

# **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**

### **Chapter 19 – Geology and Land Quality**

### **Figure 19-1 to Figure 19-9 (Revision 2)**

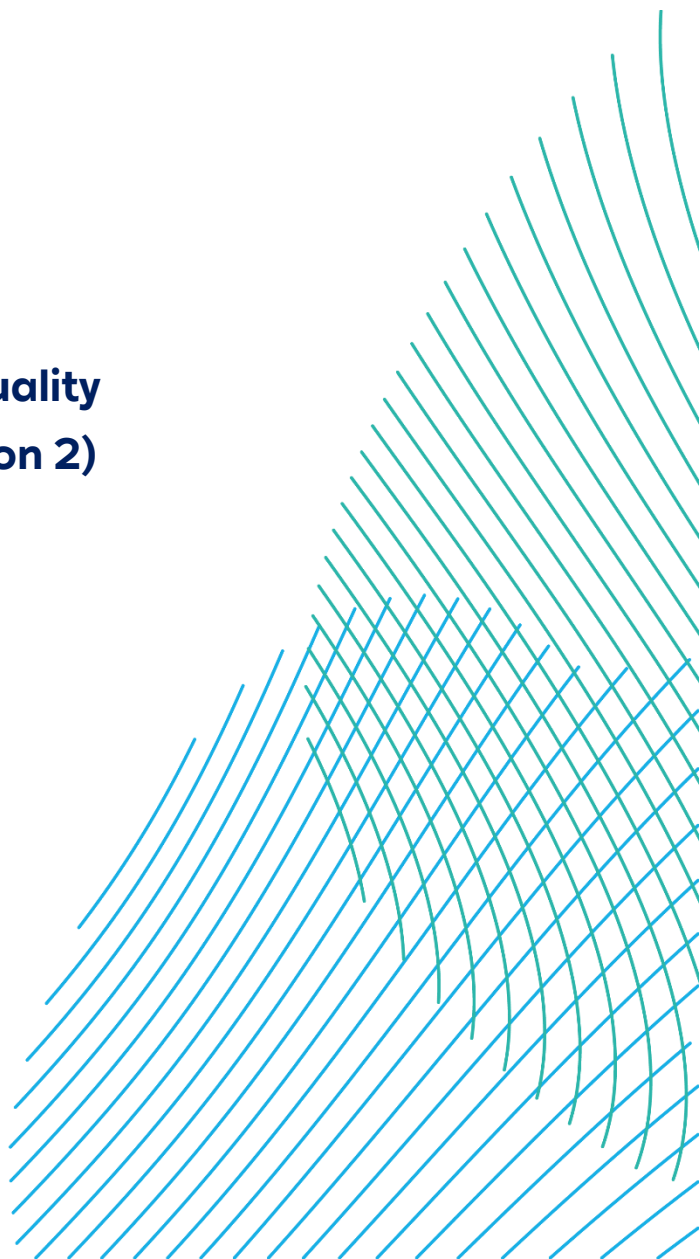
**January 2025**

**Application Reference: 7.19.1**

**APFP Regulation: 5(2)(a)**

**Revision: 02**

**Unrestricted**



Company:	<b>RWE Renewables UK Dogger Bank South (West) Limited and RWE Renewables UK Dogger Bank South (East) Limited</b>	Asset:	<b>Development</b>
Project:	<b>Dogger Bank South Offshore Wind Farms</b>	Sub Project/Package:	<b>Consents</b>
Document Title or Description:	Environmental Statement – Chapter 19 – Figure 19-1 to Figure 19-9 (Revision 2)		
Document Number:	004300160-02	Contractor Reference Number:	PC2340-RHD-ONZZ-RP-Z-0102

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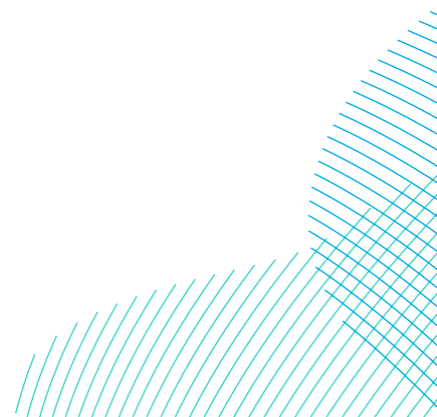
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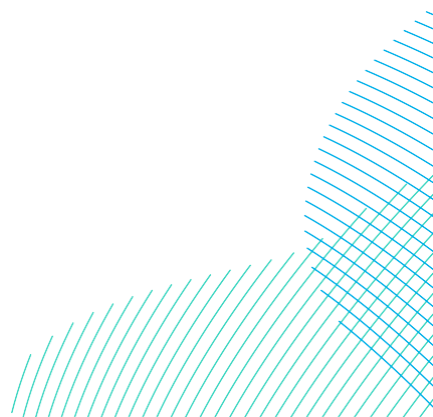
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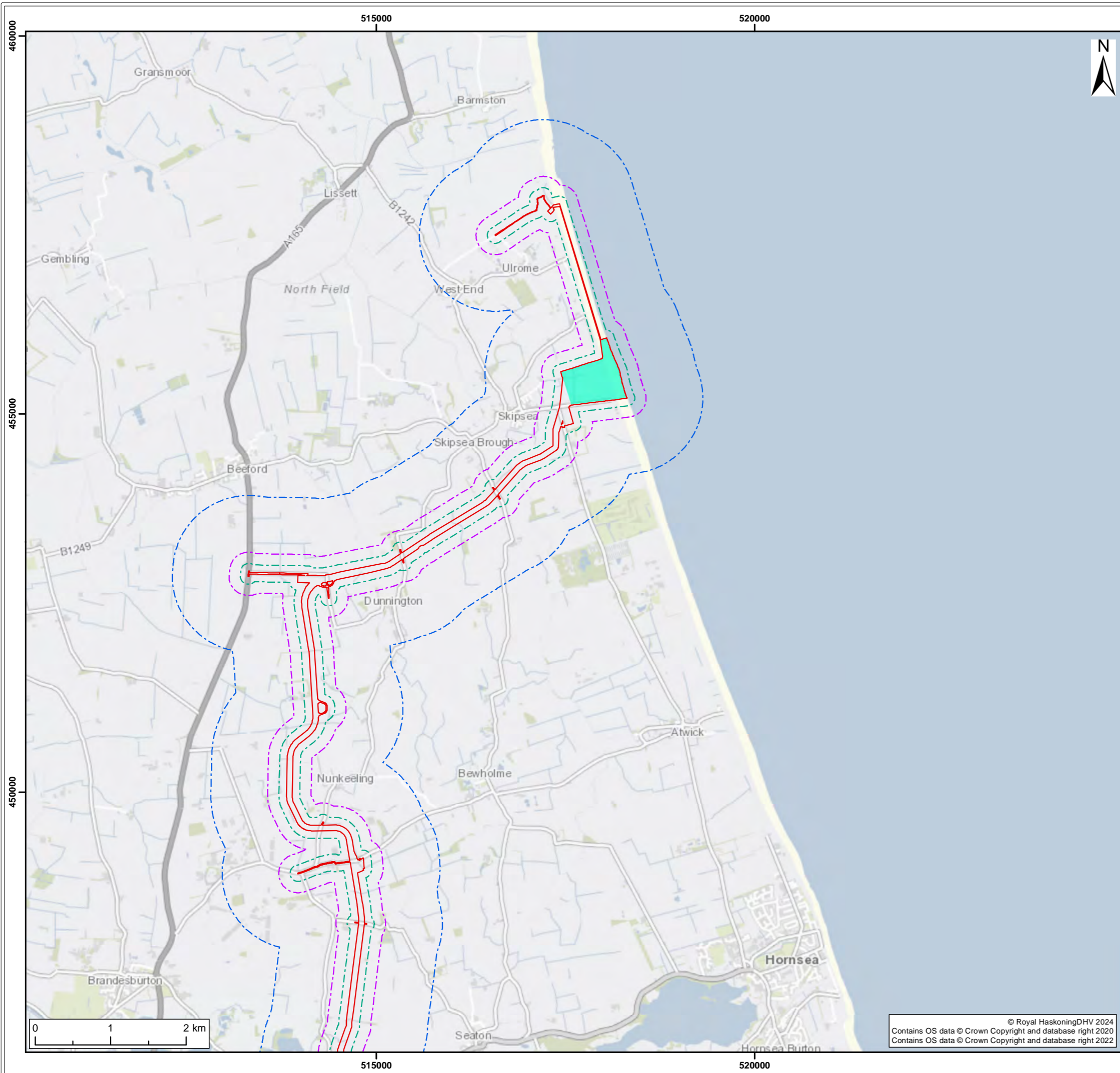
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<b>Rev No.</b>	<b>Date</b>	<b>Status/Reason for Issue</b>	<b>Author</b>	<b>Checked by</b>	<b>Approved by</b>
01	June 2024	Final for DCO Application	RHDHV	RWE	RWE
02	January 2025	Submission for Deadline 1	RHDHV	RWE	RWE



<b>Revision Change Log</b>			
<b>Rev No.</b>	<b>Page</b>	<b>Section</b>	<b>Description</b>
01	N/A	N/A	Submitted for DCO Application
02	25 to 27	N/A	Chapter 19 Geology and Land Quality, Figure 19-8 has been updated following the receipt of the ExAs Supplementary Agenda Questions for Issue Specific Hearing 2, Agenda Item 11: Onshore Water Environment, ISH2.11.6. A 50m buffer has been added to assist in identifying any groundwater abstractions within 50m of the Onshore Order Limits, as detailed in The Applicants' Responses to Issue Specific Hearing 2 Supplementary Agenda Questions [document reference 11.5].





- 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

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:  
Onshore Development Area

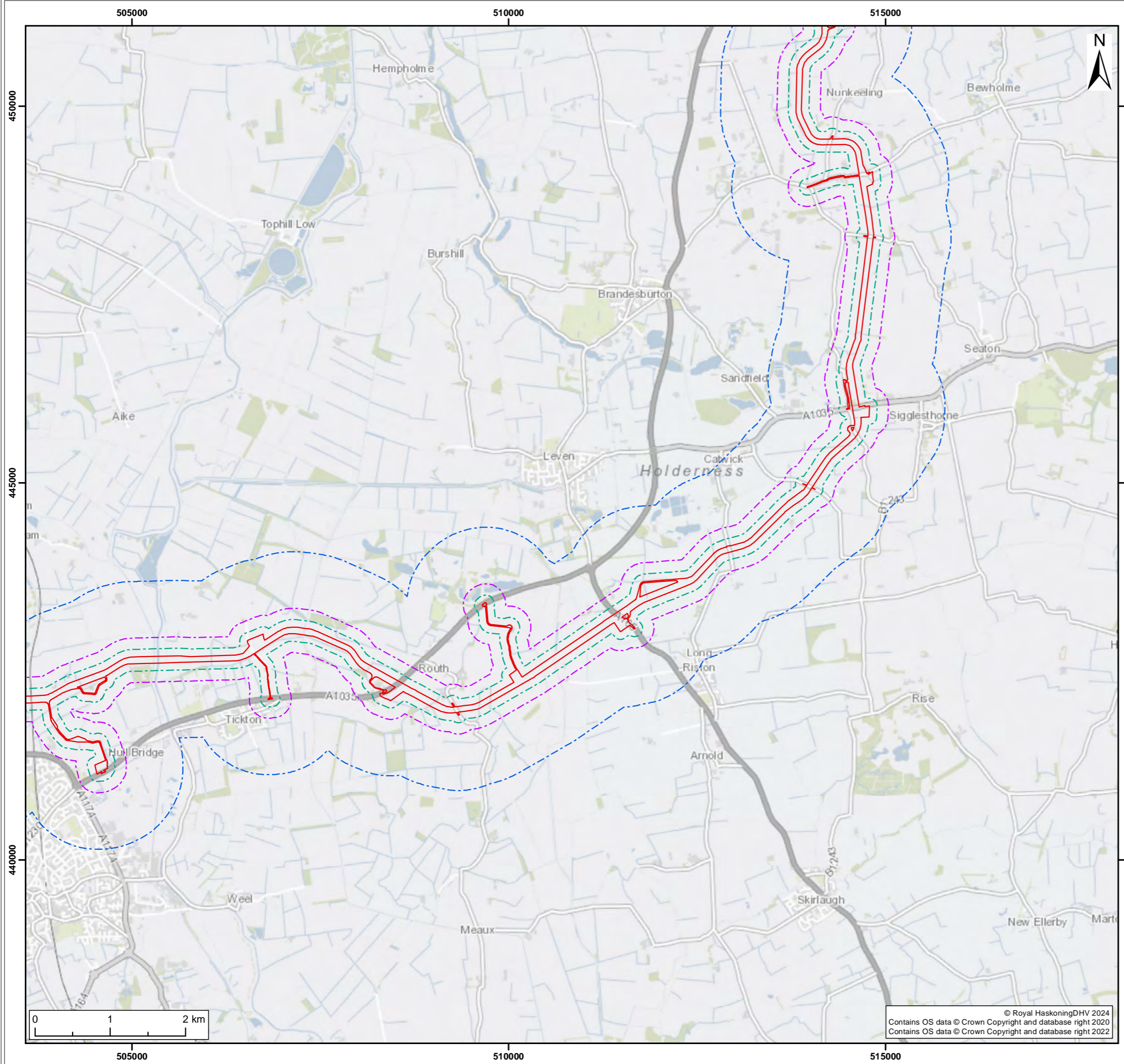
Figure: 19-1a Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0862

Co-ordinate system: British National Grid	Page Size: A3	Scale: 1:50,000
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Project: Dogger Bank South Offshore Wind Farms	Report: Environmental Statement
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- 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

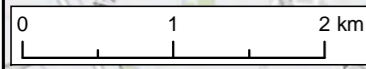
S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:  
**Onshore Development Area**

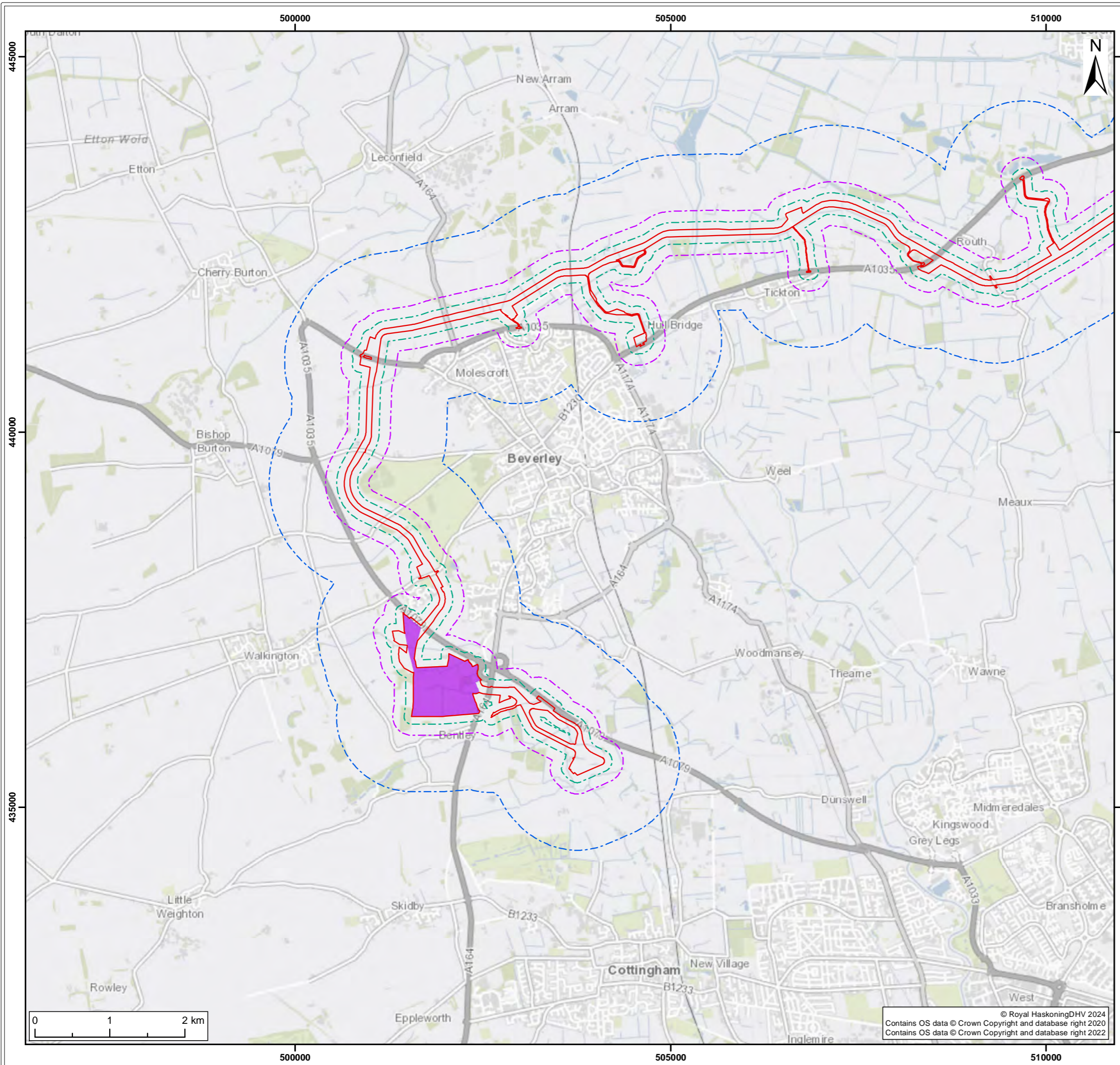
Figure: 19-1b | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0862

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

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

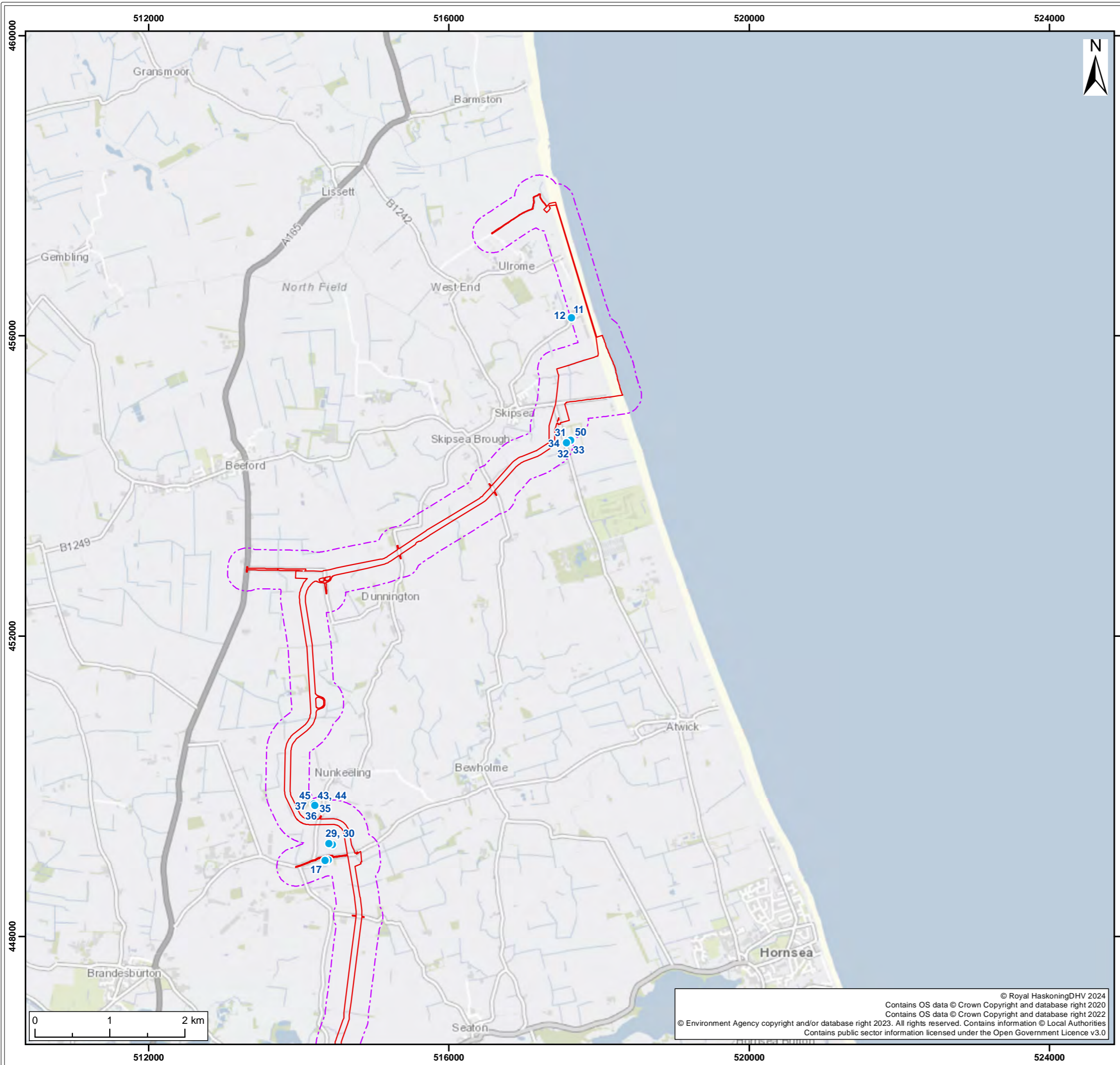
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**Onshore Development Area**

Figure: 19-1c | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0862

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- 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

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

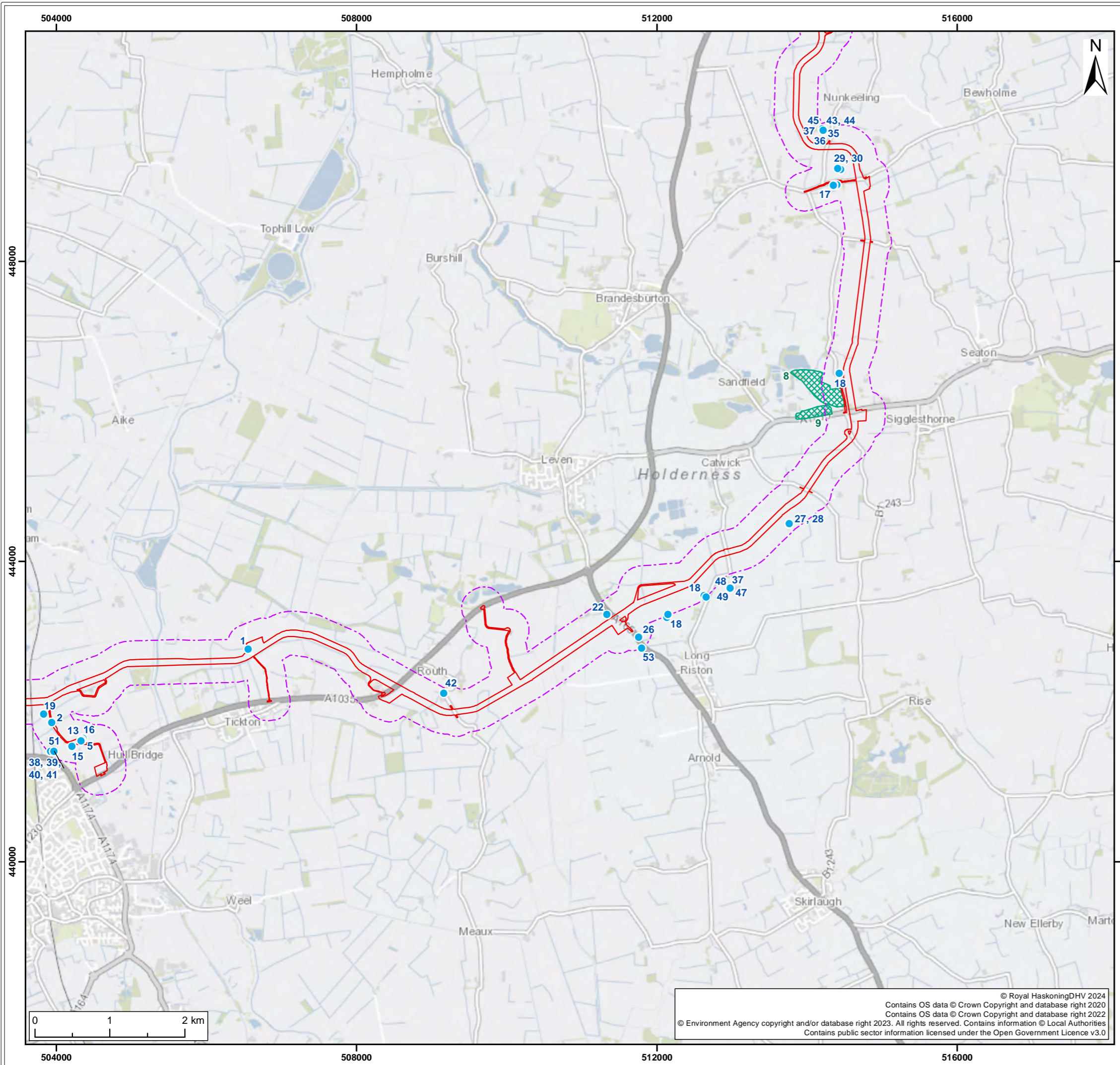
Title:  
**Identified Waste Facilities**

Figure: 19-2a Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0863

Co-ordinate system: British National Grid	Page Size: A3	Scale: 1:50,000
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- Legend:
- Onshore Development Area
  - Onshore Development Area 250m Buffer
  - Historical Landfill (EA records)
  - Waste Exemptions (EA records)

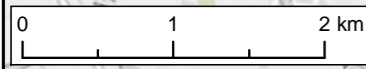
Features reference tables 19-4 and 19-5 in the report

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Title:  
**Identified Waste Facilities**

Figure: 19-2b Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0863

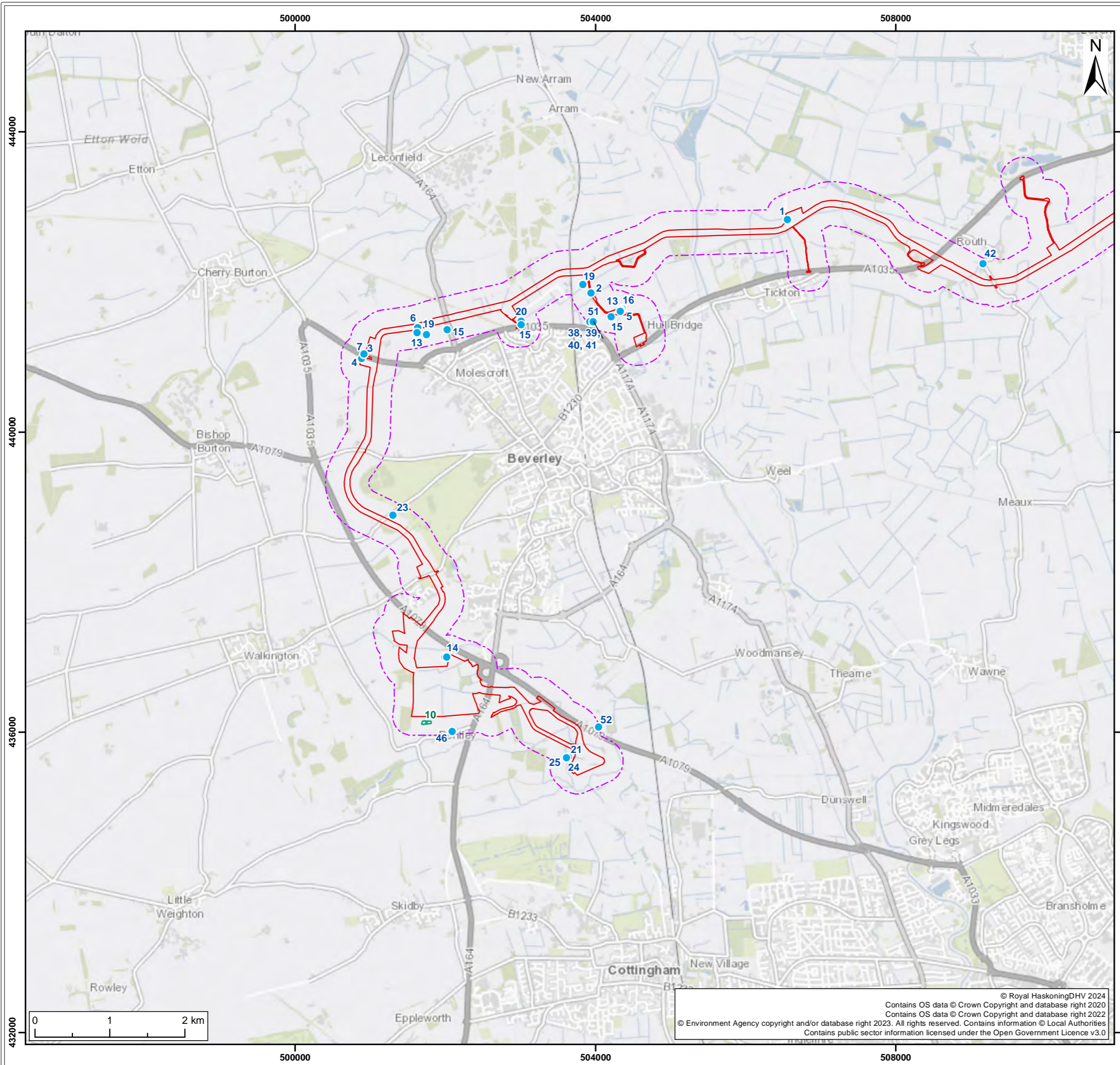
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- Legend:
- Onshore Development Area
  - Onshore Development Area 250m Buffer
  - Historical Landfill (EA records)
  - Waste Exemptions (EA records)

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

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

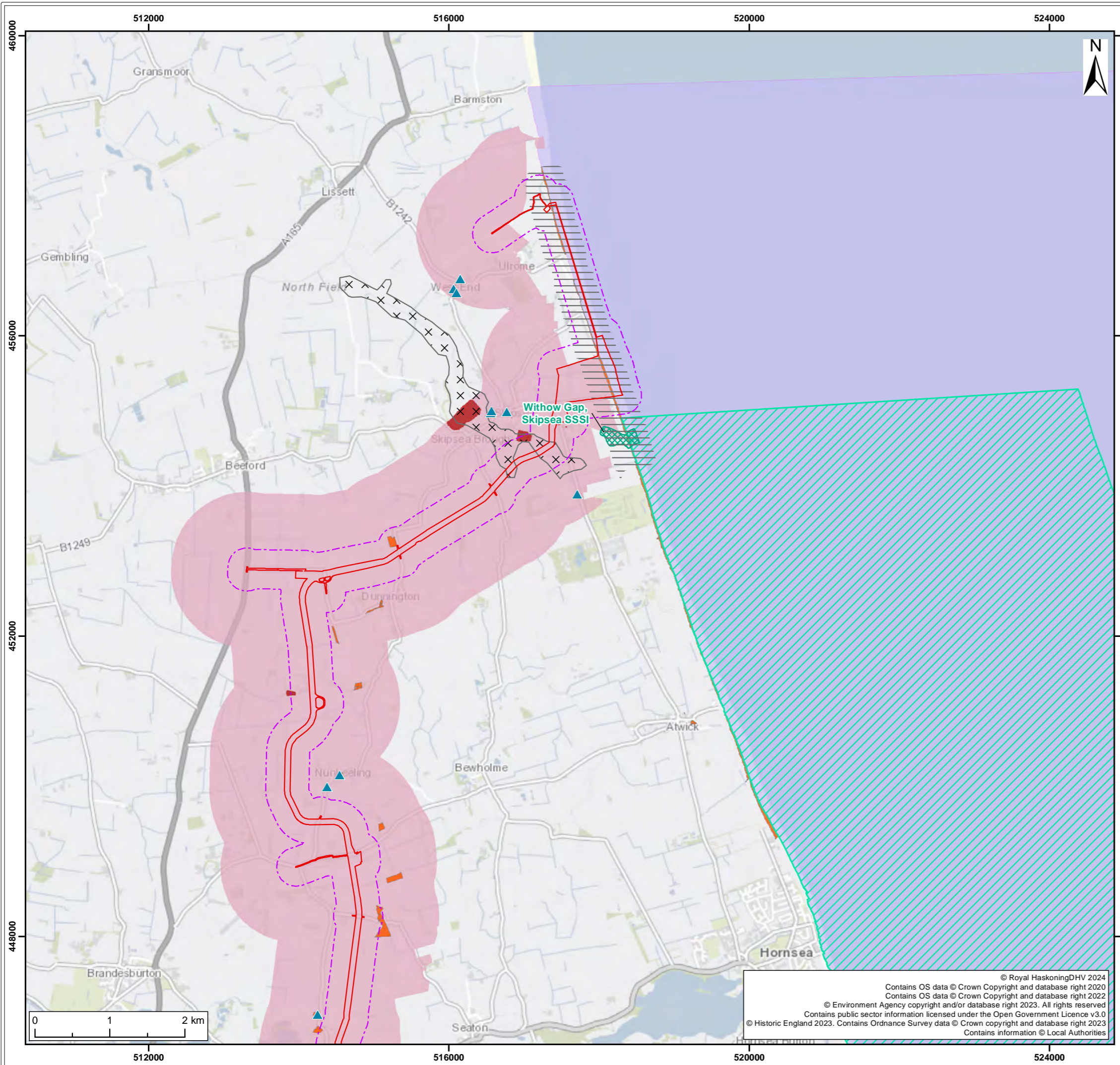
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**Identified Waste Facilities**

Figure: 19-2c Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0863

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**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
- Nitrate Vulnerable Zones
  - Groundwater
  - Surface Water
- Local Geological Sites
- Local Nature Reserve
- Listed Buildings
- Scheduled Monuments
- Open Mosaic Habitat

*Note: The whole route is impacted by SSSI impact Risk Zones*  
*Features reference tables 19-8 and 19-9 in the report*

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

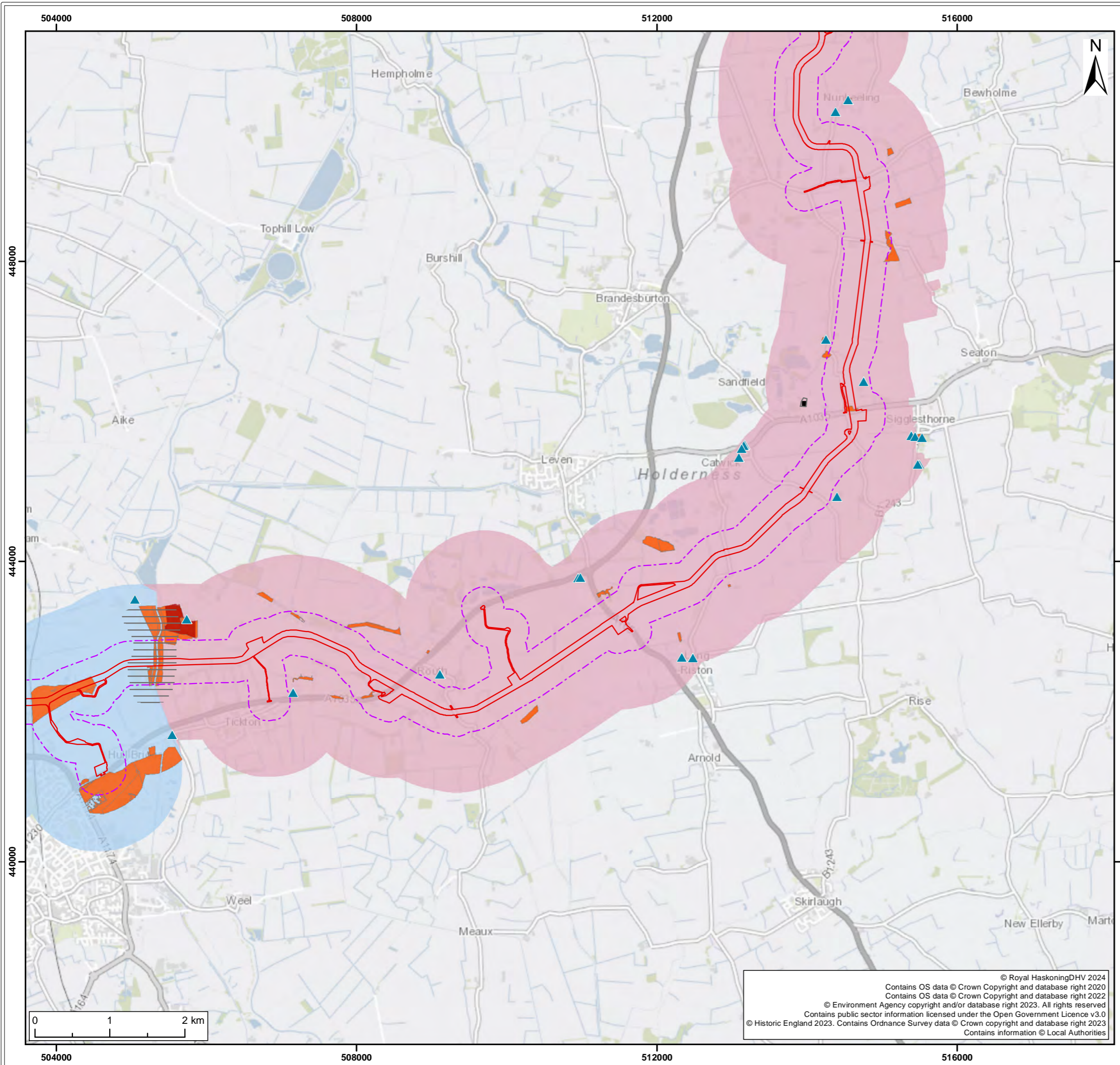
Title:  
 Environmentally Sensitive Land Uses

Figure: 19-3a Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0864

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**Legend:**

- [Red Solid Line] Onshore Development Area
- [Purple Dashed Line] Onshore Development Area 250m Buffer
- [Green Checkered Box] Sites of Special Scientific Interest
- [Purple Box] Special Protection Area
- [Green Box] Ancient Woodland
- [Blue Hatched Box] Marine Conservation Zone
- [Orange Box] Priority Habitat Inventory
- [Grey Line] Habitat Networks
- [Blue Box with X's] Local Geological Sites
- [Green Box with Triangles] Local Nature Reserve
- [Blue Triangle] Listed Buildings
- [Red Box] Scheduled Monuments
- [Black and White Checkered Box] Open Mosaic Habitat

**Nitrate Vulnerable Zones**

- [Light Blue Box] Groundwater
- [Pink Box] Surface Water

*Note: The whole route is impacted by SSSI impact Risk Zones*  
*Features reference tables 19-8 and 19-9 in the report*

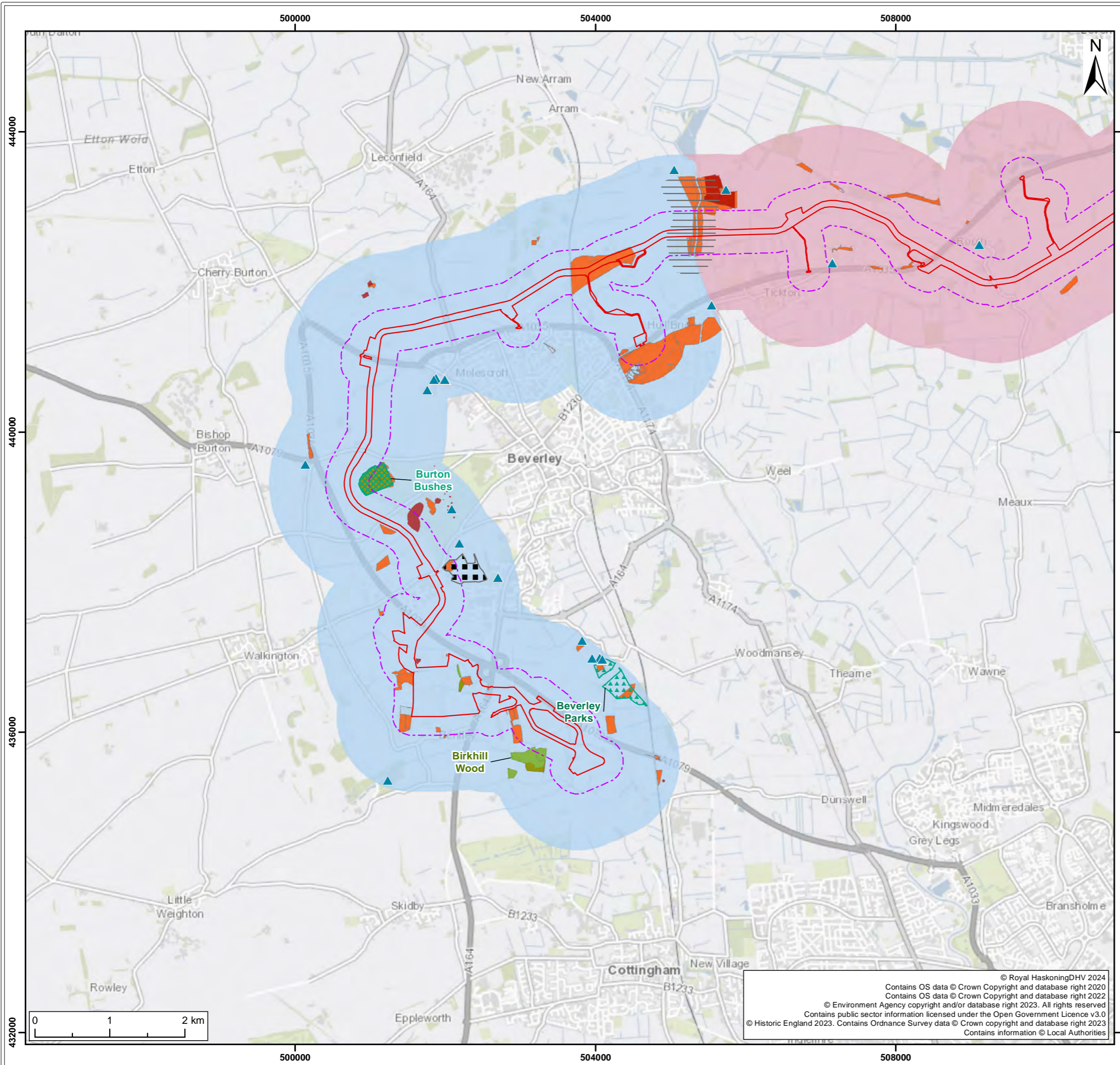
S2	P01	30/04/2024	Suitable for Information	SB	KD	ND					
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR					

Title:  
**Environmentally Sensitive Land Uses**

Figure: 19-3b	Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0864	
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**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
- Groundwater Nitrate Vulnerable Zones
- Surface Water Nitrate Vulnerable Zones
- Local Geological Sites
- Local Nature Reserve
- ▲ Listed Buildings
- Scheduled Monuments
- Open Mosaic Habitat

*Note: The whole route is impacted by SSSI impact Risk Zones*  
*Features reference tables 19-8 and 19-9 in the report*

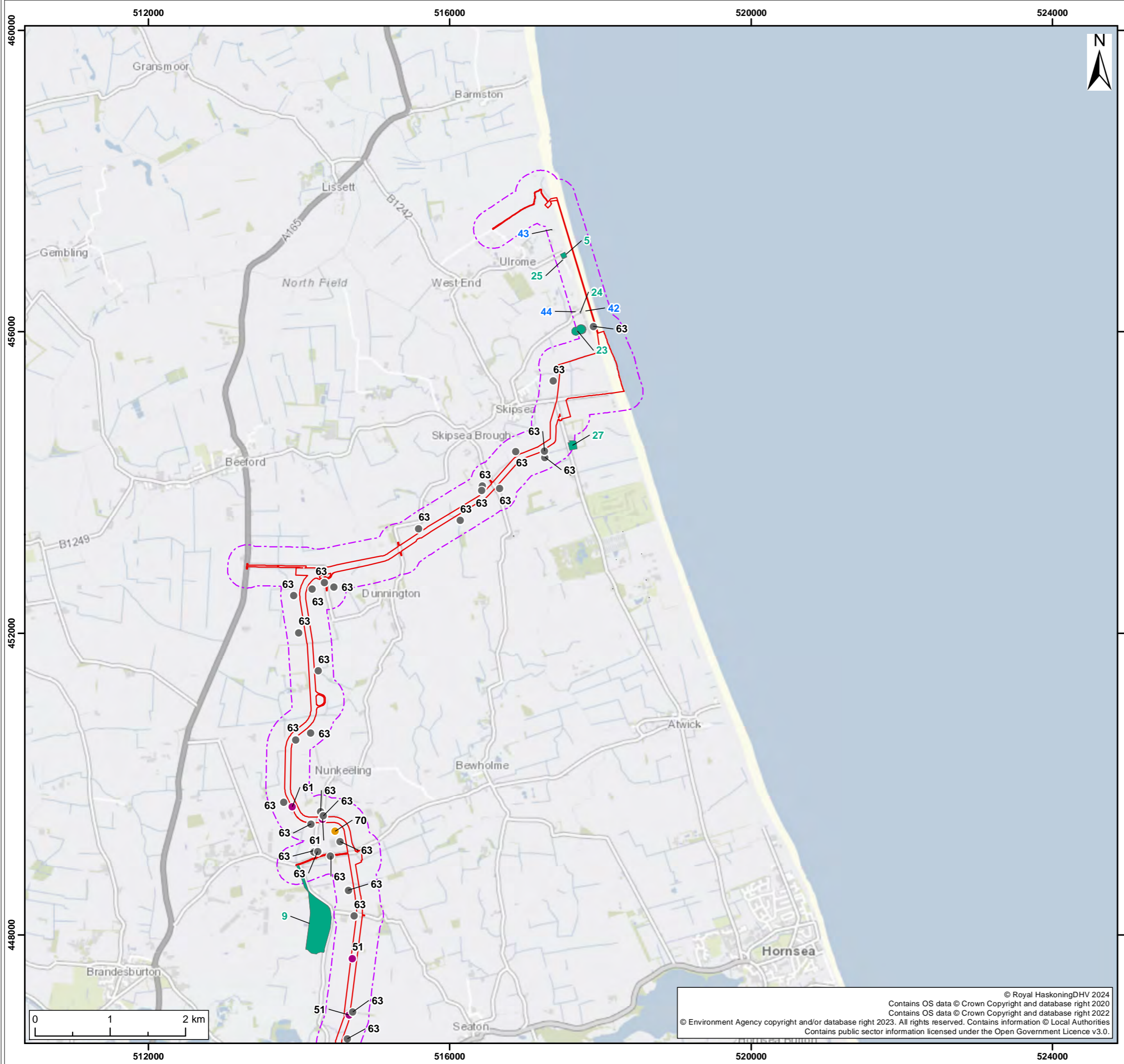
S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:  
**Environmentally Sensitive Land Uses**

Figure: 19-3c	Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0864	
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- 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

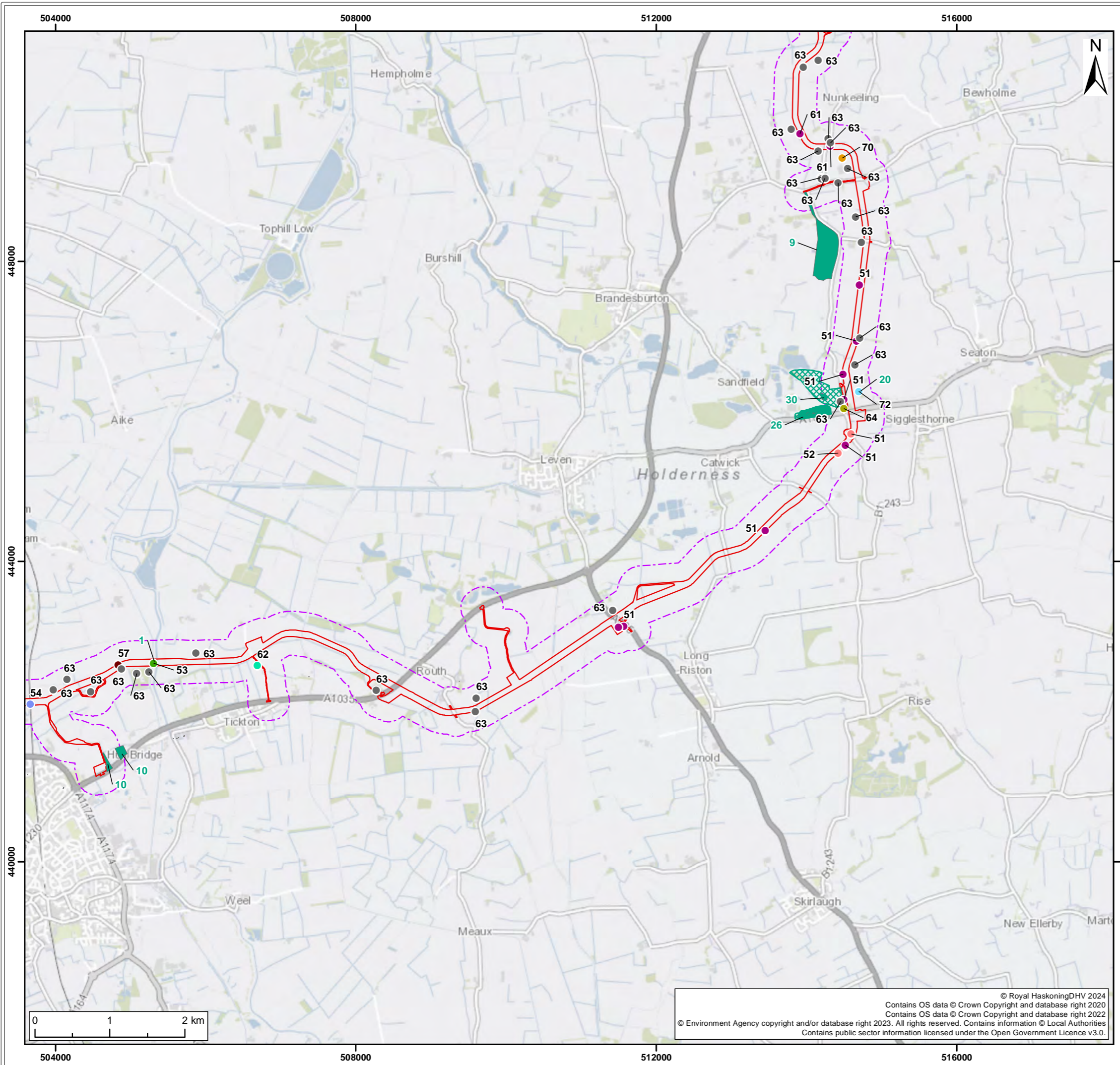
S2	P01	30/04/2024	Suitable for Information	SB	KD	ND					
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR					

Title:  
**Potentially Contaminative Historical Land Uses**

Figure: 19-4a     Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0865

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- 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

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND					
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR					

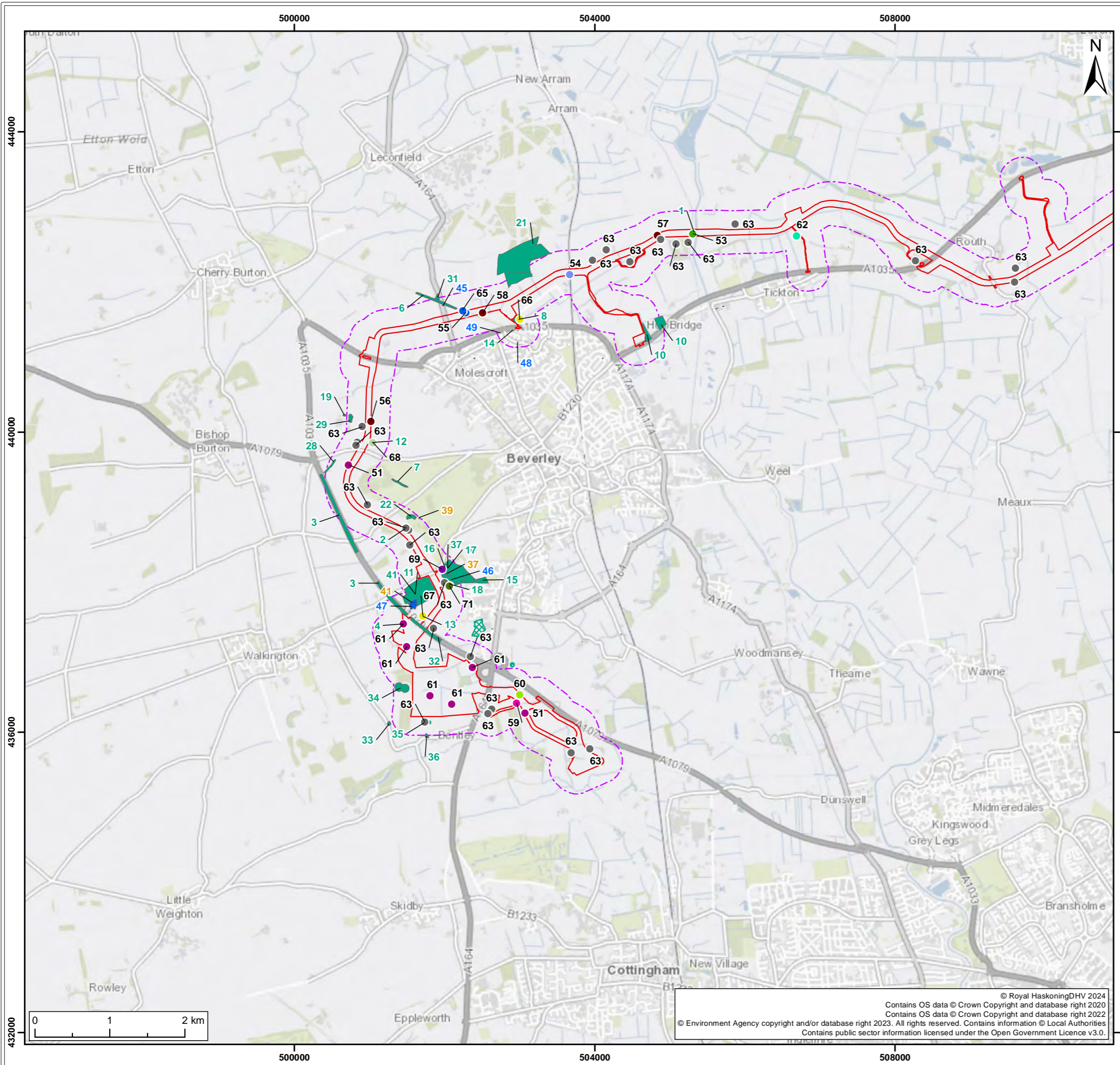
Title:  
**Potentially Contaminative Historical Land Uses**

Figure: 19-4b    Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0865

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- 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*

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND					
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR					

Title:  
**Potentially Contaminative Historical Land Uses**

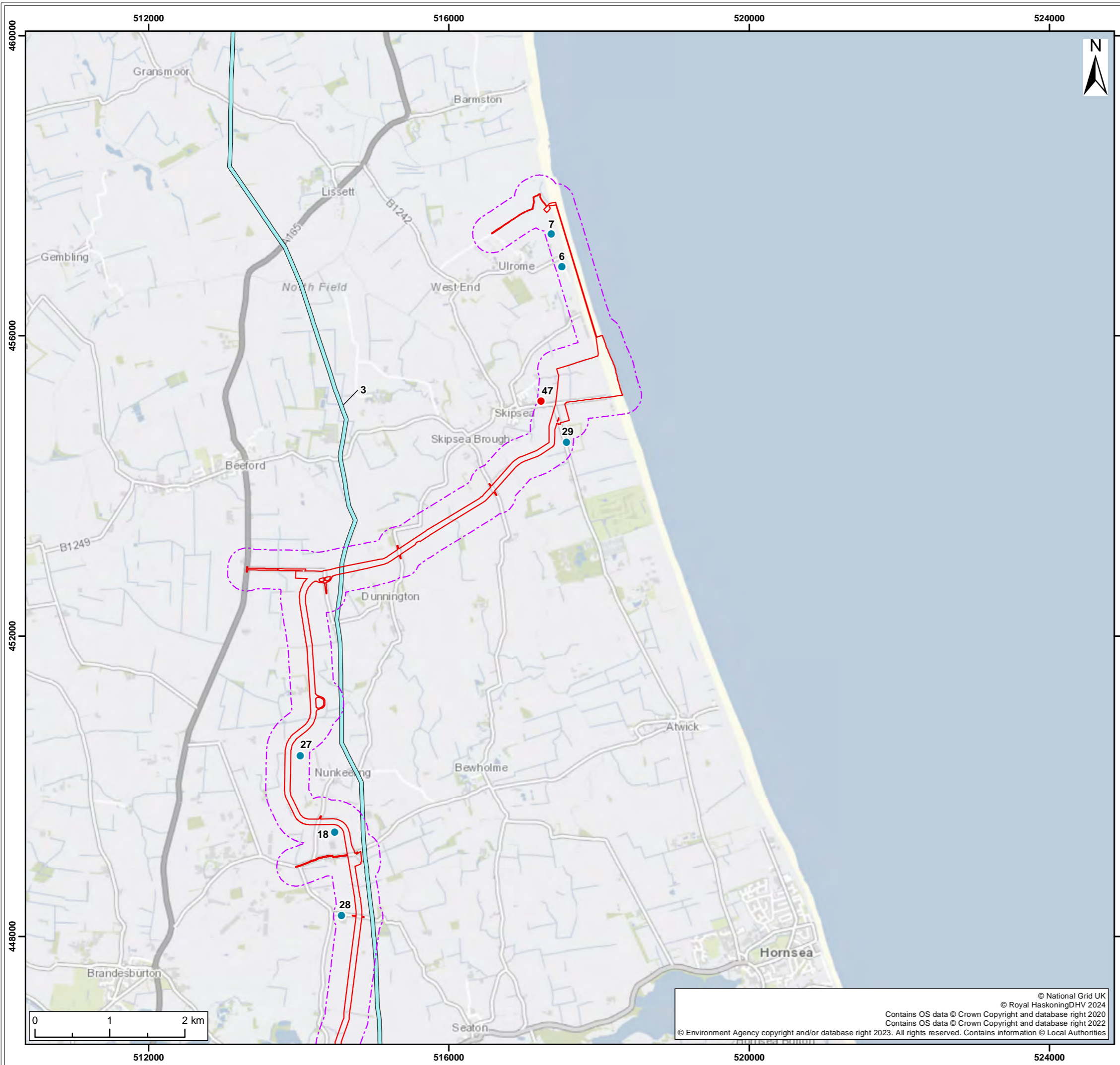
Figure: 19-4c    Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0865

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**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

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:  
Potentially Contaminative Current Land Uses

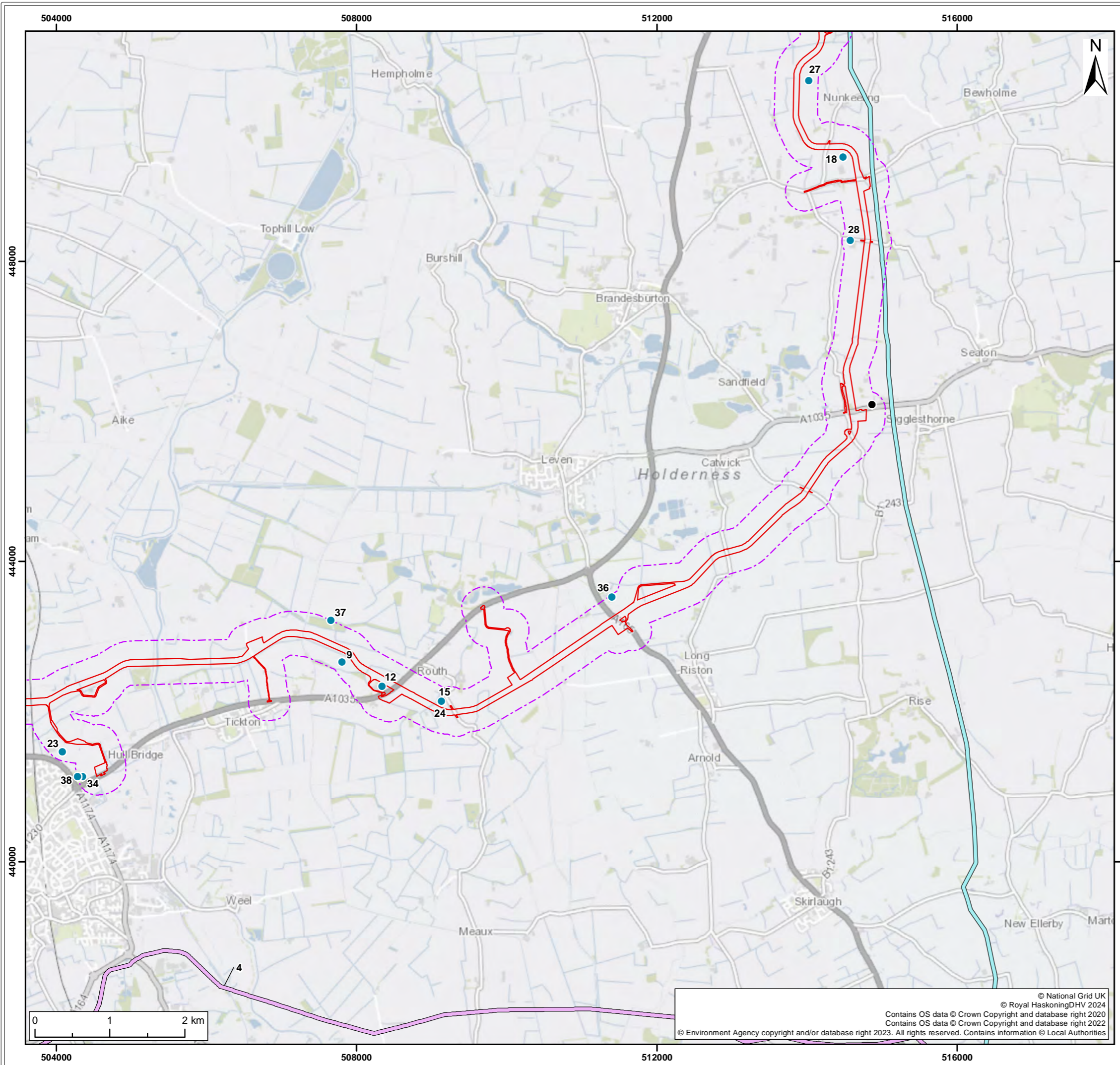
Figure: 19-5a Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0866

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- 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

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

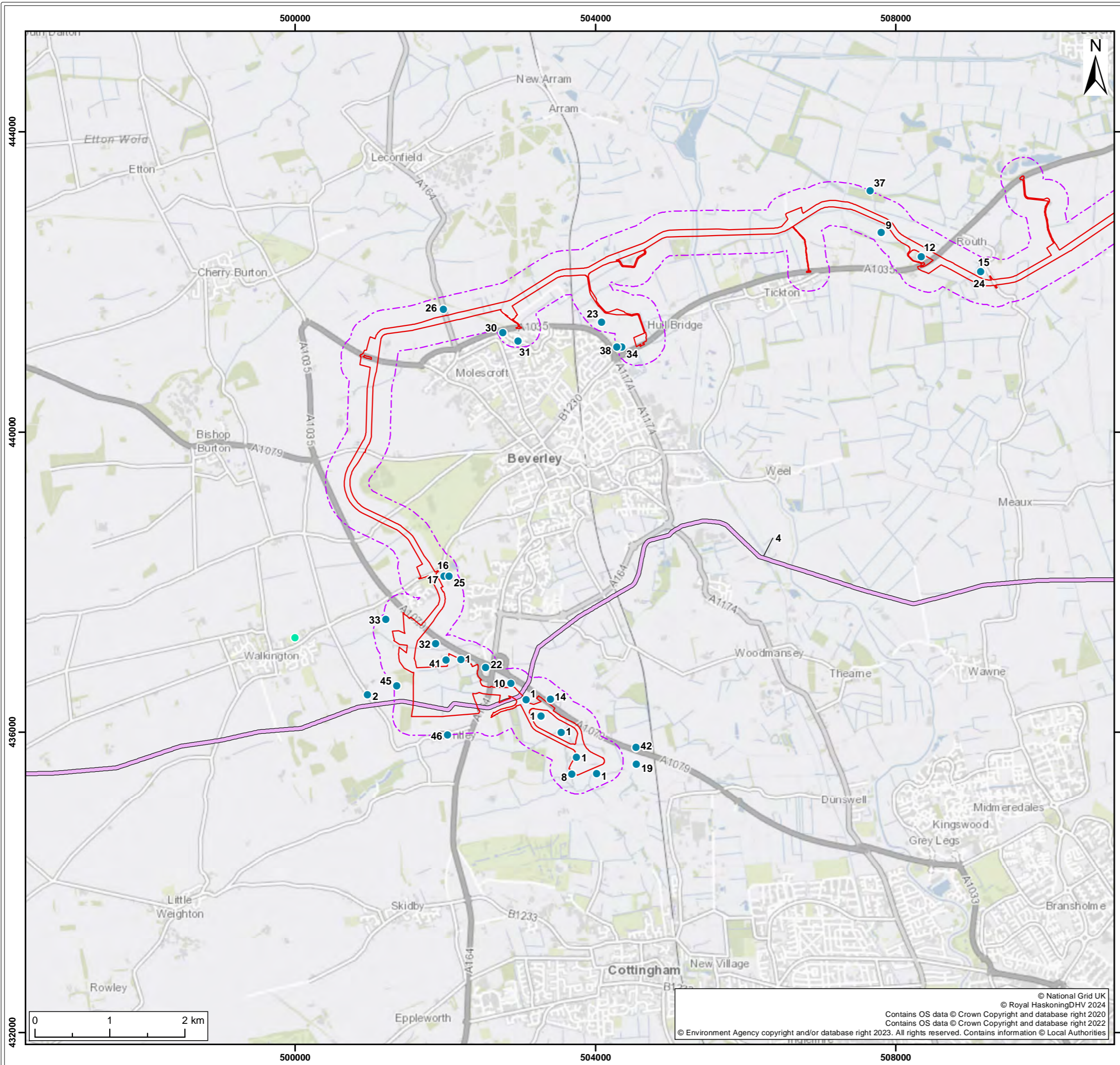
Title:  
Potentially Contaminative Current Land Uses

Figure: 19-5b Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0866

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- Legend**
- Onshore Development Area
  - Onshore Development Area 250m Buffer
  - Industrial land uses
  - Licensed pollutant release (Part
- National Grid High Pressure Gas Pipeline**
- Easington to Asselby

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

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

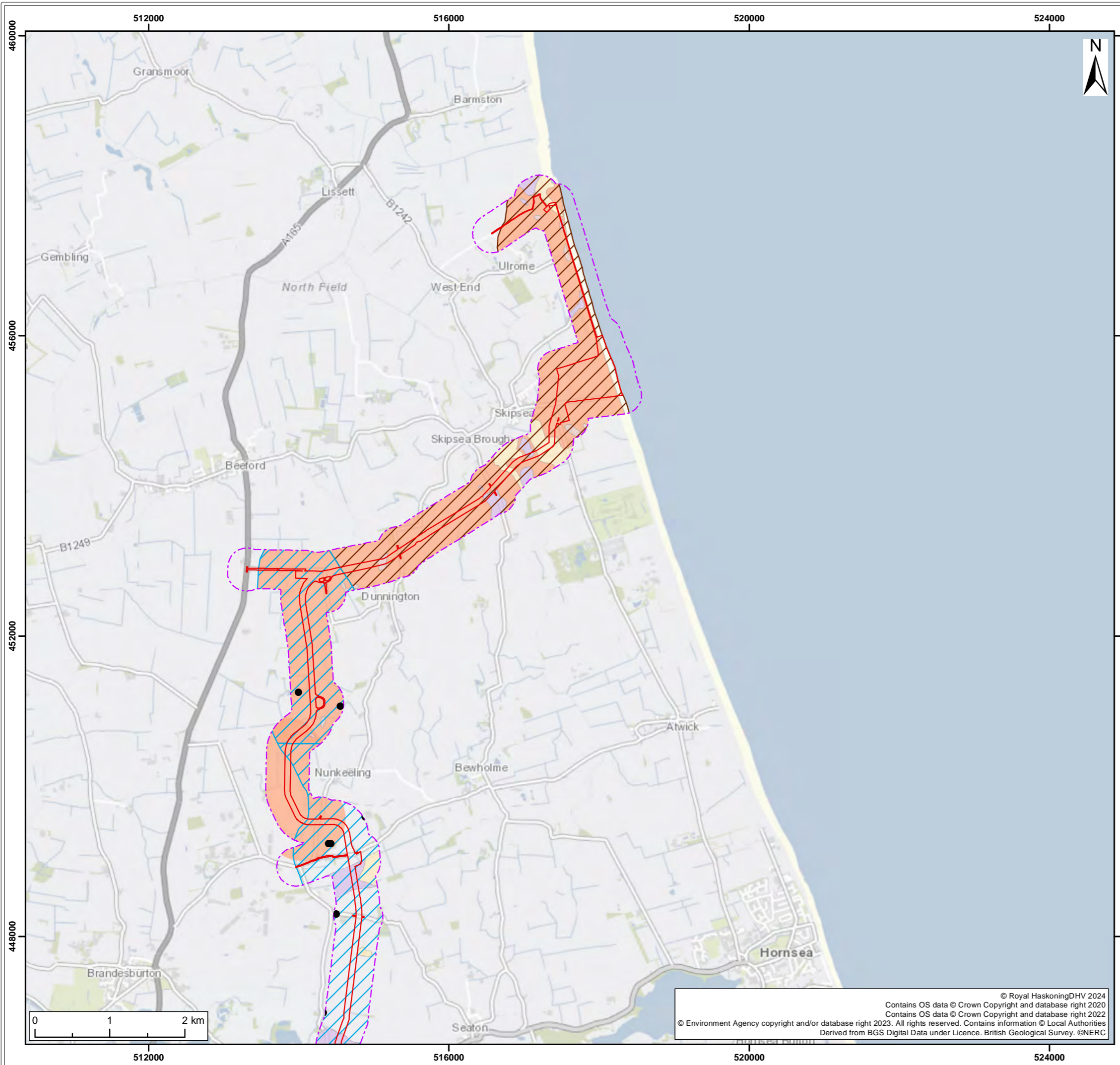
Title:  
**Potentially Contaminative Current Land Uses**

Figure: 19-5c | Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0866

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**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

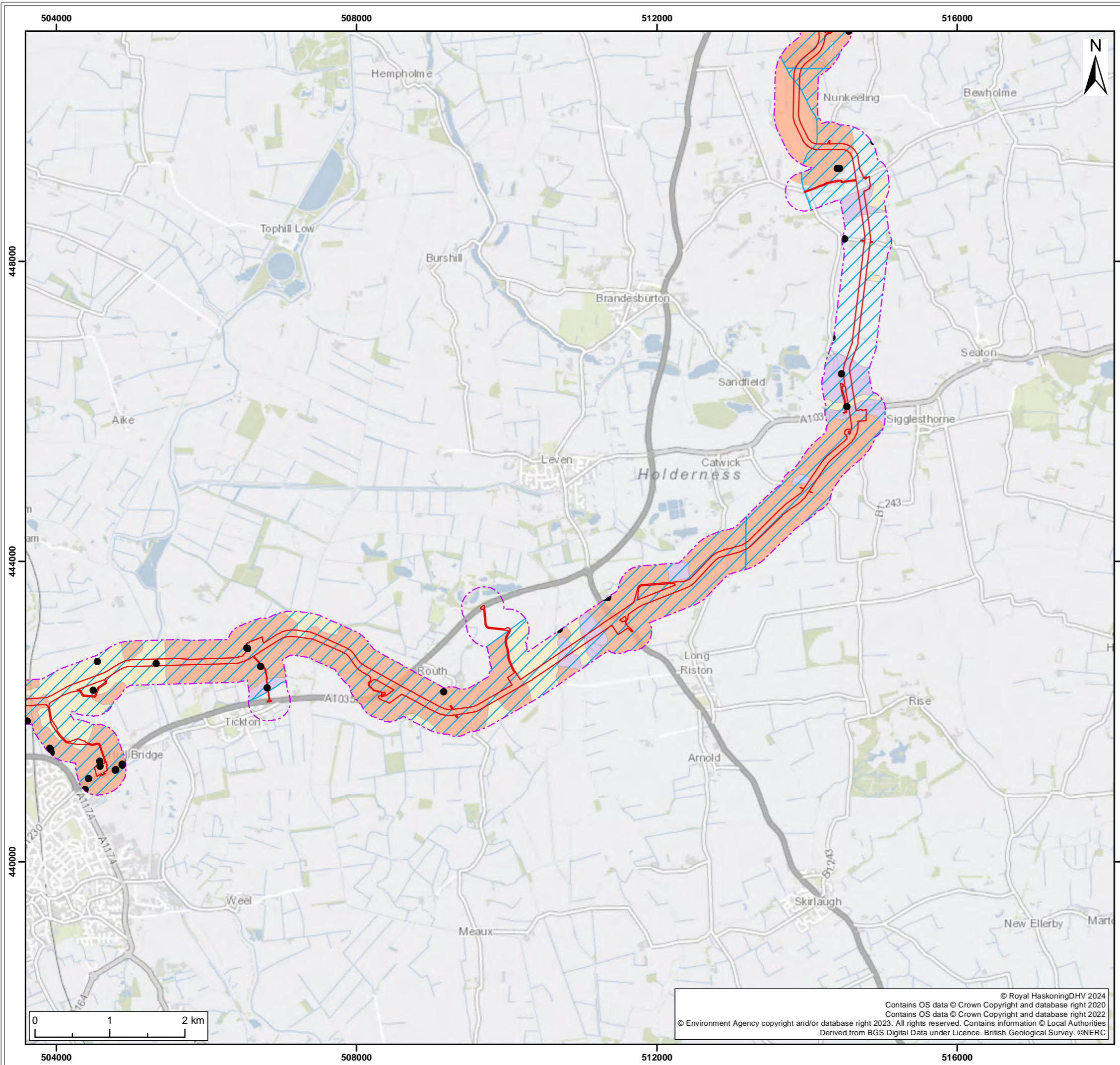
S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:  
**Geology and Ground Conditions**

Figure: 19-6a Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0867

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**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

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

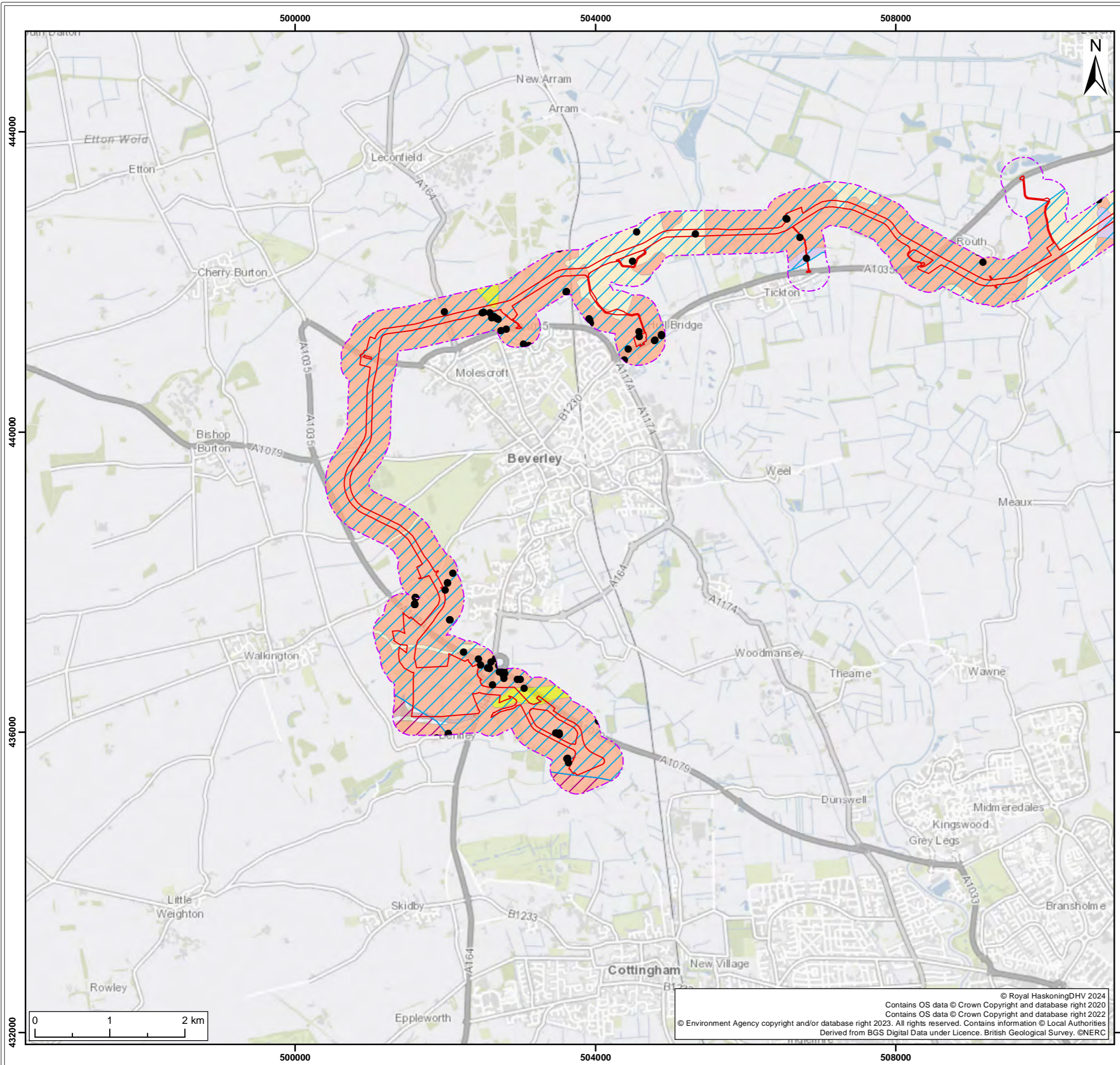
Title:  
**Geology and Ground Conditions**

Figure: 19-6b Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0867

Co-ordinate system: British National Grid	Page Size: A3	Scale: 1:50,000
Project: <b>Dogger Bank South Offshore Wind Farms</b>	Report: <b>Environmental Statement</b>	



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**Legend**

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

**50k Bedrock Geology**

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

**50k Superficial Geology**

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

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:  
**Geology and Ground Conditions**

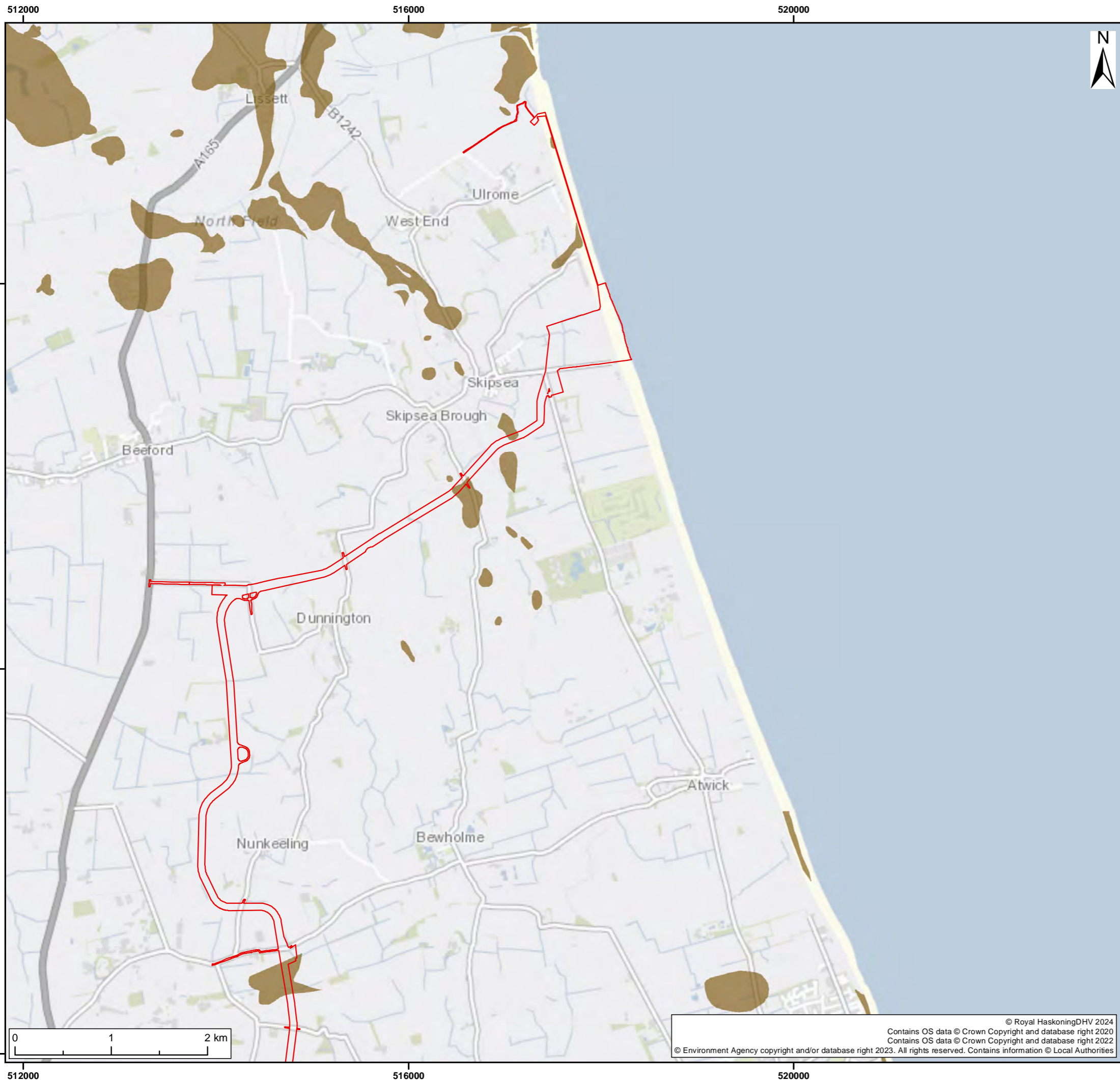
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Co-ordinate system: British National Grid Page Size: A3 Scale: 1:50,000

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



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**Legend**

- Onshore Development Area
- Mineral Safeguarding Areas

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:  
**Mineral Safeguarding Areas**

Figure: 19-7a Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0868

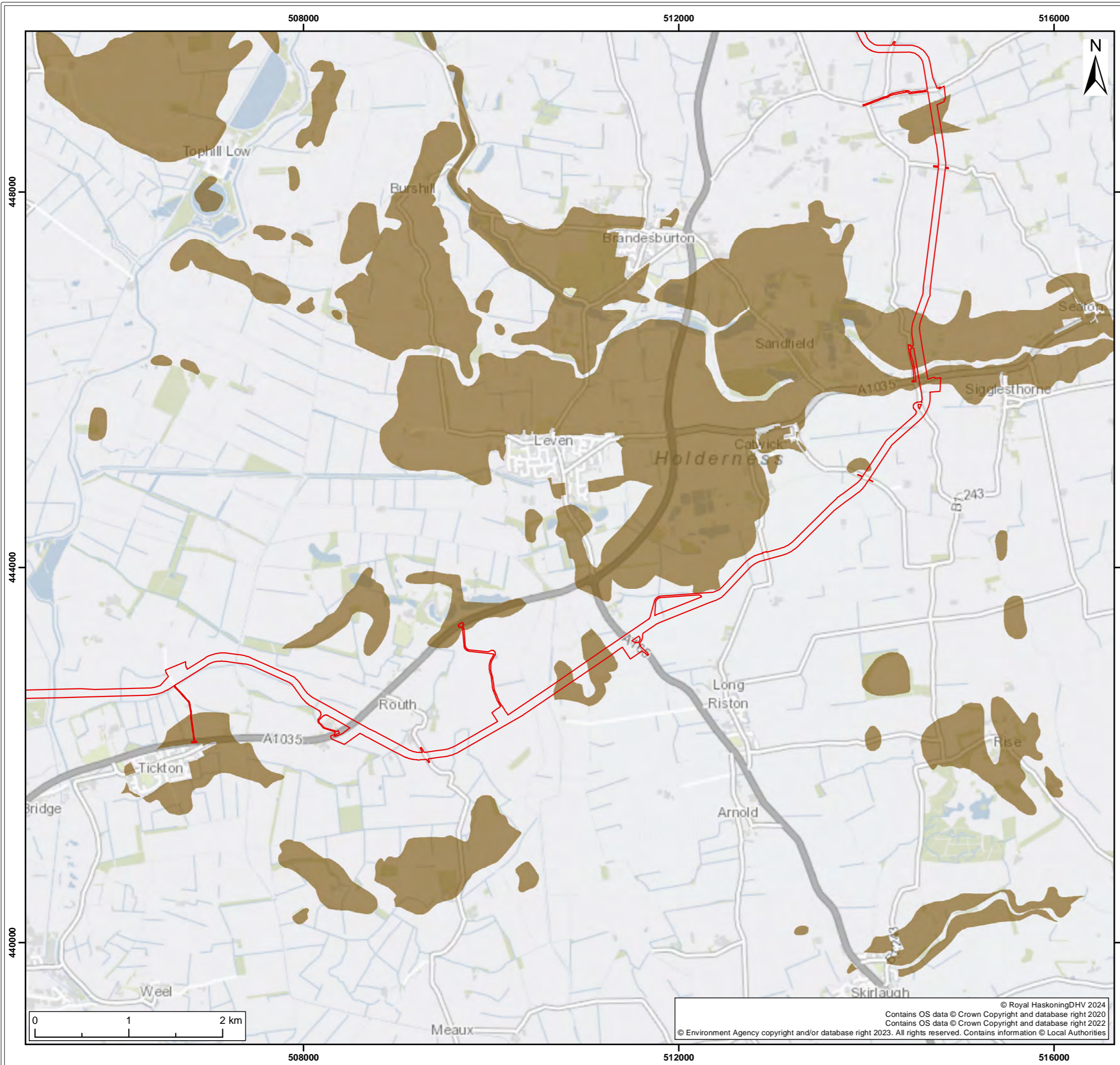
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Project: Dogger Bank South Offshore Wind Farms	Report: Environmental Statement
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456000  
452000  
448000



**Legend**

- Onshore Development Area
- Mineral Safeguarding Areas

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

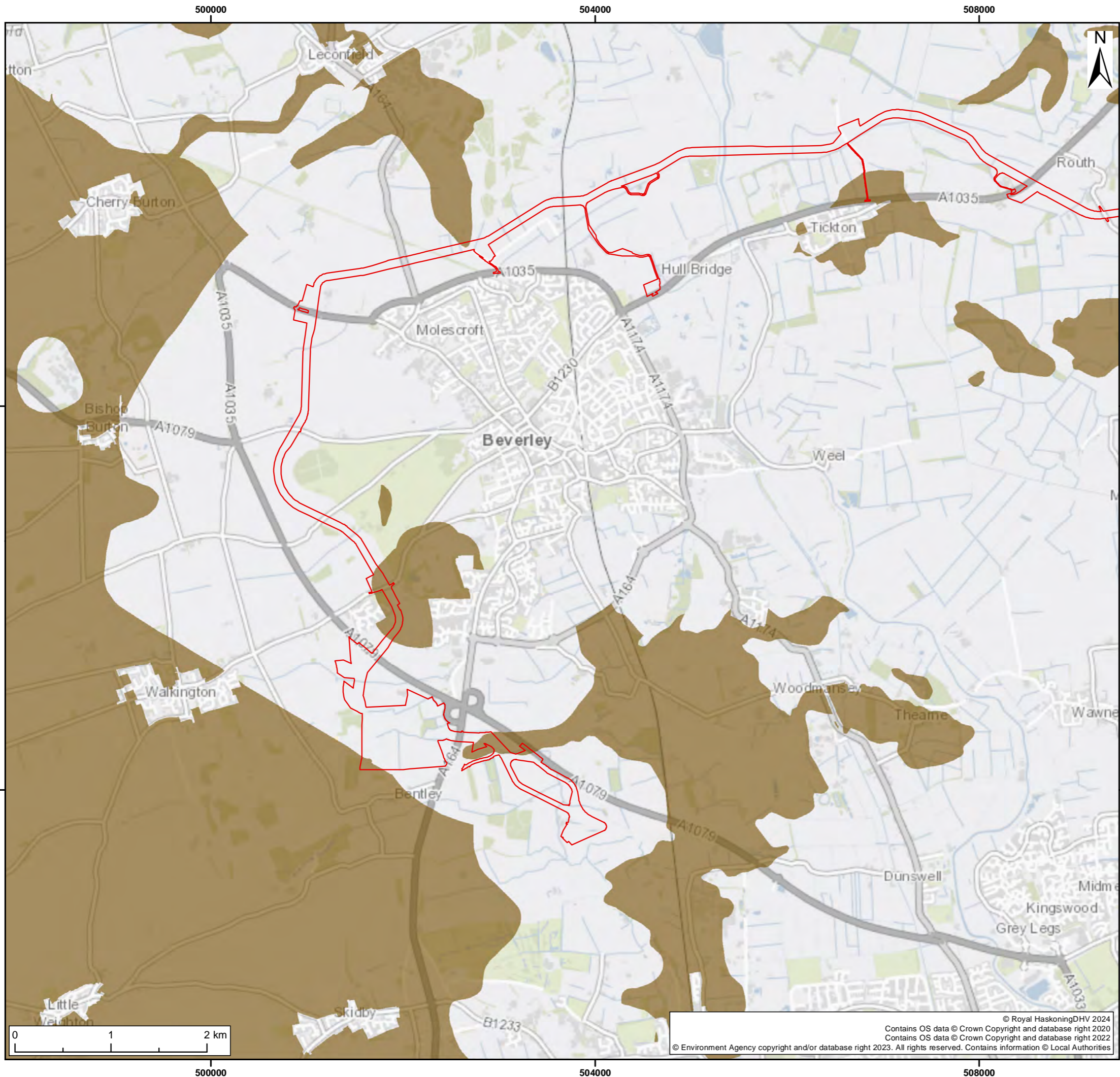
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Figure: 19-7b Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0868

Co-ordinate system: British National Grid	Page Size: A3	Scale: 1:40,000
Project: Dogger Bank South Offshore Wind Farms	Report: Environmental Statement	



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**Legend**

- Onshore Development Area
- Mineral Safeguarding Areas

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title:  
**Mineral Safeguarding Areas**

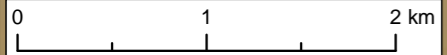
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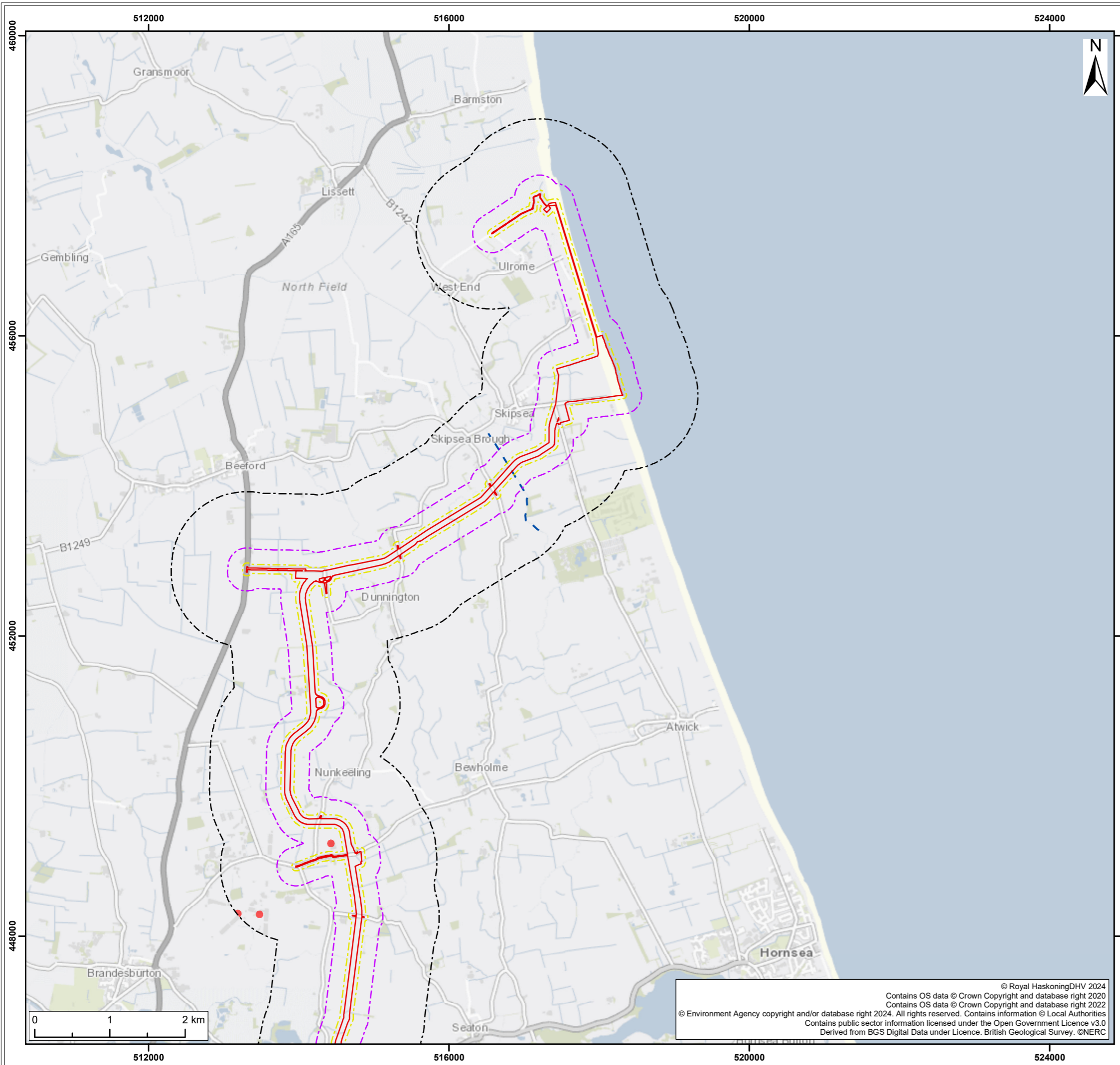
Project: <b>Dogger Bank South Offshore Wind Farms</b>	Report: <b>Environmental Statement</b>
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**Legend**

- Onshore Development Area
- Onshore Development Area 50m Buffer
- 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
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S2	P01	30/04/2024	Suitable for Information	SB	KD	ND

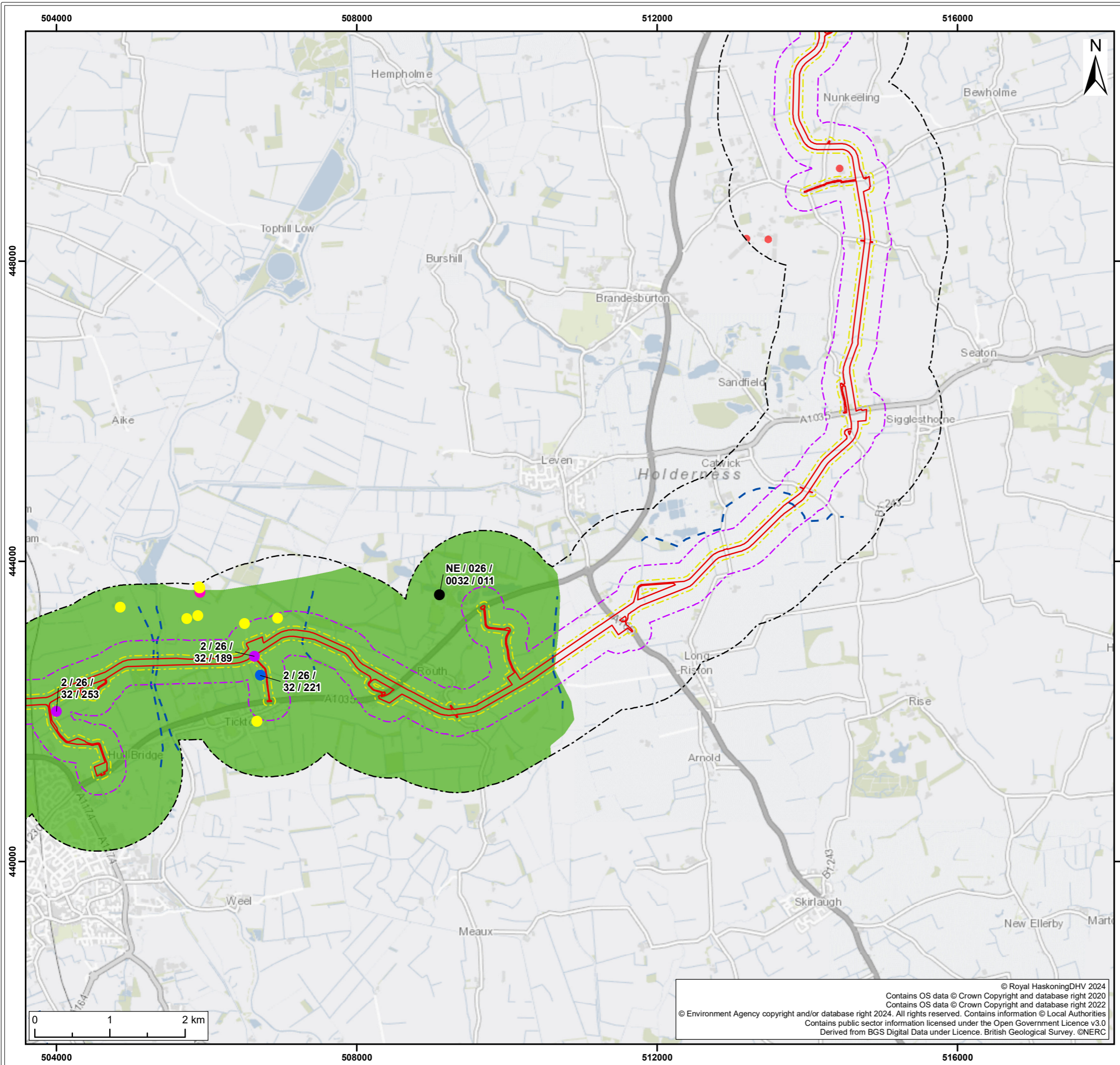
Title:  
Hydrogeology and Hydrology

Figure: 19-8a Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0869

Co-ordinate system: British National Grid	Page Size: A3	Scale: 1:50,000
Project: Dogger Bank South Offshore Wind Farms	Report: Environmental Statement	

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- Groundwater - potable
- Surface water - non potable

SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR
S3	P02	28/01/2025	Suitable for review & comment	SM	KD	ND
S2	P01	30/04/2024	Suitable for Information	SB	KD	ND

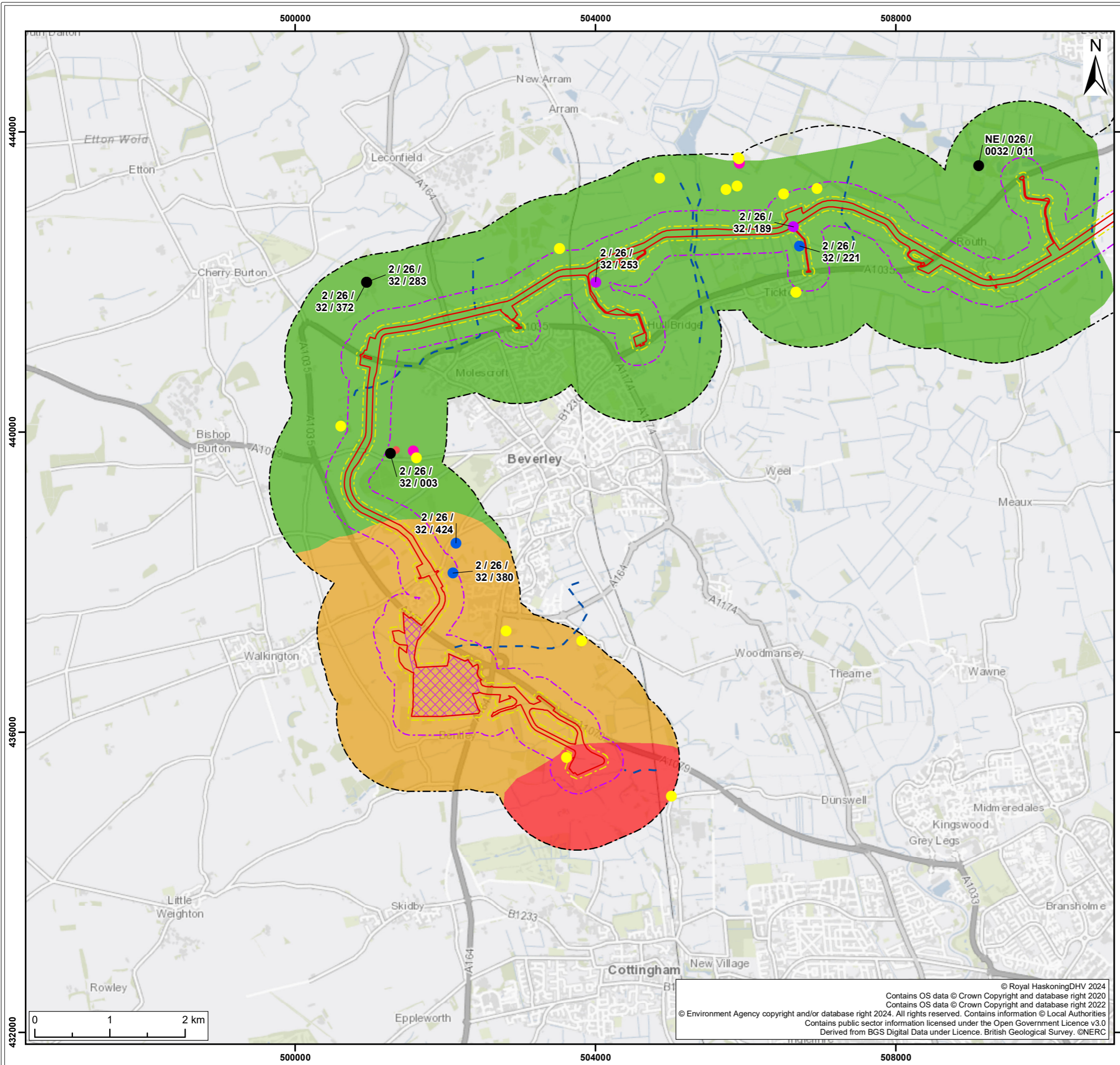
Title:  
Hydrogeology and Hydrology

Figure: 19-8b Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0869

Co-ordinate system: British National Grid	Page Size: A3	Scale: 1:50,000
Project: Dogger Bank South Offshore Wind Farms	Report: Environmental Statement	

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**Legend**

- Onshore Development Area
- Onshore Development Area 50m Buffer
- Onshore Development Area 250m Buffer
- Onshore Development Area 1km Buffer
- WFD Surface Water Body Linear Features
- Substation Zone 4

**Source Protection Zone**

- SP1
- SP2
- SP3

- 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
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SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR
S3	P02	28/01/2025	Suitable for review & comment	SM	KD	ND
S2	P01	30/04/2024	Suitable for Information	SB	KD	ND

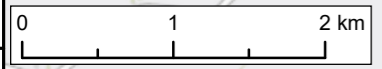
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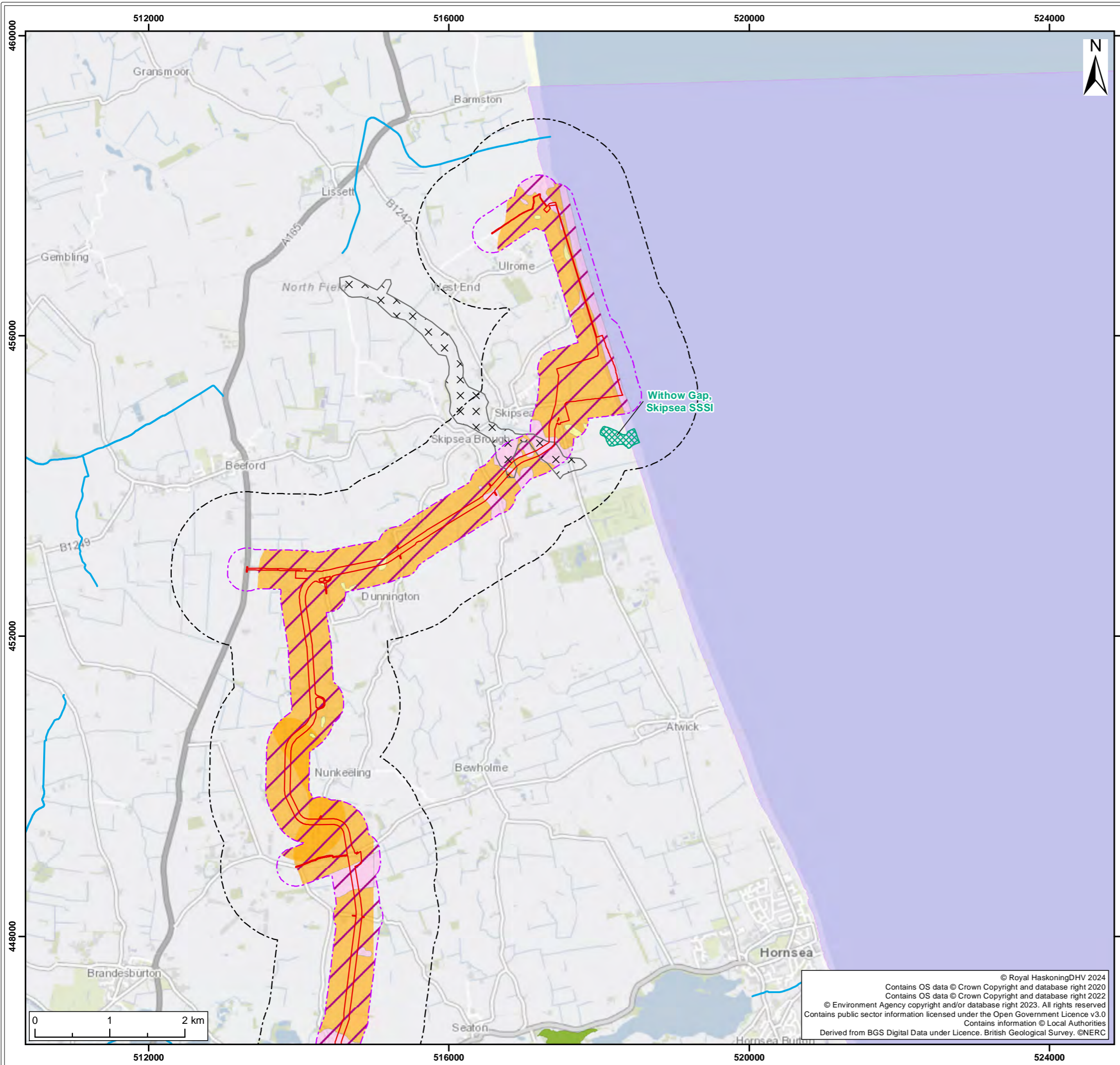
Figure: 19-8c Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0869

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

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Onshore Development Area 1km Buffer
- Statutory Main Rivers
- Special Protection Area
- x x x 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*

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND					
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR					

Title:  
**Potential Receptors**

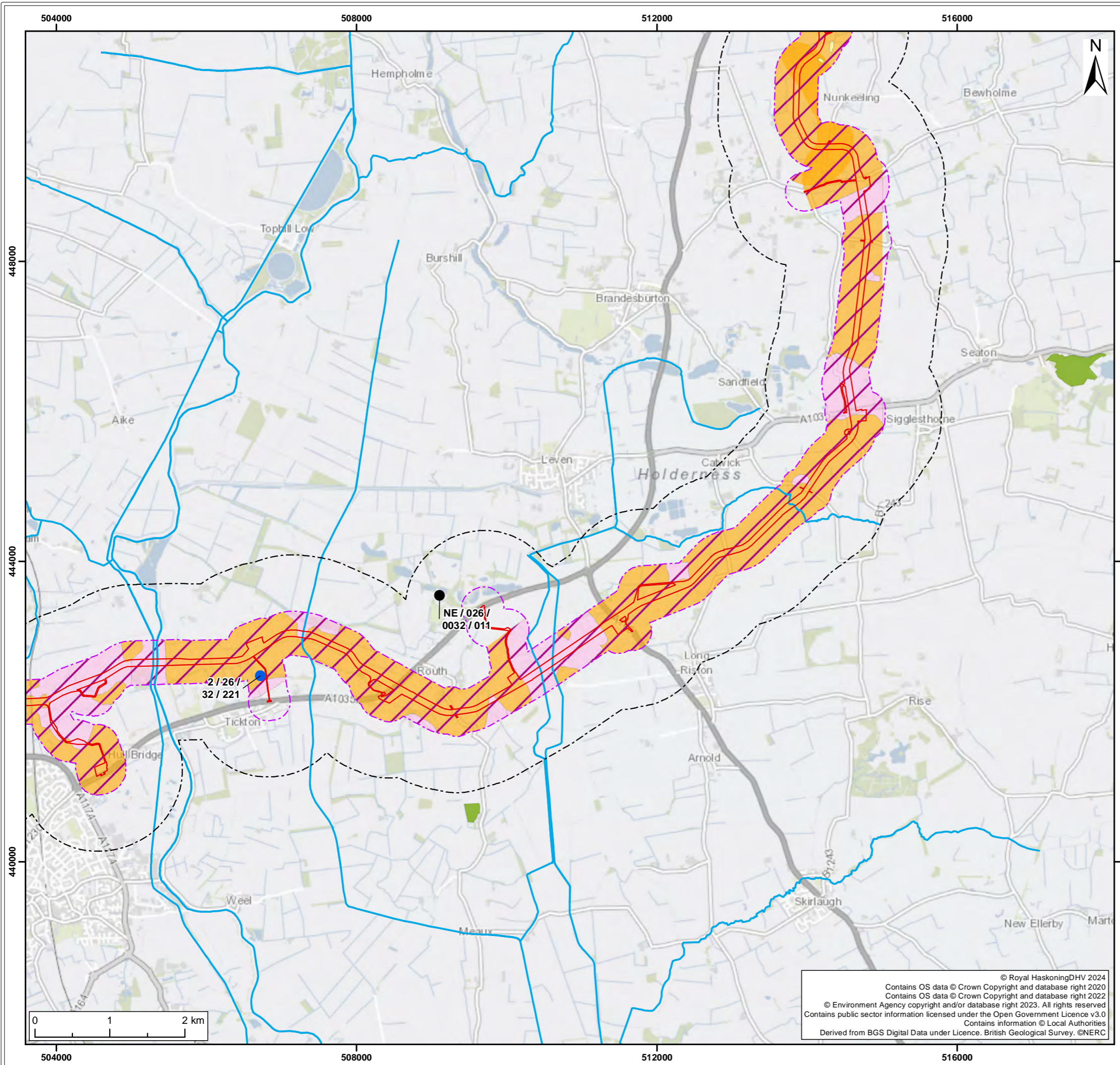
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Co-ordinate system: British National Grid Page Size: A3 Scale: 1:50,000

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- Legend**
- Onshore Development Area
  - Onshore Development Area 250m Buffer
  - Onshore Development Area 1km Buffer
  - Statutory Main Rivers
  - Special Protection Area
  - X X X 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

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

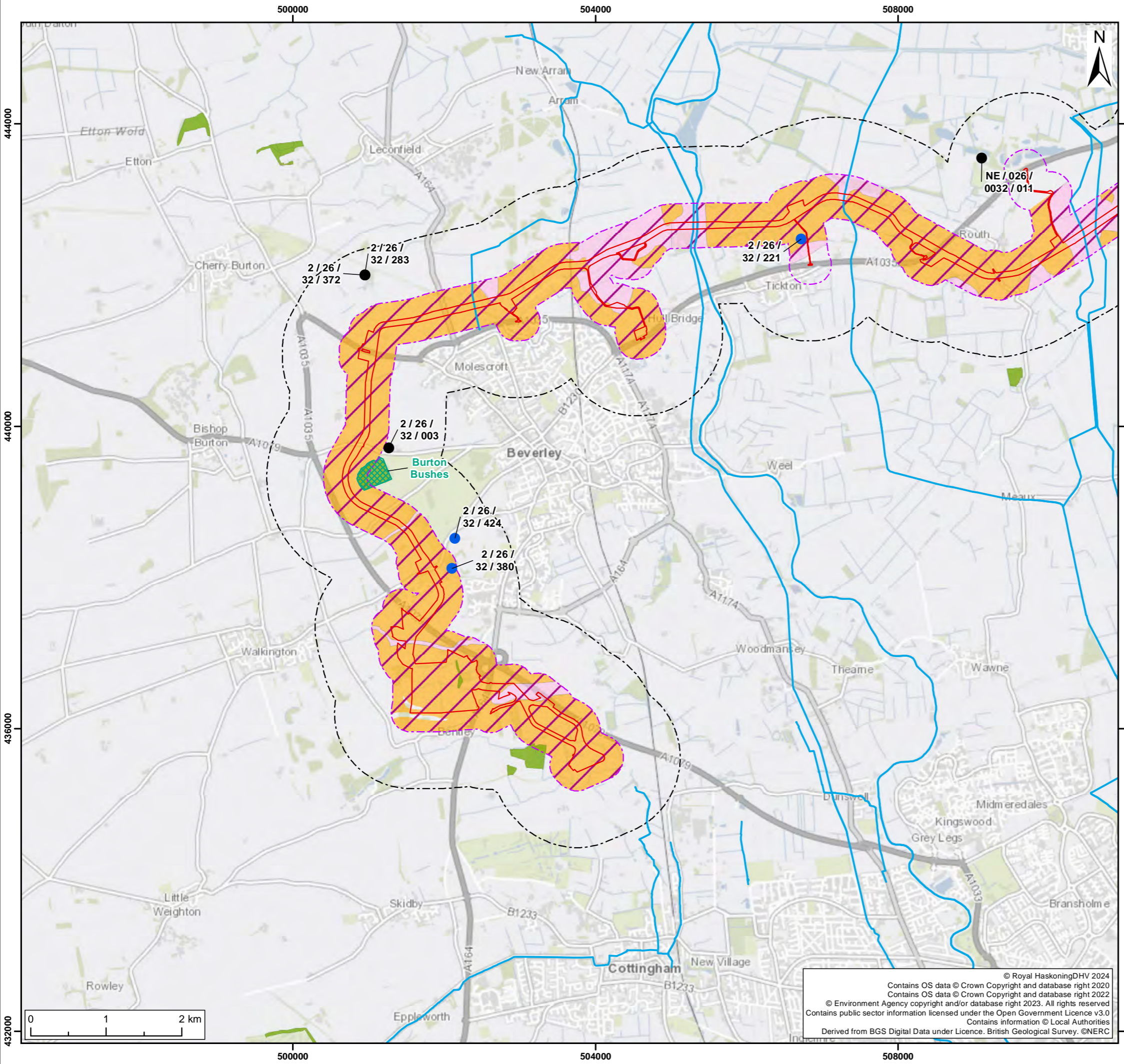
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**Potential Receptors**

Figure: 19-9b Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0870

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

- Onshore Development Area
- Onshore Development Area 250m Buffer
- Onshore Development Area 1km Buffer
- Statutory Main Rivers
- Special Protection Area
- x x x 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*

S2	P01	30/04/2024	Suitable for Information	SB	KD	ND
SUI	REV	DATE	DESCRIPTION	DRW	CHK	APR

Title: **Potential Receptors**

Figure: 19-9c Drawing No: PC2340-RHD-ON-ZZ-DR-Z-0870

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

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

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