

3.2 Other Waste Sites

3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

9

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

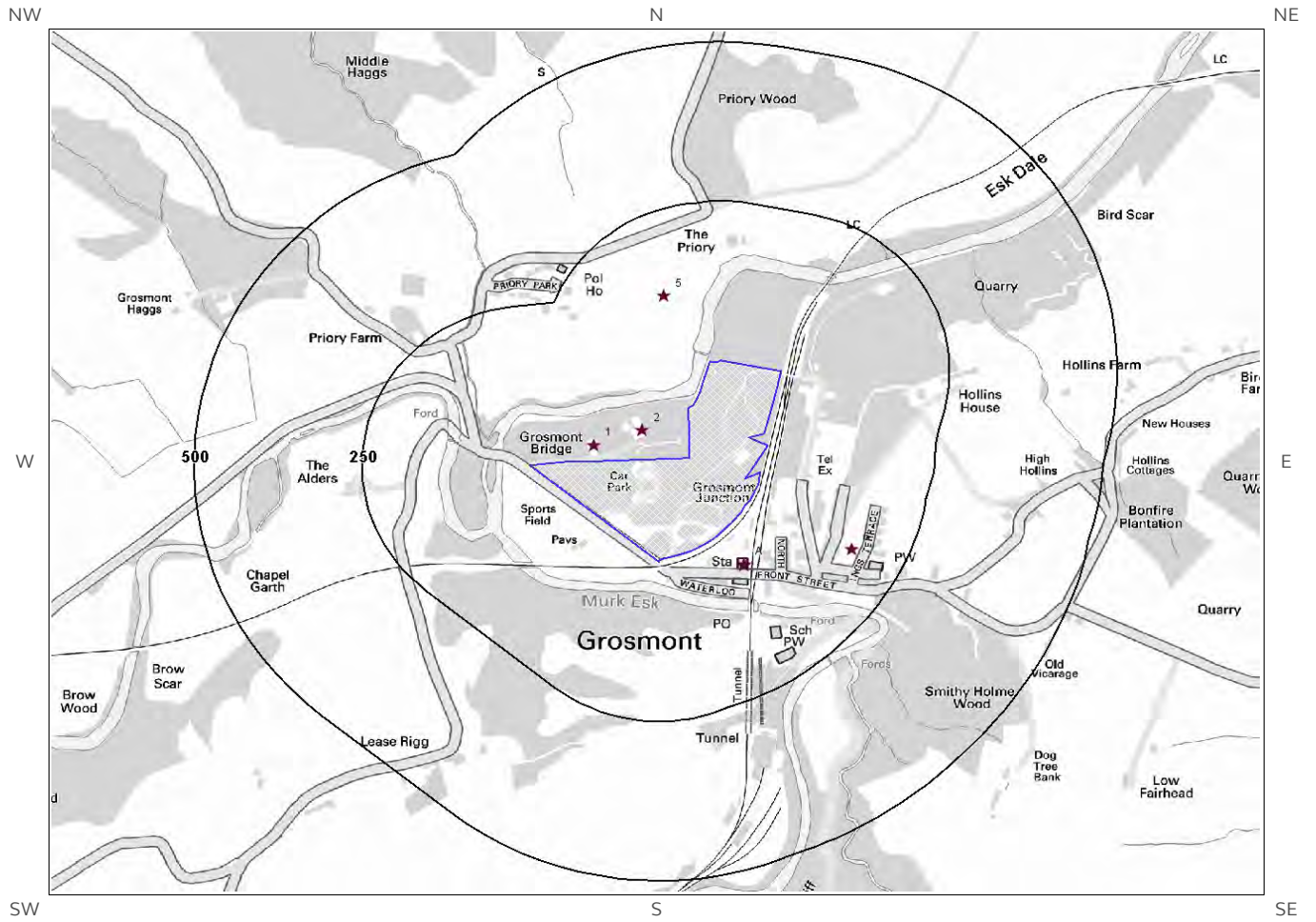
ID	Distance (m)	Direction	NGR	Details		
1	0	On Site	482583 505468	Type of Site: Scrap Yard Site Address: N/A	Planning Application Reference: N/A Date: 1996	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
2	0	On Site	482805 505553	Type of Site: Ground Workings and Refuse Heap Site Address: N/A	Planning Application Reference: N/A Date: 1913	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
3	1	N	482843 505637	Type of Site: Ground Workings and Refuse Heap Site Address: N/A	Planning Application Reference: N/A Date: 1913	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
4	5	N	482574 505437	Type of Site: Scrap Yard Site Address: N/A	Planning Application Reference: N/A Date: 1971	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
5	11	N	482765 505611	Type of Site: Ground Workings and Refuse Heap Site Address: N/A	Planning Application Reference: N/A Date: 1913	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
6	17	W	482565 505627	Type of Site: Ground Workings and Refuse Heap Site Address: N/A	Planning Application Reference: N/A Date: 1913	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
7	29	E	482964 505637	Type of Site: Ground Workings and Refuse Heap Site Address: N/A	Planning Application Reference: N/A Date: 1913	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
8	69	E	482993 505560	Type of Site: Ground Workings and Refuse Heap Site Address: N/A	Planning Application Reference: N/A Date: 1913	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
9	227	NW	482356 505674	Type of Site: Ground Workings and Refuse Heap Site Address: N/A	Planning Application Reference: N/A Date: 1913	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon

3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

0

Database searched and no data found.

4. Current Land Use Map



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-  Site Outline
-  Current Industrial Sites
-  Electricity Transmission Cables
-  Search Buffers (m)
-  Petrol & Fuel Sites
-  Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 6

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	26	N	Scrap Yard	482572 505444	North Yorkshire, YO22	Scrap Metal Merchants	Recycling Services
2	46	N	Sewage Works	482643 505467	North Yorkshire, YO22	Waste Storage, Processing and Disposal	Infrastructure and Facilities
3A	59	SE	North Yorkshire Moors Railway	482795 505257	Grosmont Station, Front Street, Grosmont, Whitby, North Yorkshire, YO22 5QE	Railway Companies and Information	Transport, Storage and Delivery
4A	61	SE	Grosmont Rail Station	482795 505255	North Yorkshire, YO22	Railway Stations, Junctions and Halts	Public Transport, Stations and Infrastructure
5	125	NW	Shaft	482676 505678	North Yorkshire, YO22	Unspecified Quarries Or Mines	Extractive Industries
6	169	SE	Electricity Sub Station	482955 505280	North Yorkshire, YO22	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 0

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site: 0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

The database has been searched on site, including a 50m buffer.

5.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON

5.3 Bedrock and Solid Geology

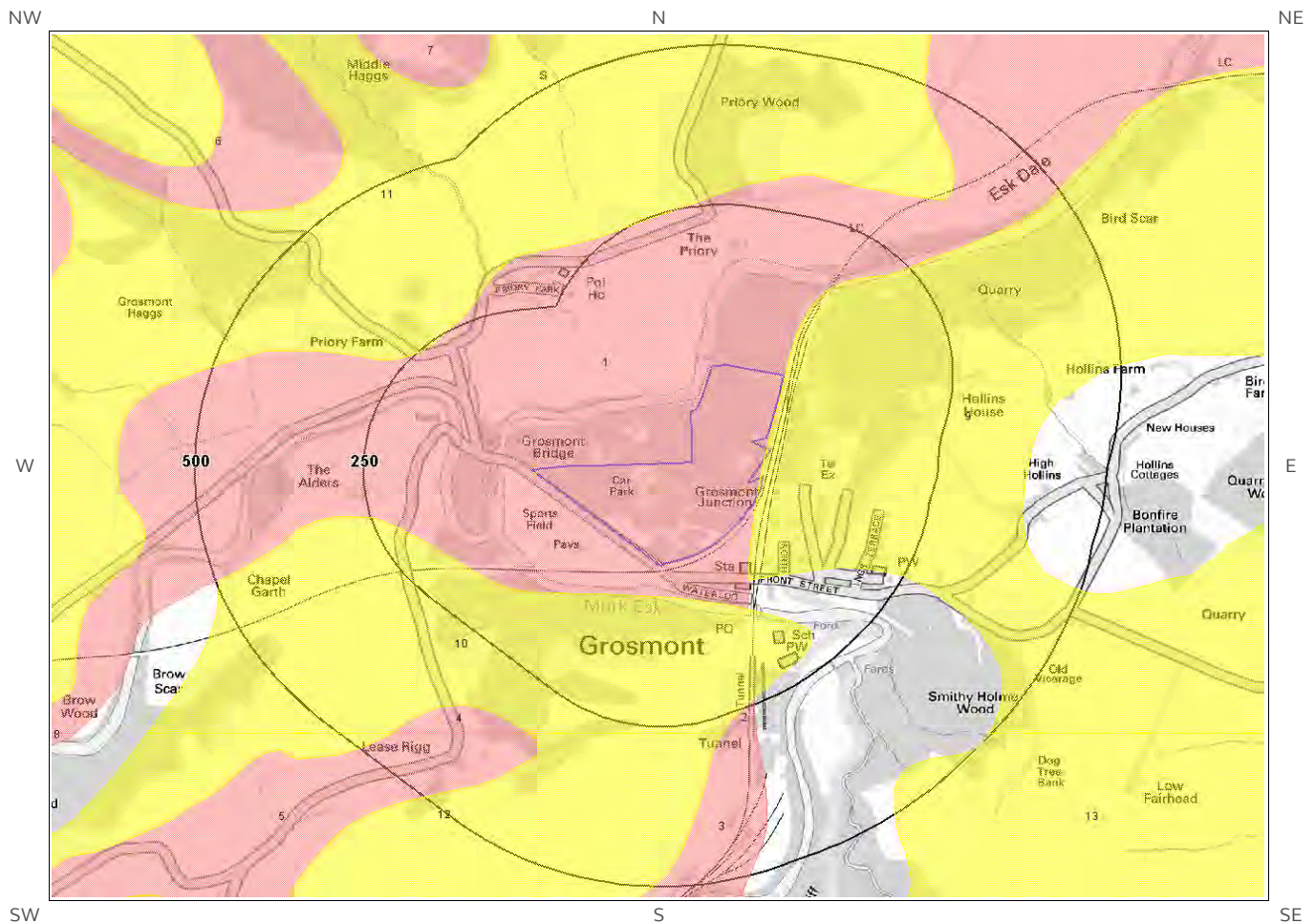
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
CDI-MSDI	CLEVELAND IRONSTONE FORMATION	MUDSTONE, SANDSTONE AND IRONSTONE
WHM-MDST	WHITBY MUDSTONE FORMATION	MUDSTONE

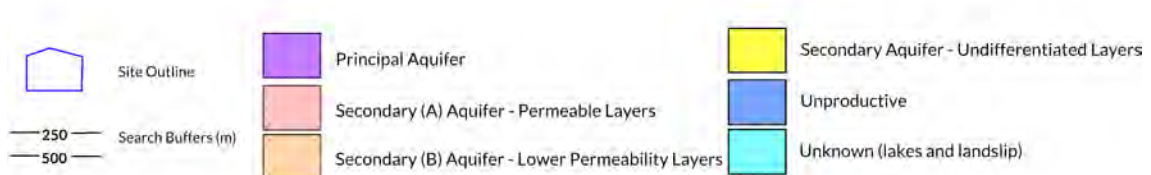
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

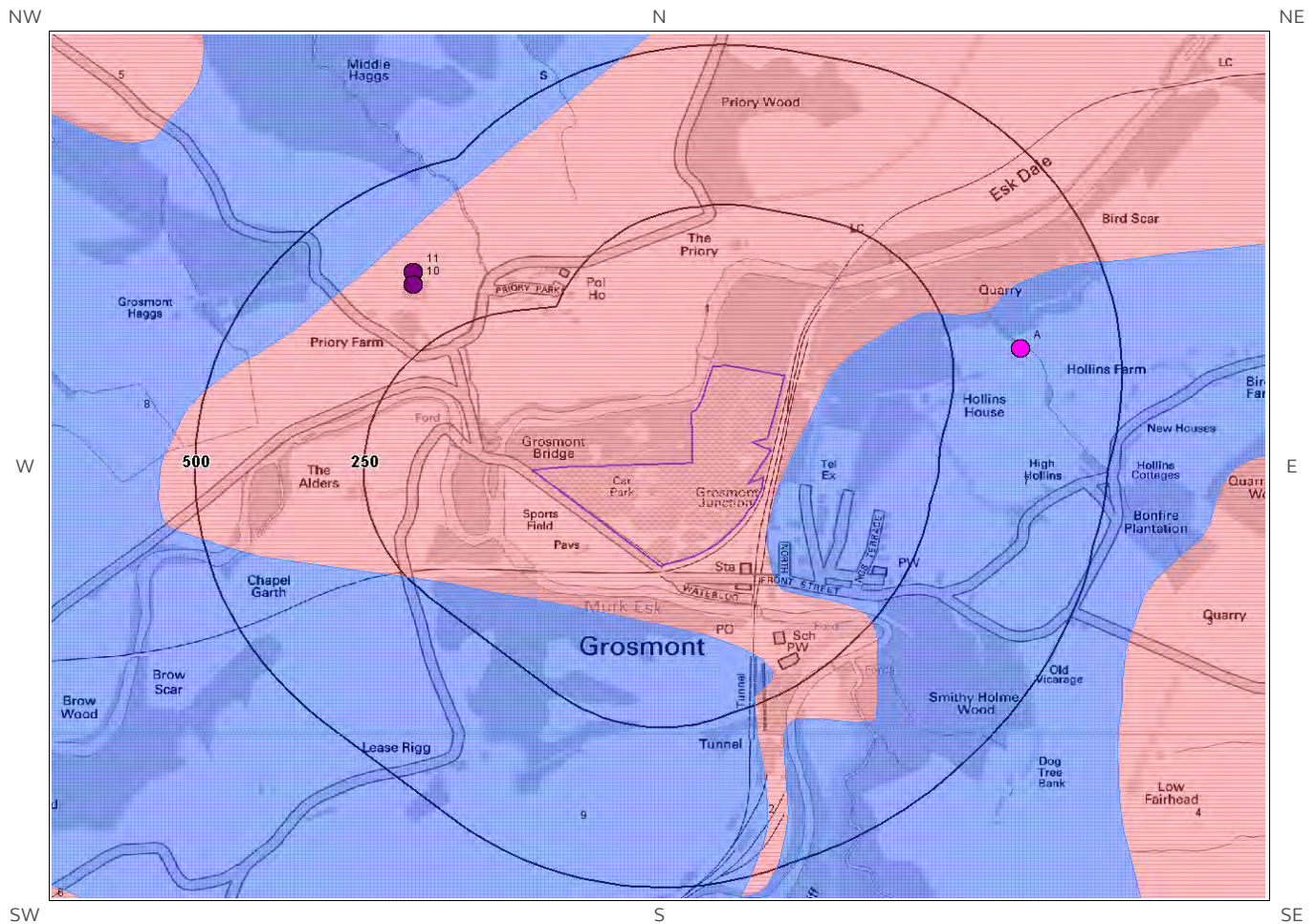
6a. Aquifer Within Superficial Geology



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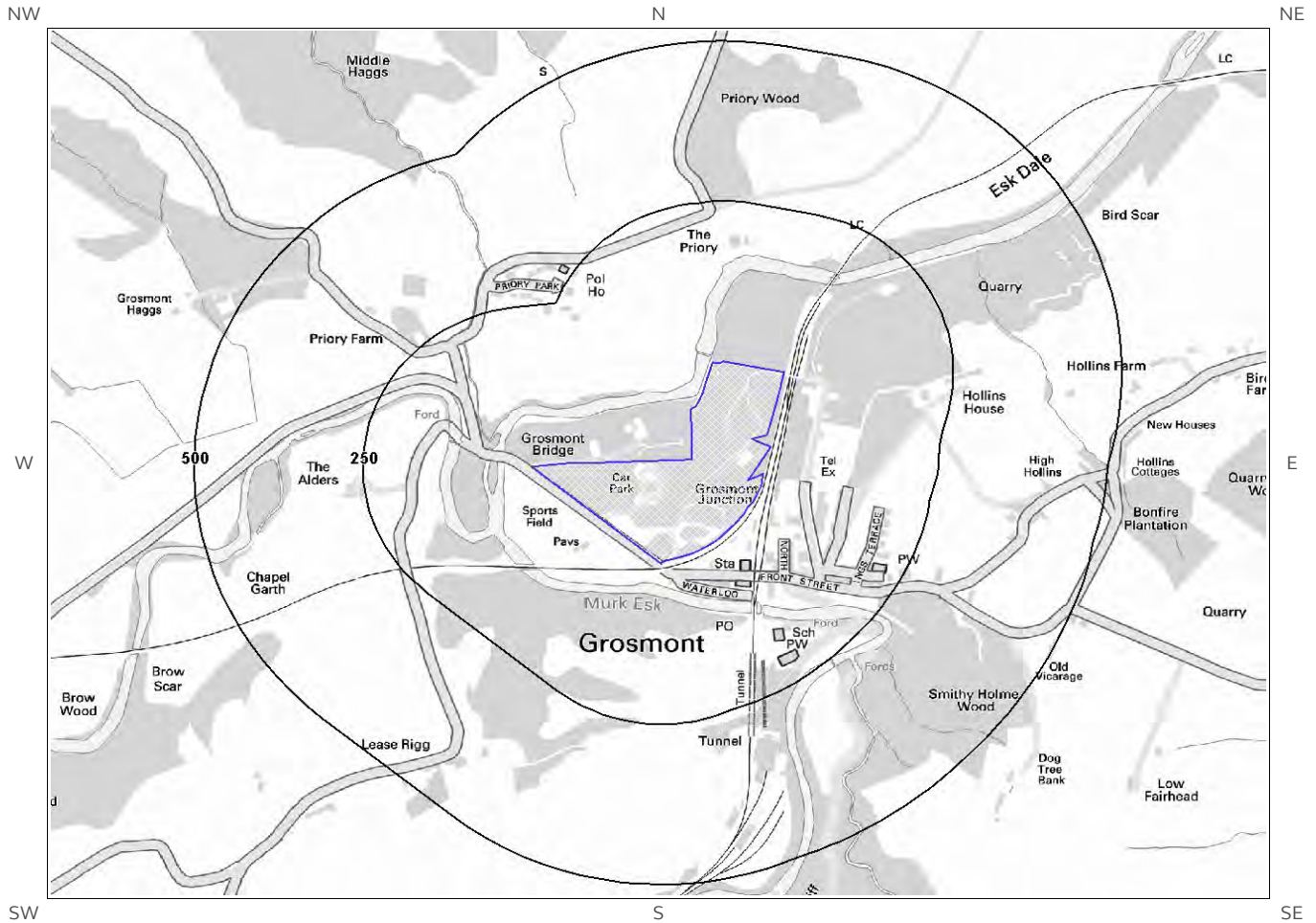
6b. Aquifer Within Bedrock Geology and Abstraction Licences



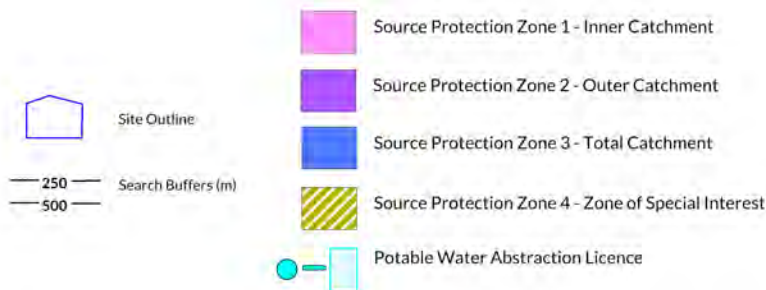
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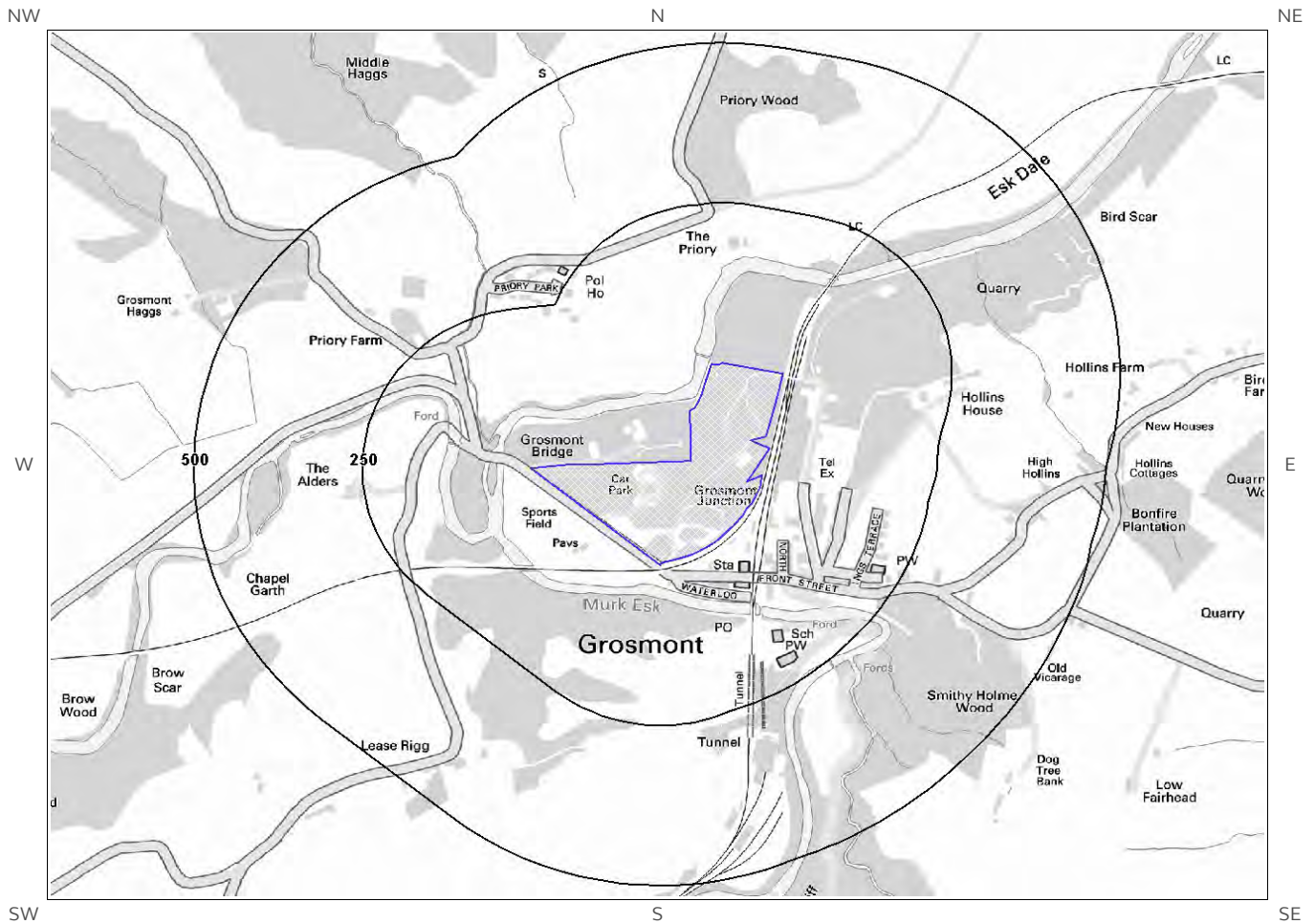
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



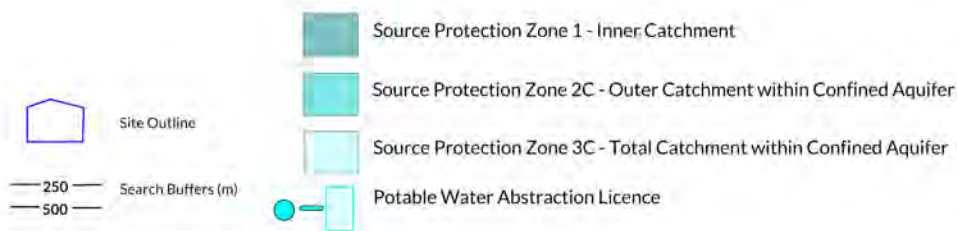
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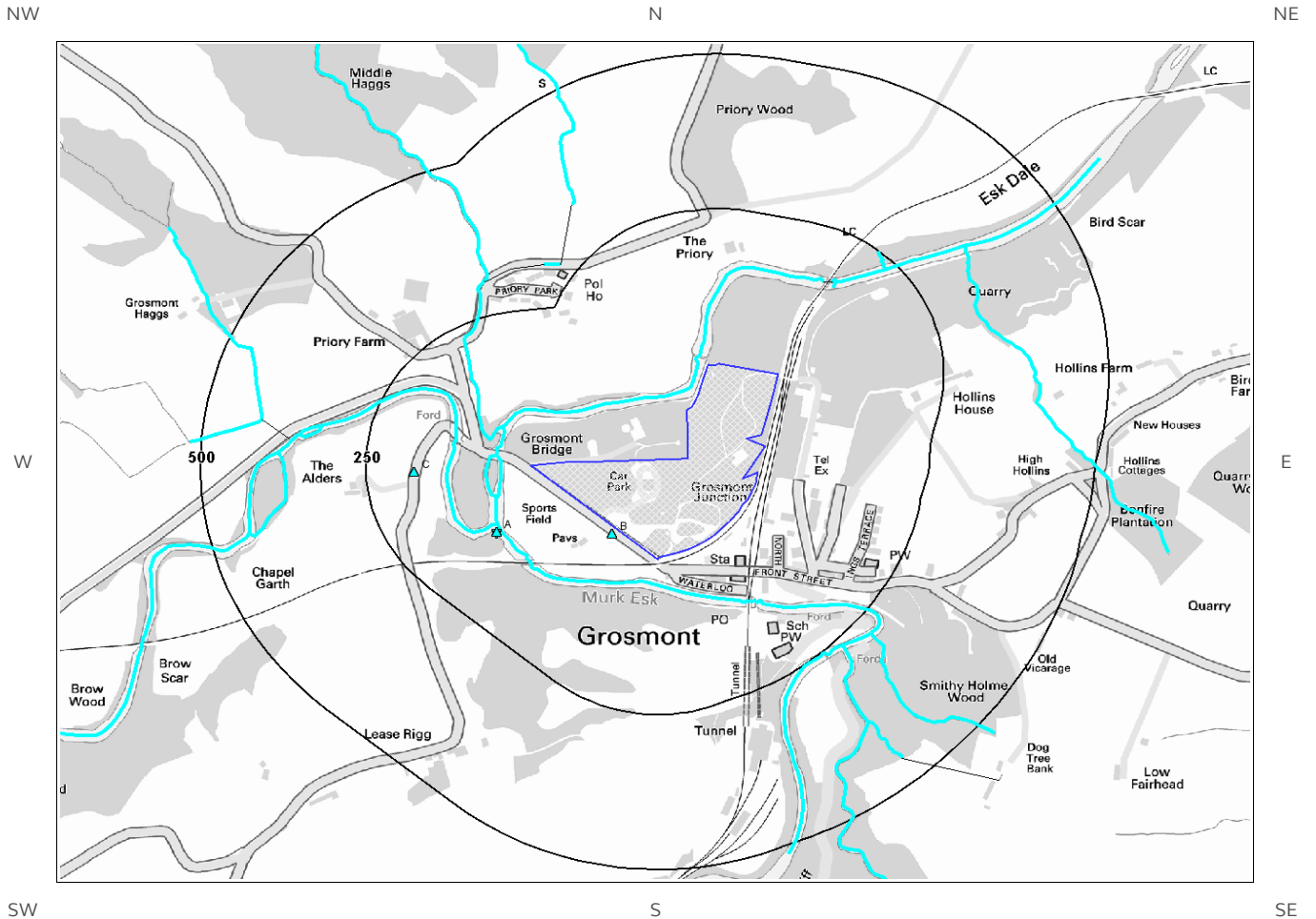
6d. Hydrogeology – Source Protection Zones within confined aquifer



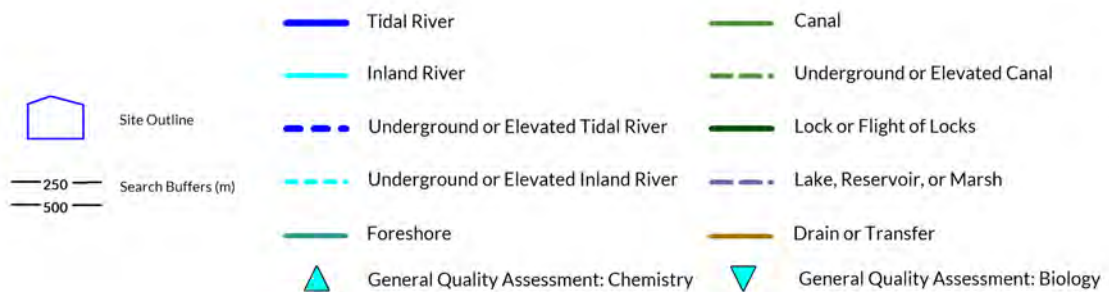
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6e. Hydrology – Watercourse Network and River Quality



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6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Records of strata classification within the superficial geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	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
9	0	On Site	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
10	46	S	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
2	241	S	Secondary A	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
11	246	NW	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
12	259	S	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
3	275	S	Secondary A	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
4	326	SW	Secondary A	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
5	326	SW	Secondary A	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
13	453	SE	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

6.2 Aquifer within Bedrock Deposits

Records of strata classification within the bedrock geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	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
7	22	E	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
8	88	S	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
9	259	S	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
2	292	S	Secondary A	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

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site Identified

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details
10	339	NW	482300 505700	Status: Historical Licence No: 2/27/29/060 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: SPRING Data Type: Point Name: MRS E RASTALL & MRS E BUCKROYD Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 28/04/1966 Expiry Date: - Issue No: 100 Version Start Date: 23/02/1977 Version End Date:
11	356	NW	482300 505720	Status: Historical Licence No: 2/27/29/060 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: SPRING - STAITHES SANDSTONE - EGTON Data Type: Point Name: BUCKROYD Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 28/04/1966 Expiry Date: - Issue No: 101 Version Start Date: 23/04/2001 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1347	SE	484050 504840	Status: Historical Licence No: 2/27/29/056 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: SPRING - JURASSIC OTHER - GROS MONT Data Type: Point Name: MUIR	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 17/03/1966 Version End Date:
Not shown	1347	SE	484050 504840	Status: Historical Licence No: 2/27/29/056 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: SPRING Data Type: Point Name: MUIR	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 17/03/1966 Version End Date:
Not shown	1430	NW	482120 506860	Status: Historical Licence No: 2/27/29/062 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: SPRING - SAND & GRAVEL - EGTON Data Type: Point Name: BUCKROYD	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 28/04/1966 Expiry Date: - Issue No: 101 Version Start Date: 23/04/2001 Version End Date:
Not shown	1475	NW	482100 506900	Status: Historical Licence No: 2/27/29/062 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: SPRING Data Type: Point Name: MRS E RASTALL & MRS E BUCKROYD	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 28/04/1966 Expiry Date: - Issue No: 100 Version Start Date: 23/02/1977 Version End Date:
Not shown	1810	S	483000 503480	Status: Historical Licence No: 2/27/29/070 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: SPRING - OOLITIC LIMESTONE - GOATHLAND Data Type: Point Name: WORLEY	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 28/04/1966 Expiry Date: - Issue No: 100 Version Start Date: 03/09/1987 Version End Date:
Not shown	1810	S	483000 503480	Status: Historical Licence No: 2/27/29/070 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: SPRINGS Data Type: Point Name: WORLEY	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 28/04/1966 Expiry Date: - Issue No: 100 Version Start Date: 03/09/1987 Version End Date:

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site

Identified

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details	
18A	351	E	483200 505600	Status: Historical Licence No: 2/27/29/136	Annual Volume (m ³): - Max Daily Volume (m ³): -

ID	Distance (m)	Direction	NGR	Details
				Details: Fish Farm/Cress Pond Throughflow Direct Source: SURFACE WATER Point: HOLLINS BECK Data Type: Point Name: WOODING Application No: - Original Start Date: 17/12/1982 Expiry Date: - Issue No: 100 Version Start Date: 25/03/1988 Version End Date:
19A	351	E	483200 505600	Status: Active Licence No: 2/27/29/136 Details: Fish Farm/Cress Pond Throughflow Direct Source: SURFACE WATER Point: HOLLINS BECK - GROSMONT Data Type: Point Name: WOODING Annual Volume (m ³): 70000 Max Daily Volume (m ³): 2500 Application No: - Original Start Date: 17/12/1982 Expiry Date: - Issue No: 100 Version Start Date: 25/03/1988 Version End Date:

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site None identified

Database searched and no data found.

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site None identified

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site None identified

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site Identified

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.
175	N	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
298	S	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
373	SE	Minor Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.
459	NW	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.

6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site Identified

6.9.1 Biological Quality:

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

The following Biological Quality records are shown on the Hydrology Map (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Biological Quality Grade				
					2005	2006	2007	2008	2009
49A	117	SW	482426 505303	River Name: Murk Esk/west Beck Reach: Eller Beck River Esk End/Start of Stretch: End of Stretch NGR	A	B	B	B	A
50A	117	SW	482426 505303	River Name: Esk Reach: Butter Beck Murk Esk End/Start of Stretch: End of Stretch NGR	B	B	B	B	B
51A	117	SW	482426 505303	River Name: Esk Reach: Murk Esk Backwood Beck End/Start of Stretch: Start of Stretch NGR	A	A	A	A	A
Not shown	1074	S	482331 504240	River Name: Murk Esk/west Beck Reach: Eller Beck River Esk End/Start of Stretch: Start of Stretch NGR	A	B	B	B	A
Not shown	1074	S	482331 504240	River Name: Murk Esk/west Beck Reach: Eller Beck River Esk End/Start of Stretch: End of Stretch NGR	A	B	B	B	A

6.9.2 Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAHI). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (6e):

Chemical Quality Grade

ID	Distance (m)	Direction	NGR	River Quality Grade	2005	2006	2007	2008	2009
54B	11	SW	482600 505300	River Name: Murk Esk/west Beck Reach: Conf.rutmoor Beck & Wheeldale Gill End/Start of Stretch: Sample Point NGR	A	A	A	A	A
55B	11	SW	482600 505300	River Name: Murk Esk/west Beck Reach: Eller Beck River Esk End/Start of Stretch: Sample Point NGR	A	A	A	A	A
56B	11	SW	482600 505300	River Name: Murk Esk/west Beck Reach: Wheeldale Gill Eller Beck End/Start of Stretch: Sample Point NGR	A	A	A	A	A
57B	11	SW	482600 505300	River Name: Murk Esk/west Beck Reach: Eller Beck River Esk End/Start of Stretch: Sample Point NGR	A	A	A	A	A
58B	11	SW	482600 505300	River Name: Rutmoor Beck Reach: White Moor West Beck End/Start of Stretch: Sample Point NGR	A	A	A	A	A
59A	117	SW	482426 505303	River Name: Murk Esk/west Beck Reach: Eller Beck River Esk End/Start of Stretch: End of Stretch NGR	A	A	A	A	A
60A	117	SW	482426 505303	River Name: River Esk Reach: Murk Esk Backwood Beck End/Start of Stretch: Start of Stretch NGR	A	B	B	B	B
61A	117	SW	482426 505303	River Name: River Esk Reach: Butter Beck Murk Esk End/Start of Stretch: End of Stretch NGR	A	A	A	A	A
62C	178	W	482300 505400	River Name: River Esk Reach: Little Fryup Beck Great Fryup Beck End/Start of Stretch: Sample Point NGR	A	A	A	A	A
63C	178	W	482300 505400	River Name: Baysdale Beck Reach: Baysdale Abbey River Esk End/Start of Stretch: Sample Point NGR	A	A	A	A	A
64C	178	W	482300 505400	River Name: River Esk Reach: Baysdale Beck Sleddale Beck End/Start of Stretch: Sample Point NGR	A	A	A	A	A
65C	178	W	482300 505400	River Name: River Esk Reach: Great Fryup Beck Stonegate Beck End/Start of Stretch: Sample Point NGR	A	A	A	A	A
66C	178	W	482300 505400	River Name: River Esk Reach: Stonegate Beck Glaisdale Beck End/Start of Stretch: Sample Point NGR	A	A	A	A	A
67C	178	W	482300 505400	River Name: River Esk Reach: Sleddale Beck Danby Beck End/Start of Stretch: Sample Point NGR	A	A	A	A	A
68C	178	W	482300 505400	River Name: River Esk Reach: Glaisdale Beck Butter Beck End/Start of Stretch: Sample Point NGR	A	A	A	A	A
69C	178	W	482300 505400	River Name: River Esk Reach: Butter Beck Murk Esk End/Start of Stretch: Sample Point NGR	A	A	A	A	A
70C	178	W	482300 505400	River Name: River Esk Reach: Danby Beck Little Fryup Beck End/Start of Stretch: Sample Point NGR	A	A	A	A	A
Not	1074	S	482331	River Name: Murk Esk/west Beck	A	A	A	A	A

Chemical Quality Grade

shown			504240	Reach: Eller Beck River Esk End/Start of Stretch: End of Stretch NGR					
Not shown	1074	S	482331 504240	River Name: Murk Esk/west Beck Reach: Eller Beck River Esk End/Start of Stretch: Start of Stretch NGR	A	A	A	A	A

6.10 Ordnance Survey MasterMap Water Network

Ordnance Survey MasterMap Water Network entries within 500m of the study site

This watercourse information is provided by Ordnance Survey MasterMap Water Network. The data provides a detailed centre line following the curve of the waterway precisely, so all distances provided in the report should be understood as measurements to the centreline rather than a measurement to the nearest point of the watercourse. Underground watercourses are inferred from entry and exit points so caution is advised in using these to indicate precise locations of underground watercourses when planning site investigation and development.

The following Ordnance Survey MasterMap Water Network records are represented on the Hydrology Map (6e):

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
1	13 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 18.5
47	13 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 18.5
2	39 S	Murk Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.3
48	39 S	Murk Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.3
3	45 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.2
49	45 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.2
4	55 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): 15.1
5	55 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.9
50	55 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 15.1
51	55 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.9
6	70 SW	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 22.4
52	70 SW	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 22.4
7	75 NW	Cat Scar Beck	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
53	75 NW	Cat Scar Beck	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
8	105 SW	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.4
54	105 SW	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.4
9	114 SE	Murk Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
55	114 SE	Murk Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
10	120 SE	Murk Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 13.6

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
56	120 SE	Murk Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 13.6
11	162 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.7
57	162 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.7
12	164 NE	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
58	164 NE	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
13	170 NE	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.5
59	170 NE	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.5
14	174 NE	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 17.1
60	174 NE	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 17.1
15	224 NW	Cat Scar Beck	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
61	224 NW	Cat Scar Beck	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
16	231 NW	Cat Scar Beck	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
62	231	Cat Scar Beck	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	NW			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
17	233 NE	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 18.3
18	233 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
63	233 NE	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 18.3
64	233 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
19	252 SE	Murk Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 13.5
65	252 SE	Murk Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 13.5
20	264 SE	Murk Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 12.1
21	264 SE	Lythe Beck	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 5.4
66	264 SE	Murk Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 12.1
67	264 SE	Lythe Beck	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 5.4
22	275 NW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
23	275 NW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): Not Provided
68	275 NW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
69	275 NW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
24	280 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
70	280 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
25	297 NW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
71	297 NW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
26	306 N	Cat Scar Beck	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.8
72	306 N	Cat Scar Beck	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.8
27	317 E	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
73	317 E	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
28	323 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.6
74	323 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.6

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
29	324 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.7
75	324 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.7
30	331 NW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
76	331 NW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
31	351 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.7
77	351 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.7
32	352 NE	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 23.0
78	352 NE	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 23.0
33	364 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 13.3
34	364 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
79	364 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 13.3
80	364 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
35	371	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	W			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.4
81	371 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.4
36	379 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.4
Not shown	379 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.4
37	382 SE	Lythe Beck	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.9
38	382 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.7
Not shown	382 SE	Lythe Beck	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.9
Not shown	382 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.7
39	383 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	383 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
40	384 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 11.8
Not shown	384 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 11.8
41	413 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): Not Provided
42	413 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	413 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	413 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
43	414 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	414 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
44	417 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.1
Not shown	417 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.1
45	419 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	419 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
46	440 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 16.8
Not shown	440 W	River Esk	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 16.8
47	459 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
Not shown	459 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
48	482 N	Cat Scar Beck	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.2
Not shown	482 N	Cat Scar Beck	Inland river not influenced by normal tidal action.	Catchment Area: Esk Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.2

6.11 Surface Water Features

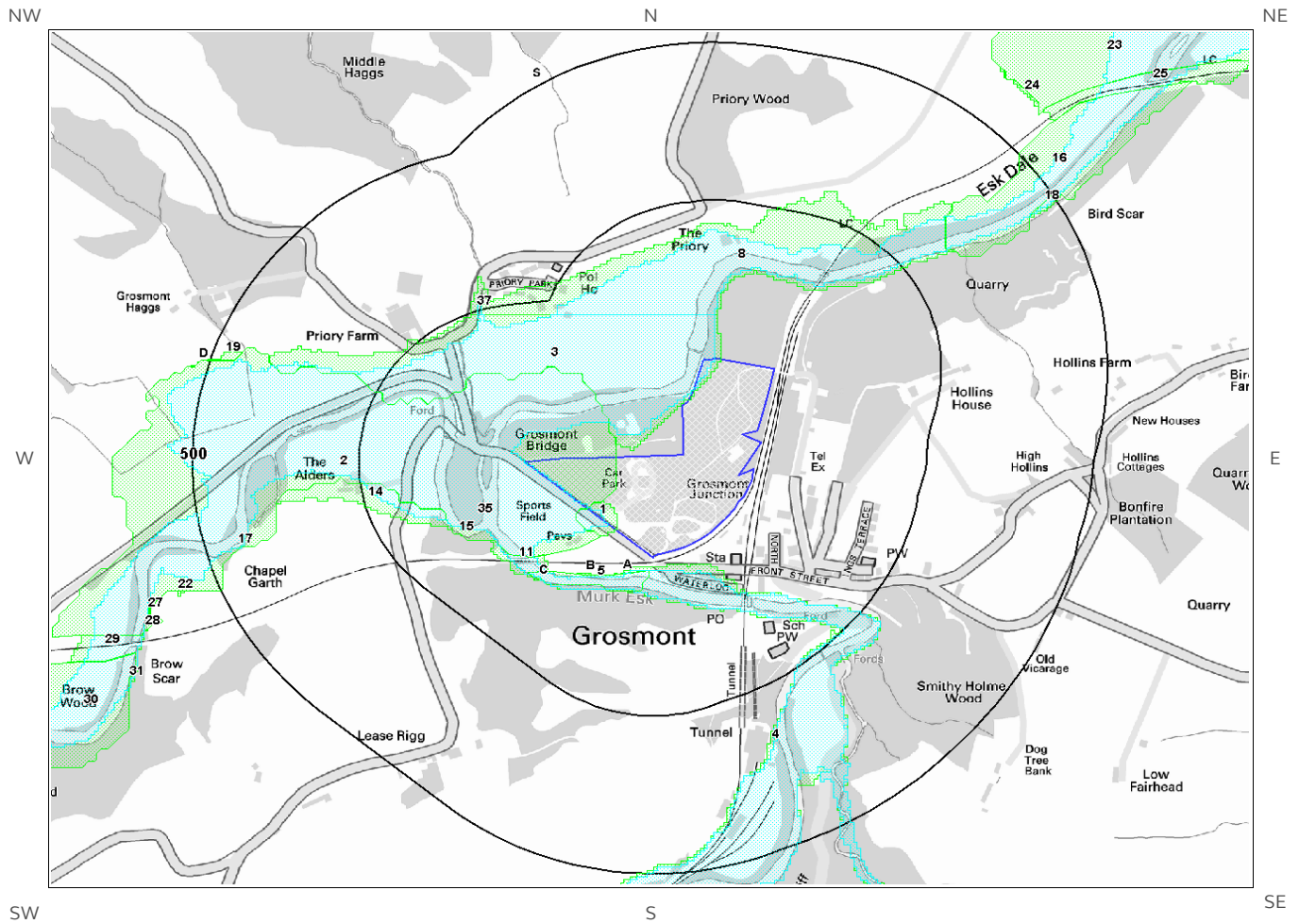
Surface water features within 250m of the study site

Identified

The following surface water records are not represented on mapping:

Distance (m)	Direction
5	W
30	S
112	SE
155	NE
231	NW
238	NE

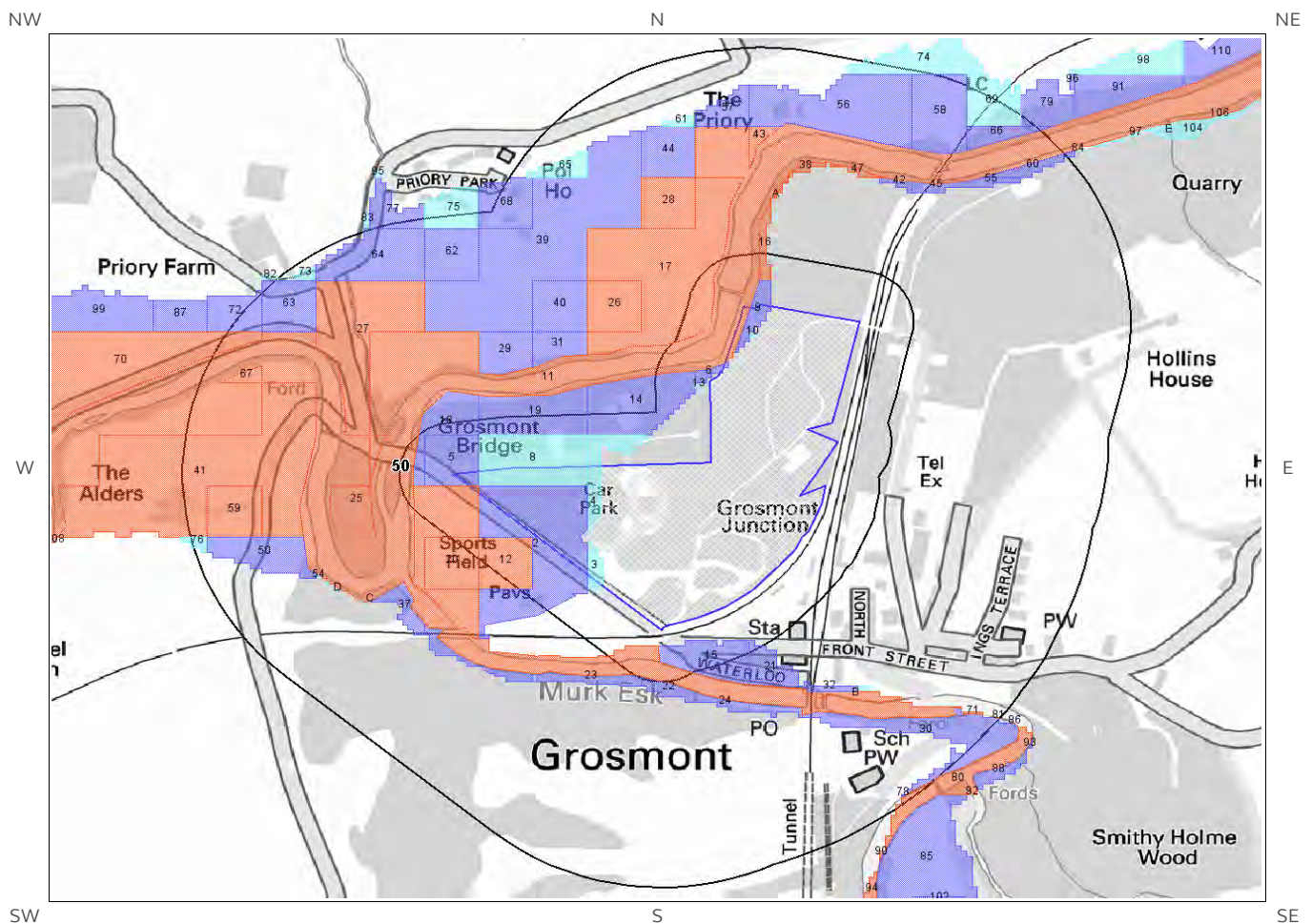
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



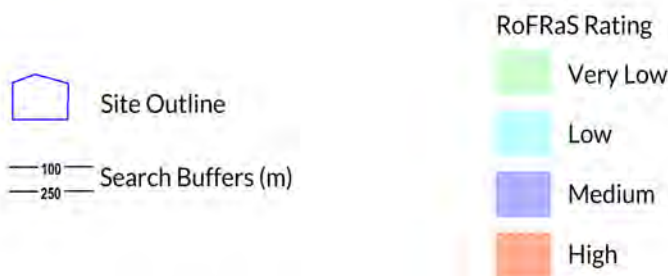
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7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m

Identified

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

ID	Distance (m)	Direction	Update	Type
1	0	On Site	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
2	0	On Site	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
3	0	On Site	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
4	14	S	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
5	20	S	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
6A	47	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
7A	52	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
8	69	N	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
9B	77	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
10B	82	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
11	98	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
12C	130	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
13C	131	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
14	145	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
15	150	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m Identified

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

ID	Distance (m)	Direction	Update	Type
1	0	On Site	12-Oct-2018	Zone 3 - (Fluvial Models)
2	69	N	12-Oct-2018	Zone 3 - (Fluvial Models)
3	243	N	12-Oct-2018	Zone 3 - (Fluvial Models)

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

Highest risk of flooding onsite High

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a High (1 in 30 or greater) chance of flooding in any given year.

Any relevant data within 250m is represented on the RoFRaS Flood map. Data to 50m is reported in the table below.

ID	Distance (m)	Direction	RoFRaS flood Risk
1	0.0	On Site	High
2	0.0	On Site	Medium
3	0.0	On Site	Low
4	0.0	On Site	Low
5	0.0	On Site	Medium
6	0.0	On Site	Medium
7	0.0	On Site	Low
8	0.0	On Site	Low
9	0.0	On Site	Medium
10	0.0	On Site	Low
11	0.0	On Site	High
12	3.0	SW	High
13	9.0	W	Low
14	14.0	W	Medium
15	14.0	S	Medium
16	24.0	N	High
17	25.0	W	High

18	27.0	W	Medium
19	31.0	N	Medium
20	34.0	SW	High
21	39.0	SE	Medium
22	48.0	S	Medium
23	48.0	SW	Medium

7.4 Flood Defences

Flood Defences within 250m of the study site None identified
 Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site None identified

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site None identified

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site Identified

Clearwater Flooding or Superficial Deposits Flooding Superficial Deposits Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 Highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

7.8 Groundwater Flooding Confidence Areas

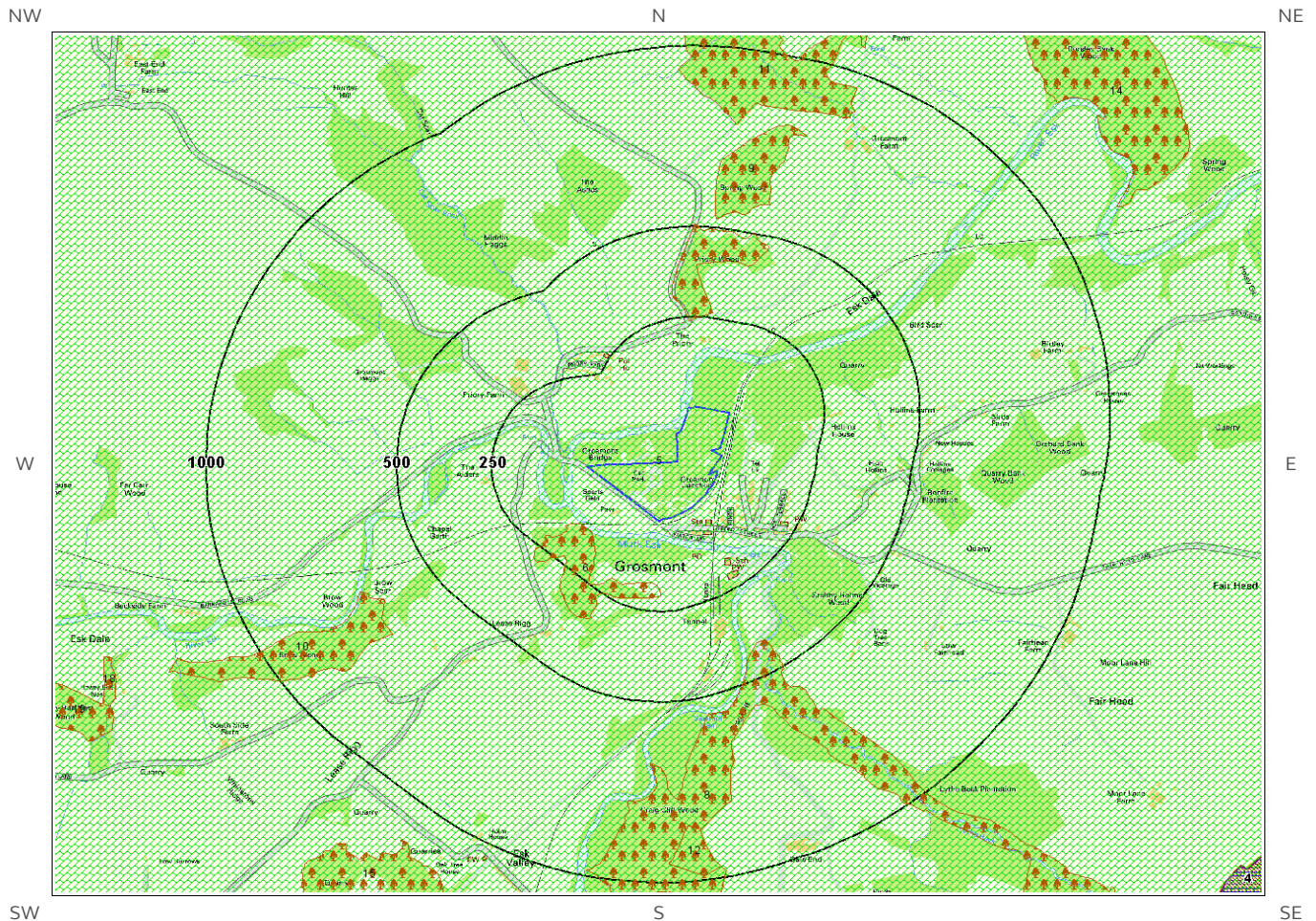
British Geological Survey confidence rating in this result

High

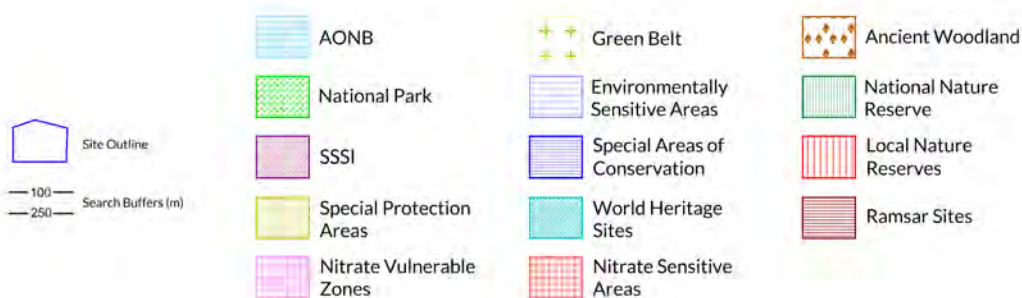
Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

8. Designated Environmentally Sensitive Sites Map



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8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site

Identified

8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

2

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SSSI Name	Data Source
Not shown	1637	SE	North York Moors	Natural England
4	1675	E	North York Moors	Natural England

8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

1

The following Special Area of Conservation (SAC) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SAC Name	Data Source
1A	1637	SE	North York Moors	Natural England

8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

1

The following Special Protection Area (SPA) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SPA Name	Data Source
2A	1635	SE	North York Moors	Natural England

8.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

8.6 Records of Ancient Woodland within 2000m of the study site:

17

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
6	133	SW	GROSMONT WOOD	Ancient and Semi-Natural Woodland
7	239	N	SPRING WOOD	Ancient and Semi-Natural Woodland
8	409	SE	CRAG CLIFF WOOD	Ancient and Semi-Natural Woodland
9	524	N	SPRING WOOD	Ancient and Semi-Natural Woodland
10	647	SW	BROW WOOD	Ancient Replanted Woodland
11	789	N	DORSLEY BANK WOOD	Ancient Replanted Woodland
12	845	S	CRAG CLIFF WOOD	Ancient Replanted Woodland
Not shown	1069	N	DORSLEY BANK WOOD	Ancient and Semi-Natural Woodland
14	1073	N	DORSLEY BANK WOOD	Ancient and Semi-Natural Woodland
15	1110	SW	SPRING WOOD	Ancient and Semi-Natural Woodland
Not shown	1234	S	SPRING WOOD	Ancient Replanted Woodland
Not shown	1283	SW	SPRING WOOD	Ancient Replanted Woodland
18	1356	SW	HONEY BEE NEST WOOD	Ancient and Semi-Natural Woodland
19	1416	SW	HONEY BEE NEST WOOD	Ancient Replanted Woodland
Not shown	1490	SW	SPRING WOOD	Ancient and Semi-Natural Woodland
Not shown	1886	SW	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1897	NE	HECKS WOOD	Ancient and Semi-Natural Woodland

8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

0

Database searched and no data found.

8.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

0

Database searched and no data found.

8.11 Records of National Parks (NP) within 2000m of the study site:

1

The following National Park records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NP Name	Data Source
5	0	On Site	North York Moors	Natural England

8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

0

Database searched and no data found.

8.14 Records of Green Belt land within 2000m of the study site:

Database searched and no data found.

0

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a **Groundsure Geo Insight**, available from our [website](#). The following information has been found:

9.1.1 Shrink Swell

Maximum Shrink-Swell** hazard rating identified on the study site Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.

9.1.2 Landslides

Maximum Landslide* hazard rating identified on the study site Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property no significant increase in insurance risk due to natural slope instability problems.

9.1.3 Soluble Rocks

Maximum Soluble Rocks* hazard rating identified on the study site Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

* This indicates an automatically generated 50m buffer and site.

9.1.4 Compressible Ground

Maximum Compressible Ground* hazard rating identified on the study site

Moderate

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site

Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

9.1.6 Running Sand

Maximum Running Sand** hazard rating identified on the study site

Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property no significant increase in insurance risk due to running sand problems is likely.

* This indicates an automatically generated 50m buffer and site.

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is in a Radon Affected Area, as between 3 and 5% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? Basic radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site

Identified

The following coal mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary

Identified

The following non-coal mining information is provided by the BGS:

Distance (m)	Direction	Name	Commodity	Assessment of likelihood
22.0	E	Not available	Jet	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

Past underground mine workings are uncommon, localised and of limited area. The rock types present in this area are such that minor mineral veins may be present within them on which it is possible that there have been attempts to work these by underground methods and/or it is possible that small scale underground extraction of other materials may have occurred. All such occurrences are likely to be restricted in size and infrequent. It should be noted, however, that there is always the possibility of the existence of other sub-surface excavations, such as wells, cess pits, follies, air raid shelters/bunkers and other military structures etc. that could affect surface ground stability but which are outside the scope of this dataset. However, if in a coalfield area you should still consider a Coal Authority mining search for the area of interest.

10.3 Brine Affected Areas

Brine affected areas within 75m of the study site

None identified

Guidance: No Guidance Required.

Contact Details

Groundsure Helpline

British Geological Survey Enquiries
Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG

Web: www.bgs.ac.uk
BGS Geological Hazards Reports and general geological enquiries:

Environment Agency
National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY

Web: www.environment-agency.gov.uk

Public Health England
Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
www.gov.uk/phe

The Coal Authority
200 Lichfield Lane
Mansfield
Notts NG18 4RG
DX 716176 Mansfield 5
www.coal.gov.uk

Ordnance Survey
Adanac Drive, Southampton
SO16 0AS

Local Authority
Authority: Scarborough Borough Council

Web: <http://www.scarborough.gov.uk/>
Address: Town Hall, St Nicholas Street, Scarborough, North Yorkshir,

Gemapping PLC
Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW



Public Health England



The Coal Authority



Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England/Natural Resources Wales who retain the Copyright and Intellectual Property Rights for the data.

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Standard Terms and Conditions

Groundsure's Terms and Conditions can be viewed online at this link:

<https://www.groundsure.com/terms-and-conditions-may25-2018>



Groundsure

LOCATION INTELLIGENCE

Dunelm Geotechnical & Environmental Ltd
FOUNDATION HOUSE, ST. JOHNS ROAD,
DURHAM/MEADOWFIELD INDUSTRIAL
ESTATE, DH7 8TZ

Groundsure Reference: GS-5723235
Client Reference: PO16155-D9255-TK
Report Date: 3 Jan 2019
Report Delivery Method: xml
Client Email:

Flood Insight

Address: FRONT STREET, GROSMONT, WHITBY

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Flood Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on quoting the above Groundsure reference number.

Yours faithfully,

Managing Director
Groundsure Limited

Enc.
Groundsure Floodinsight

Flood Insight

Address: FRONT STREET, GROSMONT, WHITBY

Date: 3 Jan 2019

Reference: GS-5723235

Client: Dunelm Geotechnical & Environmental Ltd

NW N NE



SW S SE

Aerial Photograph Capture date: 23-Aug-2015

Grid Reference: 482741,505399

Site Size: 5.00ha

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Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed.

Section 1: Environment Agency/Natural Resources Wales Flood Zones

1.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	Yes
1.2 Are there any Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site?	Yes
1.3 Are there any Flood Defences within 250m of the study site?	No
1.4 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
1.5 Are there any Proposed Flood Defences within 250m of the study site?	No
1.6 Are there any areas used for Flood Storage within 250m of the study site?	No

Section 2: Risk of Flooding from Rivers and the Sea (RoFRaS)

2.1 What is the Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating for the study site?	High
--	------

Section 3: Historic Flood Events

3.1 Has the site been subject to past flooding as recorded by the Environment Agency/Natural Resources Wales?	Yes
---	-----

Section 4: JBA Surface Water (Pluvial) Flood

4.1 Is the site or any area within 50m at risk of Surface Water (Pluvial) Flooding?	Yes
---	-----

Section 5: Surface Water Features

5.1 Are there any surface water features within 250m of the study site?	Yes
---	-----

Section 6: Groundwater Flooding

6.1 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Potential at Surface
6.2 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	High

Section 7: BGS Geological Indicators of historic flooding

7.1 Are there any geological indicators of historic flooding within 250m of the study site?	Yes
---	-----

Section 8: JBA Reservoir and Canal Data

8.1 Is the property located in an area identified as being at potential risk in the event of a reservoir failure?	No
8.2 Is the property located in an area identified as being at potential risk in the event of a canal break?	No

Additional Matters

Riparian ownership

If your land abuts a river, stream or ditch, you may have responsibility to maintain this watercourse, even if Title Deeds show the property boundary to be adjacent to the watercourse. This includes the responsibility for clearing debris and obstructions which may impede the free passage of water and fish, and also includes the responsibilities to accept flood flows through your land, even if these are caused by inadequate capacity downstream. There is no duty in common law for a landowner to improve the drainage capacity of a watercourse. Please contact Groundsure if you need further advice on riparian ownership issues relating to this property.

Sewerage Flooding

Extreme rainfall events may overwhelm sewerage systems and cause local flooding. The water and sewerage companies within the UK are required to maintain 'DG5 – At Risk Registers' which record properties that have flooded from sewers and/or are considered to be at risk of flooding from sewers in the future. If your property is on the 'At Risk' Register, this may be recorded within a standard CON29 Drainage and Water search.

Using this Report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client.

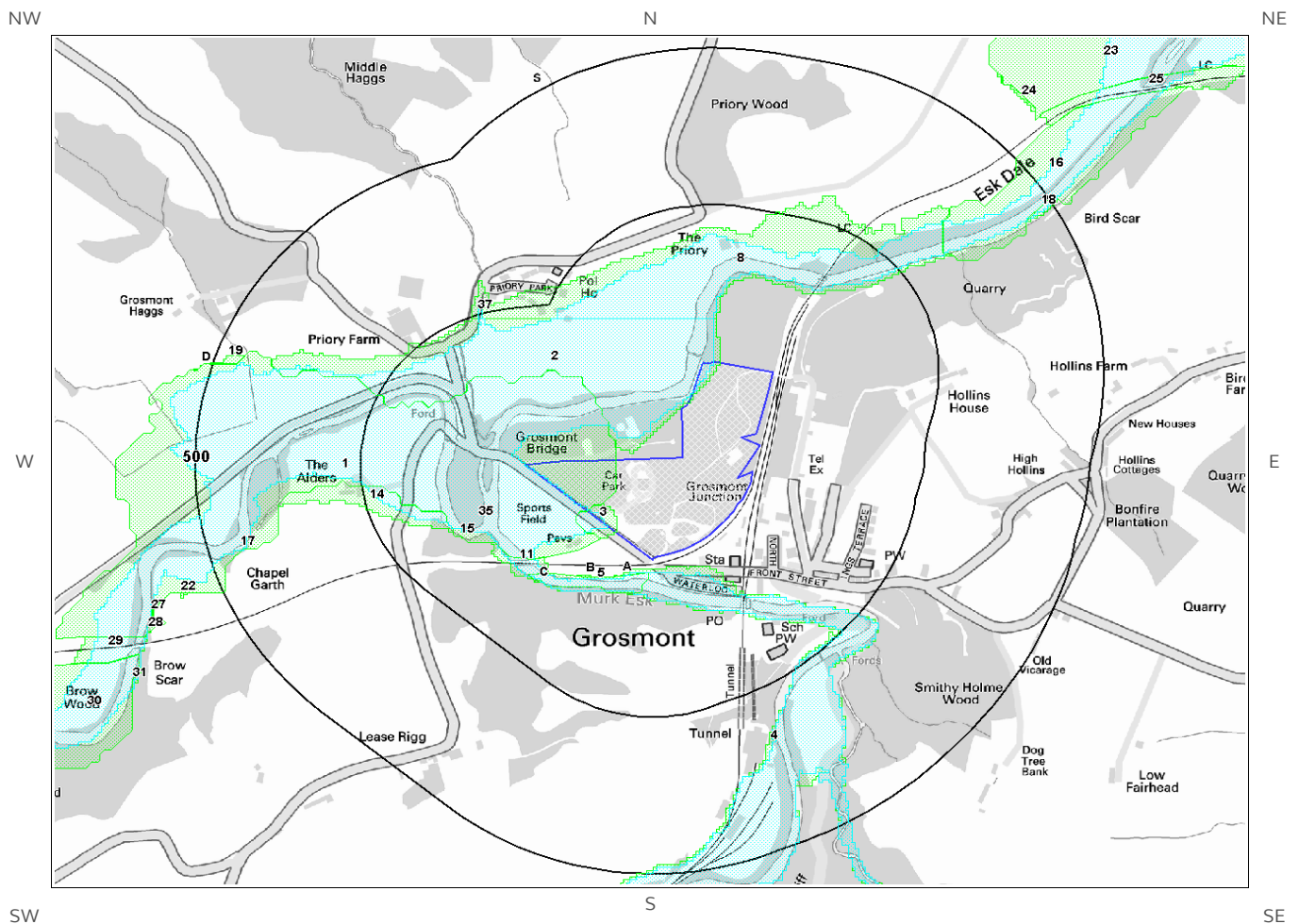
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".


All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



Environment Agency/Natural Resources Wales Flood Map for Planning Legend

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- | | | | | | |
|---|--------------------|---|-------------------|---|-------------------------------------|
|  | Search Centre |  | Zone 2 Floodplain |  | Area used for Flood Storage |
|  | Search Buffers (m) |  | Zone 3 Floodplain |  | Proposed Flood Defence Scheme |
| | |  | Flood Defences |  | Area Benefiting from Flood Defences |

1. Environment Agency/Natural Resources Wales Flood Zones

1.1 River and Coastal Zone 2 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 2 floodplain? Yes

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 1 – Flood Map for Planning:

ID	Distance (m)	Direction	Update	Type
1	0.0	On Site	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
2	0.0	On Site	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
3	0.0	On Site	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
4	14.0	S	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
5	20.0	S	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
6A	47.0	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
7A	52.0	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
8	69.0	N	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
9B	77.0	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
10B	82.0	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
11	98.0	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
12C	130.0	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
13C	131.0	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
14	145.0	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
15	150.0	SW	12-Oct-2018	Zone 2 - (Fluvial /Tidal Models)

1.2 River and Coastal Zone 3 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 3 floodplain? Yes

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 1 – Flood Map for Planning.

The following floodplain records are represented as green shading on the Flood Map (1):

ID	Distance (m)	Direction	Update	Type
35	0.0	On Site	12-Oct-2018	Zone 3 - (Fluvial Models)
36	69.0	N	12-Oct-2018	Zone 3 - (Fluvial Models)
37	243.0	N	12-Oct-2018	Zone 3 - (Fluvial Models)

1.3 River and Coastal Flood Defences

Are there any Flood Defences within 250m of the study site ? No

This search consists only of flood defences present in the dataset provided by the Environment Agency/Natural Resources Wales. Any relevant data is represented on Map 1 – Flood Map for Planning.

Database searched and no data found.

1.4 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site? No

Any relevant data is represented on Map 1 – Flood Map for Planning.

1.5 Areas of Proposed Flood Defences

Are there any Proposed Flood Defences within 250m of the study site? No

* This illustrates the number of households that move from 'very significant' or 'significant' to 'moderate' or 'low' probability of flood risk bands if the proposed flood scheme is to be implemented.

Any relevant data is represented on Map 1 – Flood Map for Planning.

Guidance: This search consists only of proposed flood defences present in the dataset provided by the Environment Agency/Natural Resources Wales. Please note that proposed flood defence schemes will not influence the current RoFRaS ratings for the site.

1.6 Areas used for Flood Storage

Are there any areas used for Flood Storage within 250m of the study site? No

Flood Storage Areas are considered part of the functional floodplain, and are areas where water has to flow or be stored in times of flood. Technical Guidance to the National Planning Policy Framework states that only water-compatible development and essential infrastructure should be permitted within flood storage areas, and existing development within this area should be relocated to an area with a lower risk of flooding. Any relevant data is represented on Map 1 – Flood Map for Planning.

Notes on Flood Zone Data:

This data relates solely to flooding from rivers or the sea. The Environment Agency/Natural Resources Wales estimate that over 2.5 million properties are at risk of flooding within England and Wales. River flooding occurs when a watercourse cannot cope with the water draining into it from the surrounding land. This can happen, for example, when heavy rain falls on an already waterlogged catchment. Coastal flooding results from a combination of high tides and stormy conditions. If low atmospheric pressure coincides with a high tide, a tidal surge may happen which can cause serious flooding.

The Groundsure Flood Insight Report comments upon whether a property lies in proximity to Environment Agency/Natural Resources Wales Zone 2 and Zone 3 floodplains. The Government's Technical Guidance to the National Planning Policy Framework explains how flood risk should be considered at all stages of the planning and development process in order to reduce future damage to property and potential loss of life. The Government looks to planning authorities to ensure that flood risk is properly taken into account in the planning of developments to reduce the risk of flooding and the damage which floods cause.

Flood Zones enable planning authorities to apply the sequential test (see Technical Guidance to the National Planning Policy Framework) for development proposals and prevent inappropriate development.

Technical Guidance to the National Planning Policy Framework defines the flood zones as: -

Zone 1 – little or no risk with an annual probability of flooding from rivers and the sea of less than 0.1%

Zone 2 – low to medium risk with an annual probability of flooding of 0.1-1.0% from rivers and 0.1-0.5% from the sea.

Zone 3 – high risk with an annual probability of flooding of 1.0% or greater from rivers, and 0.5% or greater from the sea.

Flood Zone 3b/Flood Storage Areas - very high risk with the site being used as part of the functional flood plain or as a Flood Storage Area.

The flood zones are the main constraint map underpinning decisions on development and flood risk.

Existing Flood Defences

Flood defences seek to reduce the risk of flooding and to safeguard life, protect property, sustain economic activity and the natural environment. Flood defences are designed to protect against flood events of a particular magnitude, expressed as risk in any one year. For example, defences in urban areas may be built to provide protection against flood events of a size which might occur on average once in one hundred years or less.

Proposed Flood Defences

This information is taken from the Environment Agency/Natural Resources Wales's database of Areas to Benefit from New and Reconditioned Flood Defences under the Medium Term Plan (MTP). The dataset contains funding allocation for the first financial year (from April). Funding for the following four financial years is not guaranteed, being only indicative, and will be reviewed annually. Projects within the Medium Term Plan qualify for inclusion in this dataset if:

- the investment leads to a change in the current standard of protection (change projects);
- the investment is a replacement or refurbishment in order to sustain the current standard of protection (sustain projects);
- the project has an initial construction budget of £100,000 or more; and
- the project is included within the first five years of the MTP

The data includes all the Environment Agency/Natural Resources Wales's projects over £100K that will change or sustain the standards of flood defence in England and Wales over the next 5 years. It also includes the equivalent schemes for all Local Authority and Internal Drainage Boards. The number of households and areas of land contributing to DEFRA's Outcome Measures (OM) are also attributed i.e. could benefit from major work on flood defences.

These data also contain Intermittence Flood Maintenance Programme that show the annual maintenance programme of work scheduled to be carried by the Environment Agency/Natural Resources Wales, Local Authority or Internal Drainage Board on flood defences. Data details routine maintenance as well as intermittent work that has been funded for the coming year. The data contains a start and end coordinate defining the relevant river section where work is planned.

Information Warning

Please note that the maps show the areas where investment is being made to reduce the flood and coastal erosion risk and are not detailed enough to account for individual addresses. Individual properties may not always face the same risk of flooding as the areas that surround them. Also, note that funding figures are indicative and any use or interpretation should account for future updates where annual values may change.

Every possible care is taken to ensure that the maps reflect all the data possessed by the Environment Agency/Natural Resources Wales and that they have applied their expert knowledge to create conclusions that are as reliable as possible. The Environment Agency/Natural Resources Wales consider that they have created the maps as well as they can and so should not be liable if the maps by their nature are not as accurate as might be desired or are misused or misunderstood, despite their warnings. For this reason, they are not able to promise that the maps will always be accurate or completely up to date.

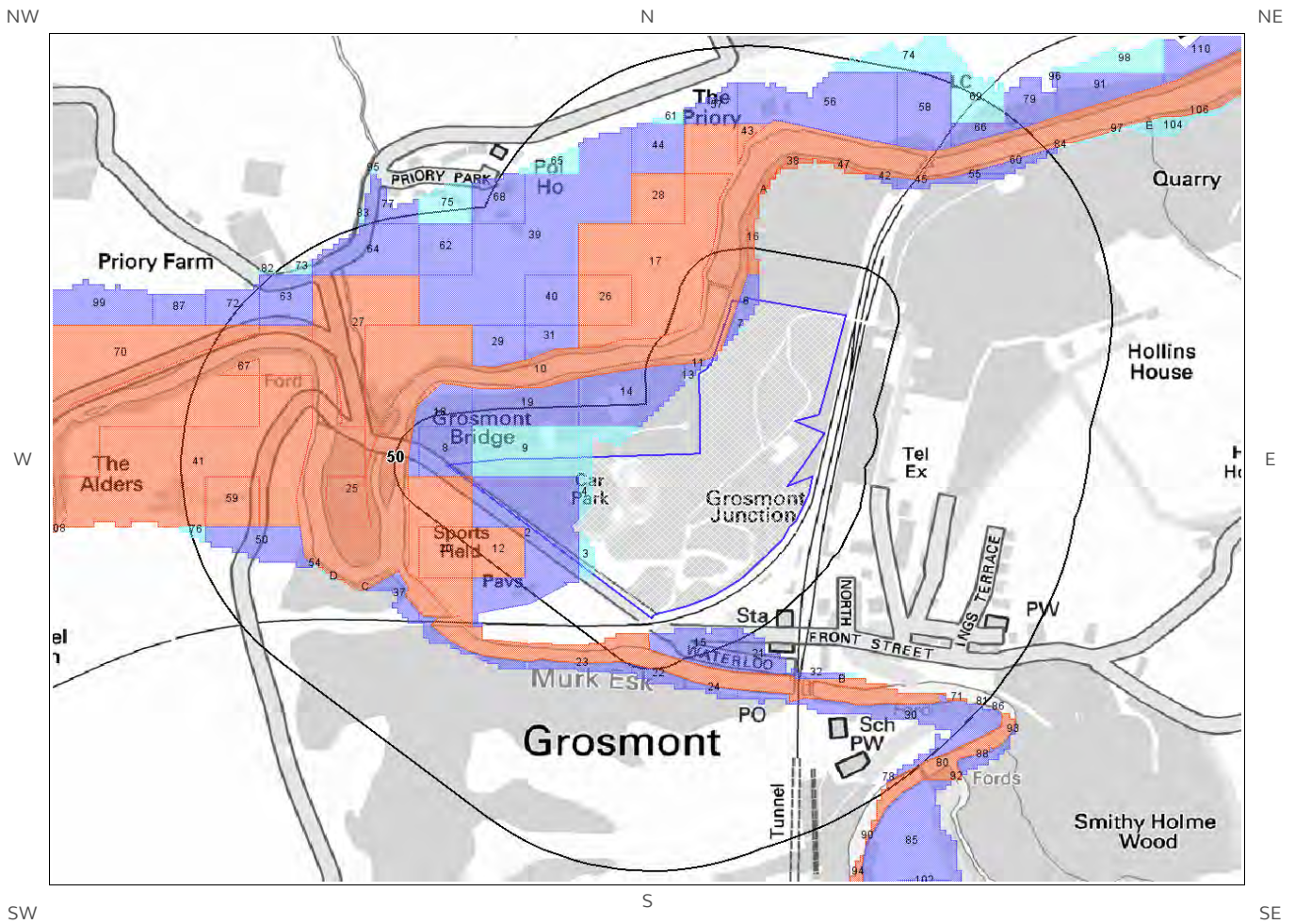
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Flood Storage Areas

Flood Storage Areas may also act as flood defences. A flood storage area may also be referred to as a balancing reservoir, storage basin or balancing pond. Its purpose is to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel. It may also delay the timing of a flood peak so that its volume is discharged over a longer time interval.

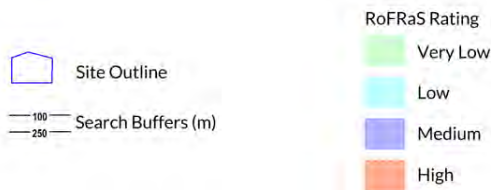
A flood storage area may take the form of a wet or dry reservoir. A wet reservoir is a water storage facility in which storage can be effected by allowing water levels to rise during flood times. A dry reservoir is typically adjacent to a river and comprises an enclosed area that accepts water only at peak times. These areas are also referred to as Zone 3b or 'the functional floodplain' and has a 5% or greater chance of flooding in any given year, or is designed to flood in the event of an extreme (0.1%) flood or another probability which may be agreed between the Local Planning Authority and the Environment Agency/Natural Resources Wales, including water conveyance routes. Development within Flood Storage Areas is severely restricted.

2. Environment Agency/Natural Resources Wales RoFRaS Flooding Map



Environment Agency/Natural Resources
Wales RoFRaS Flooding legend

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2. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS)

2.1 Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating (River and Coastal)

What is the highest risk of flooding onsite?

High

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a High (1 in 30 or greater) chance of flooding in any given year.

Any relevant data within 250m is represented on the RoFRaS Flood map. Data to 50m is reported in the table below.

ID	Distance (m)	Direction	RoFRaS Flood Risk
1	0.0	On Site	High
2	0.0	On Site	Medium
3	0.0	On Site	Low
4	0.0	On Site	Low
5	0.0	On Site	Low
6	0.0	On Site	Medium
7	0.0	On Site	Low
8	0.0	On Site	Medium
9	0.0	On Site	Low
10	0.0	On Site	High
11	0.0	On Site	Medium
12	3.0	SW	High
13	9.0	W	Low
14	14.0	W	Medium
15	14.0	S	Medium
16	24.0	N	High
17	25.0	W	High
18	27.0	W	Medium
19	31.0	N	Medium
20	34.0	SW	High
21	39.0	SE	Medium

ID	Distance (m)	Direction	RoFRaS Flood Risk
22	48.0	S	Medium
23	48.0	SW	Medium

Notes on RoFRaS data:

This information is based on the very latest Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) data. This data has been created by dividing the flood plain into 50m squares, or smaller areas where a square is intersected by a river or coastline. These are called impact cells. The method then calculates the likelihood that the centre of each impact cell will start to flood using a number of different flood scenarios.

A number of insurance companies providing cover for flood risk use this data as the basis of their risk model, although they may also utilise additional information such as claims histories, which may further influence their decision. Where a high risk of flooding is identified flood risk insurance may be difficult to obtain without further work being undertaken. Property owners of sites within Low and Medium risk areas are still considered to be at risk of flooding and insurance premiums may be increased as a result. Owners of properties within Low, Medium and High risk areas are advised to sign up to the Environment Agency/Natural Resources Wales's Flood Warning scheme. The probability estimates for RoFRaS risk bands are as follows:

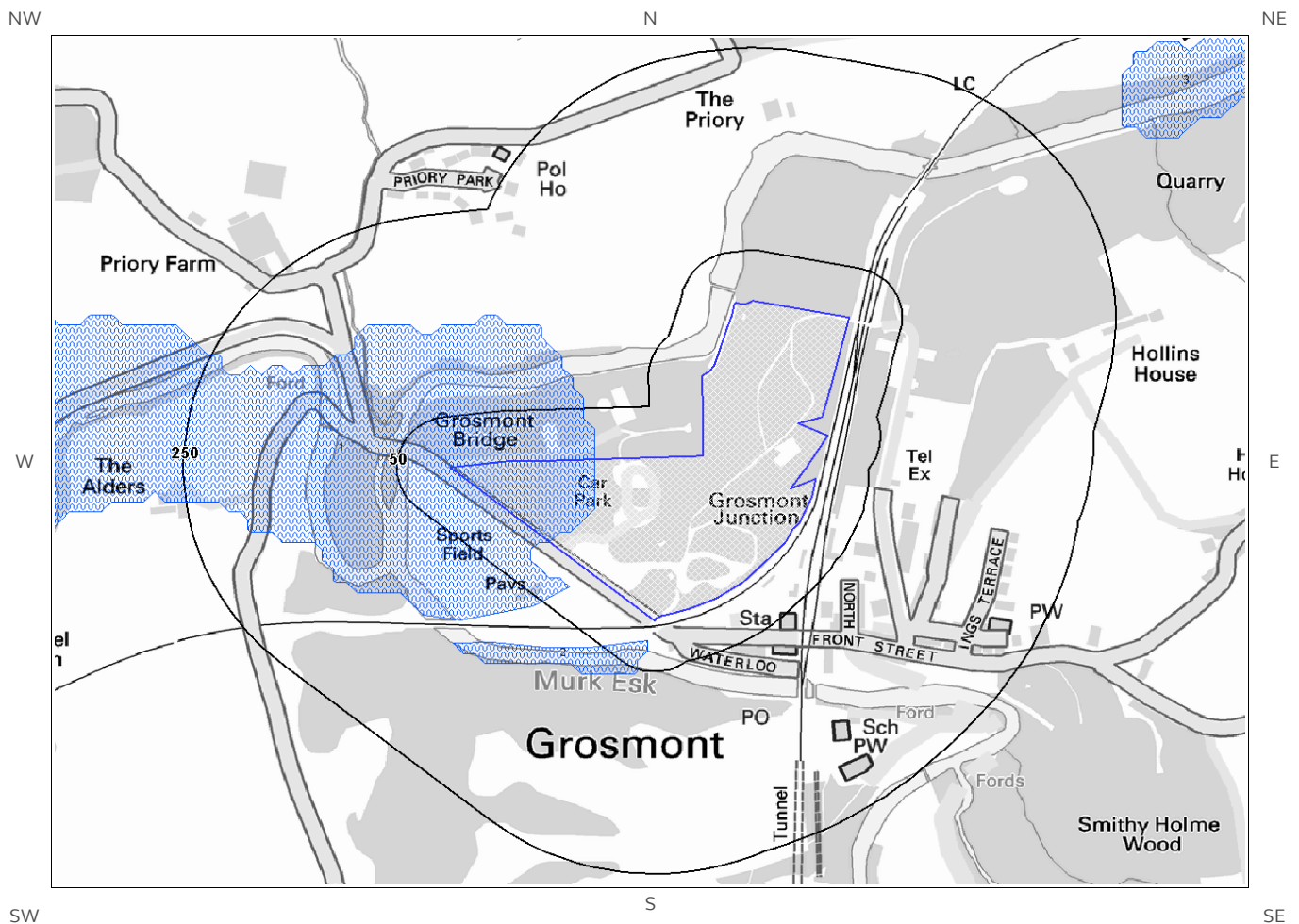
Very Low – the chance of flooding from rivers or the sea is considered to be less than 1 in 1000 (0.1%) in any given year.

Low – the chance of flooding from rivers or the sea is considered to be less than 1 in 100 (1%) but greater than or equal to 1 in 1000 (0.1%) in any given year.

Medium – the chance of flooding from rivers or the sea is considered to be less than 1 in 30 (3.3%) but greater than 1 in 100 (1%) in any given year.

High – the chance of flooding from rivers or the sea is considered to be greater than or equal to 1 in 30 (3.3%) in any given year.

3. Environment Agency/Natural Resources Wales Historic Flooding Events Map



Environment Agency/Natural Resources
Wales Historic Flooding Events legend

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3. Environment Agency/Natural Resources Wales Historic Flooding Events

3.1 Historic Flood Outlines

Has the site or any area within 250m been subject to historic flooding as recorded by the Environment Agency/Natural Resources Wales? Yes

This database shows the individual footprint of every flood event recorded by the Environment Agency/Natural Resources Wales and previous bodies.

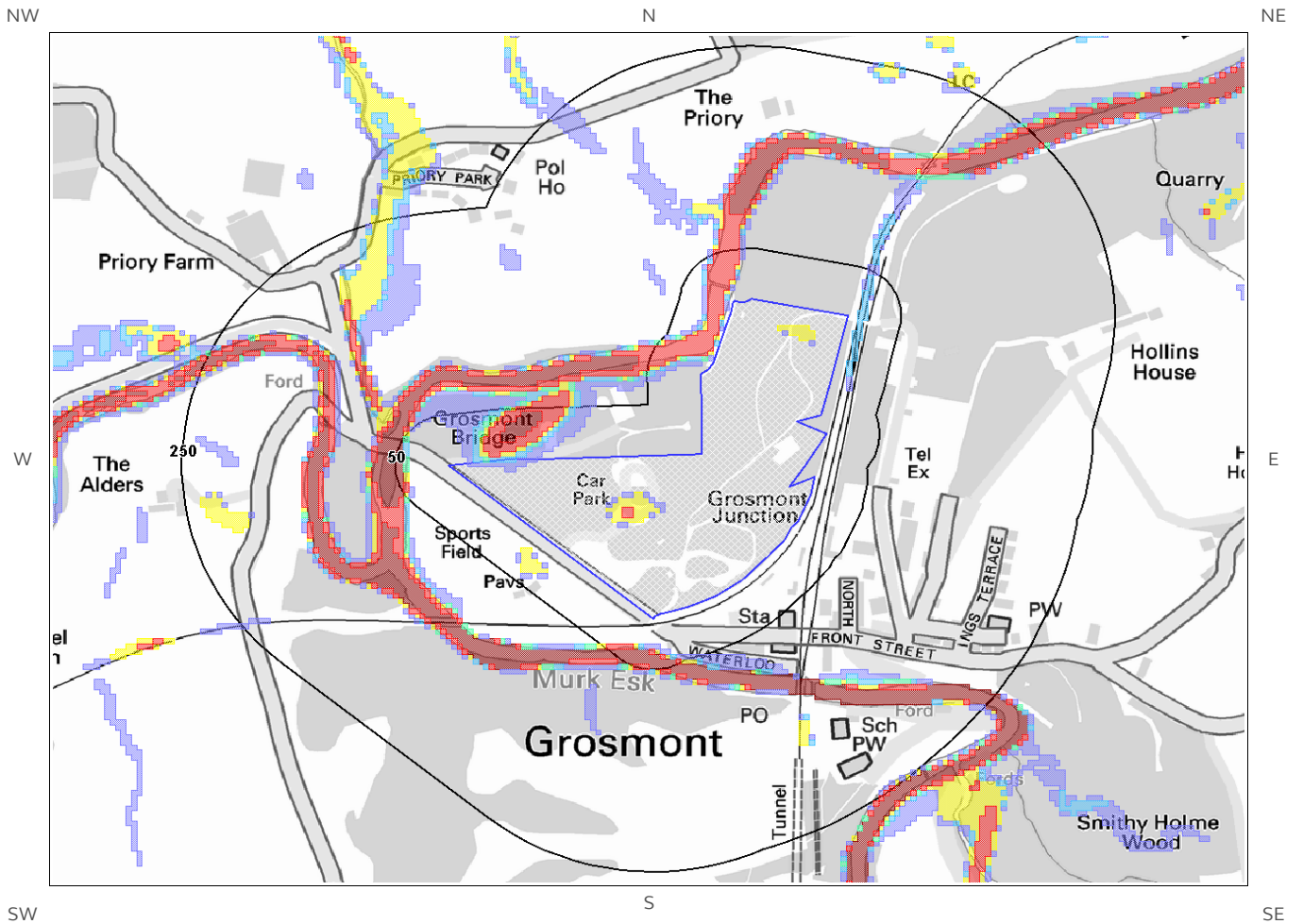
Any records found within the search radius are displayed on Map 3 – Historic Flooding Events.

ID	Distance	Direction	Event Name	Date of Flood	Flood Source	Flood Cause	Type of Flood
1	0.0	On Site	Autumn 2000 Event	Start Date: 30-10-2000 End Date: 15-11-2000	Unknown	Overtopping of defences	Fluvial
2	20.0	S	Autumn 2000 Event	Start Date: 30-10-2000 End Date: 15-11-2000	Unknown	Overtopping of defences	Fluvial

Notes on Historic Flooding data:

Over 21,000 separate events are recorded within this database, dating back to 1947. This data is used to understand where flooding has occurred in the past and provides details as available. Absence of a historic flood event for an area does not mean that the area has never flooded, but only that the Environment Agency/Natural Resources Wales do not currently have records of flooding within the area. Equally, a record of a flood footprint in previous years does not mean that an area will flood again, and this information does not take account of flood management schemes and improved flood defences.

4. JBA Surface Water (Pluvial) Flood Map



JBA Surface Water (Pluvial) Flood Legend

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4. JBA Surface Water (Pluvial) Flooding

Surface Water (pluvial) flooding is defined as flooding caused by rainfall-generated overland flow before the runoff enters a watercourse or sewer. In such events, sewerage and drainage systems and surface watercourses may be entirely overwhelmed.

Surface Water (pluvial) flooding will usually be a result of extreme rainfall events, though may also occur when lesser amounts of rain falls on land which has low permeability and/or is already saturated, frozen or developed. In such cases overland flow and 'ponding' in topographical depressions may occur.

What is the risk of pluvial flooding at the study site? Significant

Guidance: The site or an area in close proximity has been assessed to be at Significant Risk of surface water (pluvial) flooding. This indicates that this area would be expected to be affected by surface water flooding in a 1 in 75 year rainfall event to a depth of between 0.3m to 1m.

Flood data provided by JBA RISK MANAGEMENT LIMITED Copyright © JBA RISK MANAGEMENT LIMITED 2008-2019

The following pluvial (surface water) flood risk records within 50m of the study site are shown on the JBA Surface Water Flooding Map:

Distance	Direction	Risk
0.0	On Site	High
0.0	On Site	High
0.0	On Site	Low
0.0	On Site	Low
0.0	On Site	Low
0.0	On Site	Low
0.0	On Site	Low
0.0	On Site	Low
0.0	On Site	Low
0.0	On Site	Low
0.0	On Site	Low
0.0	On Site	Low
0.0	On Site	Low
0.0	On Site	Low
0.0	On Site	Low
0.0	On Site	Low
0.0	On Site	Low to Moderate
0.0	N	Low to Moderate
0.0	On Site	Moderate
0.0	On Site	Significant
1.0	W	Low
1.0	W	Low

Distance	Direction	Risk
1.0	W	Low to Moderate
2.0	W	High
2.0	W	High
2.0	W	Low
2.0	W	Low to Moderate
2.0	N	Low to Moderate
3.0	N	High
4.0	W	High
4.0	N	Significant
4.0	W	Significant
5.0	N	High
5.0	NW	Low to Moderate
5.0	NW	Moderate
6.0	NW	Low
7.0	N	High
7.0	E	Low to Moderate
7.0	N	Low to Moderate
8.0	NW	High
9.0	E	Low to Moderate
9.0	NW	Low to Moderate
11.0	N	Low
12.0	N	High
12.0	N	Low to Moderate
12.0	N	Moderate
13.0	E	Low
15.0	W	High
15.0	SW	High
16.0	N	High
16.0	SW	Low
17.0	N	High
17.0	N	Low to Moderate
18.0	N	Highly Significant
18.0	SW	Low
18.0	W	Low to Moderate
19.0	NW	Moderate
20.0	W	Low
20.0	W	Low to Moderate
21.0	N	Low
21.0	W	Low

Distance	Direction	Risk
22.0	N	High
22.0	N	Low to Moderate
23.0	NW	High
23.0	W	High
24.0	W	Low
24.0	NE	Low
24.0	S	Low
25.0	N	High
25.0	W	Low
25.0	W	Low to Moderate
25.0	N	Moderate
26.0	SW	Low
26.0	SW	Low
26.0	S	Low to Moderate
26.0	N	Low to Moderate
27.0	N	High
27.0	N	Low to Moderate
28.0	SW	High
28.0	W	Low
29.0	S	High
29.0	NE	Low
29.0	S	Significant
30.0	W	High
30.0	S	Highly Significant
30.0	S	Low
30.0	NW	Low to Moderate
31.0	N	High
31.0	W	High
31.0	N	Low to Moderate
31.0	SW	Significant
32.0	N	High
34.0	N	High
34.0	W	Low to Moderate
34.0	N	Moderate
35.0	SW	Low
35.0	S	Significant
36.0	S	High
36.0	N	High
36.0	N	Low to Moderate

Distance	Direction	Risk
36.0	W	Moderate
37.0	W	Moderate
38.0	W	High
38.0	N	High
38.0	SE	Low to Moderate
38.0	W	Low to Moderate
39.0	W	High
39.0	SW	Low
39.0	N	Low
39.0	N	Low to Moderate
39.0	N	Moderate
40.0	NW	Low
40.0	SE	Low
40.0	W	Low to Moderate
41.0	N	High
41.0	N	Low to Moderate
41.0	NW	Low to Moderate
41.0	SW	Significant
42.0	W	Highly Significant
43.0	N	High
43.0	N	Low to Moderate
44.0	NW	High
44.0	NW	Low
44.0	W	Low to Moderate
44.0	NW	Moderate
45.0	NE	Low
45.0	S	Significant
45.0	SE	Significant
46.0	SW	High
46.0	SW	High
46.0	NW	Low
47.0	SE	High
47.0	NW	High
47.0	NW	Low
48.0	N	High
48.0	SW	High
48.0	N	Low to Moderate
48.0	NW	Moderate
48.0	N	Moderate

Distance	Direction	Risk
49.0	S	High
49.0	S	Low
49.0	S	Low to Moderate
49.0	W	Moderate
49.0	SW	Moderate
50.0	SW	Moderate
50.0	S	Significant
50.0	NW	Significant

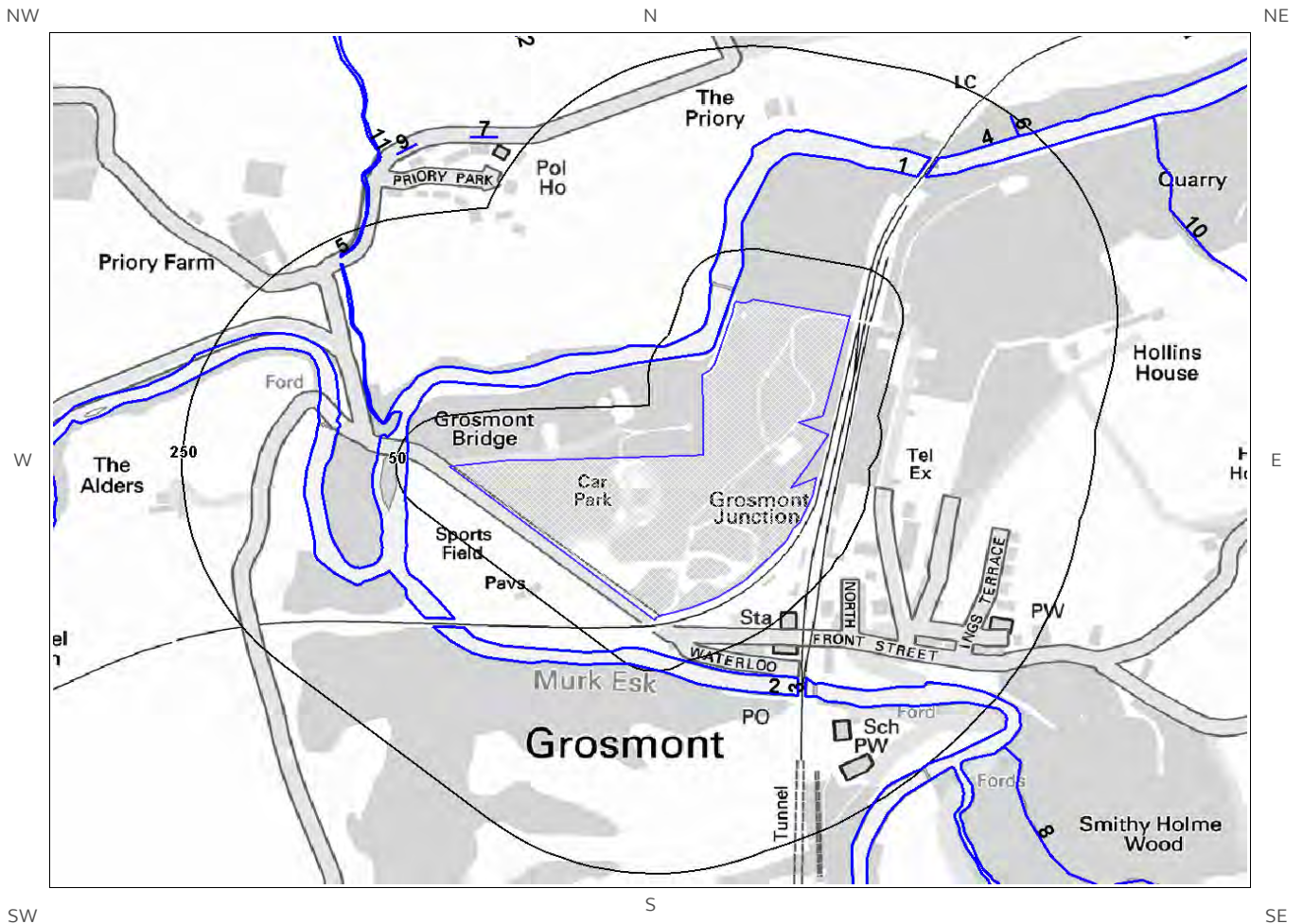
Notes on Surface water (Pluvial) Flooding data:

JBA Consulting surface water flood map identifies areas likely to flood following extreme rainfall events, i.e. land naturally vulnerable to surface water or “pluvial” flooding. This data set was produced by simulating 1 in 75 year, 1 in 200 year and 1 in 1000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though older ones may even flood in a 1 in 5 year rainstorm event.

The model provides the maximum depth of flooding in each 5m “cell” of topographical mapping coverage. The maps include 7 bands indicating areas of increasing natural vulnerability to surface water flooding. These are:-



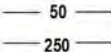

- **Less than 0.1m in a 1 in 1000 year rainfall event** - Negligible
 - **Greater than 0.1m in a 1 in 1000 year rainfall event** - Low
 - **Between 0.1m and 0.3m in a 1 in 200 year rainfall event** – Low to Moderate
 - **Between 0.3m and 1m in a 1 in 200 year rainfall event** – Moderate
 - **Greater than 1m in a 1 in 200 year rainfall event** – Moderate to High
 - **Between 0.1m and 0.3m in a 1 in 75 year rainfall event** – High
 - **Between 0.3m to 1m in a 1 in 75 year rainfall event** - Significant
 - **Greater than 1m in a 1 in 75 year rainfall event** – Highly Significant
-

5. Surface Water Features map



Surface Water Features legend

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- | | | | |
|---|--------------------|---|--|
|  | Site Outline |  | Surface Water Feature (wider than 5m) |
|  | Search Buffers (m) |  | Surface Water Feature (narrower than 5m) |

5. Surface Water Features

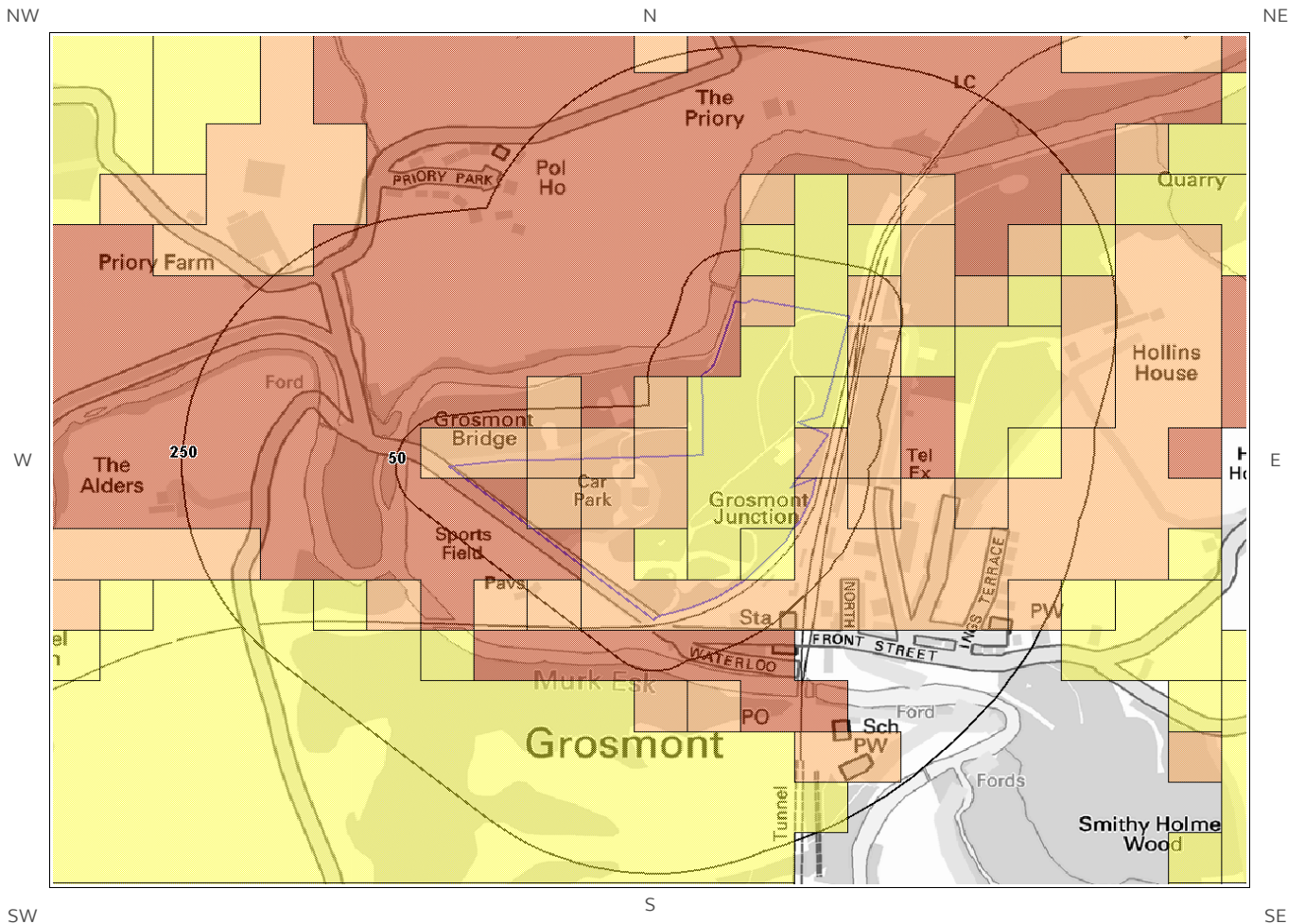
Are there any surface water features within 250m of the study site?

Yes

The following surface water records are represented on mapping:

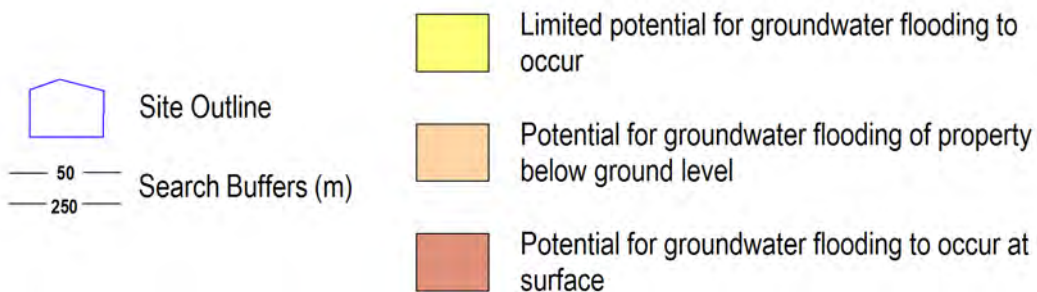
ID	Distance (m)	Direction
1	5.0	W
2	30.0	S
3	112.0	SE
4	155.0	NE
5	231.0	NW
6	238.0	NE

6. BGS Groundwater Flooding Map



BGS Groundwater Flooding legend

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6. Groundwater Flooding

6.1 Groundwater Flooding Susceptibility Areas

Are there any British Geological Survey groundwater flooding susceptibility flood areas within 50m of the boundary of the study site? Yes

What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions? Potential for groundwater flooding at surface

Does this relate to Clearwater Flooding or Superficial Deposits Flooding? Superficial Deposits Flooding

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

6.2 Groundwater Flooding Confidence Areas

What is the British Geological Survey confidence rating in this result? High

Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

Notes on Groundwater Flooding data:

The BGS Susceptibility to Groundwater Flooding hazard dataset identifies areas where geological conditions could enable groundwater flooding to occur and where groundwater may come close to the ground surface.

Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

The susceptibility data is suitable for use for regional or national planning purposes where the groundwater flooding information will be used along with a range of other relevant information to inform land-use planning decisions. It might also be used in conjunction with a large number of other factors, e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information, to establish relative, but not absolute, risk of groundwater flooding at a resolution of greater than a few hundred metres. The susceptibility data should not be used on its own to make planning decisions at any scale, and, in particular, should not be used to inform planning decisions at the site scale. The susceptibility data cannot be used on its own to indicate risk of groundwater flooding.

7. BGS Geological Indicators of Flooding

Are there any geological indicators of flooding within 250m of the study site?

Yes

This dataset identifies the presence of superficial geological deposits which indicate that the site may be, or have been in the past, vulnerable to inland and/or coastal flooding. This assessment does not take account of any man-made factors such as flood protection schemes, and the data behind the report are purely geological.

Distance	Direction	Description
0.0	On Site	Higher flood potential from rivers: the first areas to experience the effects of inland flooding in a river catchment.
241.0	S	Higher flood potential from rivers: the first areas to experience the effects of inland flooding in a river catchment.

Notes on BGS Geological Indicators of Flooding data:

The BGS Geological Indicators of Flooding (GIF) data set is a digital map based on the BGS Digital Geological Map of Great Britain at the 1:50,000 scale (DiGMapGB-50). It was produced by characterising Superficial (Drift) Deposits on DiGMapGB-50 in terms of their likely vulnerability to flooding, either from coastal or inland water flow. These Superficial Deposits are considered 'recent' in geological terms, most having been formed in the later parts of the Quaternary geological period (i.e. within the last few tens of thousands of years). Observations made during recent major inland and coastal flooding events have demonstrated that the erosion and deposition of these recent geological sediments have produced subtle topographical variations, resulting in landforms such as fluvial and coastal floodplains. The mapping of these landforms, in conjunction with the fluvial and/or coastal deposits that underlie them, has in turn determined the extent of previous coastal and inland flooding.

On this basis, the floodplains which are at greatest risk from flooding can be both visualised and defined by Superficial Deposits as depicted on geological maps. These include deposits such as river alluvium and lacustrine (lake) alluvium, as well as the First River Terrace or 'Floodplain terrace' (raised flat areas adjacent to or within floodplains, which represent the level of the floodplain prior to the most recent episode of down-cutting). Older and higher river terraces have been excluded as they lie outside the geologically defined floodplain. Areas at risk from coastal inundation are similarly characterised by a range of estuarine or marine deposits that include, for example, tidal flats.