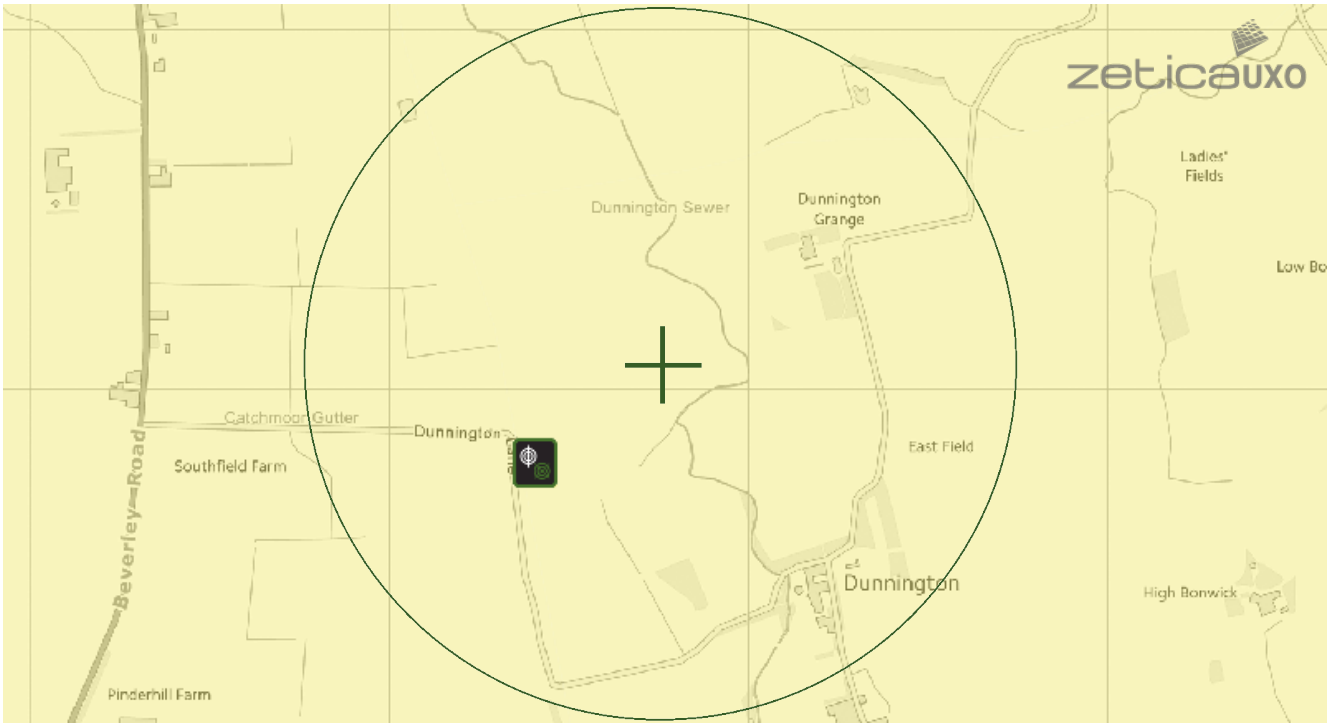
It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 514766,453072



LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 514771,449302

LEGEND

High: Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.

Moderate: Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.

Low: Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**

transport | **dock** | **Luftwaffe targets**

utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 514895,445765

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary	**industry**	**UXO find**
transport	**dock**	**Luftwaffe targets**
utilities	**Bombing decoy**	**other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 515863,454228

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 517048,455647

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

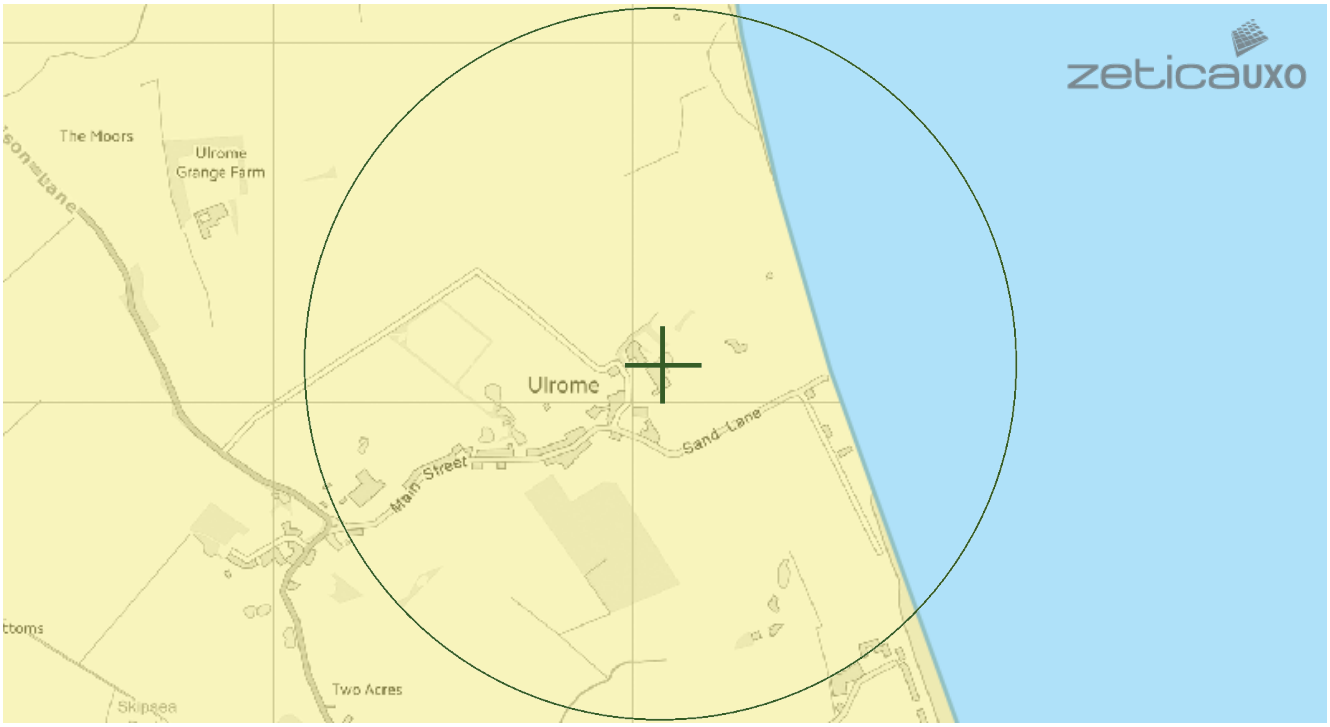
It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 517088,457108



LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

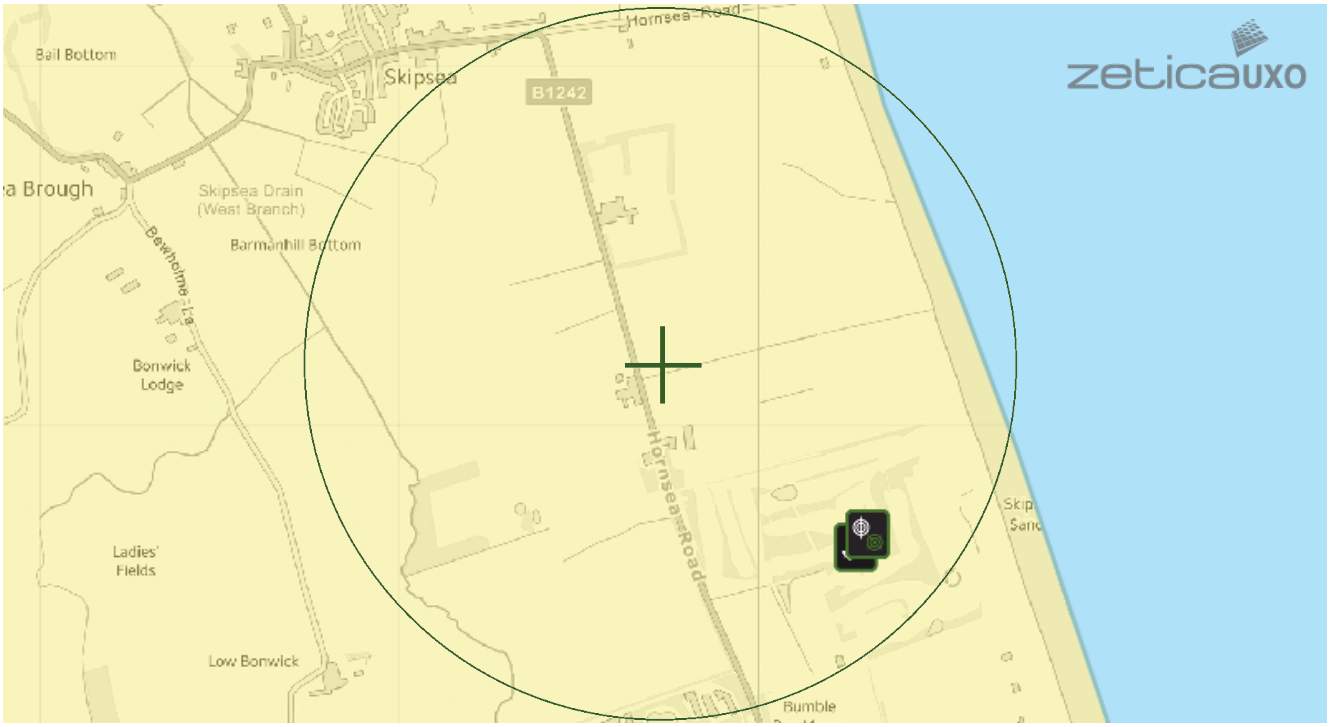
It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 517740,454171



LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

Annex B

BGS Borehole Records

TA04SE72 / 112

Field Map site: 05334264 ~~10050421~~

BEVERLEY

6" Yorks 196 S.W.

37. South Bullock Pumping Station on the River Hull, ~~3 miles from~~ Beverley. 2½ m. N.E. of Beverley

Communicated by Mr. J. Villiers, 1903, June 23rd

		Thickness. Ft.	in.	Depth. Ft.	in.
DRIFT	Soil and clay	6 (1·83)	0	6	0 (1·83)
	Very soft black warp	28 (8·53)	0	34	0 (10·36)
	Thin bed of flinty gravel	0 (0·15)	6	34	6 (10·52)
FLAMBOROUGH CHALK	Very soft Chalk	41 (12·50)	0	75	6 (23·01)

[redacted] 10/2/82 Surface c. 7' O.D. 2" tube to 50' down.

Date "23 June, 1903." "50 ft. 2" galv. iron pipe". Other details as printed above, in Villiers original record book. [W.A.T. 6.11.41]

The Pumping Station itself comes under the control of the River Hull Catchment Board. The station is used for pumping flood water out of the main lowland drain into the River Hull. There are two cottages attached to the Pumping Station & these obtain their only supply of water from the above 75½' bore. The water is drawn by means of a small hand-pump, & I understand it is an excellent supply & very good for drinking purposes. There does not appear to be an analysis on record.

About ¾ mile N. of Hull Bridge Road, on W. side of River Hull.

(Fide, assistant Engineer, River Hull Catchment Board, Beverley. 7/8/41.)

Visited & sited on 6" old field slip 196 S.W. (W.) [redacted] 7/8/41.

Source of site

O.D. taken ... [illegible] from 6" ... [illegible]

Published in Water [illegible] ... E. Riding of Yorks. page 92

Grid Ref TA ~~146 446~~ 1453 4607

I.G.S. Ref

Y.W.A. Licence No.
App. No.

CATWICK B.H.2.

Aquifer: DRIFT.

WD 720.0m
≡ C 719.6m

Address of Site: CATWICK (LANDFILL SITE)

Owner: CAIRD ENVIRONMENTAL (N.B poss change of ownership in near future)

Borehole Depth: 20.0m

Dia: No Info

Casings: No Info.

Details of Strata:

Strata	Depth	Thickness
TOPSOIL	1.0	1.0
CLAY (sandy silty)	1.3	0.3
CLAY (brown grey mottled, soft, sandy silty.)	1.5	0.2
SILT (soft brown, clayey very sandy)	1.6	0.1
FINE SAND (brown clayey, ~~sandy~~ gravelly)	1.8	0.2
CLAY (Stiff, dark brown, silty with some fine to medium chalky gravel)	3.2	2.4
FINE SAND (Brown)	3.3	0.1
CLAY (Firm to stiff, dark brown, silty with some fine to medium chalky gravel & very occasional cobbles)	20.0	16.7

No Chalk Data

1/330

RECORD OF WELL (SHAFT OR BORE)

181
06544285
1" N.S. 72
1" O.S.
TA 04 SE/3
138

At Mr Blacker's Huts
Town or Village Eske County Yorks Six-inch quarter-sheet 196 SW
Exact site
in parish of
(A rough sketch-map or a tracing from a map is very desirable)
Level of ground surface above sea-level (O.D.) 25 7.62 ft. If well starts below ground surface, state how far ft.
Shaft 80 ft., diameter ft. Bore ft. Diameter of bore: at top ins.; at bottom ins.
Details of permanent lining tubes (internal diameters preferred) 2" tube to 50' down.

Water struck at depths of (feet)
Rest-level of water below/above top of well feet. Suction at feet. Yield on hours'/days' test
gallons per (with pump of capacity g.p.h.); depressing water level to 38 feet below top. Time of recovery hrs. Amount normally pumped daily g.p.h. for hours.
Quality (attach copy of analysis if available)
Sunk by J. Villiers for Mr. Date of well 1920
Information from Prof. P.F. Kendall; & Lapworth, "Rept. E. Riding water supplies", 1973, pp. 46-7

(For Survey use only). GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA (and any additional remarks).	THICKNESS Feet.	THICKNESS Inches.	DEPTH Feet.	DEPTH Inches.

ESKE

BLACKERS HUTS

1920

Feb. 18	Top soil	0.30	1	0.30	1
DRIFT	Gravel and sand	0.91	3	1.22	4
	Clay and marl	6.71	22	7.92	26
DRIFT and /or CHALK	Chalk and gravel	3.05	10	10.97	36
FLAMBOROUGH CHALK	Chalk	13.41	44	24.38	80

[redacted] 10/2/82 2" pipes 50 feet
Checked from Villiers original record book. [H.A.T. 6.11.41]

According to present occupier, the bore frequently runs dry.
no further information. O.D. c 8'
Sited on 6" field slip 196 SW (W). [H.A.T. 22.7.41]

"P. Blacker, Eske. new Huts.
1920. Feb. 18-27. Boring new tube well 80 ft deep.
March 1. 50 ft. 2" pipes." Villiers' Account Book per HAT. Mch 1942

Geological Survey and Museum.
South Kensington.
London. S.W.7.

For Survey use only

Date received	G.S.M. Office File No.	Site marked on 1" map (use symbol)

(*11815) Wt.29051/O.369 10,000 9/39 A.& E.W.Ltd. Gp.686
Chalk

Copy sent to York DG on 21.7.61

RECORD OF WELL (SHAFT OR BORE)

06814232 TA04SE/21

+30 For Survey use only 72/479 N. 9791

Licence No. L/20/15

EXACT SITE OF WELL

At Eske Lane, Tickton, Beverley

Field no 13

Town or Village Tickton

County E.R. of Yorkshire Six-inch quarter sheet

For L. Burnett State whether owner, tenant, builder, contractor, consultant, etc.:— Owner

Address (if different from above) 12 Grange Crescent, Tickton, Beverley

Level of ground surface above sea-level (O.D.) ..... ft. If well-top is not at ground level, state how far { above: / below; ..... ft.

SHAFT ~~90~~ ft.; diameter — ft.; Full details of headings (dimensions and directions)

BORE 90 (40 ins) ft.; diameter of bore: at top 4 ins.; at bottom 4 ins.

Full details of permanent lining tubes (position, length, diameter, plain, slotted etc.) Plain

4" lining Tubes (Plain)

TEST CONDITIONS

Water struck at depths of 40 ft. below ~~well~~ Bore top.

Rest level of water 3 ft. ~~above~~ below well-top. Suction at 18 ft. Yield on ..... hours' / days' test pumping at 2500 galls. per hr with depression to 7 ft. below well-top.

Recovery to rest-level in Secs ~~mins.~~ / hours Capacity of pump 2.500 g.p.h. Date of measurements June 14 1961

NORMAL CONDITIONS

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

Make and/or type ..... Motive power .....

Capacity ..... gallons per hour. Suction at ..... ft.

Amount pumped ..... galls. per day. Estimated consumption ..... galls. per week.

Well made by ~~C.A.W.~~ [illegible] (Engineers) Date of well June 1961

Information from [illegible] WAKEFIELD, BEVERLEY, TEL. 31571

ADDITIONAL NOTES

ANALYSIS (please attach copy if available)

Visited by IGS staff in 1967 and 1970. Notes added to London Copy are difficult to read, but appear to be:

Visited. Site corrected. In use for irrigation. Suction pump driven by petrol engine. RWL 3ft 10 ins below crown of road. Sample taken. (Signature) 24:10:67

Crown of road + C. 8 (Signature.)

Conductivity of Sample 460 micromhos (Signature).

Visited. Bore in use for market garden O.D. + C.7 R.W.L. 2.3ft b.g.l. Last pumped 24 hours previously U.A.R. 11.3.70

LOG OF STRATA OVERLEAF.

Geological Survey and Museum, South Kensington, London, S.W.7.		Section 6.	Date Received	1" O.S. Map No.	Site marked on 1" Map	(use symbol) on 6" Map
			14·7·61	62	⊙	⊙

(1527) D4574/W837583 12,000 8/54 JC&S Gp689

U31 TA04SE21

72/479

(For Survey use only) Geological Classification	Nature of Strata. If measurements start below ground surface, state how far ..	Thickness Feet	Thickness Inches	Depth Feet	Depth Inches	
DRIFT	Brown Clay	2·44	8	0		
DRIFT	Boulder Clay	4·27	14	0	22	0 6·71
DRIFT	Green Clay	2·13	7	0	29	0 8·84
DRIFT and/or CHALK	Putty chalk	0·91	3	0	32	0 9·75
FLAMBOROUGH CHALK	Chalk	17·68	58	0	90	0 27·43
[redacted]						
10/2/82						

59 WZ 70 A

(E). Ground-surface 28·00' O.D. Bore 18'. 3" diam. Made on 30 March, 1908.
R.W.L. 25·71' O.D. Temp. of water 44·8° F.

DRIFT

Top soil & brown & blue clay	16'6"	16'6"
white gravel	0'6"	17'0"
Chalky marl	1'0"	18'0"

59 Situated in John Watt's Field.

London 02594159

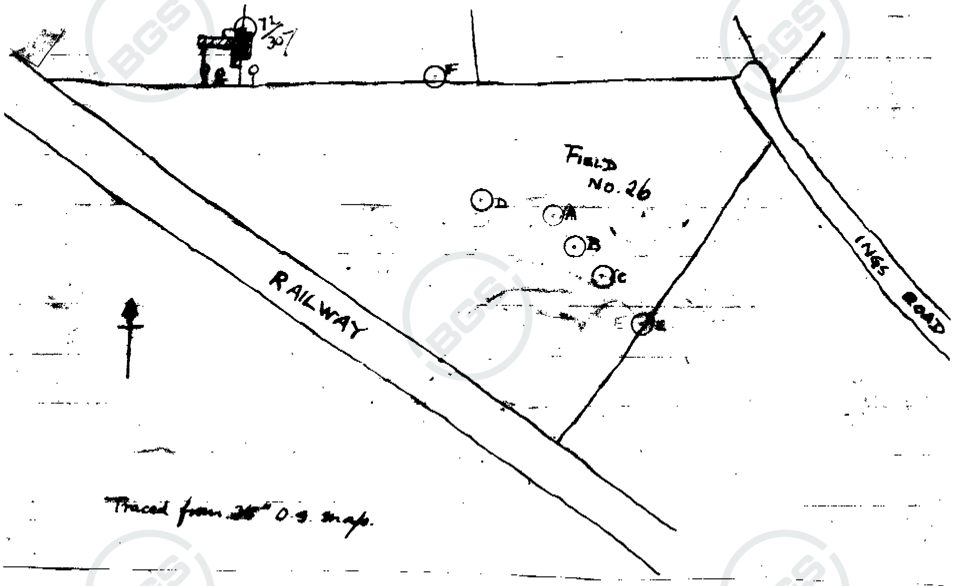
(F). Ground-surface 27·40' O.D. Bore 18'. 3" lining tube from ground-level to 14' down. R.W.L. 26·20' O.D. Temp. of water 47·8 F. Made on 30 March. 1908

DRIFT

Top soil	2'6"	2'6"
Sandy clay	2'6"	5'0"
Sand	2'0"	7'0"
Gravel	5'0"	12'0"
Red clay	2'0"	14'0"
white gravel	0'6"	14'6"
Chalky marl	3'6"	18'0"

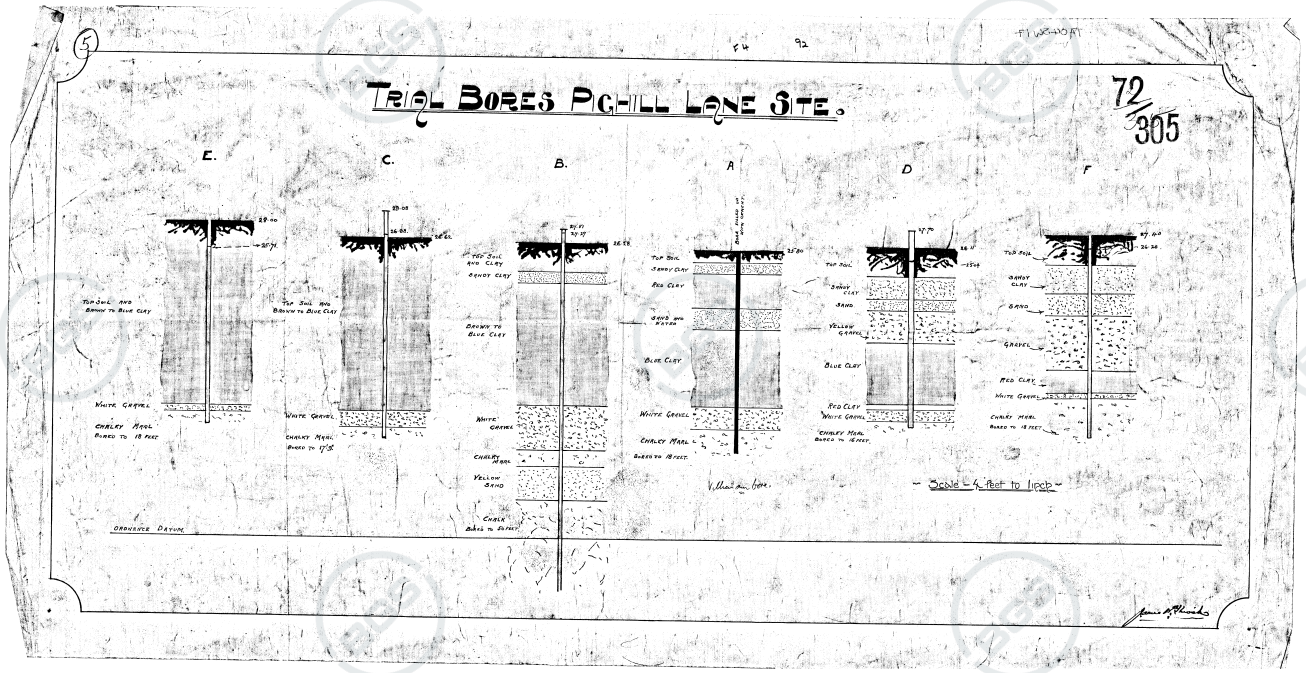
[redacted] 10/2/82

The scheme was not carried any further on this site.
Abandoned because of alarm caused by discovery of supposed swallow hole with N. of the L.N.E.R. well. Actually it proved to be a broken land drain!
(The ground level at this hole is 22·18' O.D., while not far away springs rise at 25·02' O.D. so not a swallow hole.
Information from Mr. T.W. Thirsk, July. 1941 per K.P. Oakley.



Traced from 25" O.S. map.

All sited on 6" 210 N.E. (E) emergency edition.


Trial Bores Pighill Lane Site.
72
305
E.
C.
B.
A
D
F
Top Soil and Sandy to Blue Clay
White Gravel
Chalky Marl
Bored to 18 feet
Ordnance Datum
Top Soil and Brown to Blue Clay
White Gravel
Chalky Marl
Bored to 17'8
Top Soil and Sandy Clay
Brown to Blue Clay
White Gravel
Chalky Marl
Yellow Sand
Chalk
Bored to 30 feet
Top Soil
Sandy Clay
Red Clay
Sand and Water
Blue Clay
White Gravel
Chalky Marl
Bored to 18 feet
Village pump here.
Top Soil
Sandy Clay
Sand
Yellow Gravel
Blue Clay
Red Clay
White Gravel
Chalky Marl
Bored to 18 feet
Top Soil
Sandy Clay
Sand
Gravel
Red Clay
White Gravel
Chalky Marl
Bored to 18 feet
Scale - 4 feet to 1 inch

BGS ID: 459439 : BGS Reference: TA04SW17/F
British National Grid (27700) : 502591,441596

Grid Ref. TA026415 | I.G.S. Ref. 72/30SA-F | Y.W.A. Licence No. App. No.

Aquifer: Chalk

Address of Site: Rigmill Lane Crossing. Trials for new waterworks

Owner:

Borehole Depth: To 50' Dia.:

Casings:

Six trial bores given. All similar log. Deepest given as example.

Details of Strata:

B	Feet
Soil	2½
Sandy clay	1
Brown to Blue Clay	11
White Gravel	4
Chalky marl	1½
Yellow sand	3
Chalk	27
	50

(11)

taken for examination for each of these organisms; and Streptococci were not found in 30 c.c. These results give no indication of the water having recently been polluted with sewage or excremental matter, and there is no excess of ordinary bacteria.

C. H. WELLS,
Secretary.

9th May, 1908.

PARTICULARS OF TRIAL BORES AT PIGHILL LANE SITE.

72/305A

Bore **A** made 4th January, 1908.

Top Soil	1 ft.
Sandy Clay	1 „
Red Clay	3 „
Sand and Water	2 „
Blue Clay	7 „
White Gravel	2 „
Marl and Gritty Chalk, bored to	2 „
Total depth of bore	18 ft.

72/305B

Bore **B** made 16th March, 1908.

Top Soil	2 ft. 6 in.
Sandy Clay	1 „ 0 „
Brown to Blue Clay	11 „ 0 „
White Gravel	4 „ 0 „
Chalky Marl	1 „ 6 „
Yellow Sand	3 „ 0 „
Chalk bored to	27 „ 0 „
Total depth of bore	50 „ 0 „

72/305C

Bore **C** made 18th March, 1908.

Top Soil and Brown to Blue Clay	15 ft. 6 in.
White Gravel	1 „ 6 „
Chalky Marl bored to	9 „
Total depth of bore	17 „ 9 „

72/305

72/305D

Bore **D** made 19th March, 1908.

Top Soil	2ft. 6in.
Sandy Clay	2 „ 0 „
Sand	1 „ 0 „
Yellow Gravel	3 „ 0 „
Blue Clay	5 „ 6 „
Red Clay	6 „
White Gravel	1 „ 0 „
Chalky Marl bored to	6 „
Total depth of bore	16ft. 6in.

72/305E

Bore **E** made 30th March, 1908.

Top Soil and Brown to Blue Clay	16ft. 6in.
White Gravel	6 „
Chalky Marl bored to	1 „ 0 „
Total depth of bore	18ft. 0in.

72/305F

Bore **F** (John Watts' Field) made 30th March, 1908.

Top Soil	2ft. 6in.
Sandy Clay	2 „ 6 „
Sand	2 „ 0 „
Gravel	5 „ 0 „
Red Clay	2 „ 0 „
White Gravel	6 „
Chalky Marl bored to	3 „ 6 „
Total depth of bore	18ft. 0ft.

N.B.—Bore "A" was the first bore put down by Mr. Villiers after his tender was accepted, and before any arrangements were made as to supervision.

Bore "B" is the DEEP bore from which samples of water have been taken.

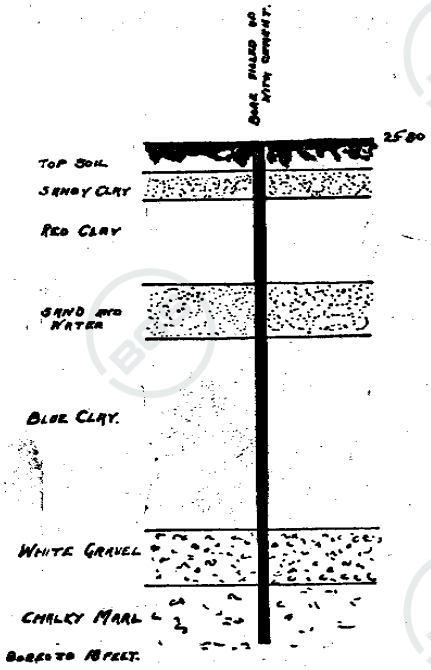
Bore "C" is the SHALLOW bore, ditto.

BGS ID: 459439 : BGS Reference: TA04SW17/F
British National Grid (27700) : 502591,441596

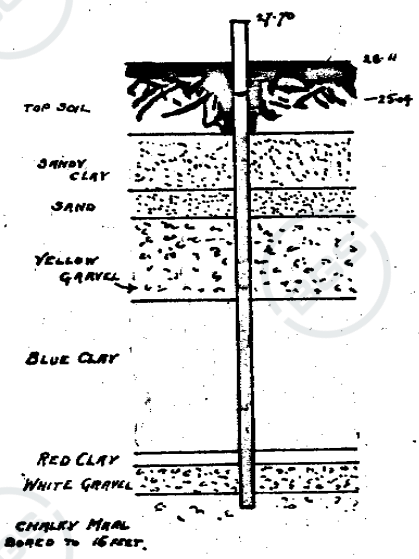
LL LANE SITE.

72 TA04/83 (5)
3/305

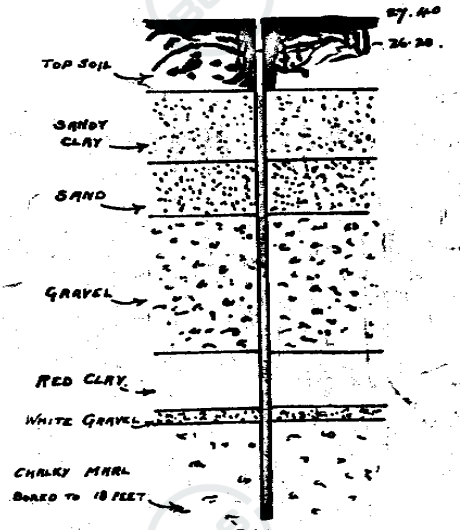
A
5·48m



D
4·87m



F
5·48m



Williamson bore.

~ Scale – 4 feet to 1 inch ~

RECORD OF WELL (SHAFT OR BORE) 72

TA04SE/3

1" N.S.
1" O.S.
Grid Ref. TA04/48

138

At Mr Blacker's Huts
Town or Village Eske County Yorks Six-inch quarter sheet 196 SW/N
Exact site TA04SE 0654 4285 (A rough sketch-map or a tracing from a map is very desirable)
in parish of
Level of ground surface above sea-level (O.D.) 25 ft. If well starts below ground surface, state how far ft.
Shaft 80 ft., diameter ft. Bore ft. Diameter of bore: at top ins.; at bottom ins.
Details of permanent lining tubes (internal diameters preferred) 2" tube to 50' down.

Water struck at depths of (feet)
Rest-level of water below/above top of well feet. Suction at feet. Yield on hours'/days' test
gallons per (with pump of capacity g.p.h.); depressing water level to 38 feet below top. Time of recovery hrs. Amount normally pumped daily g.p.h. for hours.
Quality (attach copy of analysis if available)
Sunk by J. Villiers for Mr. Date of well 1920
Information from Prof. P.F. Kendall; & Lofthouse; Rept. A. E. Riding Water Supplies, (1937) pp.46-7

(For Survey use only). GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA (and any additional remarks).	THICKNESS Feet.	THICKNESS Inches.	DEPTH Feet.	DEPTH Inches.
	ESKE				
	BLACKERS HUTS				
1920					
Feb. 18					
DRIFT	Top soil	1		1	
DRIFT	Gravel and sand	3		4	
DRIFT	Clay and marl	22		26	
DRIFT AND/OR CHALK	Chalk and gravel	10		36	
FLAMBOROUGH CHALK	Chalk	44		80	
	2" pipes 50 feet				
Checked from Villiers original record book. [H.A.T. 6.11.41]					

According to present occupier, the bore frequently runs dry.
no further information. O.D. c 8'
Sited on 6" field slip 196 SW (W). [H.A.T. 22.7.41]

"P. Blacker, Eske. New Huts.
1920. Feb. 18-27. Boring new tube well 80 ft deep.
March 1. 50 ft. 2" pipes." Villiers' Account Book, per H.A.T. Mch 1942

GEOLOGICAL SURVEY AND MUSEUM.
SOUTH KENSINGTON.
LONDON. S.W.7.

For Survey use only

Date received	G.S.M. Office File No.	Site marked on 1" map (use symbol)

(*11815) Wt.29051/O.369 10,000 9/39 A.& E.W.Ltd. Gp.686

Chalk OD -1

BGS ID: 459408 : BGS Reference: TA04SE38
British National Grid (27700) : 506720,442600

Grid Ref. TA 06842 3 (64) | I.G.S. Ref. 72/479 | Licence No. Y.O.H.R.A. App. No.

Aquifer: Chalk

Address of Site: Eske Lane Tickton, Field 13.

Owner: L. Burnett 12 Grange Crescent Tickton

Borehole Depth: 90' Dia.: 4'

Casings:

Water struck @ 40'

Details of Strata:

	Feet
Brown clay	8
Boulder clay	14
Green clay	7
Pasty chalk	3
Chalk	58

BGS ID: 459408 : BGS Reference: TA04SE38
British National Grid (27700) : 506720,442600

Grid Ref. TA 04/068426	I.G.S. Ref.	Y.W.A. Licence No. 24/22/32 App. No. 2825

Aquifer: alluvium

Address of Site: Land at Esse Lane Tickton

Owner: L. Burnett 12 Arrane Crescent, Tickton, Nr. Beverley.

Borehole Depth: 90' Dia.: 4"

Casings:

hic Mastr 1000 gph
6000 gpd
500,000 gpa.

Spray Irrigation.

Details of Strata:

No [illegible]

Copy sent to Yorks DG on 21-7-61

TA04/49

RECORD OF WELL (SHAFT OR BORE)

For Survey use only

72/479

N. 9791

TA 04 SE/21

Licence No. L/20/15

EXACT SITE OF WELL

At Eske Lane, Tickton, Beverley

Field No 13 TA04SE 0672 4260

Town or Village Tickton

County E.R. of Yorkshire

Six-inch quarter sheet 196 SW/W

For L. Burnett

State whether owner, tenant, builder, contractor, consultant, etc.:— Owner.

Address (if different from above) 12 Grange Crescent, Tickton, Beverley

Level of ground surface above sea-level (O.D.) ..... ft.

If well-top is not at ground level, state how far { above: / below; } ..... ft.

SHAFT ~~90~~ ft.; diameter — ft.; Full details of headings (dimensions and directions)

BORE 90 ft.; diameter of bore: at top 4 ins.; at bottom 4 ins.

Full details of permanent lining tubes (position, length, diameter, plain, slotted etc.) Plain

4" lining tube (Plain)

Water struck at depths of 40 ft. below ~~well~~ Bore top.

TEST CONDITIONS

Rest level of water 3 ft. ~~above~~ below well-top. Suction at 18 ft. Yield on ..... hours' / days' test

pumping at 2500 galls. per hr with depression to 7 ft. below well-top.

Recovery to rest-level in Secs ~~mins.~~ hours Capacity of pump 2,500 g.p.h. Date of measurements June 14 1961

NORMAL CONDITIONS

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

Make and/or type ..... Motive power .....

Capacity ..... gallons per hour. Suction at ..... ft.

Amount pumped ..... galls. per day. Estimated consumption ..... galls. per week.

Well made by ✓ SAM JACKSON (Engineers) Date of well June 1961

Information from ✓ WALKERGATE, BEVERLEY, TEL. 81571

ADDITIONAL NOTES

ANALYSIS (please attach copy if available)

Visited. Site comments. In use for irigation. Surface pump driven by petrol engine. R.W.L. 3ft 10 ins. below crown of road. Sample taken. (Exam. 24:10:61) Crown of road to G.L. 1 ft. Conductivity of sample 460 micromhos. K.G.

Visited

Bore in use for market garden. O.D. to T. R.W.L. 2.9' b.g.l. (last pumped 24 hrs. previously

VAM 11.3.70

LOG OF STRATA OVERLEAF. P.T.O.

GEOLOGICAL SURVEY AND MUSEUM, SOUTH KENSINGTON, LONDON, S.W.7.		Section 6.	Date Received	1" O.S. Map No.	Site marked on 1" Map	(use symbol) on 6" Map
			14.7.61	6	O	O

(1527) Dd574/Wt37583 12,000 8/54 JC&S Gp669

02

(For Survey use only)
GEOLOGICAL CLASSIFICATION

NATURE OF STRATA
If measurements start below ground surface, state how far ..

THICKNESS Feet / Inches

DEPTH Feet / Inches

72/479

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS Feet	THICKNESS Inches	DEPTH Feet	DEPTH Inches
DRIFT	Brown Clay	8	0		
DRIFT	Boulder Clay	14	0	22	0
DRIFT	Green Clay	7	0	29	0
DRIFT A/O CHALK	Putty chalk	3	0	32	0
FLAMBOROUGH CHALK	Chalk	58	0	90	0

C. GODWIN
1982.

Visited
Water level 16.1' below top of tubes which are 0.8' above ground level. Had not been pumped for 2 days previously. Chemical and bacteriological samples taken
WAN 15.10.70.

Grid Ref TA 1446 4650 | I.G.S. Ref | Licence No. Y.W.A. App. No.

CATWICK B.H.3.

Aquifer: DRIFT.

Address of Site: CATWICK (LANDFILL SITE)

Owner: CLAIRD ENVIRONMENTAL (per change of ownership 12/11/96)

Borehole Depth: 20.5m Dia: No Info

Casings: No Info.

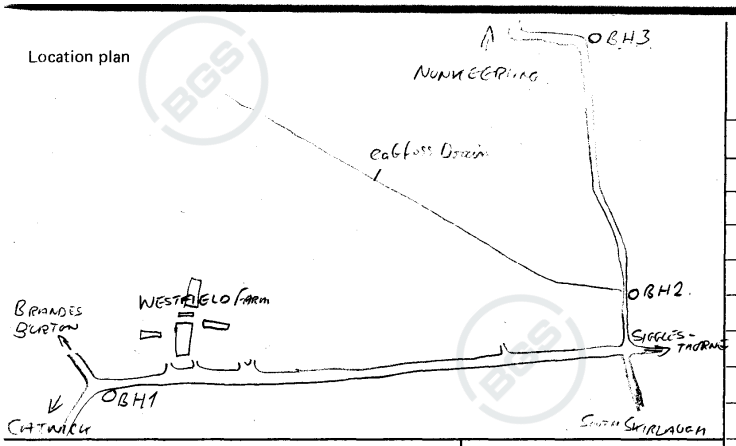
D = 20 cm
C = 20.2m

Details of Strata:	Depth	Thickness
TOPSOIL (Rootlets)	0.2	0.2
CLAY (Stiff brown, sandy silty, with some fine medium & coarse angular flint & occasional gravels)	1.3	1.1
CLAY (Stiff brown sandy silty with some fine medium coarse chalky gravel)	1.8	0.5
SAND (Fine, Brown)	1.9	0.1
CLAY (Stiff reddish brown, silty occasional fine, medium coarse chalk gravel)	4.0	2.1
CLAY (Stiff dark brown, silty, some fine medium coarse chalk gravel)	20.5	16.5.

No Chalk Base

/330

Location plan



Water level data

Date	Depth to W.L.	Pumping rate

Remarks

Analysis in mg/l

Date of Sample:

pH	
CO_2	
Alkalinity	
Total Hardness	
Total Solids	
Chlorides	
Nitrates	
Nitrites	
NH_3	
Fe	
Mn	
Ca	
Na	
Mg	
SO_4	

~~[illegible]~~ 02004159 107

RECORD OF WELL (SHAFT OR BORE)

1" N.S. 72
1" G.S. ~~306~~ 306
TA04SW15
72

At MOLESCROFT (Trial-bore)

Town or Village Beverley County Yorks. Six-inch 306 NE

Exact site By road, just S. of Rly. line, ½ mile N. of Molescroft village: site shown on 6" map with 72/121 305 in parish of ...... (or a tracing from a map is very desirable)

Level of ground surface above sea-level (O.D.) 77.84 ft. If well starts below ground surface, state how far ...... ft.

Shaft ...... ft., diameter ...... ft. Bore ...... ft. Diameter of bore: at top ...... ins.; at bottom ...... ins.

Details of permanent lining tubes (internal diameters preferred) ......

Water struck at depths of (feet) ......

Rest-level of water below/above top of well ...... feet. Suction at ...... feet. Yield on ...... hours'/days' test ...... gallons per ...... (with pump of capacity ...... g.p.h.); depressing water level to ...... feet below top. Time of recovery ...... hrs. Amount normally pumped daily ...... g.p.h. for ...... hours.

Quality (attach copy of analysis if available) ......

Sunk by ...... for Mr. ...... Date of well 1909

Information from Prof. P.F. Kendall (See under 72/121) 305

(For Survey use only). GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA (and any additional remarks).	THICKNESS Feet.	THICKNESS Inches.	DEPTH Feet.	DEPTH Inches.
DRIFT	Boulder Clay	20			
FLAMBOROUGH CHALK	Chalk	2+		22+	
[redacted]					
10/2/82	Well apparently filled in. Suz. 17/5/51.				

GEOLOGICAL SURVEY AND MUSEUM.
SOUTH KENSINGTON.
LONDON. S.W.7.

For Survey use only

Date received	G.S.M. Office File No.	Site marked on 1" map (use symbol)

(*11815) Wt.29051/O.369 10,000 9/39 A.& E.W.Ltd. Gp.686

108 TA04SW/15
72/306

(2)

Trial Boring on site proposed for new Pumping Station Pighill Lane Crossing (Hall Watts' Site, Field 94) Beverley

6" Yorks. 210 N.E.(E)

Made by J. Villiers for Beverley Corporation. 1908

See map attached to 72/305.

Ground Surface 77.84' O.D. Bore c. 22' Diam. 3".

	Top soil	2'0"	2'0"
DRIFT	~~Top soil &~~ Brown & blue clay	20'0"	22'0"
FLAMBOROUGH CHALK ?	Chalk (marly)		22'0"

[redacted] 10/2/82
The absence of the gravel layer ("Leconfield chalky gravel spread") is noteworthy.

Inf. from Mr. J. W. Thwaite per K.P.O. July, 1941.

May be a second log of the 1909 bore.

Grid Ref. TA 020416 | I.G.S. Ref. 72/306 | Y.W.A. Licence No. App. No.

Aquifer:

Address of Site: Motcroft Trial Bore for New pumping Stn.

Owner:

Borehole Depth: 22' Dia.:

Casings:

Details of Strata:

Boulder Clay 20'
Chalk +2'

'Proposed Site for [illegible] Pumping Station, Pighill Lane Cottingham' 87 33

1AL BORINGS at Beverley County Yorks

Geol. map 1 in. map New Series 6 in. map 210 N.E. (Field No. 26 Site)

Made by J. Villiers Date 1908.

Sunk feet. Bored 18 feet.

65. Communicated by Prof. P. F. Kendall 72

Height above Ordnance Datum ~~c. 18·5~~ 25·80' Rest level of water

Yield 7·86

Quality (with copy of analysis on separate sheet)

TA 04 SW 17 305

GEOLOGICAL FORMATION.	NATURE OF STRATA.	THICKNESS. Feet.	Inches.		
0265 4155	(A). Trial bore in centre of proposed new well. [Surface 25·80' O.D.]				
DRIFT	Top soil	0·30 1	—	1	-0·3
	Sandy clay	0·30 1	—	2	-0·61
	Red clay	0·91 3	—	5	-1·52
	Sand with water	0·61 2	—	7	-2·13
	Blue clay	2·13 7	—	14	-4·27
	White gravel	0·61 2	—	16	-4·88
[redacted] 10/2/82	Marl + gritty chalk, probably about 11 feet thick	0·61 2	—	18	-5·49

This bore was done by Villiers for his own satisfaction; and not under Beverley waterworks contract. It was filled in with cement. Made ~~Nov 1907~~ ~~1906~~ Jan. 1908 ~~(according to Mr Thurston's recollection)~~.

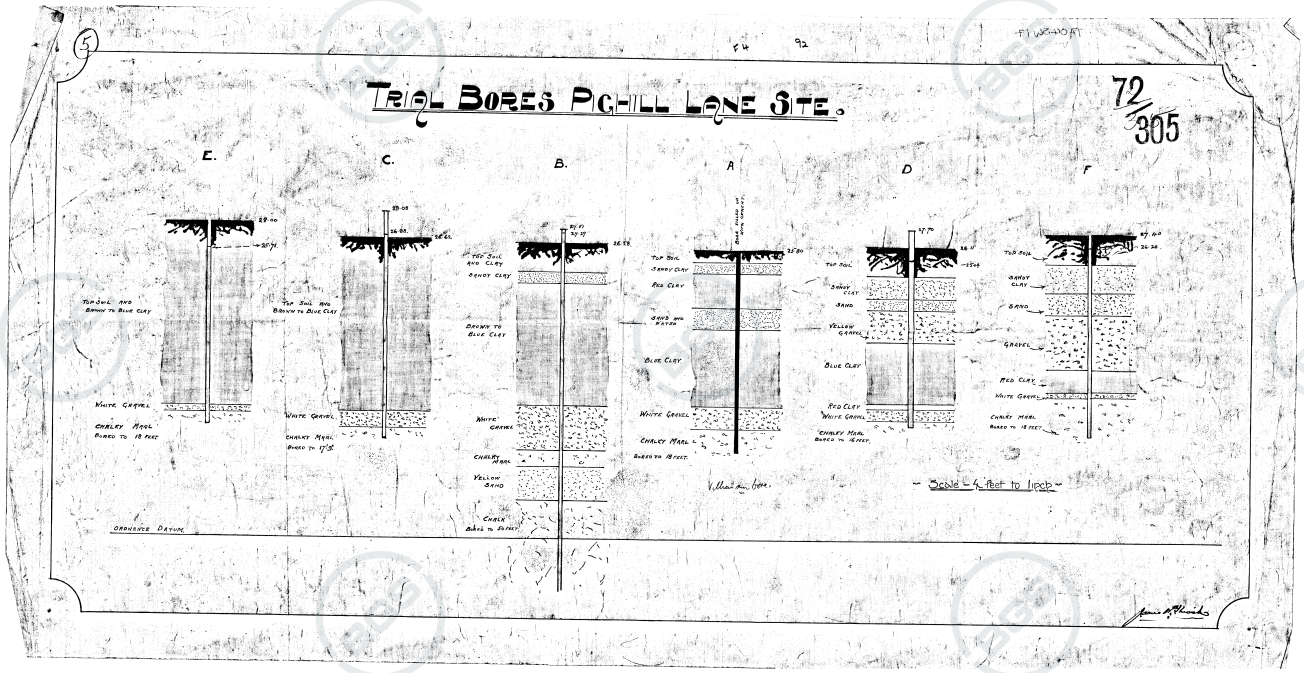
Sited on 6" 210 N.E. (E) emergency edition.

Date 15th Jan., 1908 (from ~~typescript~~ original copy of Villiers records) [H.A.T. 4.9.41]

no signs of any of these bores
Doly
17/5/51.

Geological Survey and Museum,
Jermyn Street, London, S.W. 1.

(B10619). Wt. 15824—S123. 2500. 11/25. Gp. 160. O.A.


Trial Bores Pighill Lane Site.
72
305
E.
C.
B.
A
D
F
Scale - 4 feet to 1 inch

Grid Ref. TA 026 415 | I.G.S. Ref. 72/30SA-F | Y.W.A. Licence No. App. No.

Aquifer: Chalk

Address of Site: Rigmill Lane Crossing. Trials for new waterworks

Owner:

Borehole Depth: To 50' Dia.:

Casings:

Six trial bores given. All similar log. Deepest given as example.

Details of Strata:

B	Feet
Soil	2½
Sandy clay	1
Brown to Blue Clay	11
White Gravel	4
Chalky marl	1½
Yellow sand	3
Chalk	27
	50

'Proposed site for new Pumping Station, Pighill Lane Cottingham

Ref. No. 8 / 33

TRIAL ~~WELL~~ BORINGS at Beverley County Yorks

Geol. map 1 in. map New Series 6 in. map 210 N.E. (Field No. 26 site)

Made by J. Villiers Date 1908 TA04/83

Sunk —— feet. Bored 18 feet 72

Communicated by Prof. P.F. Kendall

Height above Ordnance Datum ~~c. 18~~ 25·80' Rest level of water

Yield 305

Quality (with copy of analysis on separate sheet) TA04SW/17

GEOLOGICAL FORMATION.	NATURE OF STRATA.	THICKNESS. Feet.	Inches.		
	(A). Trial bore in centre of proposed new well [Surface 25·80' O.D.]				
probably all drift.	Top soil	1	—	1	—
	Sandy clay	1	—	2	—
	Red clay	3	—	5	—
	Sand with water	2	–	7	—
	Blue clay	7	—	14	—
	White gravel	2	—	16	—
	Marl + gritty chalk, probably about 11 feet thick	2	—	18	—

C. Godwin 1982

This bore was done by Villiers for his own satisfaction; and not under Beverley Waterworks contract. It was filled in with cement. Made Jan. 1908 ~~according to the Foreman's recollection~~.

Sited on 6" 210 N.E.(E) emergency edition.

Date 15th Jan., 1908 (from ~~original~~ copy of Villiers records) [H.W.T. 4.9.01]

no signs of any of these here
DOJ 17/5/51.

GRID REFERENCES

a	TA04SW	0265	4155
b	TA04SW	0267	4154
c	TA04SW	0268	4153
d	TA04SW	0262	4155
e	TA04SW	0271	4151
f	TA04SW	0259	4159

Geological Survey and Museum, Jermyn Street, London. S.W. 1.
(B10619). Wt. 15824—8123. 2500. 11/25. Gp. 160. O.A.

(11)

taken for examination for each of these organisms; and Streptococci were not found in 30 c.c. These results give no indication of the water having recently been polluted with sewage or excremental matter, and there is no excess of ordinary bacteria.

C. H. WELLS,
Secretary.

9th May, 1908.

PARTICULARS OF TRIAL BORES AT PIGHILL LANE SITE.

Bore **A** made 4th January, 1908.

72/305A

Top Soil	1 ft.
Sandy Clay	1 „
Red Clay	3 „
Sand and Water	2 „
Blue Clay	7 „
White Gravel	2 „
Marl and Gritty Chalk, bored to	2 „
Total depth of bore	18 ft.

Bore **B** made 16th March, 1908.

72/305B

Top Soil	2 ft. 6 in.
Sandy Clay	1 „ 0 „
Brown to Blue Clay	11 „ 0 „
White Gravel	4 „ 0 „
Chalky Marl	1 „ 6 „
Yellow Sand	3 „ 0 „
Chalk bored to	27 „ 0 „
Total depth of bore	50 „ 0 „

Bore **C** made 18th March, 1908.

72/305C

Top Soil and Brown to Blue Clay	15 ft. 6 in.
White Gravel	1 „ 6 „
Chalky Marl bored to	9 „
Total depth of bore	17 „ 9 „

72/305

Bore **D** made 19th March, 1908.

72/305D

Top Soil	2ft. 6in.
Sandy Clay	2 „ 0 „
Sand	1 „ 0 „
Yellow Gravel	3 „ 0 „
Blue Clay	5 „ 6 „
Red Clay	6 „
White Gravel	1 „ 0 „
Chalky Marl bored to	6 „
Total depth of bore	16ft. 6in.

Bore **E** made 30th March, 1908.

72/305E

Top Soil and Brown to Blue Clay	16ft. 6in.
White Gravel	6 „
Chalky Marl bored to	1 „ 0 „
Total depth of bore	18ft. 0in.

Bore **F** (John Watts' Field) made 30th March, 1908.

72/305F

Top Soil	2ft. 6in.
Sandy Clay	2 „ 6 „
Sand	2 „ 0 „
Gravel	5 „ 0 „
Red Clay	2 „ 0 „
White Gravel	6 „
Chalky Marl bored to	3 „ 6 „
Total depth of bore	18ft. 0ft.

N.B.—Bore "A" was the first bore put down by Mr. Villiers after his tender was accepted, and before any arrangements were made as to supervision.

Bore "B" is the DEEP bore from which samples of water have been taken.

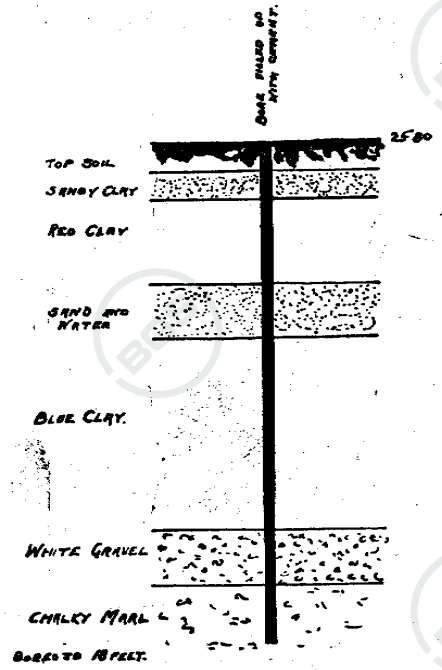
Bore "C" is the SHALLOW bore, ditto.

BGS ID: 459434 : BGS Reference: TA04SW17/A
British National Grid (27700) : 502652,441540

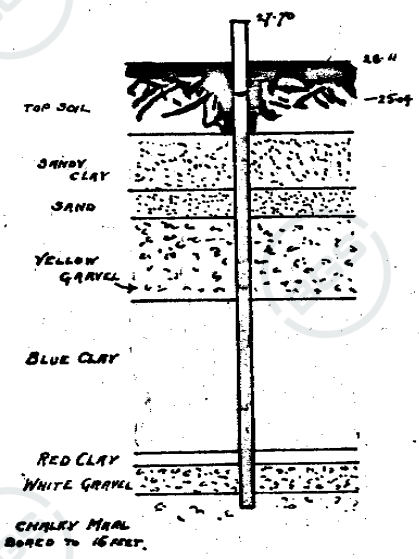
LL LANE SITE.

72 TA04/83 15
3 305

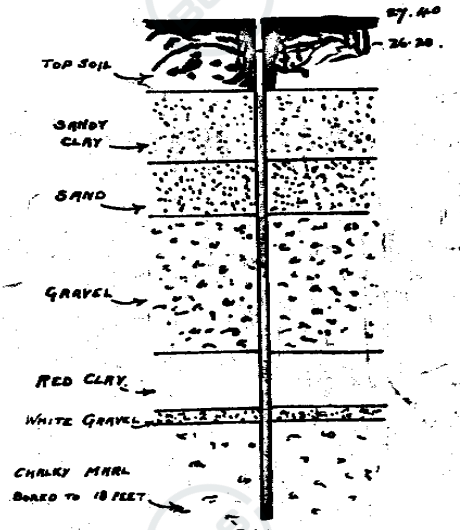
A
5·48m



D
4·87m



F
5·48m



Williamson bore.

~ Scale – 4 feet to 1 inch ~

(2)

TA03/212

42/45°

(For Survey use only) Geological Classification	NATURE OF STRATA If measurements start below ground surface, state how far ..	Thickness Feet	Thickness Inches	Depth Feet	Depth Inches
	Top Soil	2	0		
DRIFT	Yellow Clay	20	0	22	0
	Boulder Clay	13	0	35	0
BURNHAM CHALK	Chalk	75	0	110	0

C. GODWIN 1982

1063 Wt. 22438/0384 10M 7/45 (51) F.&S.

RECORD OF WELL (SHAFT OR BORE)

(*For Survey use only*)
1-inch Map Registered No. 4.111

TA 03 NW 7
72 A

At Waterworks.

Town or Village Beverley

County Yorks. Six-inch quarter sheet

For Mr. H. Tomkyss. Engineer. Borough of Beverley.

Exact site of well In bottom of No1 Existing Well. — Attach a tracing from a map, or a sketch-map, if possible.

Level of ground surface above sea-level (O.D.) . ft. If well-top is not at ground level, state how far ... above; below; ft.

~~SHAFT~~ WELL 190 ft.; diameter ? ft. Details of headings —

BORE 43½' below well bottom ~~ft.~~; diameter of bore: at top 21 ins.; at bottom 21 ins. Lengths, diameters, perforations, etc., of lining tubes 3'-0" × 23½" dia. tube at well bottom left in as a guide for drilling tools when boring in bottom.

Water struck at depths, below well top, of (feet) —

Rest-level of water ? ft. above/below well-top. Suction at — ft. Yield on — hours'/days' pumping, — gal. per — with depression to — ft. below well-top, Capacity of pump — g.p.h. Recovery to rest level in — mins./hours Date of measurements Dec 46 Date of well ? " " bore Dec 46

Quality of water (*attach copy of analysis if available*)

~~Well~~ Bore made by J. Smith & Son (Cly) Ltd.

Information from do.

Additional notes in space overleaf.

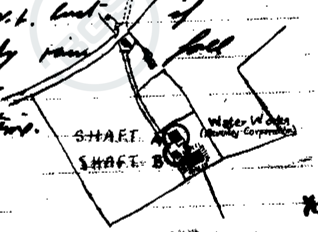
(*For Survey use only*) Geological Classification	Nature of Strata	Thickness Feet	Thickness Ins.	Depth Feet	Depth Ins.
	If measurements start below ground surface, e.g., from bottom of an existing shaft, state how far				
DRIFT 6ft	Depth of Existing well 57.91	190	0	190	0 (57.91)
FLAMBOROUGH CHALK to 176 ft / BURNHAM CHALK	Chalk & flint beds. 13.26	43	6	233	6 (71.17)

[redacted] 9/2/82 Normally 40,000 g.p.h. have been available but during bad drought this has fallen to 15,000 g.p.h. Pumping test in Aug. 1947 showed that 45,000 g.p.h. available with R.W.L. c. 150 b.g.l.

R.W.L.
July '49 143. b.g.l.
Sept '49 150 b.g.l.
Dec. '49 140½ b.g.l.
Jan '50 145½ b.g.l.
March '50 137 b.g.l.
April '50 139 b.g.l.
May '50 137 b.g.l.
July '50 142 b.g.l.
Aug '50 140 b.g.l.
Sept '50 140 b.g.l.
Oct. '50 143 b.g.l.
Nov '50 138 b.g.l.
Dec. '50 135 b.g.l.
Jan '51 133 b.g.l.
Feb. '51 130 b.g.l.
Mar. '51 122 b.g.l.
Apr. '51 122 b.g.l.

When rainfall is considerable the[re] appears to be a quick rise in R.W.L. but if slow steady rainfall then no obvious time lag.

This borehole is in the bottom of Shaft "A"
J. Smith & Son



72
YORKS 210 SE

Continued over leaf

[TA 0203 3799]
OD c. 13.1m
see p2 for log.

Geological Survey and Museum, South Kensington, London, S.W.7.	Date received	Correspondence File No.	1" N.S. Map No.	1" O.S. Map No.	Site marked (use symbol) on 1" Map	on 6" Map
	26.4.49		72.			

Grid Ref. ~~026378~~ TA 03 0200 3797

I.G.S. Ref. 72/99

Y.W.A. Licence No. App. No.

≈ 0 = 1.83m

Aquifer: Chalk

Address of Site: Beverley Water Works. Beverley

Owner:

Borehole Depth: 190' (57.91m) Dia.: 21" (0.53m)
233'6" (71.17m)

Casings:

In 1946 the original 190' well was deepened in the chalk to 233'-6" (71.17m) and RWL 120'-140' & noticed that heavy rainfall followed by a rapid rise in RWL in the bore.

Details of Strata:

	Thick (m)	Depth (m) (a)	Depth (m) (b)
Boulder clay	1.83	1.83	–
upper Chalk without flints	51.82	53.65	–
?. chalk with	43.89	97.54	57.91
			190
		97.536	57.91 m

Depth 57.9 m. ...
Datum 48.41 m A.O.D

MAX RWL 13.43 – 28.2.77
Min RWL 0.64 – 16.9.76

(1)

365

RECORD OF WELL (SHAFT OR BORE)

0364 3566

For Survey use only

TA03 NW/3

12/459

Licence No.....

EXACT SITE OF WELL

At Poplar Farm Beverley Parks.

Beverley

Town or Village.....

County East Yorkshire Six-inch quarter sheet CCXXV.4 NE/E ERY

For..... State whether owner, tenant, builder, contractor, consultant, etc.:—.....

Address (if different from above).....

Level of ground surface above sea-level (O.D.) sited on 50' contour ∴ c. 15m ft.

If well-top is not at ground level, state how far { above: / below; ..... ft.

SHAFT.....ft.; diameter.....ft.; Full details of headings (dimensions and directions)

.....

.....

BORE 110 (33.53m) ft.; diameter of bore: at top 4 ins.; at bottom 4 ins.

Full details of permanent lining tubes (position, length, diameter, plain, slotted etc.).....

60ft of 4ins Lining Tube

.....

Water struck at depths of..... ft. below well-top.

TEST CONDITIONS

Rest level of water 13 (3.96m) ft. above / below well-top. Suction at.....ft. Yield on..... hours' / days' test

pumping at.....galls. per.....with depression to.....ft. below well-top.

Recovery to rest-level in..... mins. / hours Capacity of pump.....g.p.h. Date of measurements.....

NORMAL CONDITIONS

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

Make and/or type..... Motive power.....

Capacity.....gallons per hour. Suction at.....ft.

Amount pumped.....galls. per day. Estimated consumption.....galls. per week.

Well made by Sam Jackson Walkergate Beverley Date of well 1958

Information from.....

ADDITIONAL NOTES

ANALYSIS (please attach copy if available)

Sited by ⊙ on 6" map. Yorks. 225. NE/E. 16.10.58. [redacted]

LOG OF STRATA OVERLEAF.

Geological Survey and Museum, South Kensington, London, S.W.7.		Section 6.	Date Received	1" O.S. Map No.	Site marked on 1" Map	(use symbol) on 6" Map
			2/10/58.		⊙	⊙

(1527) Dd574/W37583 12,000 8/54 JC&S Gp669

BGS ID: 458515 : BGS Reference: TA03NW3
British National Grid (27700) : 503619,435653

(2)

(For Survey use only) Geological Classification	Nature of Strata — If measurements start below ground surface, state how far ..	Thickness Feet	Thickness Inches	Depth Feet	Depth Inches	
	Top Soil 0.6.1	2	0			
DRIFT	Yellow Clay 6.10	20	0	22	0	6.71
DRIFT	Boulder Clay 3.76	13	0	35	0	10.67
BURNHAM CHALK	Chalk 10.86	75	0	110	0	33.53
[redacted]						
	9/2/82					

Grid Ref. 036356 TA 03	I.G.S. Ref. 92/459	Y.W.A. Licence No. / App. No. 3

O = 10.92
C = 10.21

Aquifer: Chalk

Address of Site: Poplar Farm Beverley Parks Beverley

Owner:

Borehole Depth: 110' Dia.: 4" top 4" bottom

Casings: 66' 4" tube
Lined 4

Jackson 1958

Details of Strata:

Top Soil	2-0	
Yellow Clay	20-0	22-0
Boulder "	13-6	35-0
Chalk	75-0	110-0

TA04SW/133

RECORD OF TRIAL BORE ~~WELL (SHAFT~~ OR BORE)

04494228

1" N.S.	72
1" O.S.	
Grid Ref.	

145

At: Mo[illegible]croft Carr

Town or Village: [illegible] County: Yorks. E.R. Six-inch quarter sheet: 211 N.W.

Exact site: [illegible] Bullock Dike & [illegible] Drain [For map see under 72/305] ~~72/121~~
Y2 m. N. of [illegible] Farm
in parish of [illegible]

Level of ground surface above sea-level (O.D.) ~~4.09~~ ft. If well starts below ground surface, state how [illegible] ft.

Shaft ..... ft., diameter ..... ft. Bore 23 ft. Diameter of bore: at top ..... ins.; at bottom ..... ins.

Details of permanent lining tubes (internal diameters preferred) .....

Water struck at depths of (feet) .....

Rest-level of water below ~~above~~ top of well 2.25 feet. Suction at ..... feet. Yield on ..... hours' / days' test

..... gallons per ..... (with pump of capacity ..... g.p.h.); depressing water level to ..... feet below top. Time of recovery ..... hrs. Amount normally pumped daily ..... g.p.h. for ..... hours.

Quality (attach copy of analysis if available) .....

Sunk by J. Villiers for ~~Mr.~~ Beverley Water Works Date of well 1904

Information from P.F. Kendall's MSS.

(For Survey use only). GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA (and any additional remarks).	THICKNESS Feet.	THICKNESS Inches.	DEPTH Feet.	DEPTH Inches.
DRIFT	Top soil (peaty)	6	—	6	—
	[illegible]	6	—	12	—
	gravel	—	4	12	4
	marly clay	3	—	15	4
	yellow marl	5	8	21	—
FLAMBOROUGH CHALK	chalk	2	—	23	—
[redacted] 10/2/82	Bore 23'. Chk. at 21' down. Tubed to 21' with 3". Little water found in gravel at 12½' down. Clay & marl below gravel was dry. Surface of ground 4.09' O.D. The bore was made for test purposes in connection with the proposed scheme for new waterworks (Hull Bridge Road area). Inf. from Mr. [illegible] Trirole. K.P.O. 29.7.41				
	R.W.L. 24/1/1910 5.09' O.D. [from 6" map with 72/305]				

Geological Survey and Museum,
South Kensington,
London. S.W.7.

For Survey use only

Date received	G.S.M. Office File No.	Site marked on 1" map (use symbol)

(7993) Wt.36064/0349 5,000 12/38 A.&E.W.Ltd. Gp.686

Annex C

Qualitative Human Health and Environmental Risk Assessment Methodology

1. The risk assessment considers the sources and potential receptors identified, together with linking pathways. These linkages are summarised in the Preliminary Conceptual Site Model and Qualitative Risk Assessment within the report, where the associated environmental risk is assessed for a given source and the end-use of the site. This assessment also takes account of specific chemicals of concern or groups of similar chemicals of concern.

2. The column designated as 'Potential Consequence of Source- Pathway – Receptor-Linkage' in the Preliminary Conceptual Site Model and Qualitative Risk Assessment (**Table 19-2-53**) gives an indication of the sensitivity of a given receptor to a particular source/chemical of concern being considered. It is a worst case classification and is based on full exposure via the particular linkage being examined. The derivation of the classes used to rank this particular aspect is as follows (**Table 19-2-54**) based on CIRIA 552 'Contaminated Land Risk Assessment, A Guide to Good Practice' 2001.

Table 19-2-54 Classifications for Consequences of Contaminant Linkage

Classification	Human Health	Controlled Water	Ecological	Built Environment
Severe	Acute risk to human health likely to result in 'significant harm' as defined by the Environmental Protection Act 1990, Part 2A.	Substantial pollution of sensitive water resources.	Significant change to the number of one or more species or ecosystems.	Catastrophic damage to buildings, structures or the environment.
Medium	Chronic damage to human health ('significant harm').	Pollution of sensitive water resources.	Change to population densities of non-sensitive species.	Damage to sensitive buildings, structures or the environment.

Classification	Human Health	Controlled Water	Ecological	Built Environment
Mild	Harm but not necessarily significant harm to humans.	Pollution to non-sensitive water resources.	Some change to population densities but with no negative effects on the function of the ecosystem.	Easily repairable effects of damage to buildings or structures.
Minor	Harm but not necessarily significant harm to humans which can easily be prevented with the use of PPE.	Slight pollution to non-sensitive water resources.	No significant changes to population densities in the environment or in any ecosystem.	Very slight non-structural damage or cosmetic harm to buildings or structures.

3. Subsequently, in the column designated 'Likelihood of PC'L, an assessment is made of the probability of the selected source and receptor being linked by the identified pathway. This assessment is ranked based on-site specific conditions set out in **Table 19-2-55** below.

Table 19-2-55 Classification of Probability

Classification of probability	Definition
High likelihood	There is a pollution linkage and an event that either appears 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 pollution 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.

Classification of probability	Definition
Low likelihood	There is a pollution linkage and circumstances are possible under which an even could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	There is a pollution linkage, but circumstances are such that it is improbable that an event would occur in the very long term.

4. The 'Risk Classification' column is an overall assessment of the actual risk, which considers the likely consequence of a given risk being realised and the likelihood of that risk being realised. The risk classifications are assigned using the consequence/likelihood matrix as shown in **Table 19-2-56**.

Table 19-2-56 Risk Classification Matrix

Matrix				
Severe	Moderate to low	Moderate	High	Very High
Medium	Low	Moderate to low	Moderate	High
Mild	Very low	Low	Moderate to low	Moderate
Minor	Very low	Very low	Low	Moderate to low
Likelihood	Unlikely	Low likelihood	Likely	High likelihood

5. Overall risks are described below in **Table 19-2-57**.

Table 19-2-57 Overall Risks

Inshore study	Definition
Very Low	The presence of the identified source does not give rise to the potential to cause unacceptable harm.
Low	It is possible that harm could arise to a designated receptor from an identified source, however, this is unlikely to be unacceptable.
Moderate	It is possible that harm could arise to a designated receptor from an identified source, but it is likely that such harm would be relatively localised or non-permanent - remedial action may be necessary.
High	A designated receptor is likely to experience unacceptable harm from an identified source without remedial action.
Very High	There is a high probability that severe unacceptable harm could arise to a designated receptor from an identified source without appropriate remedial action.

6. In cases of physical features, such as foundations and underground services, harm is defined as impact which would result in non-serviceability of the identified receptor or extra over build costs associated with redevelopment.

RWE Renewables UK Dogger Bank South (West) Limited

RWE Renewables UK Dogger Bank South (East) Limited

Windmill Hill Business Park
Whitehill Way
Swindon
Wiltshire, SN5 6PB