DAB Geotechnics Ltd.

STAINTON QUARRY LTD.

GAYLES QUARRY

HYDROLOGICAL AND HYDROGEOLOGICAL ASSESSMENT

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1. INTRODUCTION

1.1 Background

DAB Geotechnics Ltd. has been commissioned by R & K Wood LLP acting on behalf of Stainton Quarry Ltd. (**Stainton**) to undertake a hydrological and hydrogeological assessment of Gayles Quarry where it is proposed to recover reserves of dimension stone. The study has entailed:

(i) the collation of Ordnance Survey maps (**Appendix A**) to ascertain the land use of the area;

(ii) the provision of a Landmark, *'Envirocheck'*, report to determine the location of the licensed surface and groundwater abstractions, discharge consents, landfill sites, pollution incidents and groundwater vulnerability within a radial search area of at least 1km extending across the Quarry and beyond its perimeter (**Appendix B**);

(iii) correspondence with Richmondshire District Council to determine the location of all private (unlicensed) surface and groundwater abstractions within 1km of the Quarry (**Appendix C**);

(iv) an inspection of the geological plans and reports published by the British Geological Survey (**BGS**);

(v) a walk-over inspection on the 2nd March 2021, during which a number of electronic images were taken;

(vi) the collation of groundwater monitoring data;

(vii) a flood risk assessment (**Appendix D**);

(viii) a description of the baseline conditions (Sections 1 to 4) followed by an assessment of the likely impacts of the proposed development on surface and groundwater resources (Section 5).

1.2 Location

Gayles Quarry lies approximately 1km SSE of the village of Gayles and 7.5km north-west of Richmond in an area administered by Richmondshire District Council and North Yorkshire County Council [1/50,000 Ordnance Survey (**OS**) Sheet No. 92 Barnard Castle & Surrounding Area, **Figure 1**]. The Grid Reference for the approximate centre of the proposed excavations has been taken as 412850 506600.

The Quarry is bounded to the south-west, north-west and north-east by agricultural land. Quarry House and an unnamed C class road lie to the south-east. Park Wood, an area of ancient woodland, lies to north-west.

1.3 Topography

The Quarry occupies part of a north-east facing slope. Surface elevations range from just over 231m above Ordnance Datum (**AOD**) in its north-eastern part to around 271m AOD along its south-western perimeter. The ground surface continues to rise to the south-west and reaches a maximum elevation of just over 390m AOD on Gayles Moor. The natural ground surface at the Quarry has an average grade of about 1v in 7.5h (7.6°). The Quarry has been worked in the past and the abandoned mineral workings extend to a level of about 243m AOD.

1.4 Development Proposals

Stainton proposes to develop Gayles Quarry for the extraction of dimension stone (sandstone). This will be used for building and ornamental purposes. The Quarry will be developed in three phases and will progress in a north-easterly direction from an area adjacent to the existing workings and to a level of not less than 243m AOD (**Figure 3**). The soils and overburden will be stripped and placed along the northern and north-eastern margins of the excavations to screen the operations. The existing overburden and discard tips along the north-eastern margin will be retained as additional screening. These are now covered in vegetation.

Stainton has excavated a number of trial pits at the Quarry to confirm the presence and quality of the stone it wishes to recover. The stone blocks will be trimmed using mobile plant to remove loose fragments, but there will be no cutting which requires the use of dust suppression and cooling water. This will be carried out at the company's premises at Stainton, near Barnard Castle. Access to the Quarry will be gained from its south-eastern corner.

All the mineral excavations will be confined above groundwater level (Section 4.3) so there will be no abstraction and consequently no drawdown. The watercourse that traverses the north-western perimeter of the Quarry will remain protected because there will be a large standoff.

2. GEOLOGY

2.1 Published Information

The geology of Gayles Quarry has been determined by reference to the following British Geological Survey (**BGS**) publications:

1/50,000 Scale Geological Map, Sheet No. 41, Richmond. Solid & Drift Edition (1997);
1/10,560 scale geological map (Sheet NY10NW);
'Geology of the Country around Barnard Castle' (Mills and Hull, 1976); and
BGS map viewer (British Geological Survey, 2021)

2.2 Geological Succession

2.2.1 Superficial Deposits

2.2.1.1 Made Ground

Made ground is present in the form of a number of old overburden and discard tips along the north-eastern perimeter of the Quarry.

2.2.1.2 Glacial Deposits

The BGS 1/50,000 scale geological map records that the superficial cover in the area comprises Devensian glacial till or, *'boulder clay'*, but little or none is present on and around the Quarry and the underlying bedrock is exposed.

2.2.2 Bedrock Strata

The bedrock strata comprise a succession of mudstones, siltstones, sandstones and limestones that from part of the Alston Formation of the Lower Carboniferous age.

The proposed excavations will be confined to one of two mapped sandstone horizons that lie between the Four Fathom Limestone and the older Yard Limestone (**Figure 4**).

2.3 Geological Structure

The BGS maps record that the strata dip towards the south-south-east at about 4° (1v in 14h). No faulting is recorded within the Quarry, but a NE-SW trending structure has been mapped a short distance to the north-east. This extends through the enclosure to the south of Quarry House and downthrows to the south-west. A second fault runs NW-SE about 0.25km to the south-east and downthrows to the north-west.

2.4 Quarrying and Mining History

2.4.1 Quarrying

Quarrying at the Site must have started before 1857 as the excavations are clearly shown surrounded by agricultural field enclosures on the 1/10,560 scale OS map (**Appendix A**). A quarry is recorded to the south-east together with a spring on the roadside immediately to the north. Two other sandstones sandstone quarries are marked to the south-east on the north-western side of Grove Gill House. These lie in the headwaters of the north-north-easterly flowing Priest Gill and its tributary Grove Gill.

Greater detail of the sandstone workings is recorded on the 1/2500 scale 1893 OS map. Linear mounds of overburden and discard are shown to extend along the north-eastern perimeter of Gayles Quarry. A single unnamed quarry is shown to the south-east. A spring is recorded on the north side of Quarry House. The 1/10,560 scale map of 1895 shows that there may have been a slight change in the lateral extent of the two quarries. However, the spring at Quarry House is no longer marked.

The 1/2500 scale OS map of 1913 records that there had been very little change at Gayles Quarry since the 1893 survey, but it is marked as disused. The workings to the south-east are recorded as an, 'Old Quarry'. There is no reference to the spring at Quarry House. The 1/10,560 scale 1919 map provides the same basic information.

Few details are shown on the 1/10,000 scale OS maps of 1957, 1981 and 1999. Reference is made to Gayles Quarry, but the other workings are at best only recorded as surface features. No details are recorded on the 1/10,000 scale Street View map of 2020.

Envirocheck has not provided OS coverage of the Quarry for the 1/2500 scale OS maps of 1979 and 1995. However, the area around Quarry House has been supplied and the respective maps record the presence of, *'issues'*, immediately to the north.

The BGS records the presence of a number of sandstone and limestone quarries in the area (**Appendix B**), all of which are now disused.

2.4.2 Mining

Some of the Lower Carboniferous strata have been mineralised and there are former copper workings at Feldom Mines, near Marske, some 4km south-west of Gayles Quarry. These were developed during the years 1710-1715 when a smelting mill was erected in the village of Whaston about 3km to the ESE of Gayles (**Figure 1**). This worked intermittently and finally closed around 1728. There are no records of any mineralisation at Gayles Quarry and none has been observed in the exposed strata.

The Quarry lies within the Coal Authority's 'Coal Mine Reporting Area'. However, its records show that there are no recorded mine openings in the area of interest, the nearest being located about 1km to the WSW in the area south of Jenny's Plantation (**Figure 1**). This is the only area recorded as having, *'probable shallow coal workings'*, and a, *'development high risk'*, status.

The Coal Authority does not hold any abandoned mine plans for the Quarry area and the BGS does not record any coal seams in the Alston Formation either in section or on its various maps. Coal is only present in the overlying Namurian strata which are not present at Gayles Quarry. There is no evidence of any historic coal mining shown on the OS maps presented in **Appendix A** with the exception of 1857 1/10,560 scale map which records a, 'coal mine', about 1km ENE of the Quarry. This is associated with limestone workings and lime kilns. No pit heap is shown and production, if any, can only have been very limited and short lived. Nothing is shown on any subsequent OS maps. No evidence of historic coal mining has been observed on or adjacent to the Quarry.

3. HYDROLOGY

3.1 Rainfall

The long term average annual rainfall for Gayles Quarry is approximately 835mm (NERC, 1999).

3.2 Surface Water and Catchment

The general direction of natural drainage is towards the north-east (**Figure 1**). A watercourse rises to the south-west of the Quarry around Grid Ref. 412170 506248 and flows in a north-easterly direction just within its north-western perimeter and towards Slip Inn Bank (public road). The watercourse must eventually discharge into the highly modified Dalton or Holme Beck at Ravensworth. A second watercourse rises on the north-eastern perimeter of the Quarry at Grid Ref. 412766 506729 and follows a parallel course supplying a small pond at Slip Inn Farm (Grid Ref. 412942 507118) and eventually forming a confluence at Grid Ref. 412942 507327. Two watercourses follow both sides of Flats Bank around Quarry House (Grid Ref. 413007 506617) and most likely supply Priest's Gill at or around Grid Ref. 413622 507546.

Grove Gill rises at Grid Ref. 412206 506093 and flows in an ESE direction before turning towards the north-east at Grid Ref. 412675 505975. It assumes a partly subterranean course at Grid Ref. 412940 506367, re-emerging at 413056 506495 and passing along the south-east side of Quarry House. At Grid Ref. 413207 506645, it again flows below ground surface only to issue on the north side of Priest Gill Bank at Grid Ref. 413281 506826. The watercourse is named Priests Gill beyond this point and eventually finds its way to the drainage channel at Grid Ref. 413641 507542 before turning ESE. It discharges into Dalton Beck at Ravensworth (Grid Ref. 414024 508129) after passing through a millpond and assuming a more irregular flow path.

There are no areas of permanent standing water at the Quarry. The nearest pond is located at Slip Inn Farm. A second pond is situated adjacent to Priest's Gill at Grid Ref. 413413 507098 where it is supplied by a small tributary. There are a number of large ponds and small lakes and an associated wetland area on the south side of Ravensworth.

A catchment study has been carried out using the Flood Estimation Handbook (**FEH**) CD-ROM. The various catchment boundaries are shown in **Figure 5** and the relevant characteristics are presented in **Table 1**. Note that catchment areas B and C lie within area A.

Parameter	Catchment Area			Description
	B	C	A	
AREA	0.96	13.91	15.25	Catchment drainage area (km^2).
FARL	1	1	1	Index of flood attenuation due to reservoirs and lakes.
PROPWET	0.62	0.62	0.62	Index of proportion of time that soils are wet.
ALTBAR	237	279	274	Mean catchment altitude (m above sea level).
ASPBAR	28	45	43	Index representing the dominant aspect of catchment slopes.
ASPVAR	0.82	0.61	0.62	Index describing the invariability in aspect of catchment slopes.
BFIHOST	0.558	0.467	0.477	Base flow index derived using the HOST classification.
DPLBAR	1.52	4.44	4.62	Index describing catchment size and drainage path configuration (km).
DPSBAR	90.2	88.6	88.1	Index of catchment steepness (m/km).
LDP	3.73	7.5	7.94	Longest drainage path (km).
RMED-1H	10.5	10.7	10.7	Median annual maximum 1 hour rainfall (mm).
RMED-1D	35.7	36.7	36.6	Median annual maximum 1 day rainfall (mm).
RMED-2D	44.1	45.6	45.5	Median annual maximum 2 day rainfall (mm).
SAAR	835	885	880	1961-90 standard period average annual rainfall (mm)
SAAR4170	888	992	982	1941-70 standard period average annual rainfall (mm)
SPRHOST	35.5	40.8	40.2	Standard percentage runoff derived using HOST classification.
URBCONC	-999999	-999999	-999999	Index of concentration of urban and suburban land cover.
URBEXT1990	0	0.001	0.001	FEH index of fractional urban extent (1990)
URBLOC	-999999	-999999	-999999	Index of location of urban and suburban land cover.

Note. UK soils have been delineated according to their hydrological properties to produce the twenty-nine class Hydrology of Soil Types (HOST) classification. The HOST dataset is available as a 1km grid which records, for each grid square, the percentage of the 1km x 1km area given to each HOST class present. Boorman et al. (1995) give standard percentage runoff (SPR) and base flow index (BFI) values for each HOST class.

Table 1 Catchment Characteristics as determined using the FEH CD-ROM

3.3 Greenfield Runoff Rates

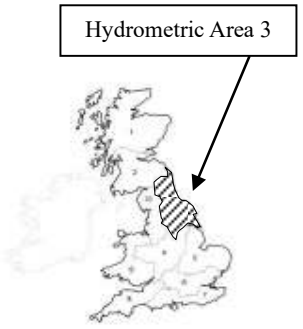
Greenfield runoff rates for the Quarry have been determined using the methodology described in the Institute of Hydrology Report No. 124 (NERC, 1994). The calculations are based largely on the catchment characteristics for catchment area B and are presented in **Table 2**.

Greenfield runoff rates can also be estimated using the Revitalised Flood Hydrograph Method (Wallingford Hydrosolutions Ltd., 2016).

Area	7.68 hectares or 0.0768 km^2
Average Annual Rainfall (SAAR)	835mm
Soil Factor	0.38
Average flow (Q_{BAR})	0.187 m^3/s from 50 hectares (as per IoH 124) or 3.7 l/s/ha
Growth Factors	from Hydrometric Area 3 (see below)

UK Growth Curve Factors (from NERC, 1975)

Region	Hydrometric Area	Return period						
		2	5	10	25	50	100	500
NW	1	0.90	1.20	1.45	1.81	2.12	2.48	3.25
	2	0.91	1.11	1.42	1.81	2.17	2.63	3.45
	3	0.94	1.25	1.45	1.70	1.90	2.08	2.73
	9	0.93	1.21	1.42	1.71	1.94	2.18	2.86
	10	0.93	1.19	1.38	1.64	1.85	2.08	2.73
SE	4	0.89	1.23	1.49	1.87	2.20	2.57	3.62
	5	0.89	1.29	1.65	2.35	2.83	3.56	5.02
	6/7	0.88	1.28	1.62	2.14	2.62	3.19	4.49
	8	0.88	1.23	1.49	1.84	2.12	2.42	3.41
Ireland		0.95	1.20	1.37	1.60	1.77	1.96	2.40



(NERC, 1975)

Return period (years)	2	5	10	25	50	100	500
Growth Factor (Hydrometric Area 3)	0.94	1.25	1.45	1.70	1.90	2.08	2.73
Flow rate (l/s/ha)	3.3	4.6	5.6	7.0	8.2	9.6	13.5

Table 2 Estimated Greenfield Runoff Rates

3.4 Licensed and Unlicensed Surface Water Abstractions

The Landmark Envirocheck report (**Appendix B**) confirms that there are no licensed surface water abstractions within the search area. Richmondshire District Council has stated that there are no unlicensed or private water abstractions (**Appendix C**).

3.5 Flood Risk

An extract of the Environment Agency's Flood Map is presented in **Appendix B** and this shows that the Quarry lies in Flood Zone 1, an area assessed as having less than 0.1% annual exceedence probability (AEP) of flooding. A flood risk assessment has been carried out in accordance with the revised National Planning Policy Framework (Ministry of Housing, Communities & Local Government, 2019) and the Planning Policy Guidance document, *'Flood Risk & Coastal Change'* (Dept. for Communities and Local Government, 2014) (**Appendix D**).

3.6 Surface Water Quality

The Envirocheck report does not provide any details of surface water quality and there appears to be no data for the area of interest held on file by the Environment Agency.

4. HYDROGEOLOGY

4.1 Environment Agency Classifications

There is little or no superficial cover on or around the Quarry, but where present this is defined as a *'Secondary Aquifer- Undifferentiated'*. This is despite that fact that it has been mapped by the BGS as glacial till or boulder clay which has a very low permeability.

The bedrock strata are classified as a, *'Secondary A aquifer'*. This is defined as comprising, '*fractured or potentially fractured rocks, which do not have a high primary permeability, or other formations of variable permeability including unconsolidated deposits. Although not producing large quantities of water for abstraction, they are important for local supplies and in supplying base flows to rivers'*.

4.2 Superficial Deposits

There is little or no superficial cover at the quarry so there will be direct infiltration of the bedrock. The Devensian glacial till has a very low permeability and will otherwise restrict recharge.

4.3 Bedrock Strata

Groundwater flow in the bedrock strata is controlled by the natural joints and fractures. There is evidence of karstic development within the limestone horizons (e.g. shake or swallow holes shown in **Figure 1**), where joint apertures will have been increased and cavities formed by dissolution. However, the strata within the existing and proposed excavations and for some depth below remain unaffected because they comprise clastic sediments (**Figure 4**).

The groundwater levels in the sandstone have been recorded by Stainton in a small well located at Grid Ref. 412813 506594 on the north-western perimeter of the existing mineral workings (**Figure 2** and **Table 3**). The surface elevation of the top of the well is 246.80m AOD. The groundwater is perched within the sandstone and confined by the underlying mudstone and siltstone sequence. The proposal to excavate to not less than 243m AOD in Phase A and 247m AOD in Phases B and C means that no abstraction will be required during the course of the development. Consequently there will be no drawdown.

Date	Recorded Depth (m bgl)	Level (m AOD)
January 2020	4.98	241.82
February 2020	5.00	241.80
March 2020	4.99	241.81
April 2020	5.02	241.78
May 2020	5.03	241.77
June 2020	5.02	241.78
July 2020	5.00	241.80
August 2020	4.99	241.81
September 2020	4.97	241.83
October 2020	4.98	241.82
November 2020	4.99	241.81
December 2020	5.00	241.80
January 2021	5.00	241.80
February 2021	4.97	241.83
March 2021	4.96	241.84

Table 3 Recorded Groundwater Levels

4.4 Groundwater Vulnerability

The Environment Agency's groundwater vulnerability assessment has been carried out by dividing the country into 1km squares and using the dominant hydrological, geological and hydrogeological data within each square. The maps show the highest vulnerability of the superficial and bedrock aquifers. (For Gayles Quarry, this is the medium vulnerability of the bedrock, **Appendix B**). It follows therefore that the maps may not reflect the ground conditions on a site specific scale. *'Local and site-specific data should always be given precedence where available and should be collected in areas of high vulnerability if not already available'* (Environment Agency 2017). A site specific assessment has therefore been carried out using the principles described in, *'New groundwater vulnerability mapping methodology in England and Wales',* and, *'Groundwater Vulnerability National Dataset User Guide'* (Environment Agency, 2017).

The British Geological Survey's maps record that bedrock is exposed on and around the Quarry. Consequently, the vulnerability assessment has excluded any consideration of the superficial cover.

The long term annual average rainfall for the Quarry is about 835mm. However, the effective rainfall, which represents the water that is available for both surface runoff and infiltration after satisfying any soil moisture deficit and evapotranspiration, is probably no greater than 300mm. The leaching class of the soil has been assumed to be high in the absence of any other information.

The assessment results are presented in **Table 3** and the total score confirms that the groundwater vulnerability of the bedrock is high (**Table 4**). The same conclusion is made even if the estimated effective rainfall is higher since the index score for a value of 300-550mm is only 1.

Physical Characteristics	Attribute	Value	Index Score	Weighting Factor	Score
Dilution	Available water (effective rainfall)	<300mm	0	1	0
Groundwater/ surface water split	BFI	56%	1	1	1
Soil	Leaching Class	High	0	2	0
Unsaturated Zone (Bedrock Geology)	Flow Type	Fractures (well connected)	0	2	0
				Total	1

Table 3 Summary of Vulnerability Scores (Environment Agency, 2017)

Classification Band	Bedrock Aquifer with Pollutant applied above Soil Zone
Low (L)	>10
Medium (M)	7-10
High (H)	<7

Table 4 Groundwater Vulnerability Classification Bands (Environment Agency, 2017)

4.5 Licensed and Unlicensed Groundwater Abstractions

The Envirocheck report records that there are two licensed groundwater abstractions within 1km of the centre of the Quarry, details of which are summarized in **Table 5**. Sturdy House is shown to lie to the south-east of the Quarry in **Figure 1** and the approximate positions of the abstractions are shown in **Figure 4**. The Quarry does not lie within any recorded source protection zones.

Licence Holder (Reference No.)	Grid Reference	Distance from Centre of Quarry (m)	Abstraction Source	Purpose of Abstraction
C. M. Gill, Sturdy House Farm, Whashton, Richmond (2/27/23/013)	413600 505200	1,590	Springs Middle Limestone	General Farming and Domestic Daily rate: 20m^3 Annual rate: 7,446m^3
Earl of Ronaldshay Estate, Sturdy House Farm and Shashton Springs Farm, Whashton, Richmond (2/27/23/012)	413500 505100	1,637	Springs Middle Limestone Whashton	Private Water Undertaking: General Farming and Domestic Daily rate: 14m^3 Annual rate: 4,964m^3

Table 5 Summary of Licensed Groundwater Abstractions

Richmondshire District Council hold records of only two unlicensed or private groundwater abstractions within a search area extending 1km from the centre of the Quarry (**Appendix C**). The few details provided are summarized in **Table 6** and the approximate locations are shown in **Figure 4**.

Location No. (Figure 3)	Grid Reference	Approximate Distance from Centre of Quarry (m)	Purpose of Abstraction
1	4136 5062	850	Spring supply to one domestic property
2	4133 5070	602	Spring supply to multiple domestic properties

Table 6 Summary of Unlicensed Groundwater Abstractions

4.6 Landfill Sites and Waste Management Facilities

There are no records of any landfill sites or waste management facilities within at least 1km of the Quarry.

4.7 Groundwater Quality

The Envirocheck report does not provide any information relating to groundwater quality. However, it can be surmised from the details given in **Table 5** that the groundwater in the Alston formation is generally of potable quality.

5. LIKELY IMPACT OF THE PROPOSED DEVELOPMENT AND MITIGATION MEASURES

5.1 Surface Water Resources

5.1.1 Management of Surface Runoff in the Proposed Quarry Workings

The proposed excavations will be confined within unsaturated strata and there will be no requirement for groundwater abstraction. However, surface runoff will have to be properly managed to main safe working conditions. It is proposed to drain this to temporary sumps formed within the excavations where it will be allowed to infiltrate the bedrock (as is presently the case). There is presently more than sufficient capacity to deal with the most severe storm and additional capacity will be added as the excavations are extended.

Runoff within those parts of the Quarry site that remain undisturbed will be directed away from the workings using cut-off channels, if necessary so that it can considered as normal drainage. However, it will not be allowed to discharge onto adjacent properties in an uncontrolled fashion. There are no plans to pump and discharge treated water from the Quarry workings.

5.1.2 Loss of Catchment

If it is assumed that the runoff from the agricultural fields to the south-east of the Quarry drain in a north-easterly direction without interruption, a proportion must be intercepted by the abandoned workings and the associated tips on the Quarry site. Extension of the workings towards the west-north-west will increase the potential for interception, but based on OS surface contours the loss of catchment will only amount to some 2.5ha. This water will of course be lost to direct infiltration of the exposed bedrock. The loss of catchment represents a relatively small part of the total area that serves the various streams (Catchment area B in **Table 1** and **Figure 5** measures 0.96km^2 or 96ha). In fact, the surface contours show that the watercourse on the north-western perimeter of the Quarry site will remain unaffected. The loss may well be much lower if measures are taken to divert runoff around the workings.

Note that the direction of natural drainage at the Quarry site is towards the north-east and not towards Park Wood which has been identified as an area of ancient woodland.

5.2 Groundwater Resources

5.2.1 Abstraction and Drawdown

The proposed excavations will be confined to a minimum level of 243m AOD in Phase A and 247m AOD in Phases B and C (**Figure 3**). This is not less than 1m above the recorded groundwater level in the stratum from which dimension stone will be recovered. There will be no requirement for groundwater abstraction and consequently no drawdown.

5.2.2 Licensed and Unlicensed Abstractions

Figure 5 and **Table 5** show that the springs that supply the licensed and unlicensed abstractions are all located in horizons that underlie that of the proposed quarry workings and in separate fault blocks to the south-east. There will be no abstraction and drawdown at the Quarry so it is highly unlikely that the water supplies will be impacted in any way.

5.2.3 Landfill Sites and Waste Management Facilities

There are no landfill sites or waste management facilities within at least 1km of the centre of the Quarry and as there will be no drawdown created by the proposed development, it is highly unlikely that any leachate will be encountered in the proposed excavations.

5.2.4 Adjacent Woodland Areas

Park Wood to the west-north-west of the Quarry is classified as ancient woodland. No drawdown will be created by the proposed Quarry development and it is therefore highly unlikely that it will adversely affected.

6. SUMMARY

1. Stainton Quarry Ltd. proposes to recover valuable dimension stone by extending the mineral workings at Gayles Quarry. Crudely shaped stone blocks will be recovered and these will be taken off site to be cut and shaped.

2. The excavations will be confined within one of two mapped sandstone horizons that lie between the Four Fathom and the older Yard Limestone. The strata are inclined at about 4° (1v in 14h) towards the south-south-east.

3. The proposed excavations will not extend below 293m AOD in Phase A and 297m AOD in Phases B and C. This is not less that 1m above the recorded groundwater level (at just under 292m AOD). There will be no groundwater abstraction and hence no drawdown. None of the licensed and unlicensed abstractions will be adversely impacted. There are no landfills or waste management sites within at least 1km of the centre of the Quarry and it is therefore highly unlikely that any leachate will be encountered or will be drawn towards the excavations. In the absence of any drawdown, none of the adjacent areas of agricultural and woodland will be adversely affected.

4. It is proposed to manage the surface runoff at the Quarry by directing it towards temporary sumps formed within the excavations where it will be allowed to infiltrate the bedrock (i.e. as is presently the case in the abandoned workings).

5. The proposed development will not lead to a significant loss of catchment to the local watercourses that flow towards the north-east. The watercourse that flows along the north-western perimeter of the Quarry site will remain isolated. The supply of water to Park Wood, an area of ancient woodland to the west-north-west, will not be affected.

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FIGURES

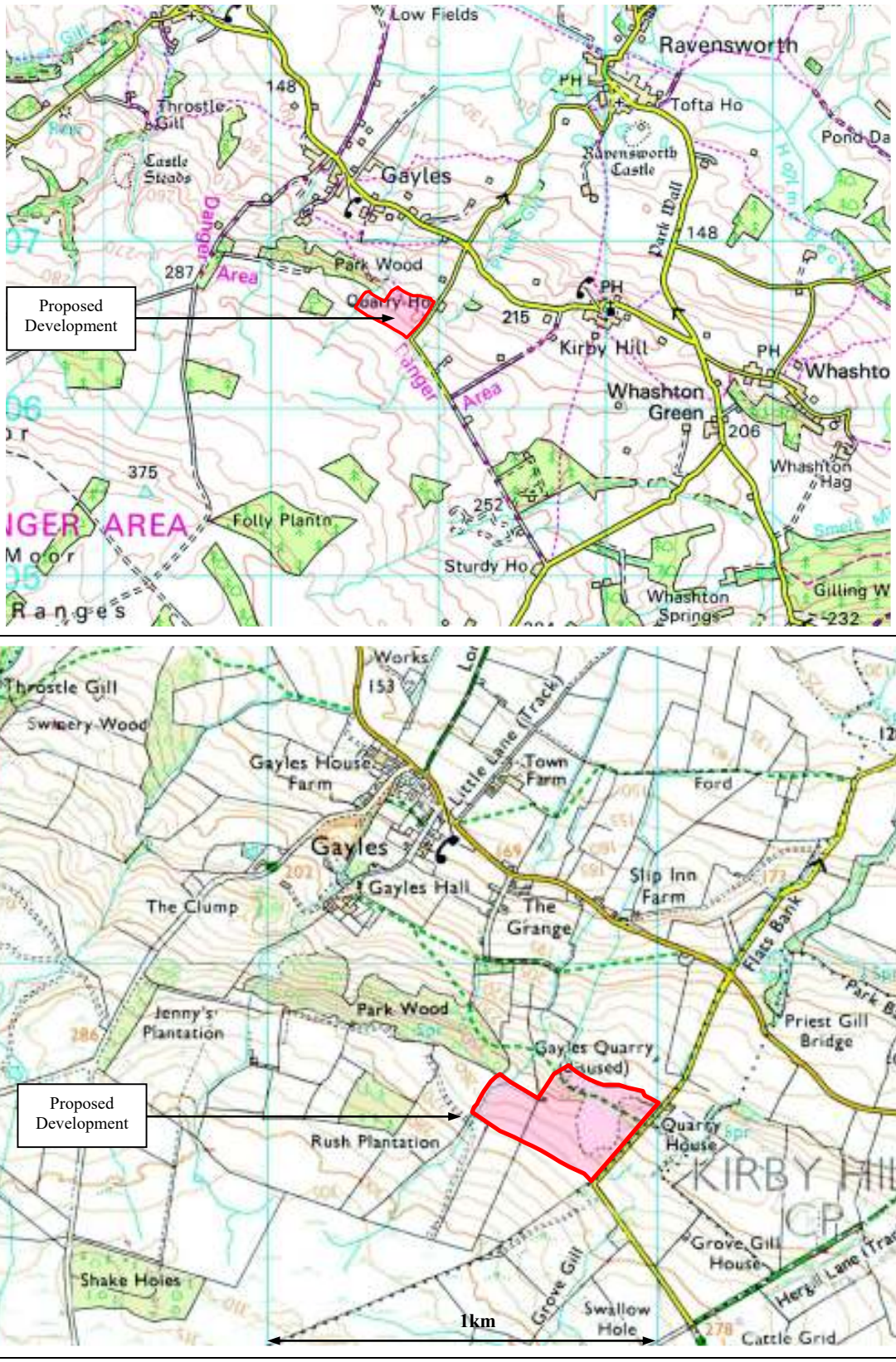


Figure 1 Site Location

Gayles Quarry – Hydrological and Hydrogeological Assessment

DAB Geotechnics Ltd.

Date: 22nd March 2021

Figure 2 Aerial Photograph
(Imagery dated 27/06/2018)

DAB Geotechnics Ltd.

Gayles Quarry
Hydrological and
Hydrogeological Assessment

Date: 22nd March 2021

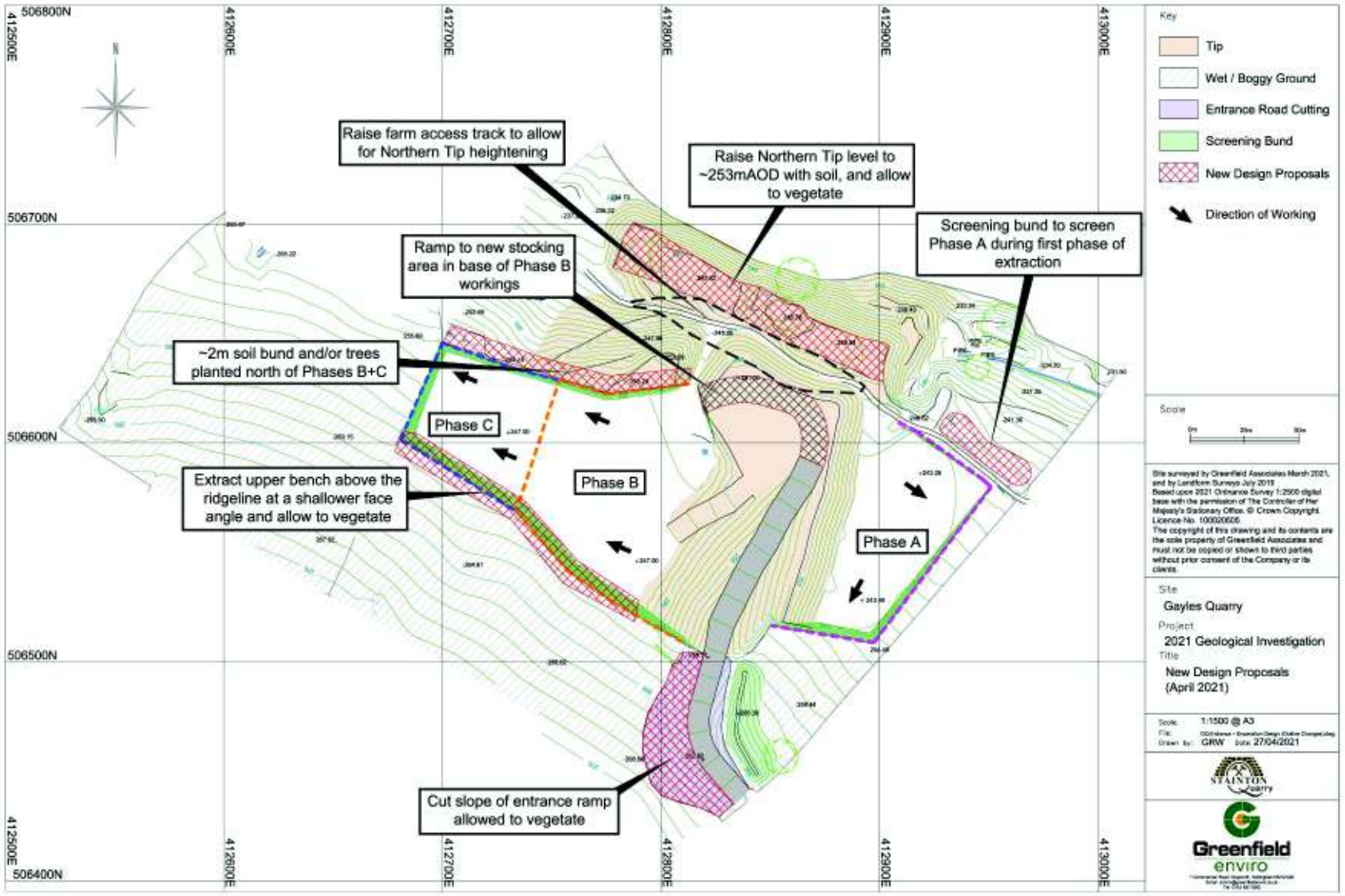


Figure 3
Composite Working Method

DAB Geotechnics Ltd.

Gayles Quarry
Hydrological and
Hydrogeological Assessment

Date: 22nd May 2021

Approximate location of unlicensed abstractions

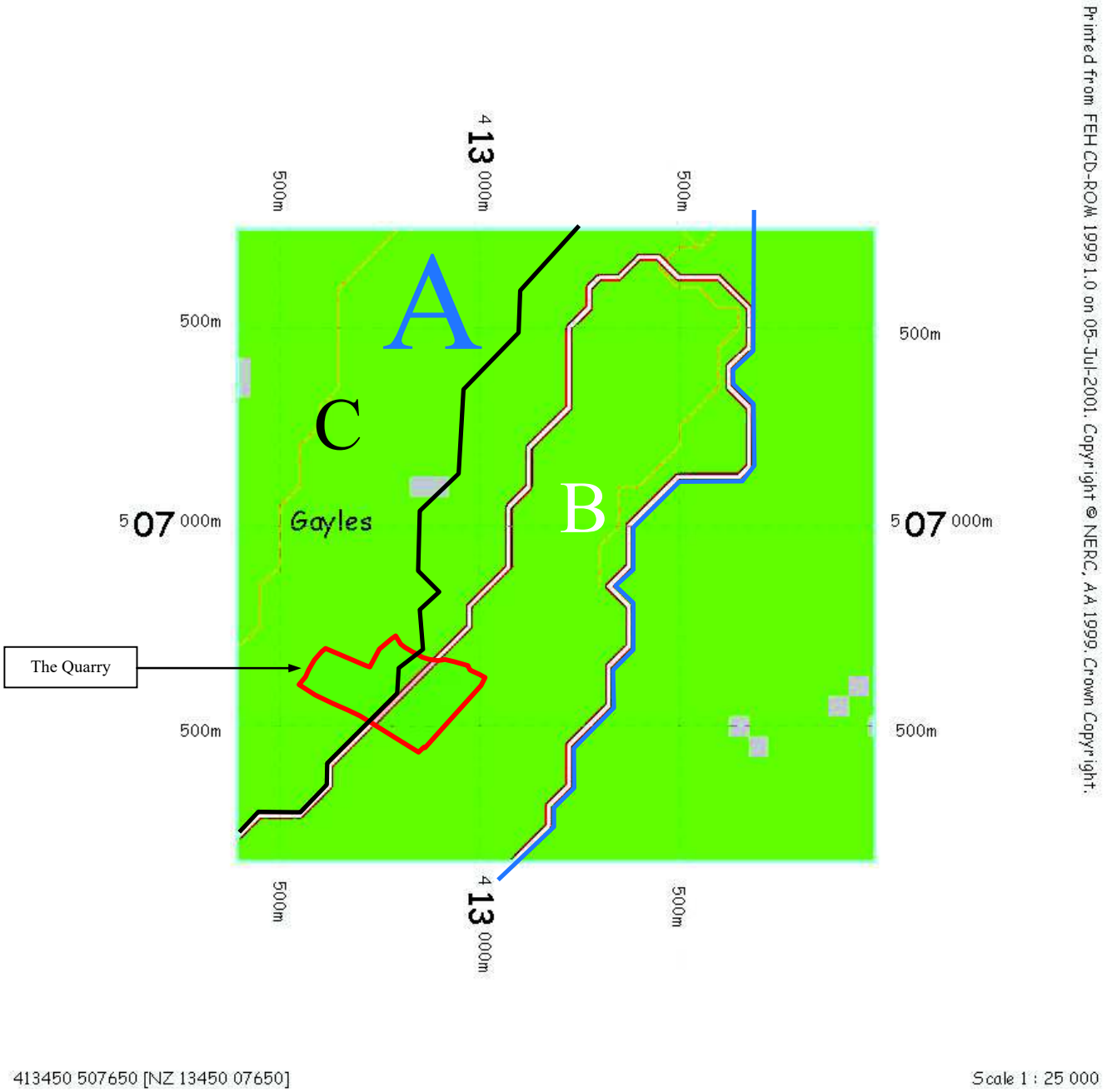
Approximate location of licensed abstractions

Figure 4
Extract of BGS Map Viewer - Bedrock (© NERC, 2021)

DAB Geotechnics Ltd.

Gayles Quarry
Hydrological and Hydrogeological Assessment

Date: 22nd March 2021



Note. Catchment Areas B and C form part of Area A.

Figure 5 Catchment Boundaries as determined using the Flood Estimation Handbook CD-ROM

DAB Geotechnics Ltd.	Gayles Quarry Hydrological and Hydrogeological Assessment	Date: 22nd March 2021

APPENDIX A

Historical OS Maps

Order Number 243087964
Customer Ref. 19005
Order Number 65734957
National Grid Reference 412850 506600
Search Buffer 1000

File Name	Map Series Name	Published Dates	Source Scale	Survey Date	Revision Date	Addition Date	Edition Date	Published Date
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243087964_1_A_EHM_County_Series_10560_ehm-yor-10560_1-2-2b_258050608.gif	Yorkshire	1919-1930	1:10,560	1854	1927		1930	
243087964_1_A_EHM_County_Series_10560_ehm-yor-10560_1-1a_258050610.gif	Yorkshire	1895	1:10,560	1892				1895
243087964_1_A_EHM_County_Series_10560_ehm-yor-10560_1-0a_258050616.gif	Yorkshire	1857	1:10,560	1854				1857
243087964_1_A_EHM_OS_Plan_10000_ehm-ng-10000_1a_258050604.gif	Ordnance Survey Plan	1957	1:10,560		1950			1957
243087964_1_A_EHM_OS_Plan_10000_ehm-ng-10000_4a_258050620.gif	Ordnance Survey Plan	1981	1:10,000	1979	1980			1981
243087964_1_A_10k_CRM_1999_10kcrm_l00001_258050614.gif	10K Raster Mapping	1999	1:10,000					

File Name	Map Series Name	Published Dates	Source Scale
243087964_1_A13_County_Series_2500_yor-2500_ep1_258050600.gif	Yorkshire	1893	1:2,500
243087964_1_A13_County_Series_2500_yor-2500_ep2_258050612.gif	Yorkshire	1913	1:2,500
243087964_1_A13_County_Series_2500_ep5-2500_a5_258050618.gif	Ordnance Survey Plan	1979	1:2,500
243087964_1_A13_Superplan_2500_sp-2500_1_258050602.gif	Large-Scale National Grid Data	1995	1:2,500

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

Gravel Pit
Sand Pit
Other Pits
Quarry
Shingle
Orchard
Osiers
Reeds
Marsh
Mixed Wood
Deciduous
Brushwood
Fir
Furze
Rough Pasture

Arrow denotes flow of water
Trigonometrical Station
Site of Antiquities
Bench Mark
Pump, Guide Post, Signal Post
Well, Spring, Boundary Post
·285 Surface Level

Sketched Contour
Instrumental Contour
Main Roads (Fenced / Un-Fenced)
Minor Roads (Fenced / Un-Fenced)
Sunken Road
Raised Road
Road over Railway
Railway over River
Railway over Road
Level Crossing
Road over River or Canal
Road over Stream
Road over Stream

County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)
R.D. Bdy. Rural District Boundary
Civil Parish Boundary

Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry
Gravel Pit
Sand Pit
Disused Pit or Quarry
Refuse or Slag Heap
Lake, Loch or Pond
Dunes
Boulders
Coniferous Trees
Non-Coniferous Trees
Orchard
Scrub
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Electricity Transmission Line
Pole
Sloping Masonry
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
Standard Gauge Single Track
Siding, Tramway or Mineral Line
Narrow Gauge

Geographical County
Administrative County, County Borough or County of City
Municipal Borough, Urban or Rural District, Burgh or District Council
Borough, Burgh or County Constituency
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

BP, BS	Boundary Post or Stone	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	Well

1:10,000 Raster Mapping

Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community boundary
District, Unitary, Metropolitan, London Borough boundary
Constituency boundary
Area of wooded vegetation
Non-coniferous trees
Non-coniferous trees (scattered)
Coniferous trees
Coniferous trees (scattered)
Positioned tree
Orchard
Coppice or Osiers
Rough Grassland
Heath
Scrub
Marsh, Salt Marsh or Reeds
Water feature
Flow arrows
MHW(S) Mean high water (springs)
MLW(S) Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
BM 123.45 m Bench mark (where shown)
Triangulation station
Point feature (e.g. Guide Post or Mile Stone)
Pylon, flare stack or lighting tower
Site of (antiquity)
Glasshouse
General Building
Important Building

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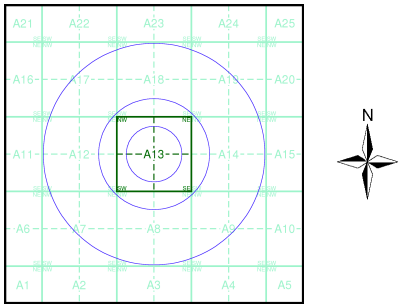
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:10,560	1857	2
Yorkshire	1:10,560	1895	3
Yorkshire	1:10,560	1919	4
Yorkshire	1:10,560	1919 - 1930	5
Ordnance Survey Plan	1:10,000	1957	6
Ordnance Survey Plan	1:10,000	1981	7
10K Raster Mapping	1:10,000	1999	8
Street View	Variable		9

Historical Map - Slice A



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Customer Ref: 19005
National Grid Reference: 412850, 506600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

Site at 412850, 506600

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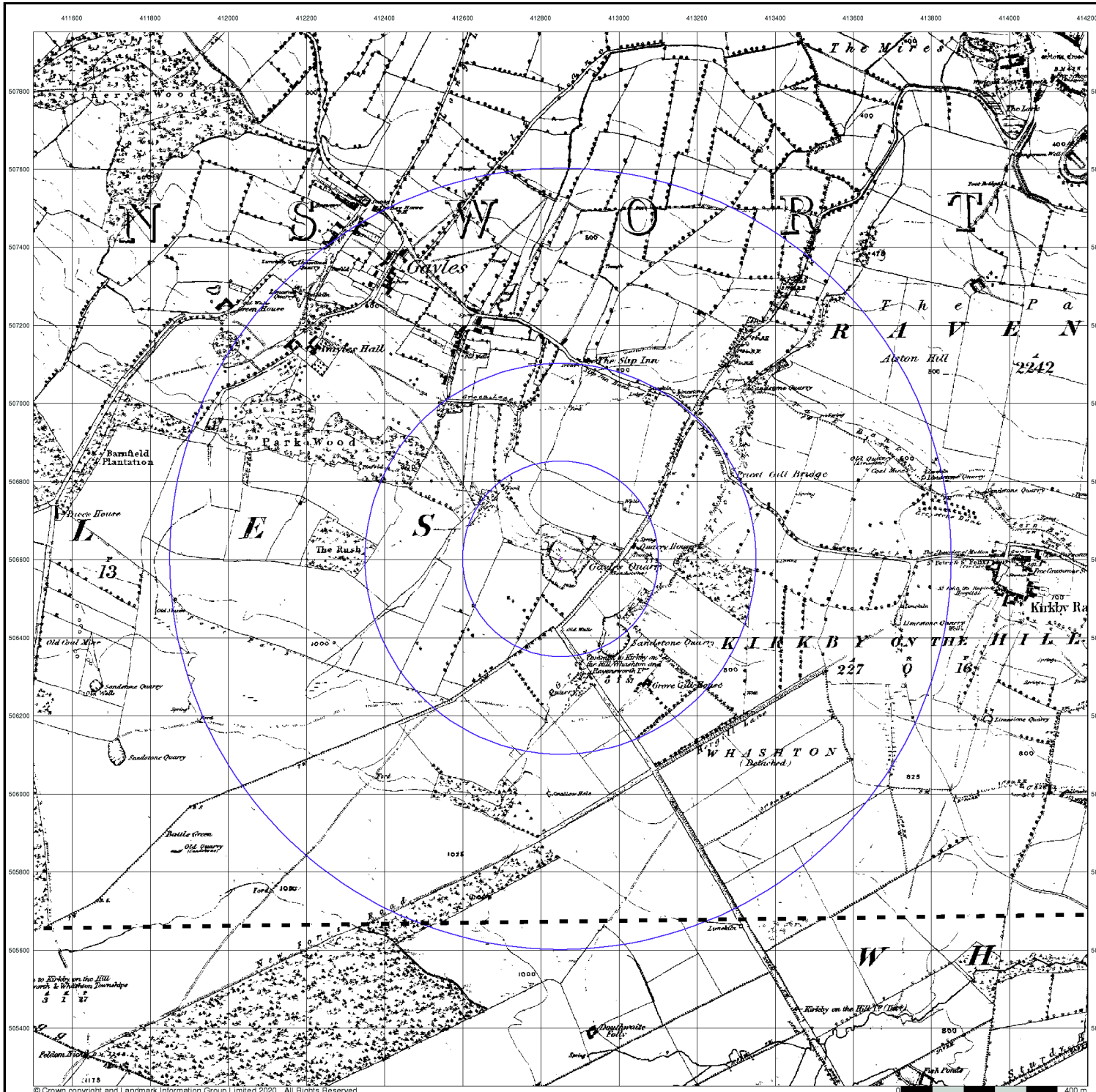

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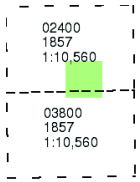
Yorkshire

Published 1857

Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



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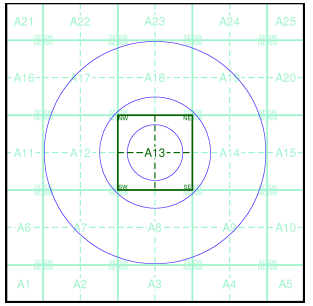

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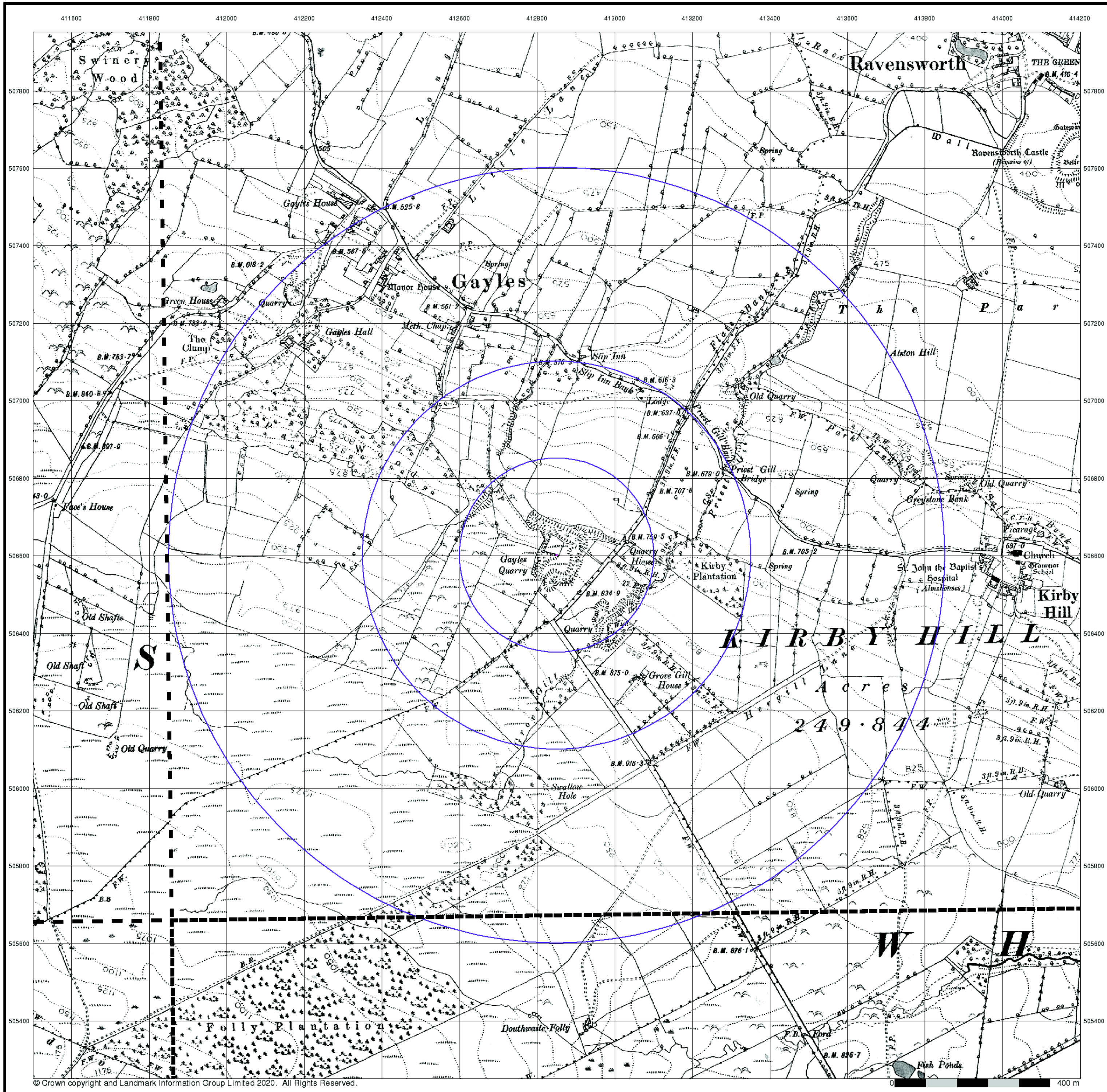

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Yorkshire

Published 1895

Source map scale - 1:10,560

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038NW 1895 1:10,560	038NE 1895 1:10,560

Historical Map - Slice A

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A16	A17	A18	A19	A20
A11	A12	A13	A14	A15
A6	A7	A8	A9	A10
A1	A2	A3	A4	A5

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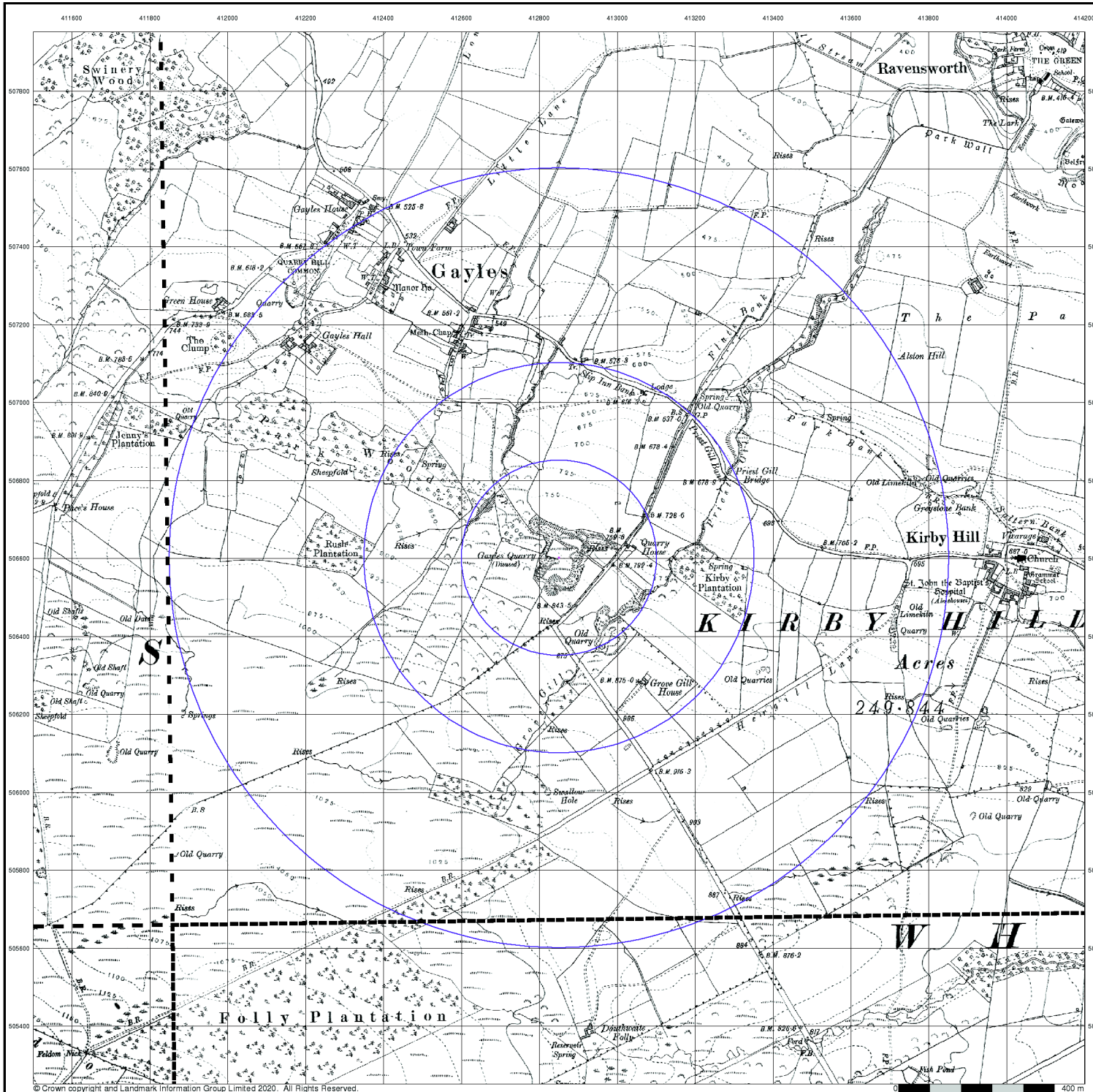

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Yorkshire

Published 1919

Source map scale - 1:10,560

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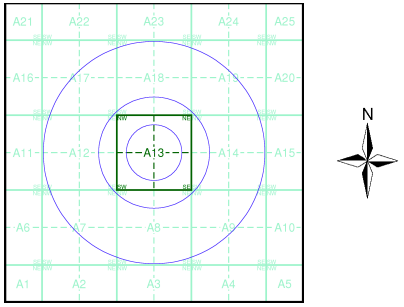
Historical Map - Slice A



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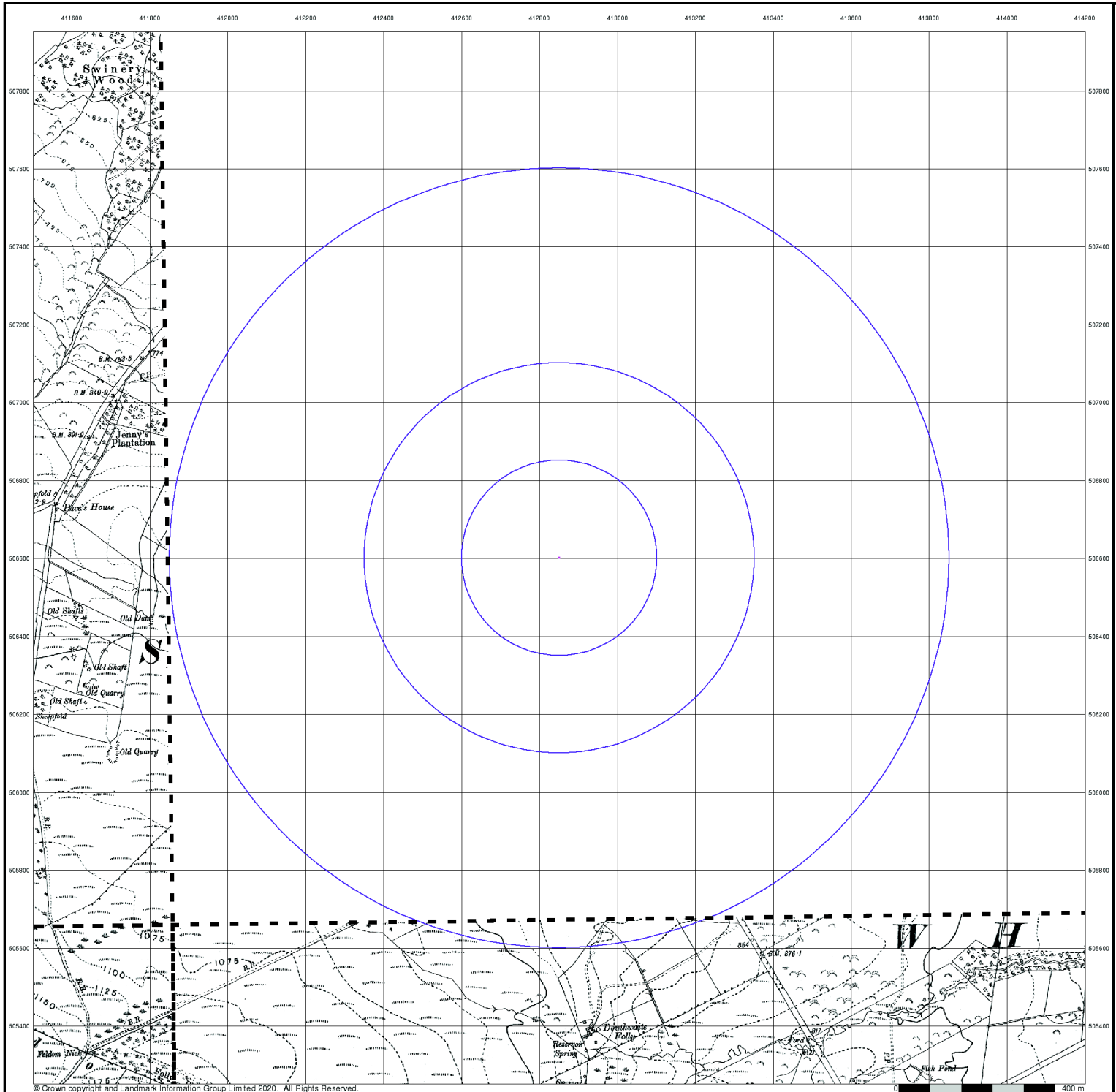

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Yorkshire

Published 1919 - 1930

Source map scale - 1:10,560

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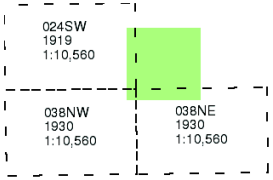

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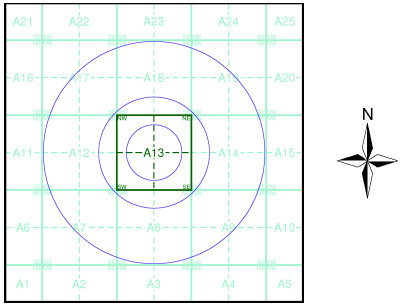

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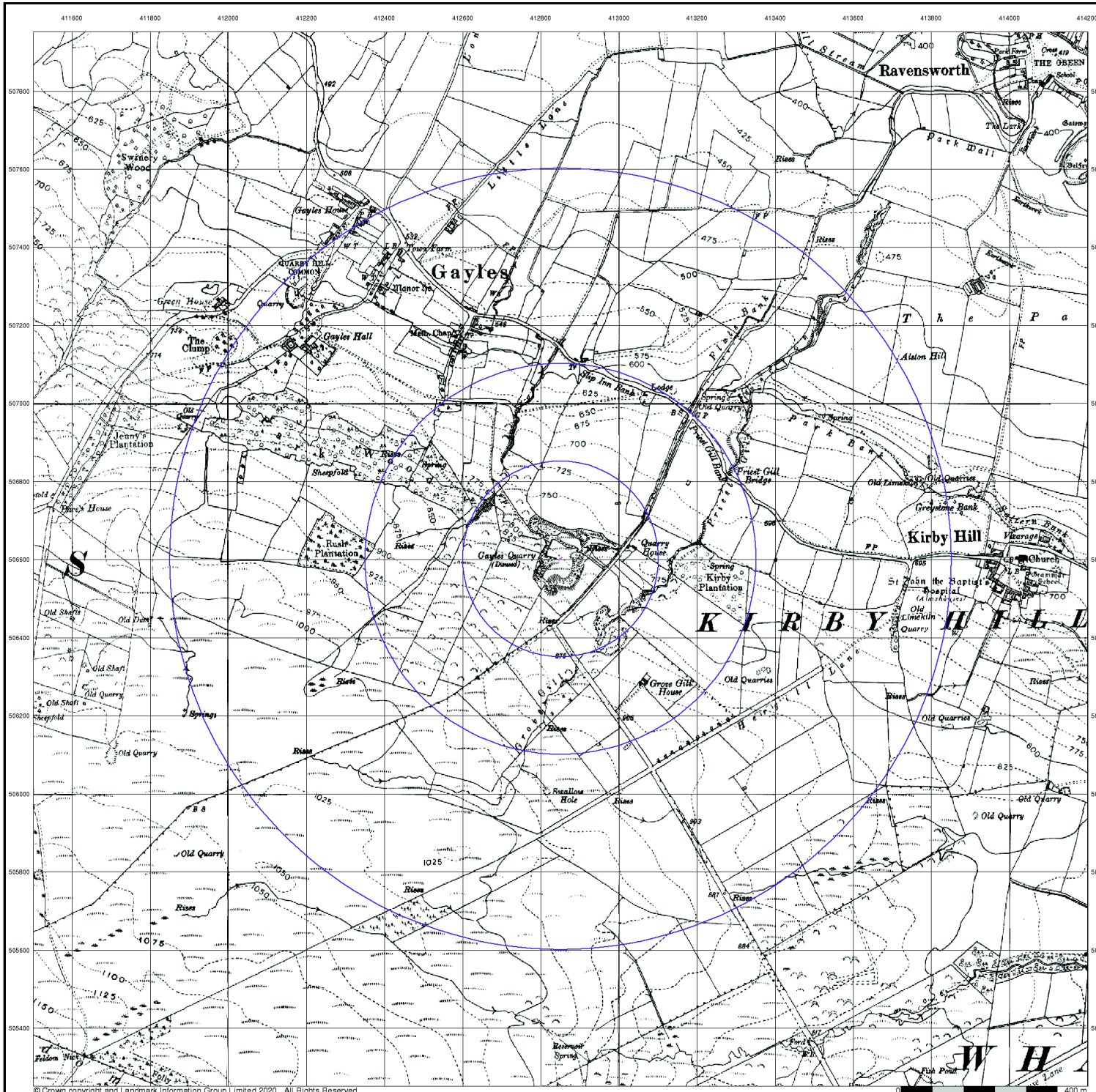

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Ordnance Survey Plan

Published 1957

Source map scale - 1:10,000

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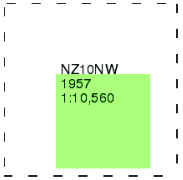

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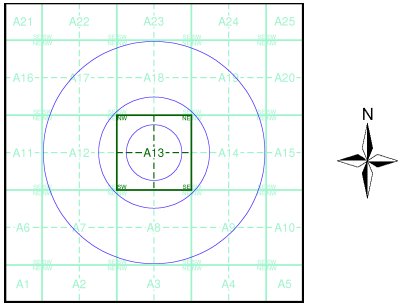

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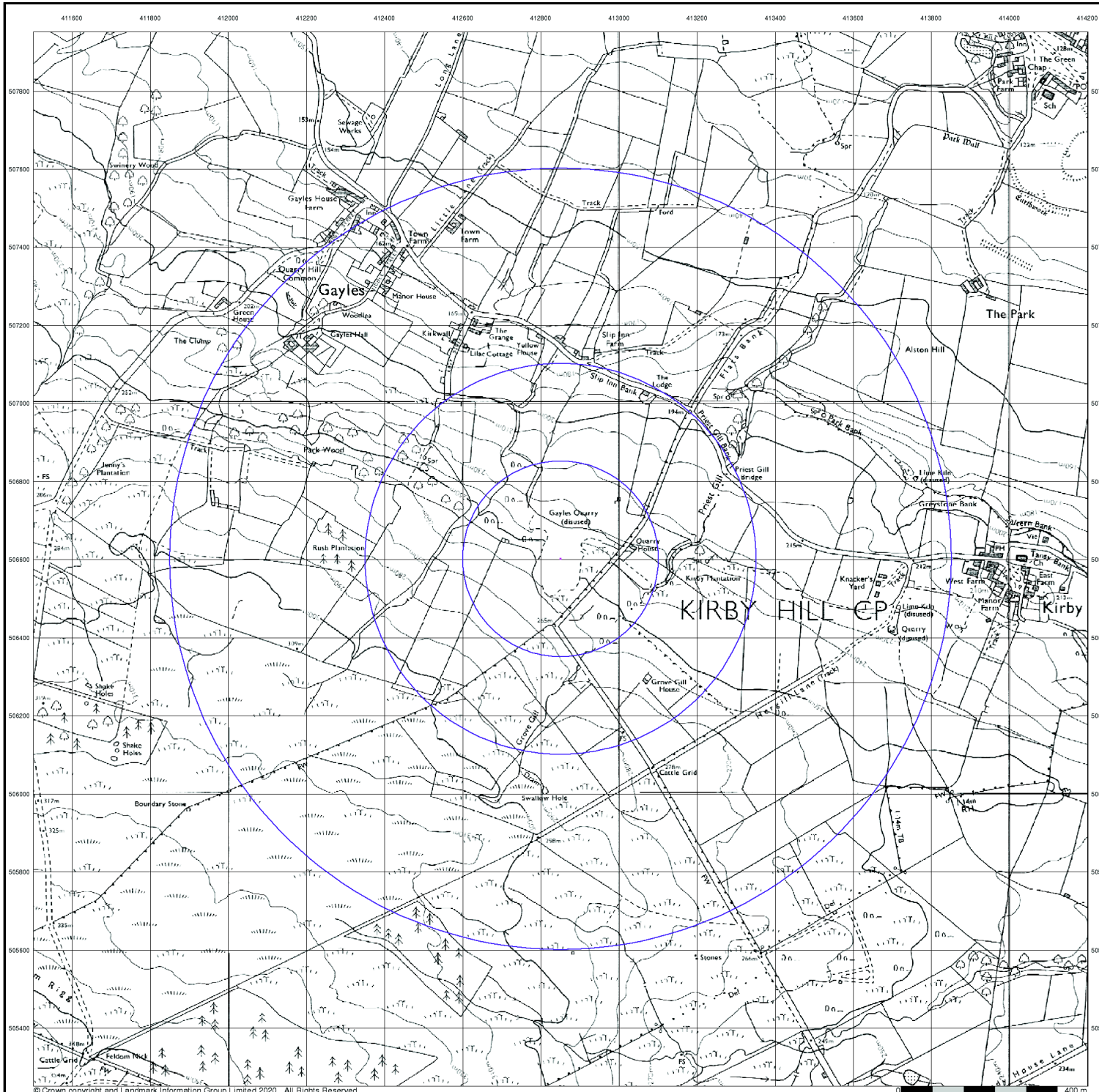

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Ordnance Survey Plan

Published 1981

Source map scale - 1:10,000

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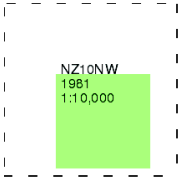

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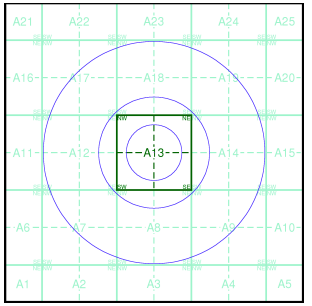

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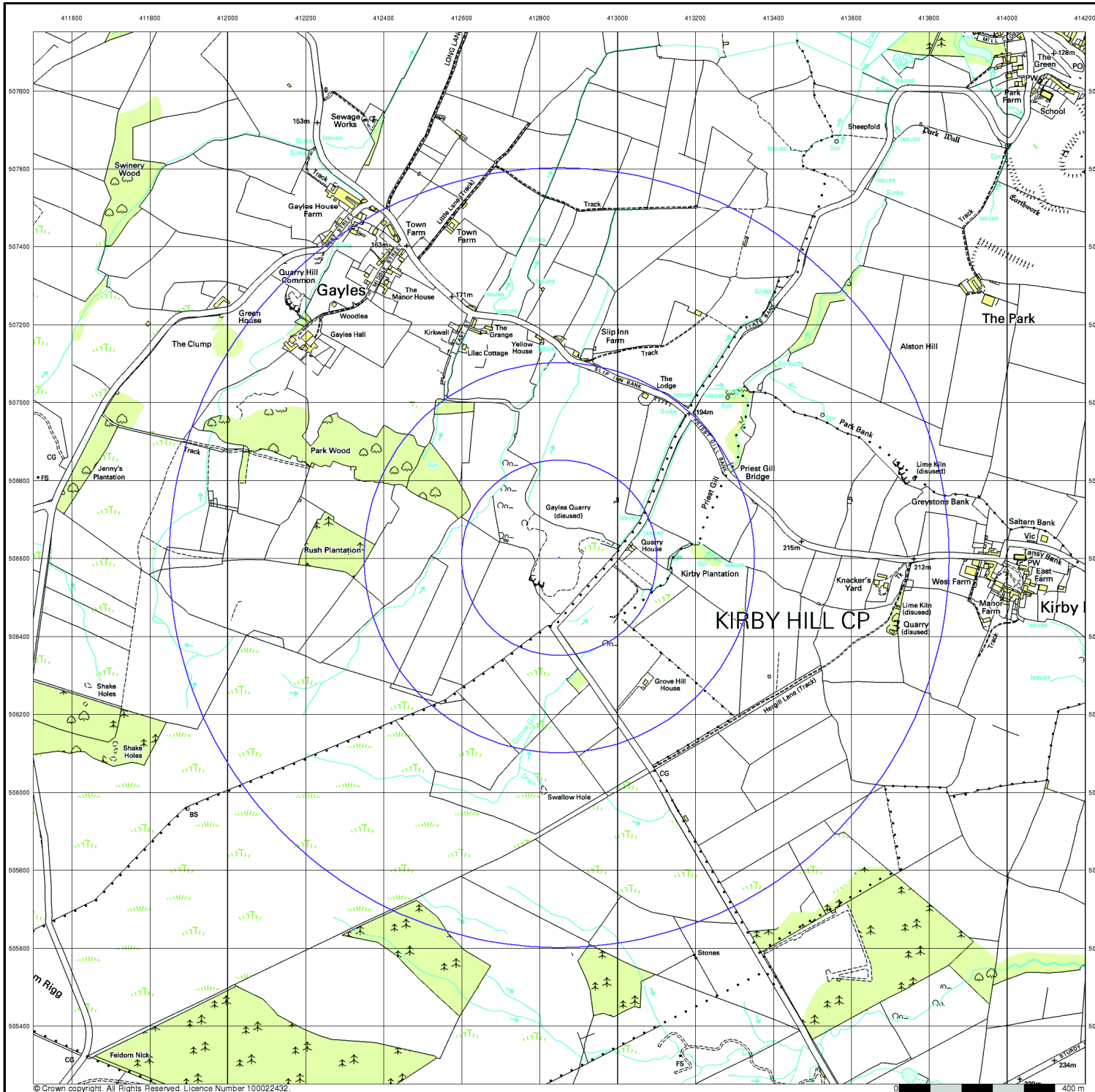

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LANDMARK INFORMATION GROUP®

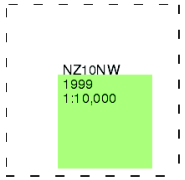
10k Raster Mapping

Published 1999

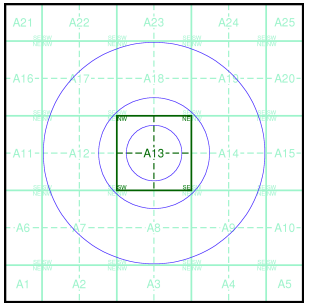
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey`s 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)



Historical Map - Slice A



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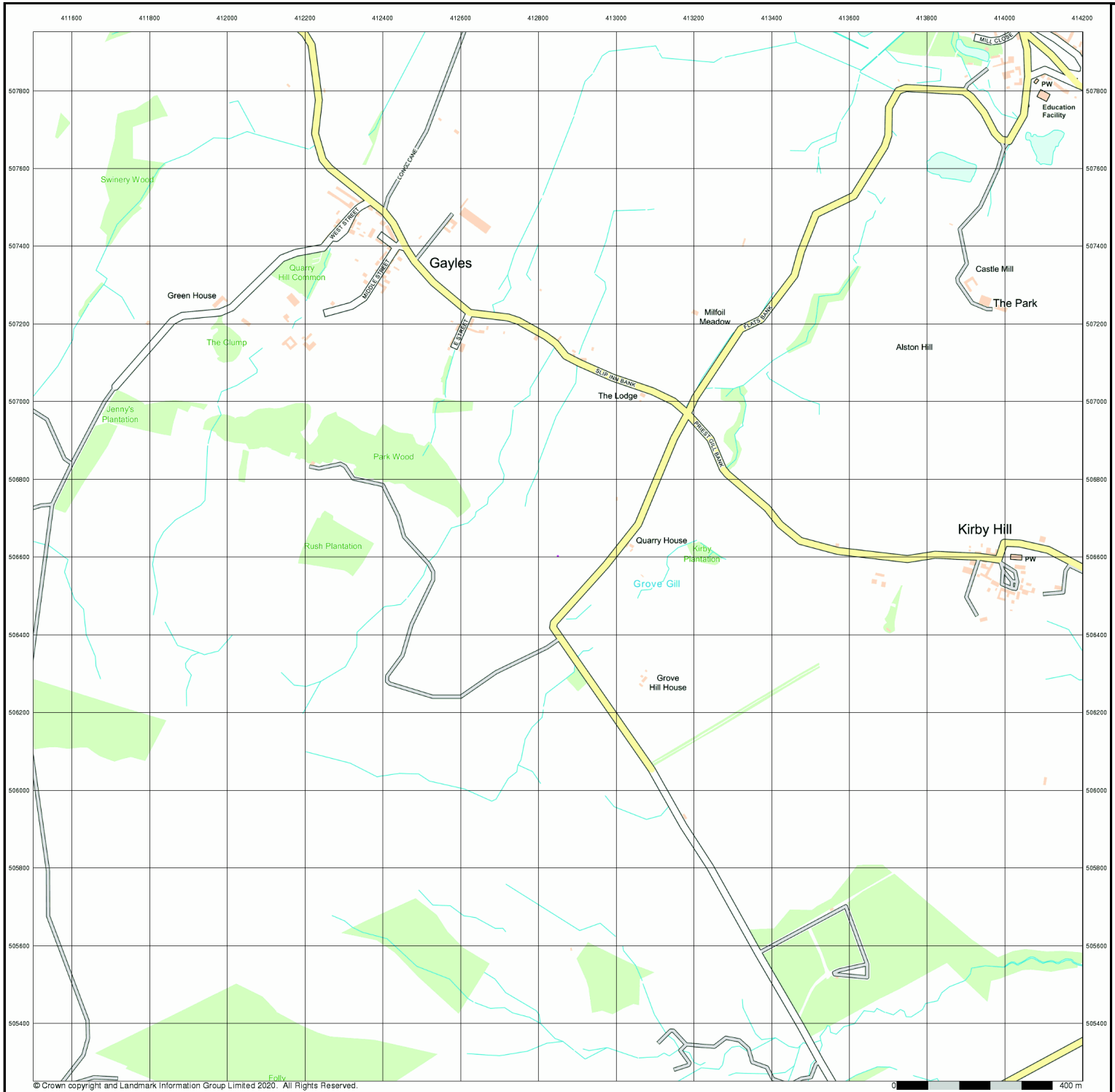

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Street View

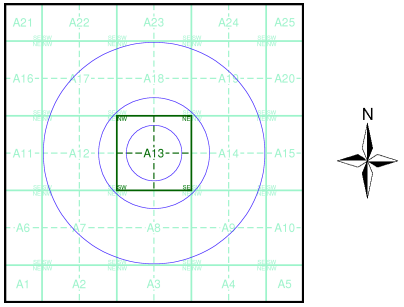
Published 2020

Source map scale - 1:10,000

Street View is a street-level map for the whole of Great Britain produced by the Ordnance Survey. These maps are provided at a nominal scale of 1:10,000

Map Name(s) and Date(s)

Street View Map - Slice A



Order Details

Order Number:	243087964_1_1
Customer Ref:	19005
National Grid Reference:	412850, 506600
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details

Site at 412850, 506600

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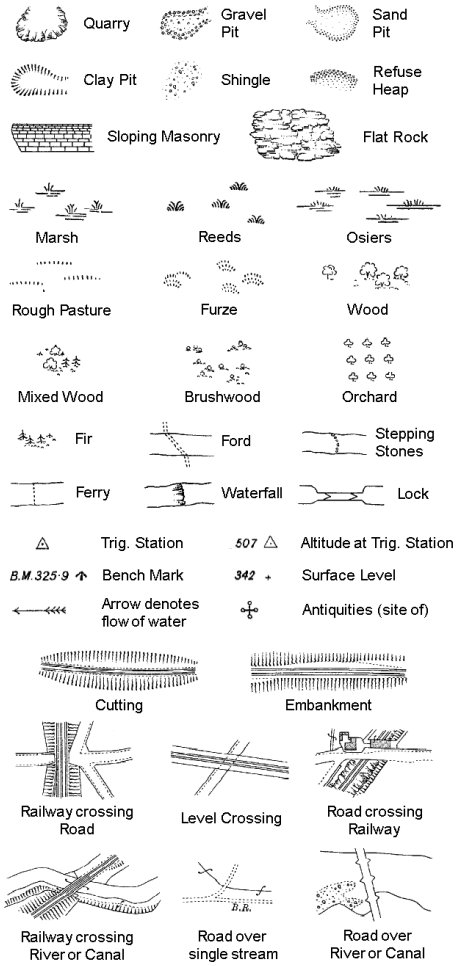
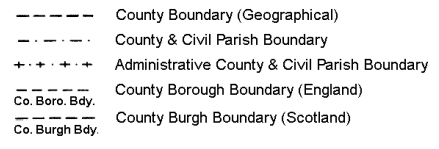
Historical Mapping Legends

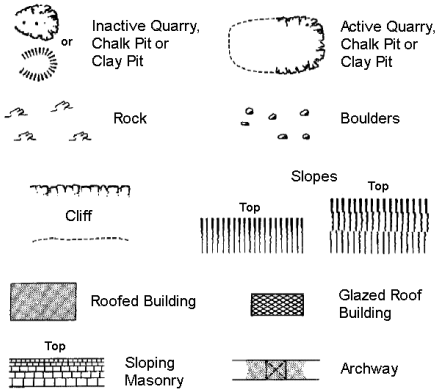
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500

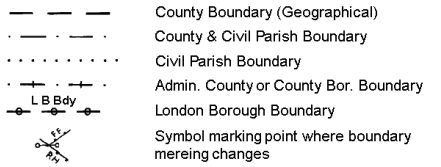




B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

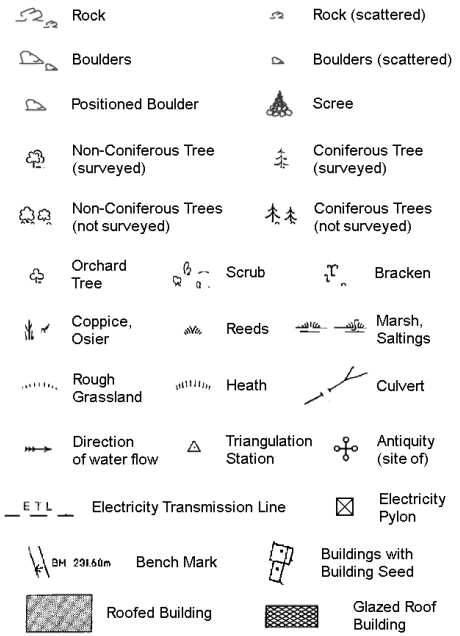
Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250

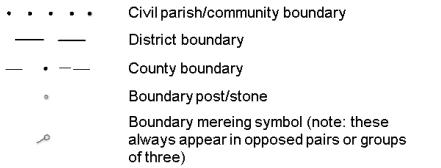




BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250





Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

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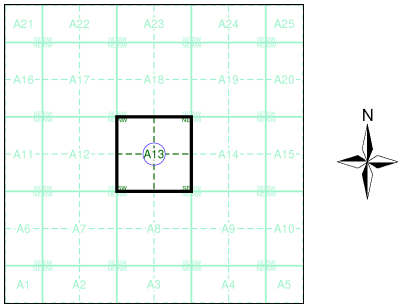
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:2,500	1893	2
Yorkshire	1:2,500	1913	3
Ordnance Survey Plan	1:2,500	1979	4
Large-Scale National Grid Data	1:2,500	1995	5

Historical Map - Segment A13



Order Details

Order Number: 243087964_1_1
Customer Ref: 19005
National Grid Reference: 412850, 506600
Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 100

Site Details

Site at 412850, 506600

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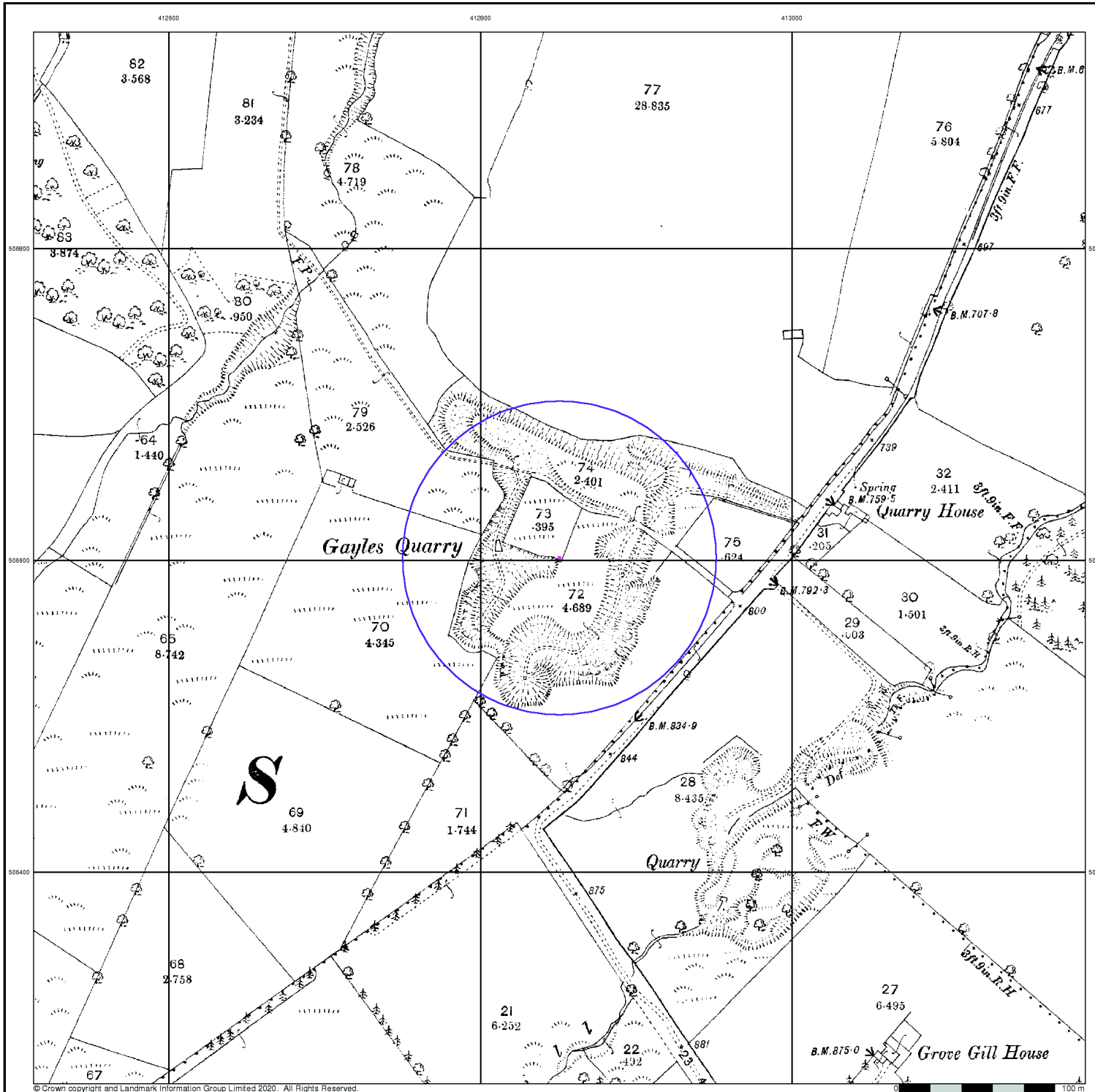

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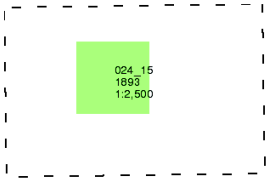
Yorkshire

Published 1893

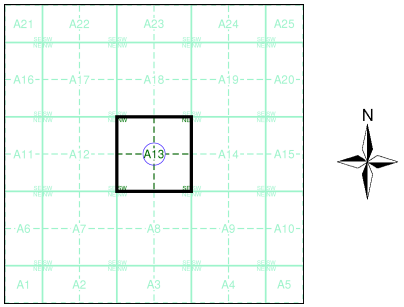
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	243087964_1_1
Customer Ref:	19005
National Grid Reference:	412850, 506600
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	100

Site Details

Site at 412850, 506600

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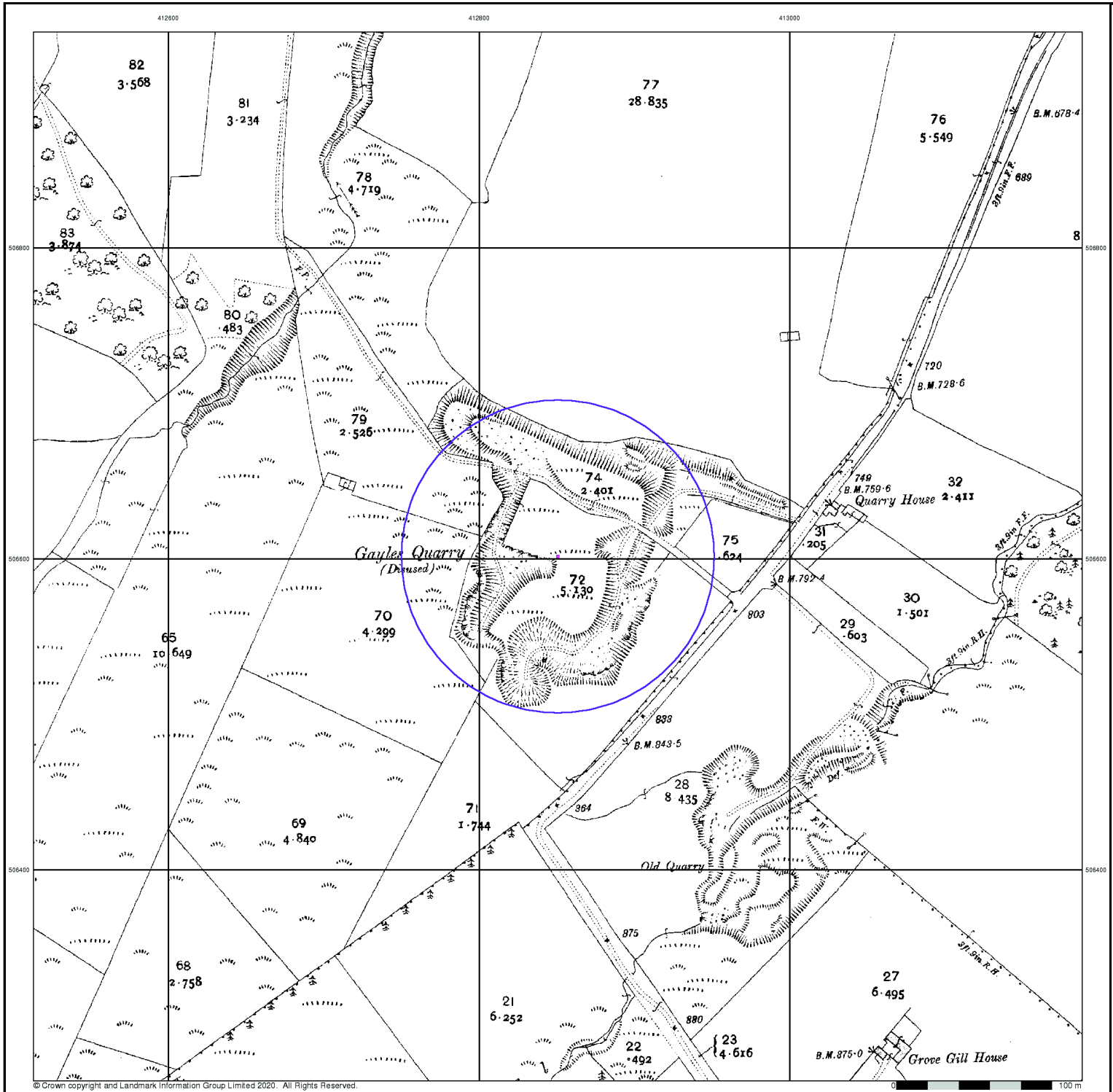

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Yorkshire

Published 1913

Source map scale - 1:2,500

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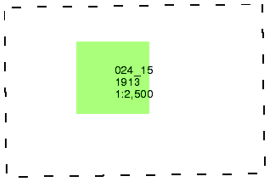
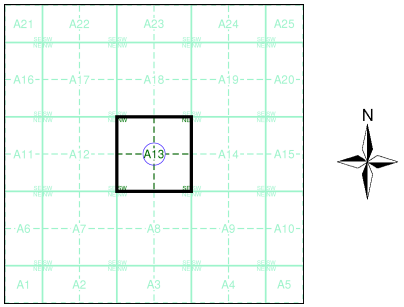
Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	243087964_1_1
Customer Ref:	19005
National Grid Reference:	412850, 506600
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	100

Site Details

Site at 412850, 506600

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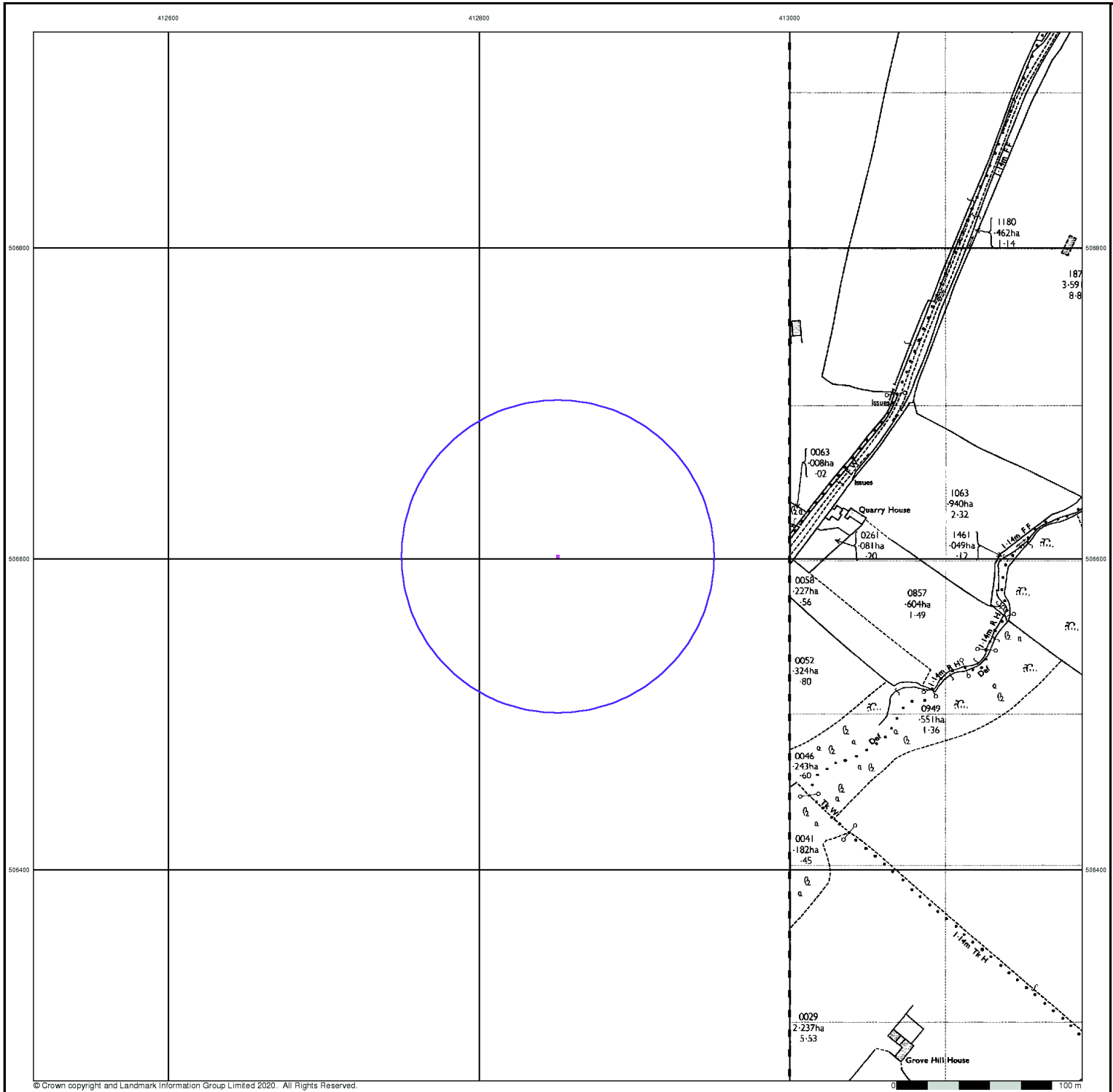

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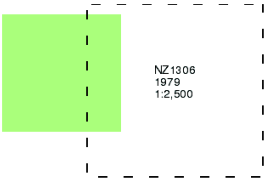
Ordnance Survey Plan

Published 1979

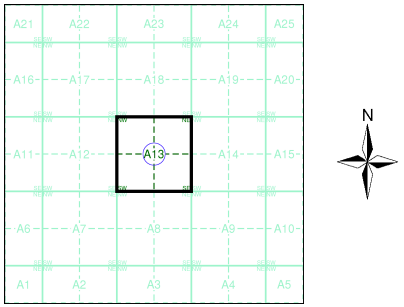
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	243087964_1_1
Customer Ref:	19005
National Grid Reference:	412850, 506600
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	100

Site Details

Site at 412850, 506600

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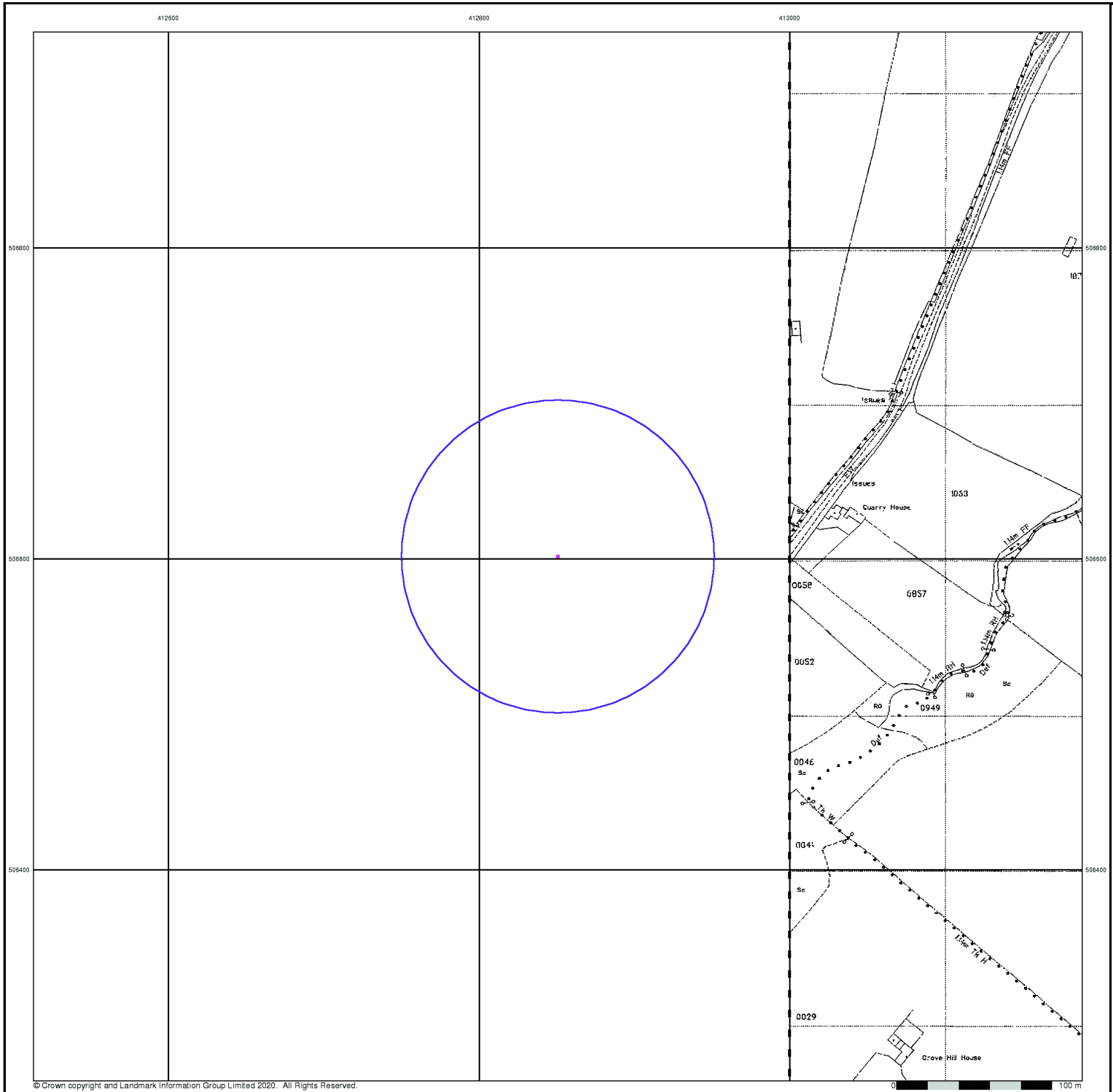
Web: www.envirocheck.co.uk



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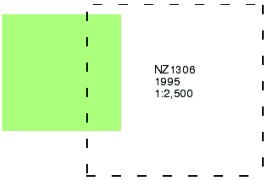
Large-Scale National Grid Data

Published 1995

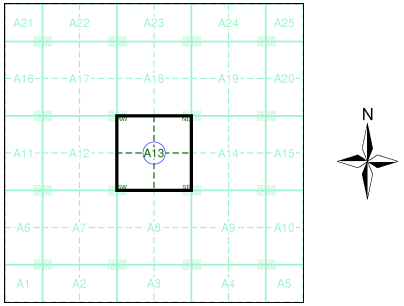
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	243087964_1_1
Customer Ref:	19005
National Grid Reference:	412850, 506600
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	100

Site Details

Site at 412850, 506600

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APPENDIX B

Landmark *'Envirocheck'* Report

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Envirocheck® Report:

Datasheet

Order Details:

Order Number:
243087964_1_1

Customer Reference:
19005

National Grid Reference:
412850, 506600

Slice:
A

Site Area (Ha):
0.01

Search Buffer (m):
1000

Site Details:

Site at 412850, 506600

Client Details:

Stainton Quarry Ltd.,
Stainton,
BARNARD CASTLE,
DL12 8RB.

Prepared For:

Dr D. A. Blythe,
Ellington,
MORPETH,
Northumberland, NE61 5ES.

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Contents

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.
In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Scottish Natural Heritage Copyright

Ove Arup Copyright Notice

Peter Brett Associates Copyright Notice

Radon Potential dataset Copyright Notice

Natural Resources Wales Copyright Notice

Report Version v53.0

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents					
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 2		Yes		
Pollution Incidents to Controlled Waters					
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality	pg 2		1		
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 2				(*2)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 3	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk	pg 3	1	n/a	n/a	n/a
Bedrock Aquifer Designations	pg 3	Yes	n/a	n/a	n/a
Superficial Aquifer Designations			n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 3		13	23	51

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 14	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					
Geological					
BGS 1:625,000 Solid Geology	pg 15	Yes	n/a	n/a	n/a
BGS Recorded Mineral Sites	pg 15		2	1	6
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas	pg 16	Yes	n/a	n/a	n/a
Mining Instability	pg 16	Yes	n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 16	Yes	Yes	n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 16	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 17	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 17		Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 17		Yes	n/a	n/a
Radon Potential - Radon Affected Areas	pg 17	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures	pg 17	Yes	n/a	n/a	n/a

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Industrial Land Use					
Contemporary Trade Directory Entries					
Fuel Station Entries					
Gas Pipelines					
Underground Electrical Cables					
Sensitive Land Use					
Ancient Woodland	pg 18			1	1
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (NE)	0	1	412851 506602
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (N)	49	1	412851 506650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (NE)	70	1	412900 506650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	73	1	412800 506550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (NE)	111	1	412950 506650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (E)	157	1	413000 506650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (N)	199	1	412850 506800
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	202	1	412850 506400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (E)	206	1	413050 506550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	212	1	412700 506750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NE (E)	255	1	413100 506650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (E)	270	1	413100 506500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (NE)	282	1	413050 506800
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	283	1	412650 506800
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (N)	299	1	412851 506900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (N)	349	1	412851 506950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	350	1	413200 506602
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NW (S)	352	1	412850 506250
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	355	1	413100 506350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	360	1	412650 506900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (N)	363	1	412950 506950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (SE)	381	1	413200 506450

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A18SE (N)	399	1	412851 507000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (N)	411	1	412950 507000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	425	1	413150 506300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (NW)	430	1	412600 506950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (SE)	448	1	413250 506400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A18SE (N)	449	1	412851 507050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (N)	449	1	412850 507050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (N)	452	1	412800 507050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	452	1	412900 507050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (NW)	461	1	412550 506950
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SW (SE)	462	1	413200 506300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (NE)	491	1	413050 507050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SW (SE)	493	1	413300 506400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (NW)	500	1	412550 507000
	Nearest Surface Water Feature	A13NE (E)	147	-	412997 506613
	River Quality Name: Priest_Gill GQA Grade: Not Supplied Reach: Source_Holme_Bec Estimated Distance (km): 2.9 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A13SE (SE)	248	2	413074 506495
	Water Abstractions Operator: C M Gill Licence Number: 2/27/23/013 Permit Version: 100 Location: Springs - High Whashton Authority: Environment Agency, North East Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 20 Yearly Rate (m3): 7446 Details: Sturdy House Farm, Whashton Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4SE (SE)	1590	2	413600 505200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Earl Of Ronaldshay Estate Licence Number: 2/27/23/012 Permit Version: 101 Location: Springs - Carboniferous Yorks Limestone - Whashton Authority: Environment Agency, North East Region Abstraction: Private Water Undertaking: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 14 Yearly Rate (m3): 4964 Details: Sturdy House Farm & Shashton Springs Farm, Whashton, Richmond Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 16th June 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4SW (SE)	1637	2	413500 505100
	Groundwater Vulnerability Map Combined Classification: Secondary Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: 300-550 mm/year Baseflow Index: <40% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Medium	A13NE (NE)	0	3	412851 506602
	Groundwater Vulnerability - Soluble Rock Risk Classification: Very Significant Risk - Moderate Possibility	A13NE (NE)	0	3	412851 506602
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13NE (NE)	0	3	412851 506602
	Superficial Aquifer Designations No Data Available				
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
1	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 149.5 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A13SE (SE)	129	4	412969 506550
2	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 118.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A13NE (E)	147	4	412997 506613

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 78.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A13SE (SE)	152	4	412936 506476
4	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 398.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A13NW (NW)	154	4	412766 506730
5	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 338.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A13NE (E)	194	4	413037 506651
6	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 170.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Grove Gill Catchment Name: Ouse Yorkshire Primacy: 1	A13SE (SE)	225	4	413017 506451
7	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 608.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A13NW (NW)	226	4	412669 506736
8	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 250.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Grove Gill Catchment Name: Ouse Yorkshire Primacy: 1	A13SE (SE)	231	4	413063 506511
9	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A13NE (NE)	235	4	413061 506704
10	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A13NE (NE)	240	4	413064 506711
11	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.1 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A13NE (NE)	241	4	413067 506708

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A13NE (NE)	242	4	413065 506714
13	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 265.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A13NE (NE)	249	4	413068 506722
14	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 50.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Grove Gill Catchment Name: Ouse Yorkshire Primacy: 1	A13SE (S)	252	4	412919 506360
15	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 17.4 Watercourse Level: Underground Permanent: True Watercourse Name: Grove Gill Catchment Name: Ouse Yorkshire Primacy: 1	A13SE (S)	265	4	412902 506343
16	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 49.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Grove Gill Catchment Name: Ouse Yorkshire Primacy: 1	A13SE (S)	279	4	412895 506326
17	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 102.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Grove Gill Catchment Name: Ouse Yorkshire Primacy: 1	A13SE (S)	315	4	412868 506288
18	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 202.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Priest Gill Catchment Name: Ouse Yorkshire Primacy: 1	A14NW (E)	360	4	413208 506643
19	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 51.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A14NW (E)	360	4	413208 506643
20	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 23.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A14SW (E)	383	4	413233 506597

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
21	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.7 Watercourse Level: Underground Permanent: True Watercourse Name: Grove Gill Catchment Name: Ouse Yorkshire Primacy: 1	A8NW (S)	389	4	412814 506215
22	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18SW (N)	395	4	412736 506979
23	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 114.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Grove Gill Catchment Name: Ouse Yorkshire Primacy: 1	A8NW (S)	397	4	412813 506207
24	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 39.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A14NW (E)	400	4	413250 506613
25	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A12SE (W)	401	4	412464 506496
26	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 216.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18SW (N)	401	4	412738 506986
27	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 331.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A12SE (W)	406	4	412461 506492
28	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 653.5 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A14SW (E)	424	4	413263 506506
29	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 31.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A12NE (NW)	434	4	412503 506860

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
30	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 263.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A13NW (NW)	438	4	412524 506892
31	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A13NW (NW)	438	4	412524 506892
32	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 29.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18SE (NE)	484	4	413177 506959
33	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 88.6 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18SE (NE)	485	4	413182 506955
34	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 123.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Priest Gill Catchment Name: Ouse Yorkshire Primacy: 1	A14NW (NE)	491	4	413285 506830
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18SE (N)	498	4	412900 507097
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 48.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Grove Gill Catchment Name: Ouse Yorkshire Primacy: 1	A8NW (S)	500	4	412758 506110
37	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 381.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18SE (NE)	509	4	413182 506988
38	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 6.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18SE (N)	516	4	412902 507115

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
39	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 510.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18SE (N)	523	4	412904 507121
40	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 631.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Grove Gill Catchment Name: Ouse Yorkshire Primacy: 1	A8NW (S)	547	4	412748 506065
41	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 78.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A8NW (S)	547	4	412748 506065
42	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 164.7 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18SW (N)	554	4	412833 507155
43	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 25.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A19SW (NE)	571	4	413224 507033
44	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 121.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Priest Gill Catchment Name: Ouse Yorkshire Primacy: 1	A14NW (NE)	572	4	413318 506931
45	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A19SW (NE)	589	4	413249 507035
46	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 49.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A19SW (NE)	592	4	413254 507034
47	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18SW (NW)	593	4	412586 507132

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
48	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 29.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A19SW (NE)	597	4	413282 507013
49	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 33.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18SW (NW)	601	4	412589 507142
50	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18SW (NW)	623	4	412602 507173
51	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 16.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A19SW (NE)	625	4	413302 507033
52	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 143.3 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18SW (NW)	627	4	412605 507179
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 195.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A8NE (S)	628	4	412972 505986
54	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 143.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Priest Gill Catchment Name: Ouse Yorkshire Primacy: 1	A19SW (NE)	640	4	413318 507038
55	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 127.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18SW (N)	646	4	412688 507227
56	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 119.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A12SE (SW)	690	4	412241 506280

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
57	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 96.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A12SE (SW)	690	4	412241 506280
58	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 44.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18NW (N)	704	4	412698 507288
59	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 211.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A19SW (NE)	710	4	413392 507060
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 105.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18NW (N)	713	4	412781 507311
61	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 30.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A19SW (NE)	735	4	413403 507086
62	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 212.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18NW (N)	736	4	412721 507325
63	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A19SW (NE)	763	4	413421 507107
64	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 511.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Priest Gill Catchment Name: Ouse Yorkshire Primacy: 1	A19SW (NE)	778	4	413432 507118
65	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 113.1 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18NW (N)	806	4	412801 507406

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
66	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 334.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A8SW (S)	855	4	412717 505758
67	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 107.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A12SW (W)	862	4	412013 506398
68	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 327.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A19NW (NE)	878	4	413406 507281
69	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 91.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A17SW (NW)	900	4	412167 507187
70	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 41.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A17SE (NW)	900	4	412189 507211
71	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 43.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A17SE (NW)	901	4	412192 507216
72	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 225.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A17SW (NW)	907	4	412077 507075
73	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 499.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A12NW (W)	918	4	411946 506757
74	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18NW (N)	918	4	412807 507518

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
75	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18NW (N)	923	4	412809 507523
76	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 156.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A17SE (NW)	923	4	412203 507258
77	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 374.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18NE (N)	927	4	413099 507495
78	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 340.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A18NW (N)	930	4	412812 507530
79	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 264.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A7SE (SW)	931	4	412492 505743
80	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 109.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A17SW (W)	938	4	411983 506958
81	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A12NW (W)	945	4	411950 506886
82	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 129.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A12SW (W)	957	4	411927 506353
83	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 164.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A12SW (W)	957	4	411927 506353

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
84	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A17SW (NW)	957	4	411976 506989
85	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 360.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A8SW (S)	976	4	412717 505635
86	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 160.3 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A17NE (NW)	985	4	412265 507394
87	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 30.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ouse Yorkshire Primacy: 1	A8SE (S)	990	4	412999 505623

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Richmondshire District Council - Has supplied landfill data		0	6	412851 506602
	Local Authority Landfill Coverage Name: North Yorkshire County Council - Has no landfill data to supply		0	5	412851 506602

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Yoredale Group	A13NE (NE)	0	1	412851 506602
88	**BGS Recorded Mineral Sites** Site Name: Gayles Quarry Location: Kirkby Hill, Richmond, North Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 110102 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Alston Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A13SW (S)	47	1	412834 506558
89	**BGS Recorded Mineral Sites** Site Name: Grove Gill House Location: Kirkby Hill, Richmond, North Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 110103 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Alston Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A13SE (SE)	248	1	412986 506395
90	**BGS Recorded Mineral Sites** Site Name: Grove Gill House Location: Kirkby Hill, Richmond, North Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 110104 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Alston Formation Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A13SE (S)	322	1	412885 506282
91	**BGS Recorded Mineral Sites** Site Name: The Slip Inn Location: Gayles, Richmond, North Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 110082 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Five Yard Limestone Member Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A18SE (NE)	518	1	413141 507030
92	**BGS Recorded Mineral Sites** Site Name: Alston Hill Location: Gayles, Richmond, North Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 110081 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Alston Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	631	1	413295 507049

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
93	**BGS Recorded Mineral Sites** Site Name: Kirkby Ravensworth Location: Kirkby Hill, Richmond, North Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 110108 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Five Yard Limestone Member Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A14SE (E)	872	1	413707 506442
94	**BGS Recorded Mineral Sites** Site Name: Greystone Bank Location: Kirkby Hill, Richmond, North Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 110105 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Five Yard Limestone Member Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A14NE (E)	892	1	413705 506858
95	**BGS Recorded Mineral Sites** Site Name: Greystone Bank Location: Kirkby Hill, Richmond, North Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 110106 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Five Yard Limestone Member Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A14NE (E)	947	1	413774 506809
96	**BGS Recorded Mineral Sites** Site Name: Green House Location: Gayles, Richmond, North Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 110083 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Five Yard Limestone Member Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	954	1	412176 507276
	Coal Mining Affected Areas Description: In an area which may be affected by coal mining activity. It is recommended that a coal mining report is obtained from the Coal Authority. Contact details are included in the Useful Contacts section of this report.	A13NE (NE)	0	7	412851 506602
	Mining Instability Mining Evidence: Conclusive Coal Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	A13NE (NE)	0	-	412851 506602
	Non Coal Mining Areas of Great Britain Risk: Highly Unlikely Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	412851 506602
	Non Coal Mining Areas of Great Britain Risk: Unlikely Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	215	1	412751 506411
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	412851 506602
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	412851 506602

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	412851 506602
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	412851 506602
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	54	1	412882 506645
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	55	1	412871 506652
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	80	1	412805 506536
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	83	1	412806 506533
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	173	1	412733 506728
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	412851 506602
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	54	1	412882 506645
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	412851 506602
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	54	1	412882 506645
	Radon Potential - Radon Affected Areas Affected Area: The property is an Intermediate probability radon area (3 to 5% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	412851 506602
	Radon Potential - Radon Protection Measures Protection Measure: Basic radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	412851 506602

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
97	**Ancient Woodland** Name: Not Supplied Reference: 1412608 Area(m²): 62277.44 Type: Ancient and Semi-Natural Woodland	A13NW (NW)	264	8	412622 506731
98	**Ancient Woodland** Name: Not Supplied Reference: 1412609 Area(m²): 17796.54 Type: Ancient and Semi-Natural Woodland	A12NE (NW)	709	8	412206 506897

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Richmondshire District Council - Environment Department	April 2014	Annual Rolling Update
Teesdale District Council (now part of Durham County Council) - Environmental Health Department	January 2009	Not Applicable
Durham County Council (Unitary) - Environmental Health Department	January 2015	Annually
Environment Agency - Head Office	September 2019	Annually
Discharge Consents		
Environment Agency - North East Region	April 2020	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - North East Region	March 2013	Annual Rolling Update
Integrated Pollution Controls		
Environment Agency - North East Region	October 2008	Variable
Integrated Pollution Prevention And Control		
Environment Agency - North East Region	April 2020	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Durham County Council (Unitary) - Environmental Health Department	April 2015	Variable
Richmondshire District Council - Environment Department	January 2014	Variable
Teesdale District Council (now part of Durham County Council) - Environmental Health Department	October 2008	Not Applicable
Local Authority Pollution Prevention and Controls		
Durham County Council (Unitary) - Environmental Health Department	April 2015	Annually
Richmondshire District Council - Environment Department	January 2014	Annual Rolling Update
Teesdale District Council (now part of Durham County Council) - Environmental Health Department	October 2008	Not Applicable
Local Authority Pollution Prevention and Control Enforcements		
Durham County Council (Unitary) - Environmental Health Department	April 2015	Variable
Richmondshire District Council - Environment Department	January 2014	Variable
Teesdale District Council (now part of Durham County Council) - Environmental Health Department	October 2008	Not Applicable
Nearest Surface Water Feature		
Ordnance Survey	April 2020	
Pollution Incidents to Controlled Waters		
Environment Agency - North East Region	December 1998	Not Applicable
Prosecutions Relating to Authorised Processes		
Environment Agency - North East Region	March 2013	Annual Rolling Update
Prosecutions Relating to Controlled Waters		
Environment Agency - North East Region	March 2013	Annual Rolling Update
Registered Radioactive Substances		
Environment Agency - North East Region	June 2016	
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	July 2012	Annually
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	July 2012	Annually
Substantiated Pollution Incident Register		
Environment Agency - North East Region - Dales Area	April 2020	Quarterly
Environment Agency - North East Region - North East Area	April 2020	Quarterly
Environment Agency - North East Region - Yorkshire Area	April 2020	Quarterly
Water Abstractions		
Environment Agency - North East Region	April 2020	Quarterly
Water Industry Act Referrals		
Environment Agency - North East Region	October 2017	Quarterly

Data Currency

Agency & Hydrological	Version	Update Cycle
Groundwater Vulnerability Map Environment Agency - Head Office	June 2018	As notified
Groundwater Vulnerability - Soluble Rock Risk Environment Agency - Head Office	June 2018	As notified
Bedrock Aquifer Designations Environment Agency - Head Office	January 2018	Annually
Superficial Aquifer Designations Environment Agency - Head Office	January 2018	Annually
Source Protection Zones Environment Agency - Head Office	October 2019	Quarterly
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	February 2020	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	February 2020	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	February 2020	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	February 2020	Quarterly
Flood Defences Environment Agency - Head Office	February 2020	Quarterly
OS Water Network Lines Ordnance Survey	January 2020	Quarterly
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	Annually

Data Currency

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites		
Environment Agency - Head Office	October 2019	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - North East Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - North East Region - Dales Area	November 2019	Quarterly
Environment Agency - North East Region - North East Area	November 2019	Quarterly
Environment Agency - North East Region - Yorkshire Area	November 2019	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - North East Region - Dales Area	April 2020	Quarterly
Environment Agency - North East Region - North East Area	April 2020	Quarterly
Environment Agency - North East Region - Yorkshire Area	April 2020	Quarterly
Local Authority Landfill Coverage		
Durham County Council - Economic Development and Planning Department	May 2000	Not Applicable
North Yorkshire County Council	May 2000	Not Applicable
Richmondshire District Council - Environment Department	May 2000	Not Applicable
Teesdale District Council (now part of Durham County Council) - Environmental Health Department	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
Durham County Council - Economic Development and Planning Department	May 2000	Not Applicable
North Yorkshire County Council	May 2000	Not Applicable
Richmondshire District Council - Environment Department	May 2000	Not Applicable
Teesdale District Council (now part of Durham County Council) - Environmental Health Department	May 2000	Not Applicable
Registered Landfill Sites		
Environment Agency - North East Region - Dales Area	March 2003	Not Applicable
Environment Agency - North East Region - North East Area	March 2003	Not Applicable
Environment Agency - North East Region - Yorkshire Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - North East Region - Dales Area	March 2003	Not Applicable
Environment Agency - North East Region - North East Area	March 2003	Not Applicable
Environment Agency - North East Region - Yorkshire Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency - North East Region - Dales Area	March 2003	Not Applicable
Environment Agency - North East Region - North East Area	March 2003	Not Applicable
Environment Agency - North East Region - Yorkshire Area	March 2003	Not Applicable

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	April 2018	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
Durham County Council (Unitary) - Planning Department	February 2016	Variable
Richmondshire District Council - The Planning and Development Unit	February 2016	Variable
Yorkshire Dales National Park	February 2016	Variable
Durham County Council - Economic Development and Planning Department	July 2007	Annual Rolling Update
Teesdale District Council (now part of Durham County Council) - Planning Department	July 2008	Not Applicable
North Yorkshire County Council	October 2007	Annual Rolling Update
Planning Hazardous Substance Consents		
Durham County Council (Unitary) - Planning Department	February 2016	Variable
Richmondshire District Council - The Planning and Development Unit	February 2016	Variable
Yorkshire Dales National Park	February 2016	Variable
Durham County Council - Economic Development and Planning Department	July 2007	Annual Rolling Update
Teesdale District Council (now part of Durham County Council) - Planning Department	July 2008	Not Applicable
North Yorkshire County Council	October 2007	Annual Rolling Update

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology		
British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Recorded Mineral Sites		
British Geological Survey - National Geoscience Information Service	October 2019	Bi-Annually
CBSCB Compensation District		
Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Coal Mining Affected Areas		
The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Mining Instability		
Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain		
British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Compressible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Ground Dissolution Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Landslide Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Running Sand Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	Annually
Radon Potential - Radon Affected Areas		
British Geological Survey - National Geoscience Information Service	July 2011	Annually
Radon Potential - Radon Protection Measures		
British Geological Survey - National Geoscience Information Service	July 2011	Annually

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries		
Thomson Directories	January 2020	Quarterly
Fuel Station Entries		
Catalist Ltd - Experian	April 2020	Quarterly
Gas Pipelines		
National Grid	July 2014	
Underground Electrical Cables		
National Grid	October 2019	
Sensitive Land Use	**Version**	**Update Cycle**
Ancient Woodland		
Natural England	April 2020	Bi-Annually
Areas of Adopted Green Belt		
Durham County Council (Unitary) - Planning Department	February 2020	As notified
Richmondshire District Council	February 2020	As notified
Teesdale District Council (now part of Durham County Council)	February 2020	As notified
Yorkshire Dales National Park	February 2020	As notified
Areas of Unadopted Green Belt		
Durham County Council (Unitary) - Planning Department	February 2020	As notified
Richmondshire District Council	February 2020	As notified
Teesdale District Council (now part of Durham County Council)	February 2020	As notified
Yorkshire Dales National Park	February 2020	As notified
Areas of Outstanding Natural Beauty		
Natural England	June 2019	Bi-Annually
Environmentally Sensitive Areas		
Natural England	January 2017	
Forest Parks		
Forestry Commission	April 1997	Not Applicable
Local Nature Reserves		
Natural England	April 2020	Bi-Annually
Marine Nature Reserves		
Natural England	July 2019	Bi-Annually
National Nature Reserves		
Natural England	July 2019	Bi-Annually
National Parks		
Natural England	April 2017	Bi-Annually
Nitrate Sensitive Areas		
Natural England	April 2016	Not Applicable
Nitrate Vulnerable Zones		
Environment Agency - Head Office	December 2017	Bi-Annually
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	October 2015	
Ramsar Sites		
Natural England	April 2019	Bi-Annually
Sites of Special Scientific Interest		
Natural England	May 2020	Bi-Annually
Special Areas of Conservation		
Natural England	June 2019	Bi-Annually
Special Protection Areas		
Natural England	April 2019	Bi-Annually

Data Suppliers

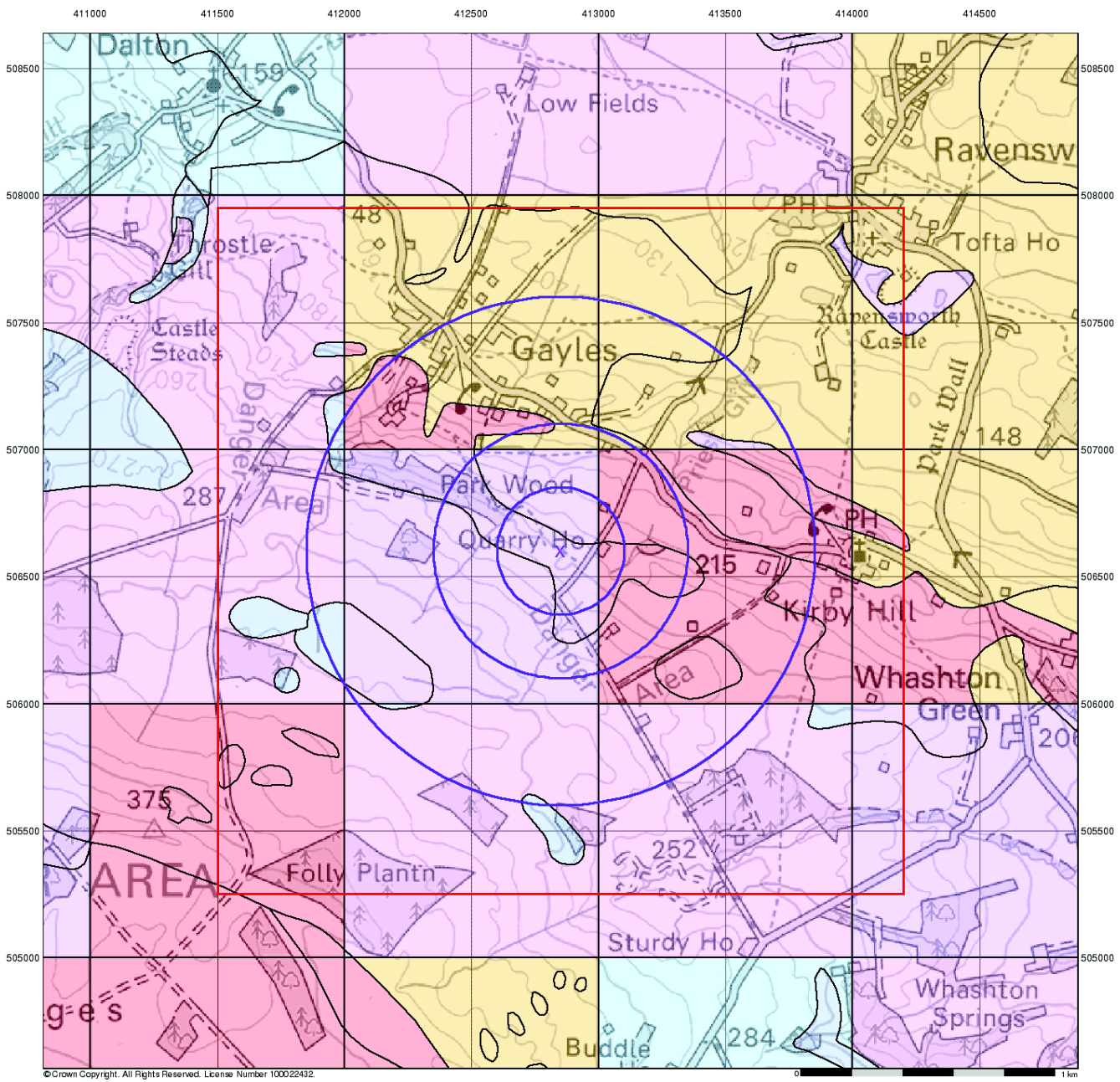
A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	Map data
Environment Agency	Environment Agency
Scottish Environment Protection Agency	SEPA Scottish Environment Protection Agency
The Coal Authority	The Coal Authority
British Geological Survey	BGS 1835 British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
Centre for Ecology and Hydrology	CEH Centre for Ecology & Hydrology NATURAL ENVIRONMENT RESEARCH COUNCIL
Natural Resources Wales	Cyfoeth Naturiol Cymru Natural Resources Wales
Scottish Natural Heritage	SCOTTISH NATURAL HERITAGE
Natural England	NATURAL ENGLAND
Public Health England	Public Health England
Ove Arup	ARUP
Peter Brett Associates	pba peterbrett

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
4	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
5	**North Yorkshire County Council** County Hall, Northallerton, North Yorkshire, DL7 8AD	Telephone: 01609 780780 Fax: 01609 778199 Website: www.northyorks.gov.uk
6	**Richmondshire District Council - Environment Department** Swale House, Frenchgate, Richmond, North Yorkshire, DL10 4JE	Website: www.richmondshire.gov.uk
7	**The Coal Authority - Property Searches** 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG	Telephone: 0345 762 6848 Fax: 01623 637 338 Email: groundstability@coal.gov.uk Website: www2.groundstability.com
8	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.



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Groundwater Vulnerability

General

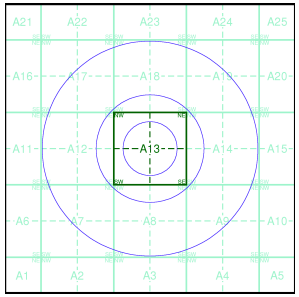
Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Agency and Hydrological

Bedrock Aquifers	Superficial Aquifers
High Vulnerability, Principal Aquifer	High Vulnerability, Principal Aquifer
High Vulnerability, Secondary Aquifer	High Vulnerability, Secondary Aquifer
Medium Vulnerability, Principal Aquifer	Medium Vulnerability, Principal Aquifer
Medium Vulnerability, Secondary Aquifer	Medium Vulnerability, Secondary Aquifer
Low Vulnerability, Principal Aquifer	Low Vulnerability, Principal Aquifer
Low Vulnerability, Secondary Aquifer	Low Vulnerability, Secondary Aquifer

Unproductive Aquifer
Soluble Rock

Site Sensitivity Context Map - Slice A



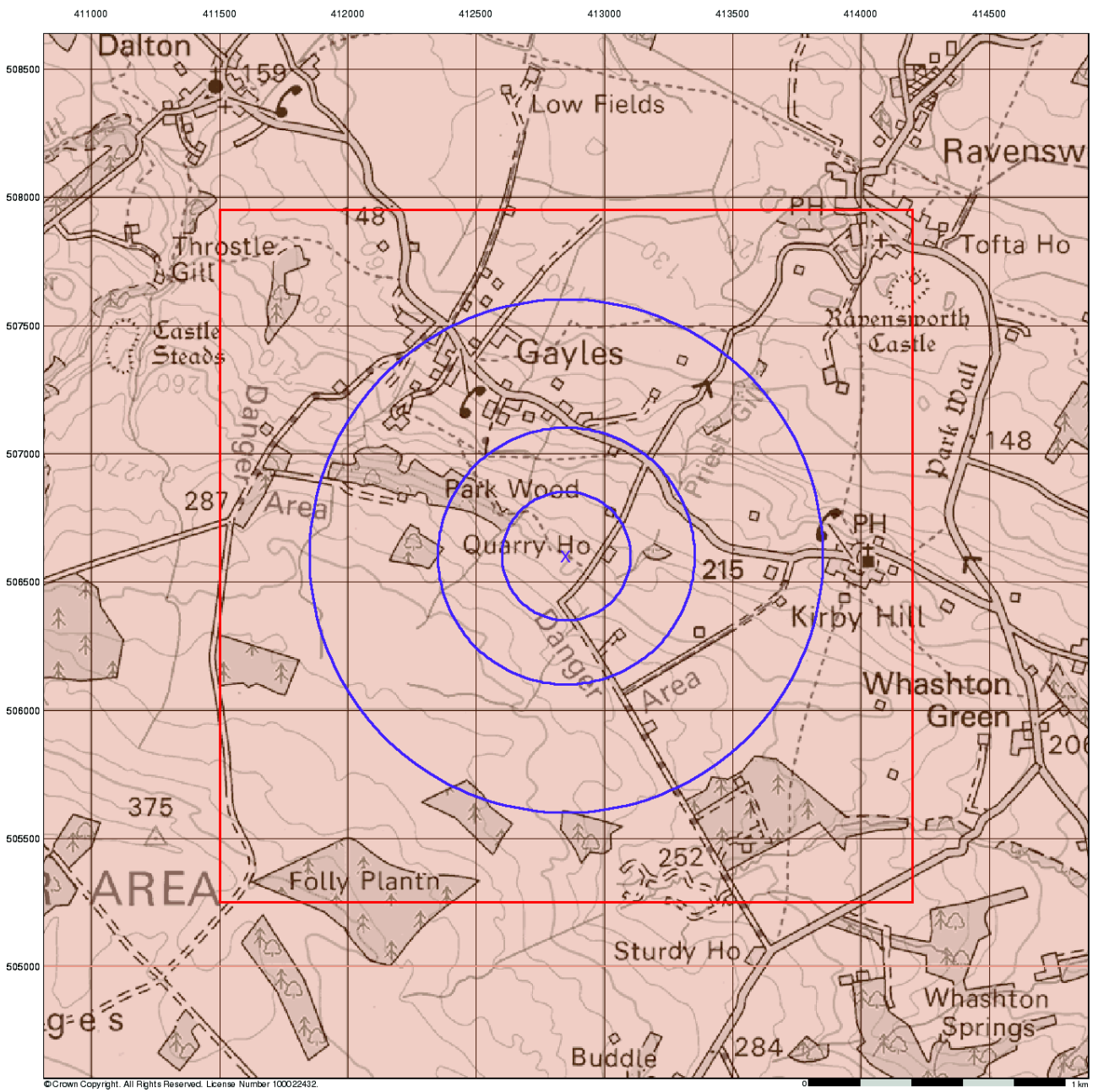
Order Details

Order Number:	243087964_1_1
Customer Ref:	19005
National Grid Reference:	412850, 506600
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details

Site at 412850, 506600

Landmark® INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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Bedrock Aquifer Designation

General

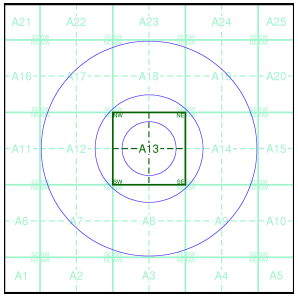
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



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Site Area (Ha):	0.01
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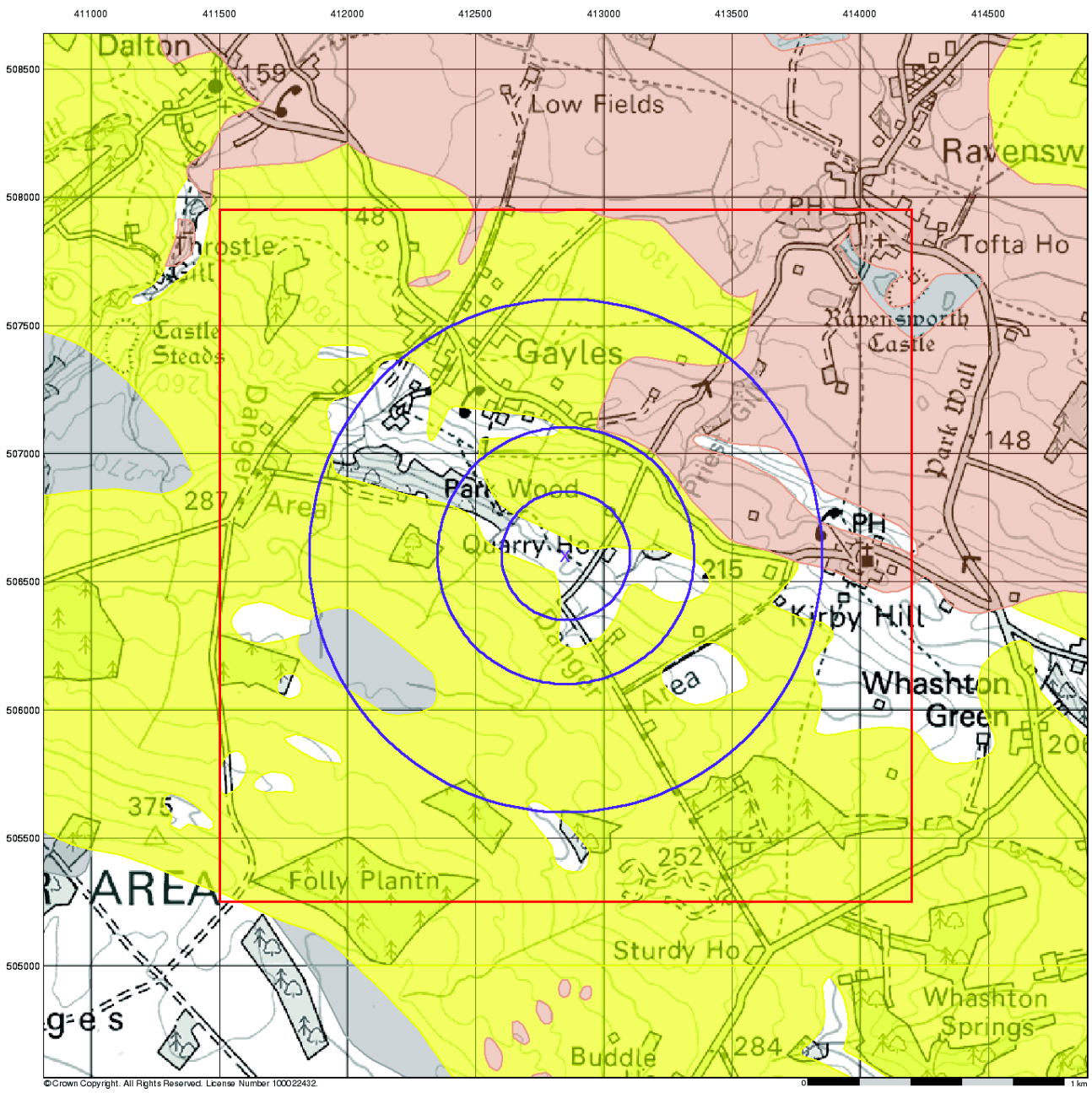

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Superficial Aquifer Designation

General

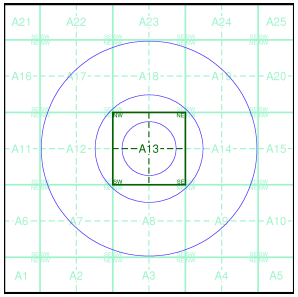
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



Order Details

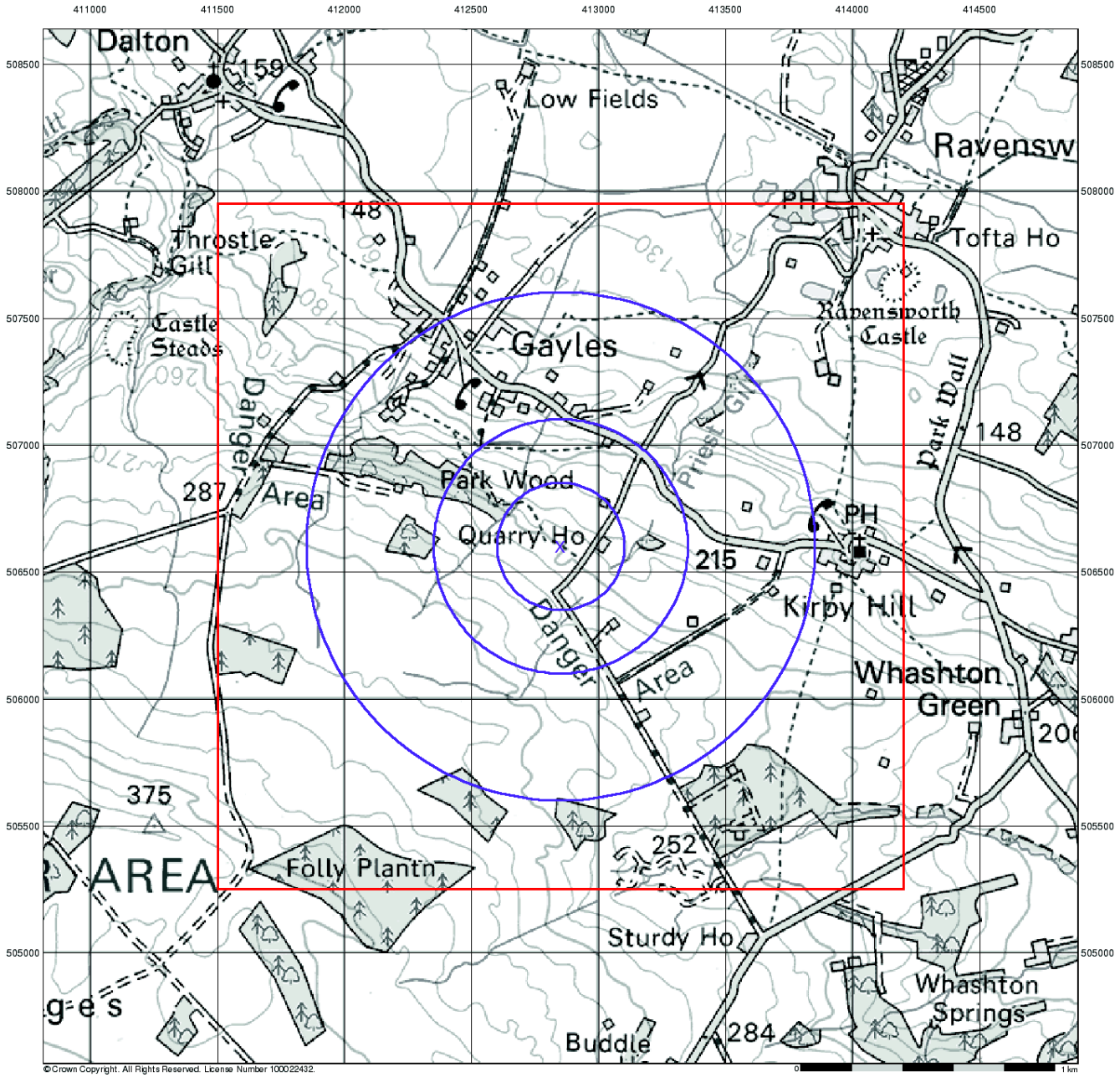
Order Number:	243087964_1_1
Customer Ref:	19005
National Grid Reference:	412850, 506600
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details

Site at 412850, 506600

Landmark® INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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Source Protection Zones

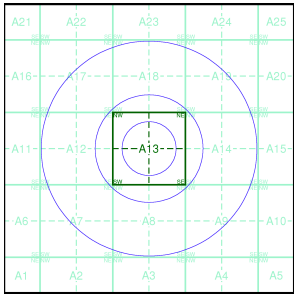
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)

Site Sensitivity Context Map - Slice A



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Customer Ref:	19005
National Grid Reference:	412850, 506600
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details

Site at 412850, 506600

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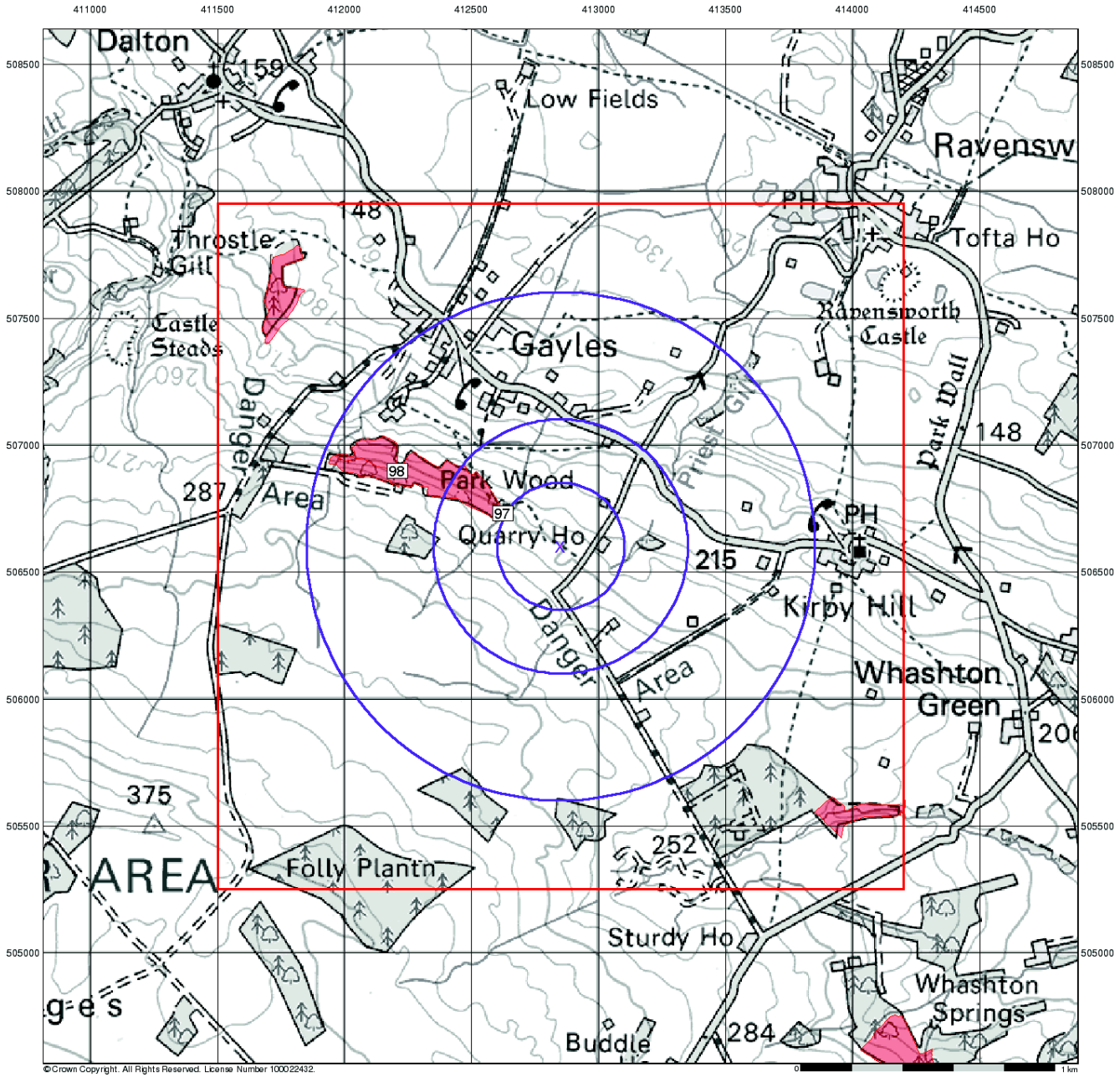

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Sensitive Land Uses

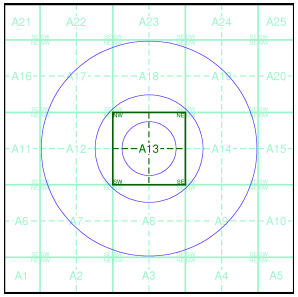
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Sensitive Land Uses

- Ancient Woodland
- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area
- World Heritage Sites

Site Sensitivity Context Map - Slice A



Order Details

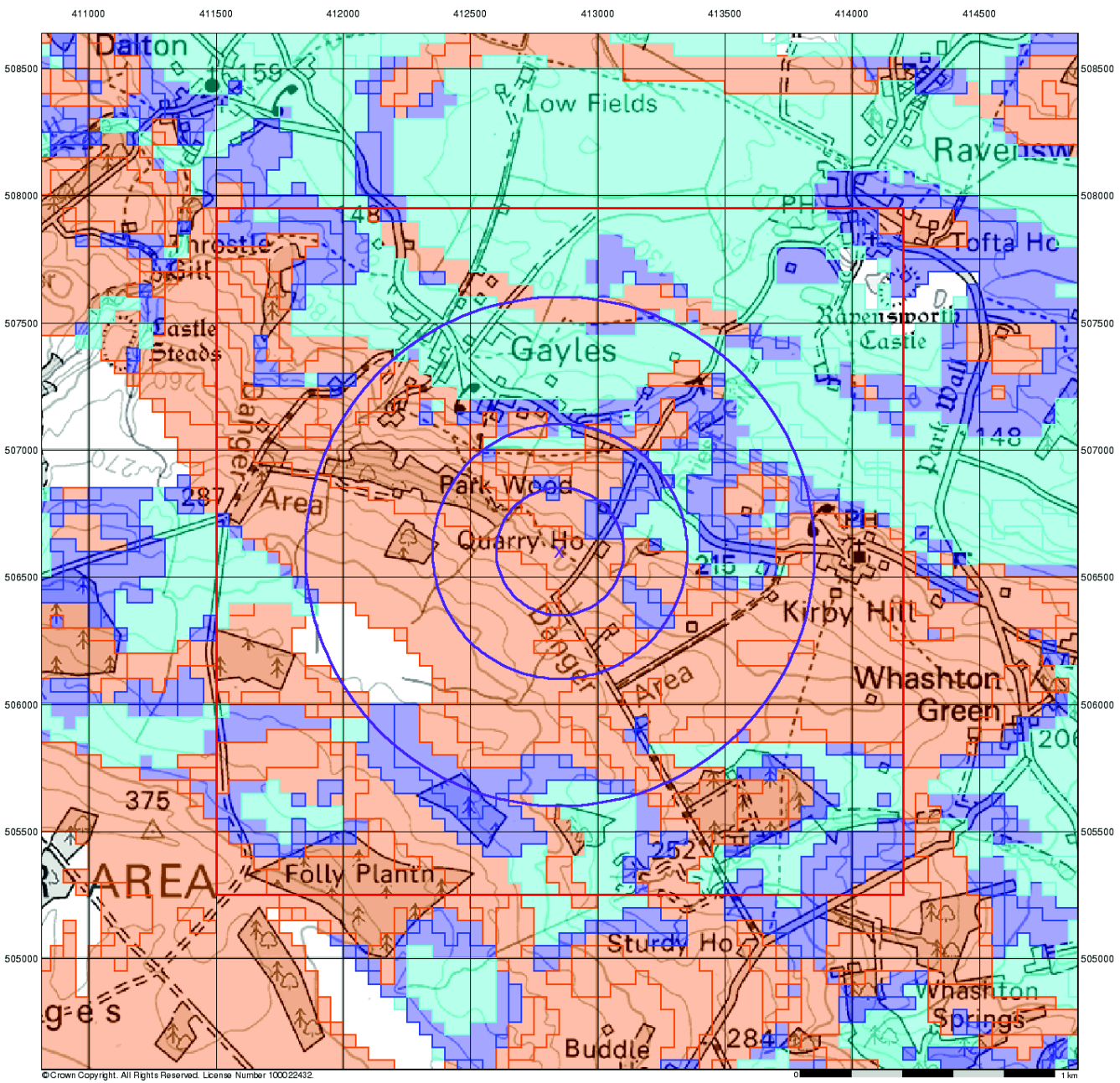
Order Number:	243087964_1_1
Customer Ref:	19005
National Grid Reference:	412850, 506600
Slice:	A
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details

Site at 412850, 506600

Landmark® INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Envirocheck®

LANDMARK INFORMATION GROUP®

BGS Flood GFS Data

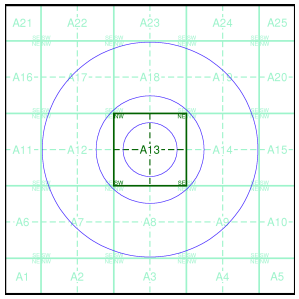
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

Site Sensitivity Context Map - Slice A



Order Details

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National Grid Reference:	412850, 506600
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Site Details

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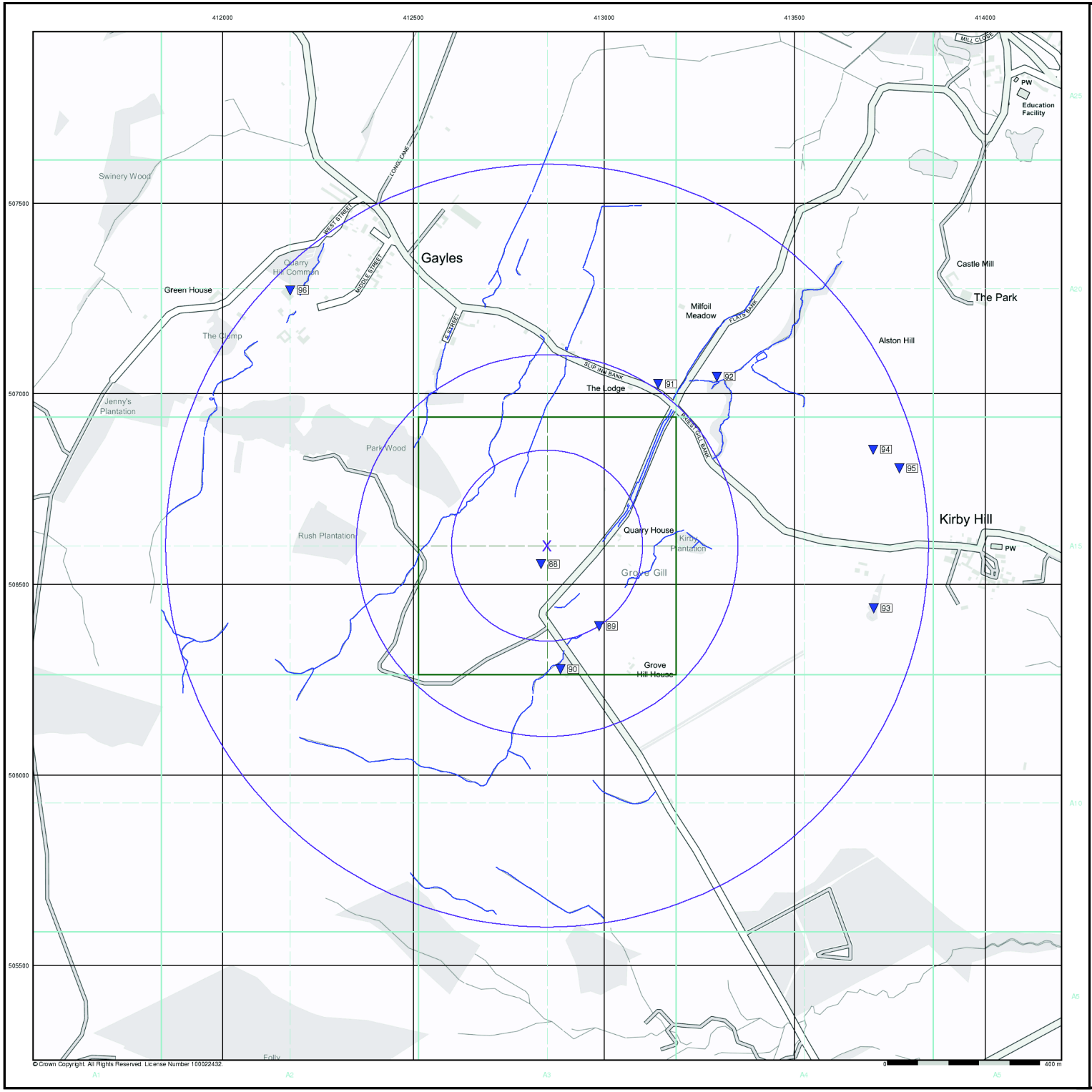

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LANDMARK INFORMATION GROUP®

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Geological

- BGS Recorded Mineral Site

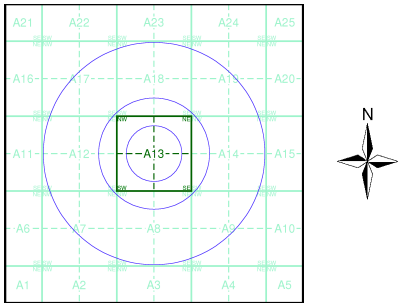
Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

Site Sensitivity Map - Slice A



Order Details

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Slice:	A
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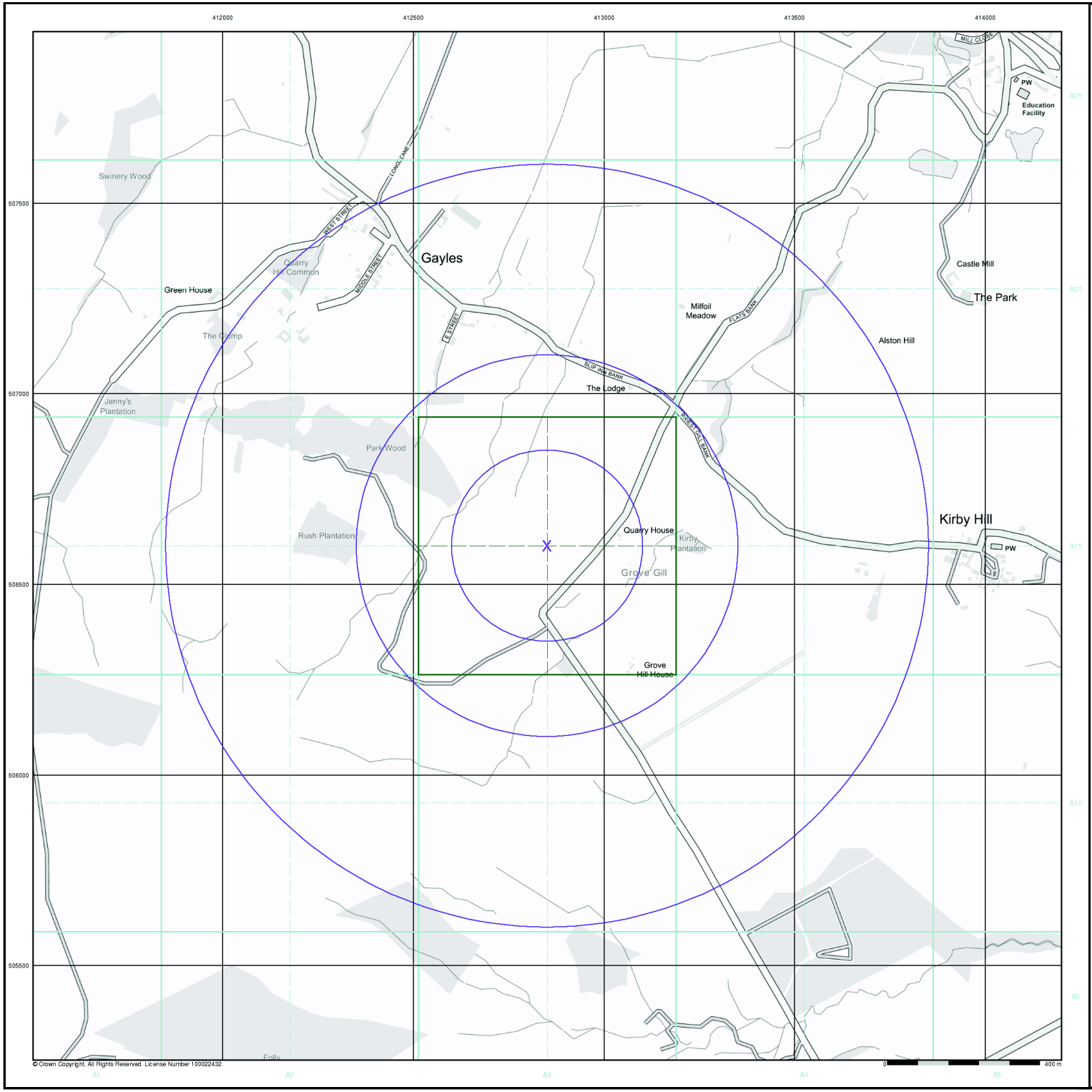

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Industrial Land Use Map

General

Specified Site | Specified Buffer(s) | Bearing Reference Point

Slice | Map ID

Industrial Land Use

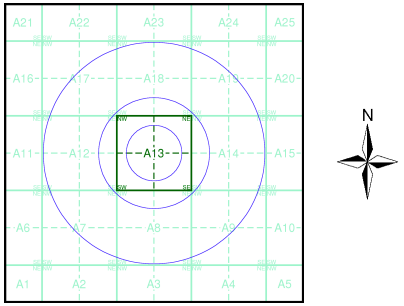
Contemporary Trade Directory Entry

Fuel Station Entry

Gas Pipeline

Underground Electrical Cables

Industrial Land Use Map - Slice A



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Site Area (Ha):	0.01
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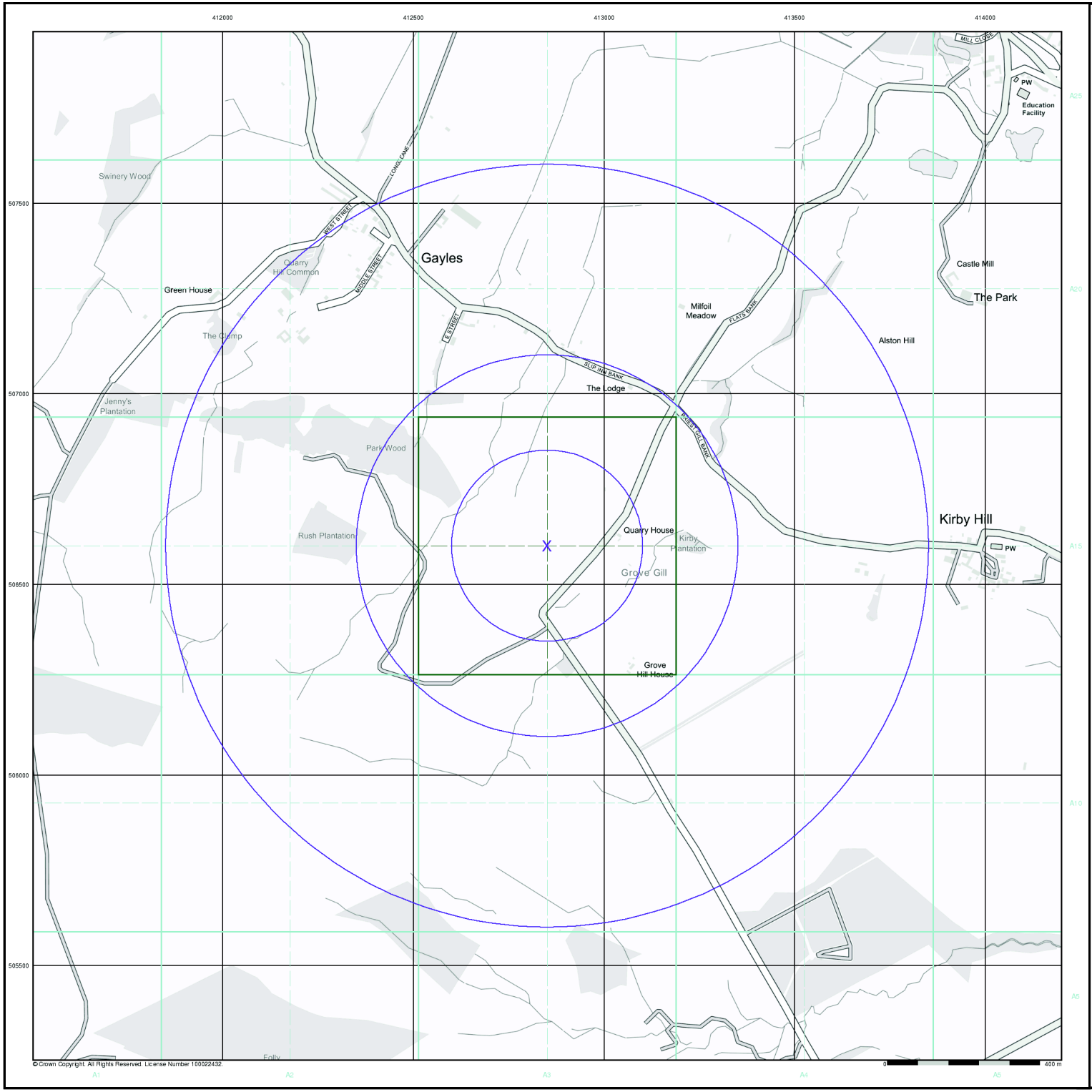

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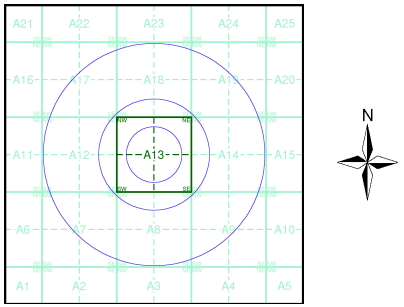
General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

Agency and Hydrological (Flood)

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Flood Map - Slice A



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Site Details

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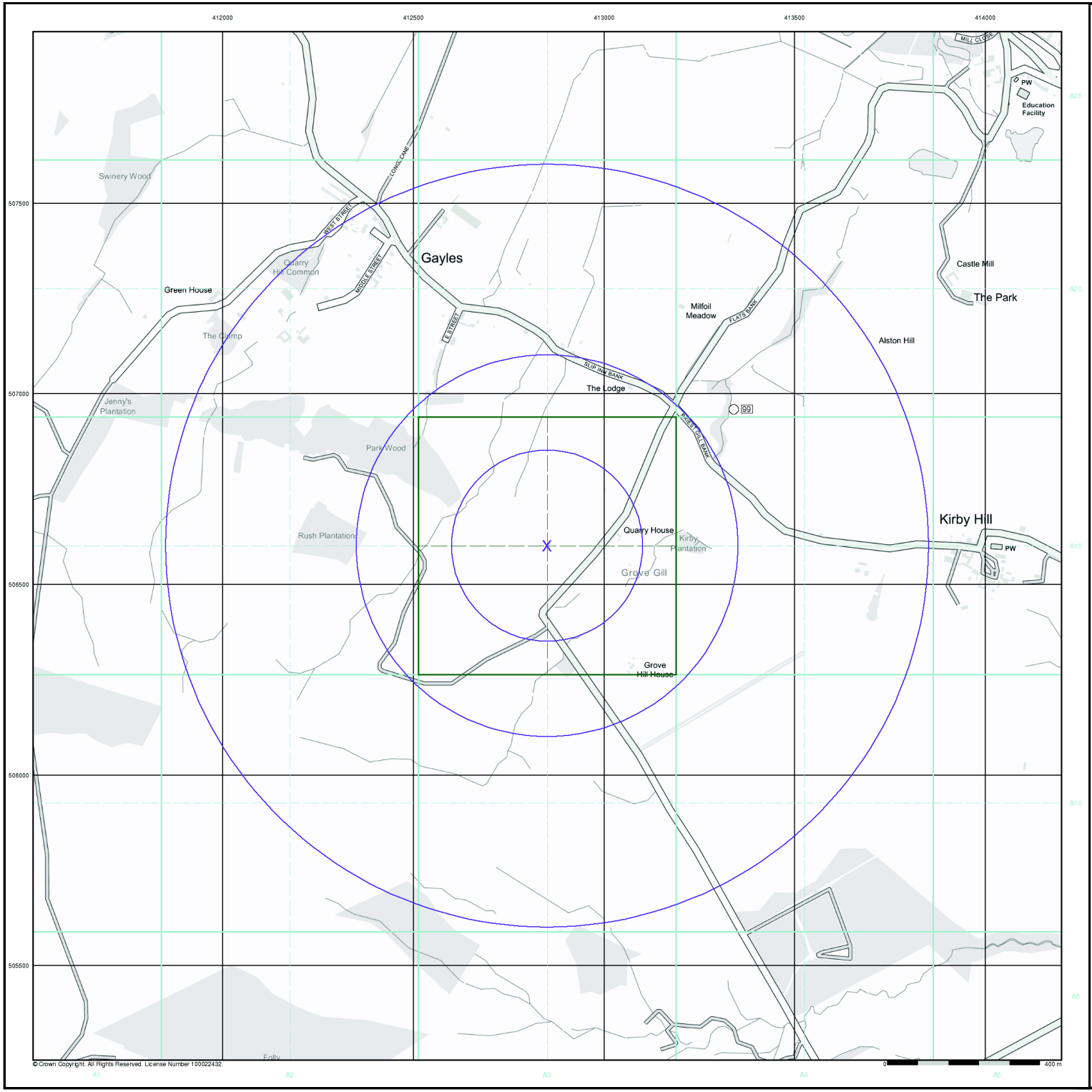

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LANDMARK INFORMATION GROUP®

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

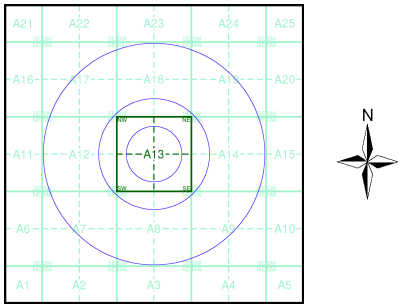
Agency and Hydrological (Boreholes)

- BGS Borehole Depth 0 - 10m
- BGS Borehole Depth 10 - 30m
- BGS Borehole Depth 30m +
- Confidential
- Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



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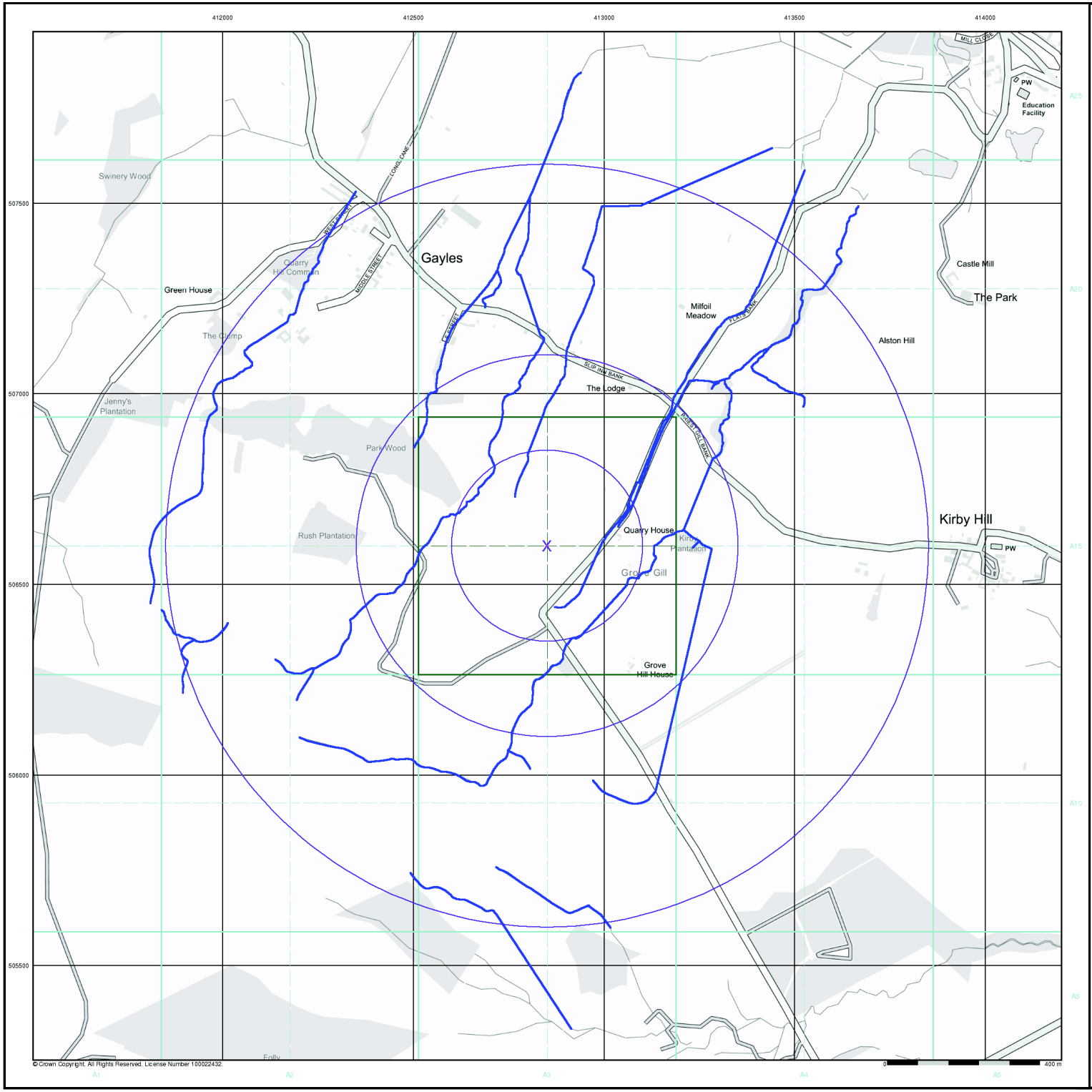

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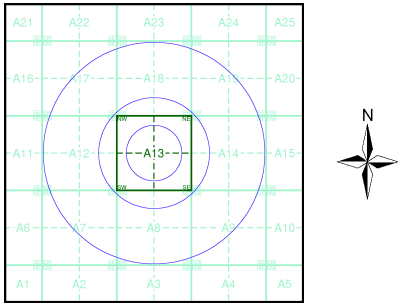
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

OS Water Network Data

- Canal
- Reservoir
- Foreshore
- Marsh
- Tidal River
- Inland River
- Drain
- Other
- Lake
- Transfer
- Lock Or Flight Of Locks
- Sea

OS Water Network Map - Slice A



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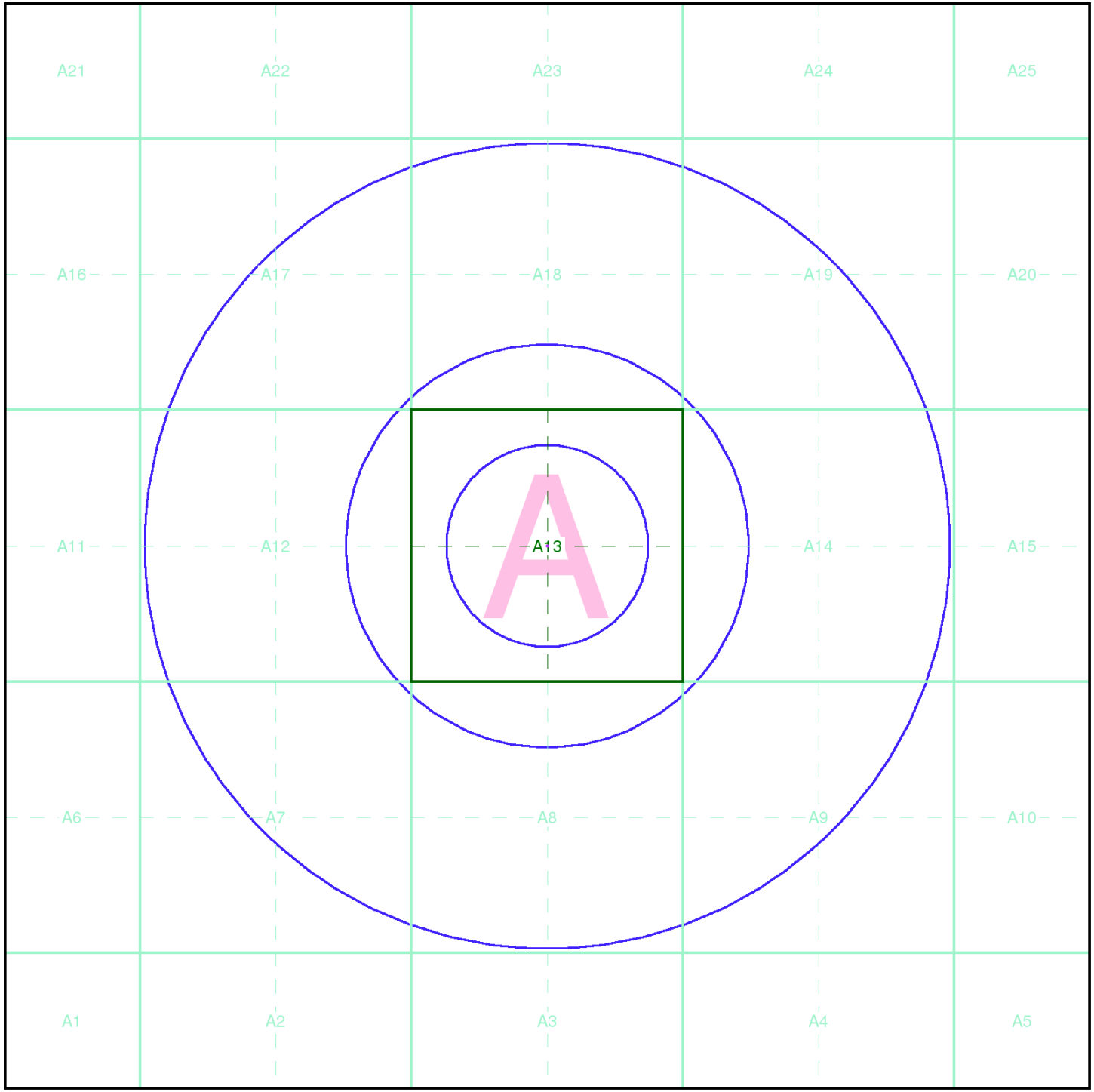

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Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

Slice
Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline), that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

Segment
A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

Quadrant
A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the datasheet to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

A selection of organisations who provide data within this report:

Map data

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Environment Agency

NATURAL ENGLAND

Envirocheck reports are compiled from 136 different sources of data.

Prepared For

Dr D. A. Blythe,
DAB Geotechnics Ltd.,
Ellington,
MORPETH,
Northumberland, NE61 5ES.

Client Details

Stainton Quarry Ltd.,
Stainton, BARNARD CASTLE, DL12 8RB.

Order Details

Order Number:	243087964_1_1
Customer Ref:	19005
National Grid Reference:	412850, 506600
Site Area (Ha):	0.01
Search Buffer (m):	1000

Site Details

Site at 412850, 506600

Full Terms and Conditions can be found on the following link:
http://www.landmarkinfo.co.uk/Terms/Show/515

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Web: www.envirocheck.co.uk

APPENDIX C

Correspondence with Richmondshire District Council

David Andrew Blythe

From: Generic Mailbox - Service Requests <Service.Requests@Richmondshire.gov.uk>
Sent: 25 March 2021 19:18
To: 'David Andrew Blythe'
Subject: RE: Gayles Area - Private Water Supplies
Attachments: Gayles Quarry.pdf

< This e-mail was classified as: OFFICIAL >

Good evening Mr Blythe
According to our records, there are only 2 active private water supplies in the area outlined on the attached plan.
They are:
Our reference 248 at NZ136062 is a spring supplying drinking water to a single domestic property
Our reference 96 at NZ 133070 is a spring supplying drinking water to multiple properties
Kind regards

From: David Andrew Blythe <dblythe735822@btinternet.com>
Sent: 24 March 2021 13:48
To: Generic Mailbox - Service Requests <Service.Requests@Richmondshire.gov.uk>
Subject: RE: Gayles Area - Private Water Supplies

< WARNING: This e-mail originated from outside the Richmondshire District Council corporate network >

Payment made. Please proceed.

Regards,

David blythe

From: Generic Mailbox - Service Requests [mailto:Service.Requests@Richmondshire.gov.uk]
Sent: 24 March 2021 13:35
To: 'David Andrew Blythe'
Subject: FW: Gayles Area - Private Water Supplies

< This e-mail was classified as: OFFICIAL >

Good Afternoon Mr Blythe
This type of request is treated as part of an environmental search and as such there is a fee of £100.
If you wish to continue with this request you can pay on line at
https://www.civicaepay.co.uk/RichmondshireEstore/estore/default/Catalog/Index?fundcode=R4
and we will carry out the search
Kind regards

From: David Andrew Blythe <dblythe735822@btinternet.com>
Sent: 21 March 2021 21:48

David Andrew Blythe

From: noreply.richmondshire@civicaepay.co.uk
Sent: 24 March 2021 13:45
To: dblythe735822@btinternet.com
Subject: Standard Receipt

Payment made to
Richmondshire District Council
Mercury House
Station Road
Richmond
North Yorkshire
DL10 4JX
Telephone 01748 829 100
Website www.richmondshire.gov.uk

Payment details
Receipt Number ZHES00070452
Auth Code 131059
Transaction Type Card
Card Type Visa Debit
Card Number **********9514
Date 24/03/2021 13:44:52

Payment received from
Mr David Blythe
3 Tweed Avenue
Ellington
MORPETH
Northumberland
NE61 5ES

Description	Quantity	Item price (£)	Paid (£)
Env Health & Pest Control 5113	1	100.00	100.00
Environmental Search - Contaminated Land Only - Ga			
Total			100.00

To: Generic Mailbox - Enquiries <Enquiries@Richmondshire.gov.uk>
Subject: Gayles Area - Private Water Supplies

< WARNING: This e-mail originated from outside the Richmondshire District Council corporate network >

FAO ENVIRONMENTAL HEALTH DEPARTMENT

Dear Sir/Madam,

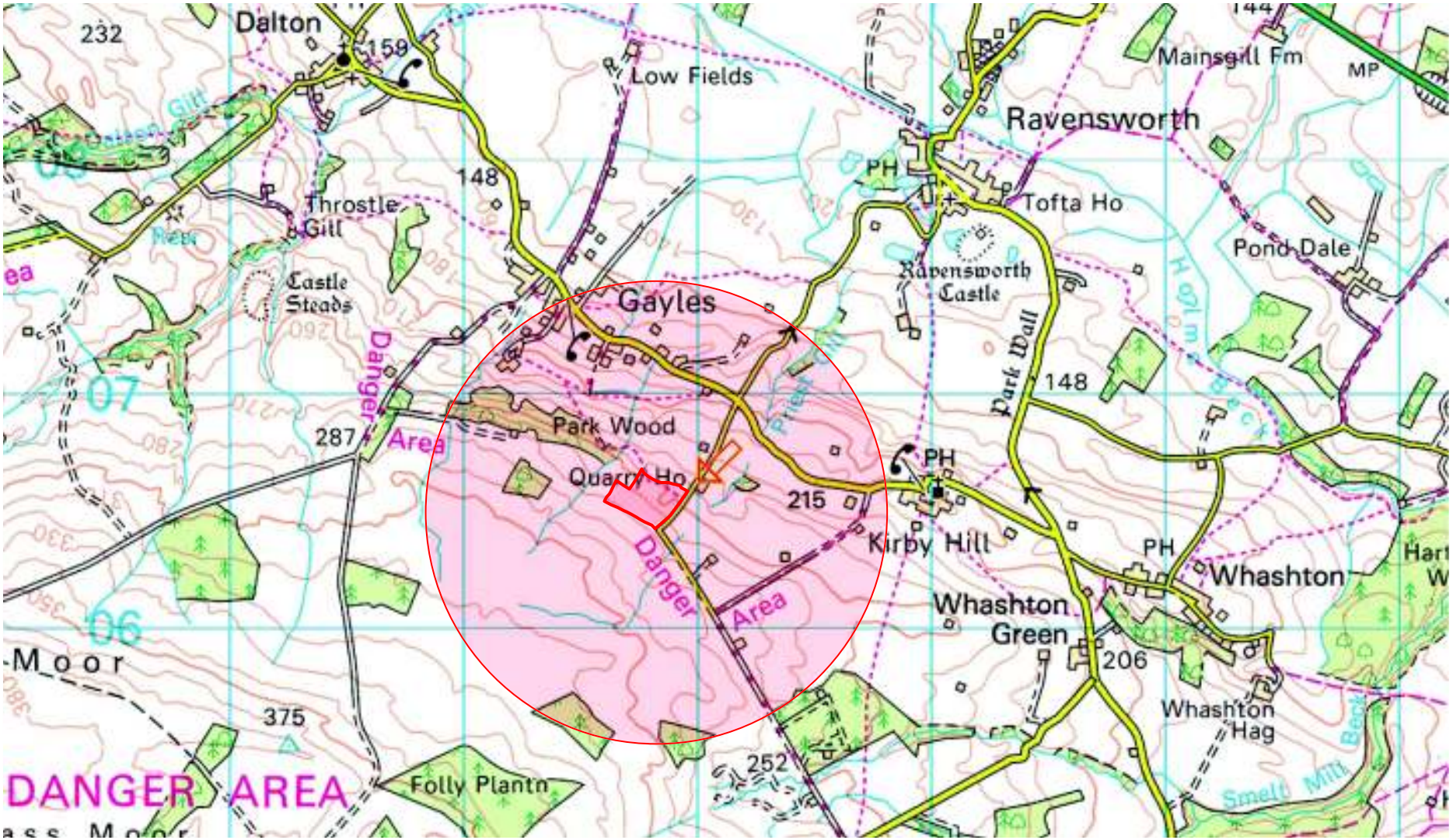
I am unable to use your internet request form because your system insists that my post code does not match any address. I have also attempted to e-mail direct from the website, but this will not allow me to attach the necessary plan.

I have been commissioned by Stainton Quarry Ltd. to carry out a hydrological and hydrogeological assessment for the proposed development of a former sandstone quarry near Gayles, Richmond. I have made the usual enquiries concerning licensed surface and groundwater abstractions, but I am now anxious to ascertain whether there are any private or unlicensed abstractions. I attach a plan showing the location of the proposed site and a 1km radial search area. Could you please provide any details you can (e.g. source of water, location, etc.)?

Thank you kindly.

Yours faithfully,

David Blythe
DAB Geotechnics Ltd., 3, Tweed Avenue, Ellington, MORPETH, Northumberland, NE61 5ES.



LOCATION OF PROPOSED DEVELOPMENT AND SEARCH AREA

APPENDIX D

Flood Risk Assessment

FLOOD RISK ASSESSMENT

A site-specific flood risk assessment has been carried out for the proposed Gayles Quarry development in accordance with the NPPF (Department for Communities and Local Government, 2019) and the NPPG guidance document, *'Flood Risk & Coastal Change'* (Department for Communities and Local Government, 2014). Reference has also been made to the publication, '*Flood Risk Assessments: Climate Change Allowances'* (Environment Agency, 2020). The assessment is set out in the order shown on the check list provided in the guidance with identical section headings and numbering where possible. This raises all the pertinent questions with regard to flood risk.

1. DEVELOPMENT DESCRIPTION AND LOCATION

1a. Type of Development and Location

It is proposed to extract reserves of dimension stone at Gayles Quarry by extending old, abandoned workings.

Gayles Quarry lies approximately 1km SSE of the village of Gayles and 7.5km north-west of Richmond in an area administered by Richmondshire District and North Yorkshire County Councils (1/50,000 Ordnance Survey Sheet No. 92 Barnard Castle & Surrounding Area). The Grid Reference for the approximate centre of the proposed excavations is 412850 506600.

1b. Vulnerability

Table 2 of the NPPF Planning Practice Guidance document classifies mineral workings as, *'less vulnerable'*, development.

1c. Local Development Documents

Many of policies that North Yorkshire County Council uses to consider mineral planning applications were due to expire on the 27th September 2007, but the government has allowed some to be extended (*'saved'*), until policies being developed in the minerals and waste development framework supersede them.

The Council recognizes that building stone is required to maintain the traditional built environment of North Yorkshire. *'It is desirable to ensure a good supply of building stone to provide for both maintenance and new building using traditional stone materials'….'There appears to be a shortfall of sites supplying building stone for new development'* (Section 8.2 of the Minerals Local Plan). In fact, stone is imported from quarries outside the County to meet demand. Subject to local impact the County Council, *'will support the production of building stone in the interests of ensuring the proper maintenance of the traditional built environment'*.

Flood risk in the Richmondshire area is discussed and assessed in the, *'North West Yorkshire Strategic Flood Risk Assessment'* (JBA Consulting, 2010) and. *'Sustainability Appraisal - Strategic Flood Risk Assessment'* (City of York Council, North Yorkshire Moors National Park Authority and North Yorkshire Council, 2016).

1d. Sequential/Exception Test

With regard to the Sequential Test, the Quarry is shown on the Environment Agency Flood Map to lie in Flood Zone 1 and cannot therefore be moved to an area of lower flood risk. Mineral workings, other than those for sand and gravel, are classified as, *'less vulnerable'*, in terms of their flood risk. Table 3 of the NPPF Planning Practice Guidance document indicates that an exception test is not required for less vulnerable sites in Flood Zone 1.

1e. Risk of Flooding to Occupants during and after Restoration

There are no dwellings at the Quarry and there are no plans for their construction. The health and safety of operatives will be adequately assessed and monitored in line with the existing safety legislation: principally the Quarries Regulations, 1999. The excavations will be maintained above groundwater level and there will be no abstraction. Surface water will be properly managed. Any flooding at the Quarry will not pose a risk to members of the public or adjacent properties because it will be contained within the excavations.

2. DEFINITION OF FLOOD HAZARD

2a. Sources of Flooding

The Quarry is not at risk of flooding from rivers or, '*blue-line*', watercourses. There are no records of any historic fluvial flooding.

The Quarry occupies an area of north-east sloping area and any potential inflows of surface water are only likely to occur from agricultural land lying the south-west. However, there is a break in slope after about 200-300m so the quantity of any potential flood water can only be very limited and adequately managed within the Quarry precincts using suitable cut-off ditches if at all required. Any other surface water flooding will be confined within the Quarry workings.

According to the BGS, there is only limited potential for groundwater flooding in the area. There is no evidence to suggest that this occurs within the existing Quarry workings.

2b. How Flooding Could Occur

Minor flooding at the Quarry might only occur during periods of prolonged wet weather, but it is anticipated that this will simply infiltrate the bedrock as at present. The water can be suitably drained to a sump within the workings where this can take place. Such flooding will not affect adjacent properties or endanger members of the public.

2c. Existing Surface Drainage

There is no existing drainage system at the Quarry.

3. PROBABILITY

3a. Flood zones

The Environment Agency's Flood Map confirms that the Quarry lies in Flood Zone 1 (i.e. in an area that has less than 0.1% AEP of flooding).

3b. Strategic Flood Risk Assessment

A Strategic Flood Risk Assessment has been prepared for the area (JBA Consulting, 2010). This confirms that the Quarry lies in Flood Zone 1.

3c. Probability of Flooding

The principle risk of flooding relates to the capacity of the drainage and soakaway system during the operation of the Quarry. However, the consequences of partial and temporary inundation of the mineral workings are minor and are accepted by the developer.

3d. Runoff

All the runoff will be confined within the historic mineral workings and will recharge the groundwater as is the present case. If it is required to pump or drain surface water from the Quarry workings it will be treated prior to its discharge, subject to the consent of the Environment Agency and LLFA.

4. CLIMATE CHANGE

Rainfall intensities are expected to rise as a consequence of climate change. The number of extreme events may also increase in frequency which will in turn increase the risk of surface water flooding. There will be a greater risk of fluvial flooding because greenfield runoff and peak flow rates will rise and channel capacity might then be exceeded.

Surface water in the Quarry workings will continue to recharge the groundwater as is the present case. This will continue regardless of any changes in climate.

5. DETAILED DEVELOPMENT PROPOSALS

A description of the proposed development is provided in the Planning Application and Section 1.4 of the main report.

6. FLOOD RISK MANAGEMENT

The Quarry is not in a flood risk area. No protective measures are required as there are no likely sources of external flooding. The risk is limited to surface runoff within the Quarry premises. Climate change may increase the risk of temporary surface water flooding in the mineral workings, but the developer is aware of the risk and it will not impact adjacent properties.

Mobile plant will be used to excavate the overburden and recover the mineral and can be removed from any areas that might become flooded. If it is required to store fuel oils at the Quarry, this will be in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001.

7. OFF-SITE IMPACTS

7a. Impact of Flood Prevention Measures

The proposed development is not located in a floodplain so there will be no loss of flood storage capacity or conveyance. There are no flood defence works and none will be constructed.

7b. Runoff

During the Operation of the Quarry

There will be a marginal increase in the volume of surface runoff as the Quarry is developed for mineral extraction and during the removal of overburden. Such changes will be relatively slow and gradual as the rate of stone extraction will be much lower than for a conventional (aggregate) quarry. However, the runoff can still be contained within the premises by constructing suitable cut-off ditches and directing the water to a sump where it can infiltrate the bedrock. In fact, the excavations will serve to attenuate surface runoff; more so as the excavations are extended.

Upon Completion of Quarrying Operations

The Quarry will be restored upon completion of mineral extraction, though some elements can be carried out during the course of the works. Runoff rates will return to greenfield rates outside the excavation area. The excavations will otherwise serve to attenuate runoff.

8. RESIDUAL RISKS

8a. Residual Flood Related Risks

No measures will be taken to protect the Quarry from flooding during or after stone extraction. The risk of flooding will therefore remain the same or will continue to change in response to climate change, as would be the case if the Quarry was to remain undeveloped. Surface water will continue to be confined within the extended excavations.

8b. Management of Residual Risks

Residual risks of flooding will be managed by the developer and site operator, Stainton Quarry Ltd. until such time that the land is sold.