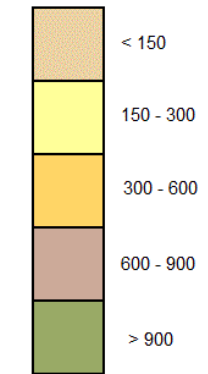


General

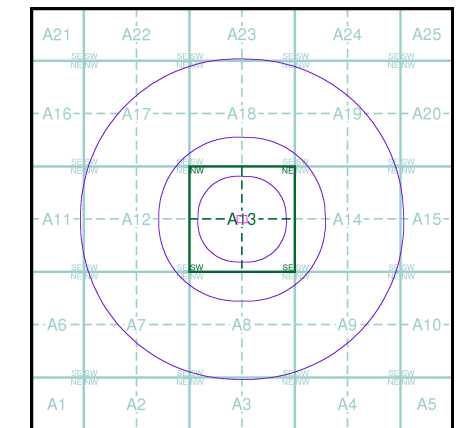
- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg



Estimated Soil Chemistry Lead - Slice A



Order Details

Order Details: 71025784_1_1
 Customer Ref: 38885
 National Grid Reference: 445830, 403840
 Slice: A
 Site Area (Ha): 0.31
 Search Buffer (m): 1000

Site Details

Site at 445810, 403850



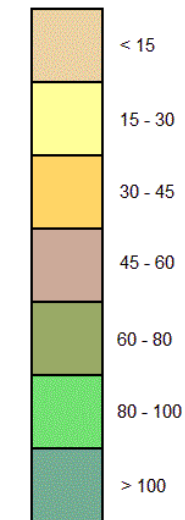
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General

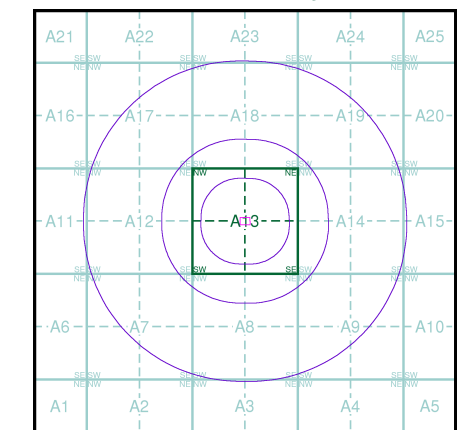
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg



Estimated Soil Chemistry Nickel - Slice A

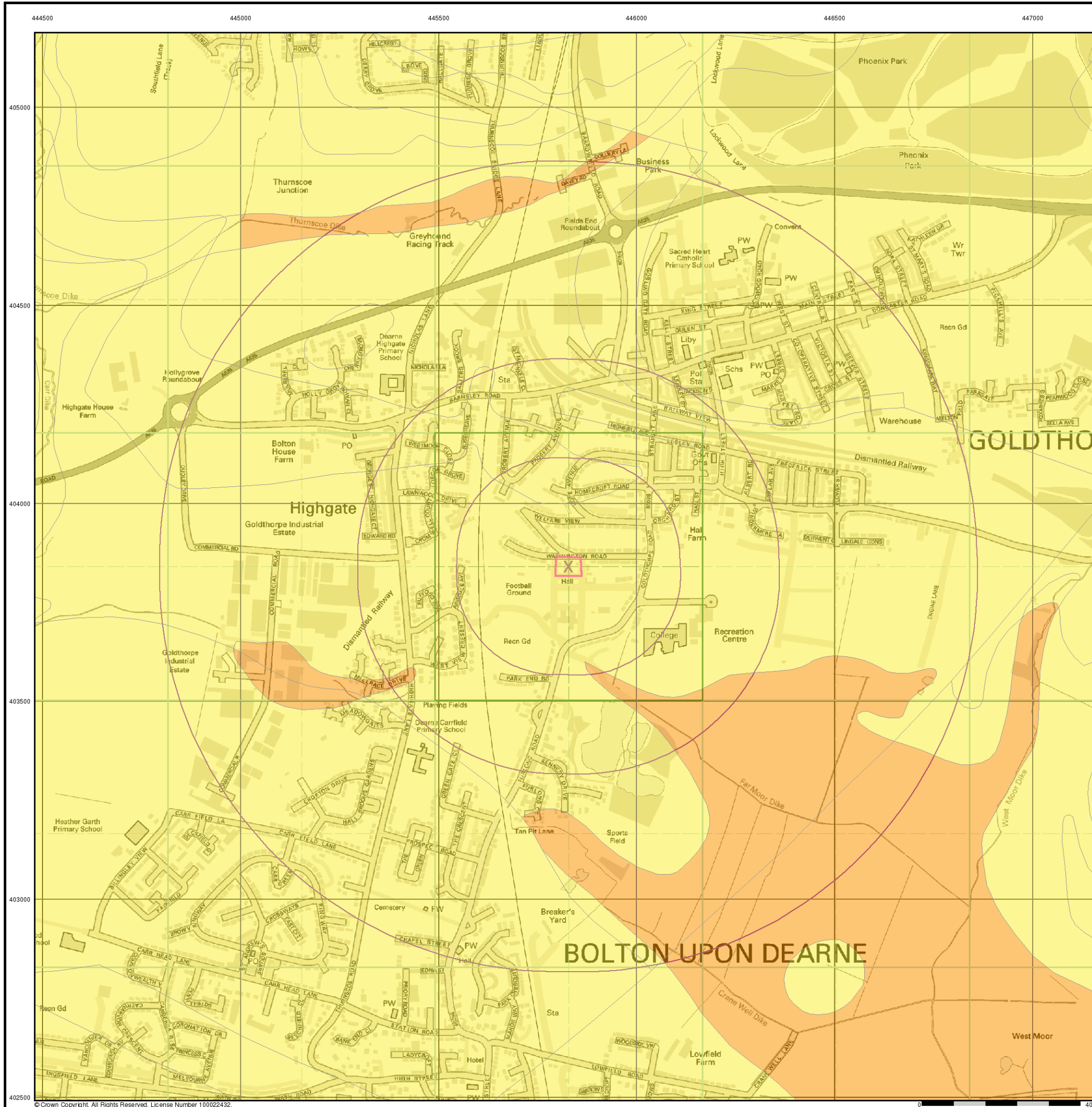


Order Details

Order Details: 71025784_1_1
 Customer Ref: 38885
 National Grid Reference: 445830, 403840
 Slice: A
 Site Area (Ha): 0.31
 Search Buffer (m): 1000

Site Details

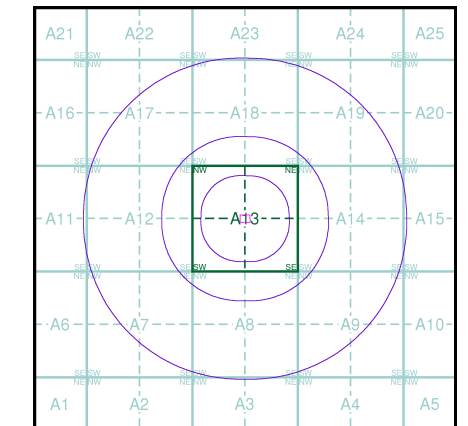
Site at 445810, 403850



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- 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 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
- Hazardous Substances**
- COMAH Site
 - Explosive Site
 - NIHHS Site
 - Planning Hazardous Substance Consent
 - Planning Hazardous Substance Enforcement
- Geological**
- BGS Recorded Mineral Site
- Industrial Land Use**
- Contemporary Trade Directory Entry
 - Fuel Station Entry

Site Sensitivity Map - Slice A

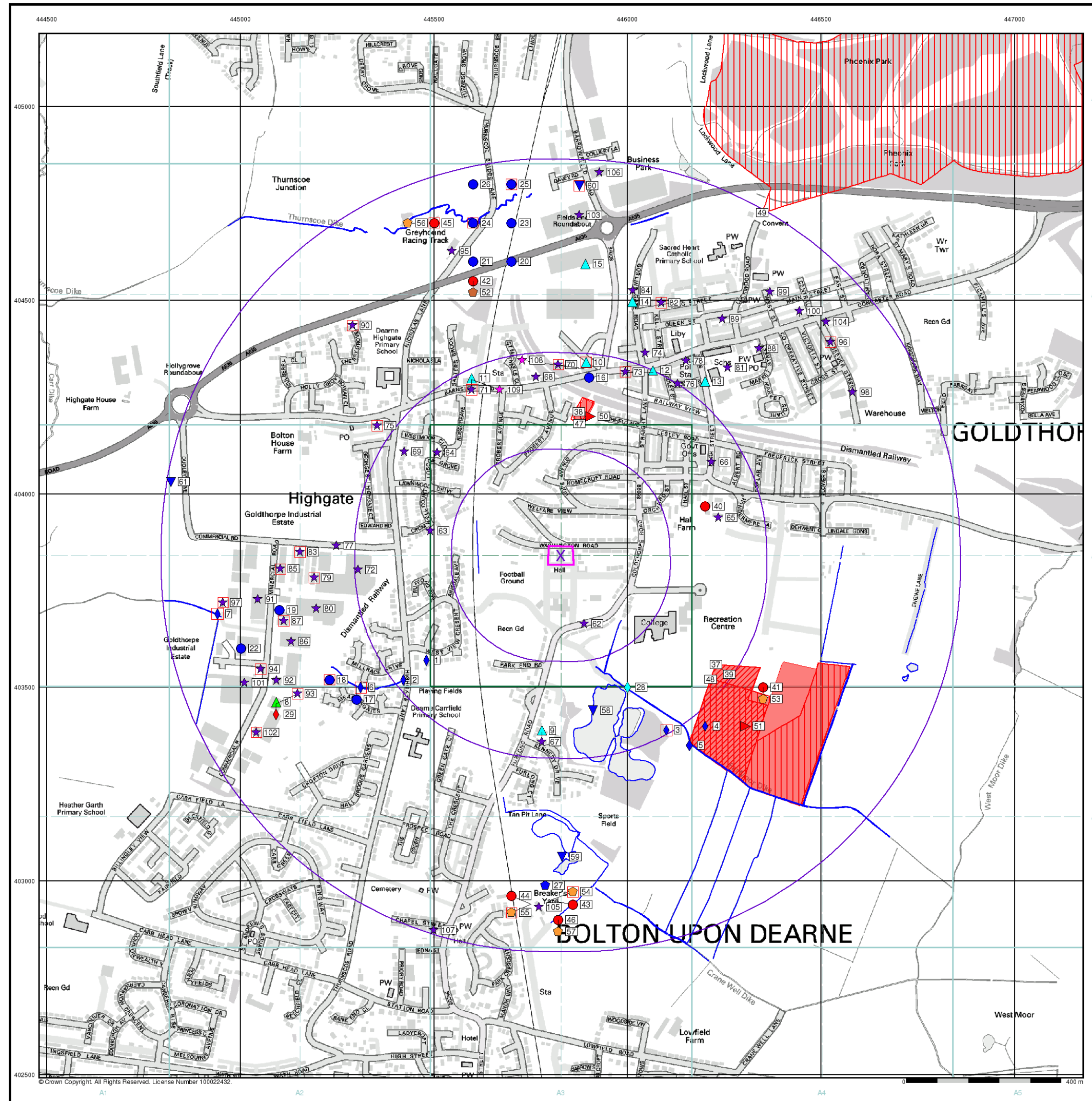


Order Details

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 Customer Ref: 38885
 National Grid Reference: 445830, 403840
 Slice: A
 Site Area (Ha): 0.31
 Search Buffer (m): 1000

Site Details

Site at 445810, 403850



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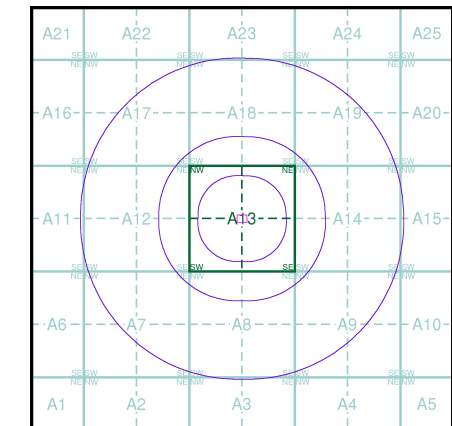
General

- Specified Site
- Specified Buffer(s)
- 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



Order Details

Order Number: 71025784_1_1
 Customer Ref: 38885
 National Grid Reference: 445830, 403840
 Slice: A
 Site Area (Ha): 0.31
 Search Buffer (m): 1000

Site Details

Site at 445810, 403850



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General

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

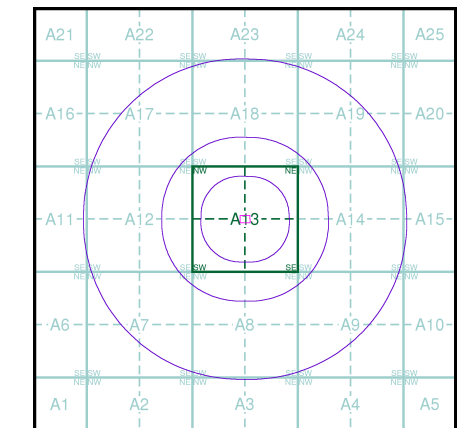
Agency and Hydrological (Boreholes)

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

For Borehole information please refer to the Borehole datasheet 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

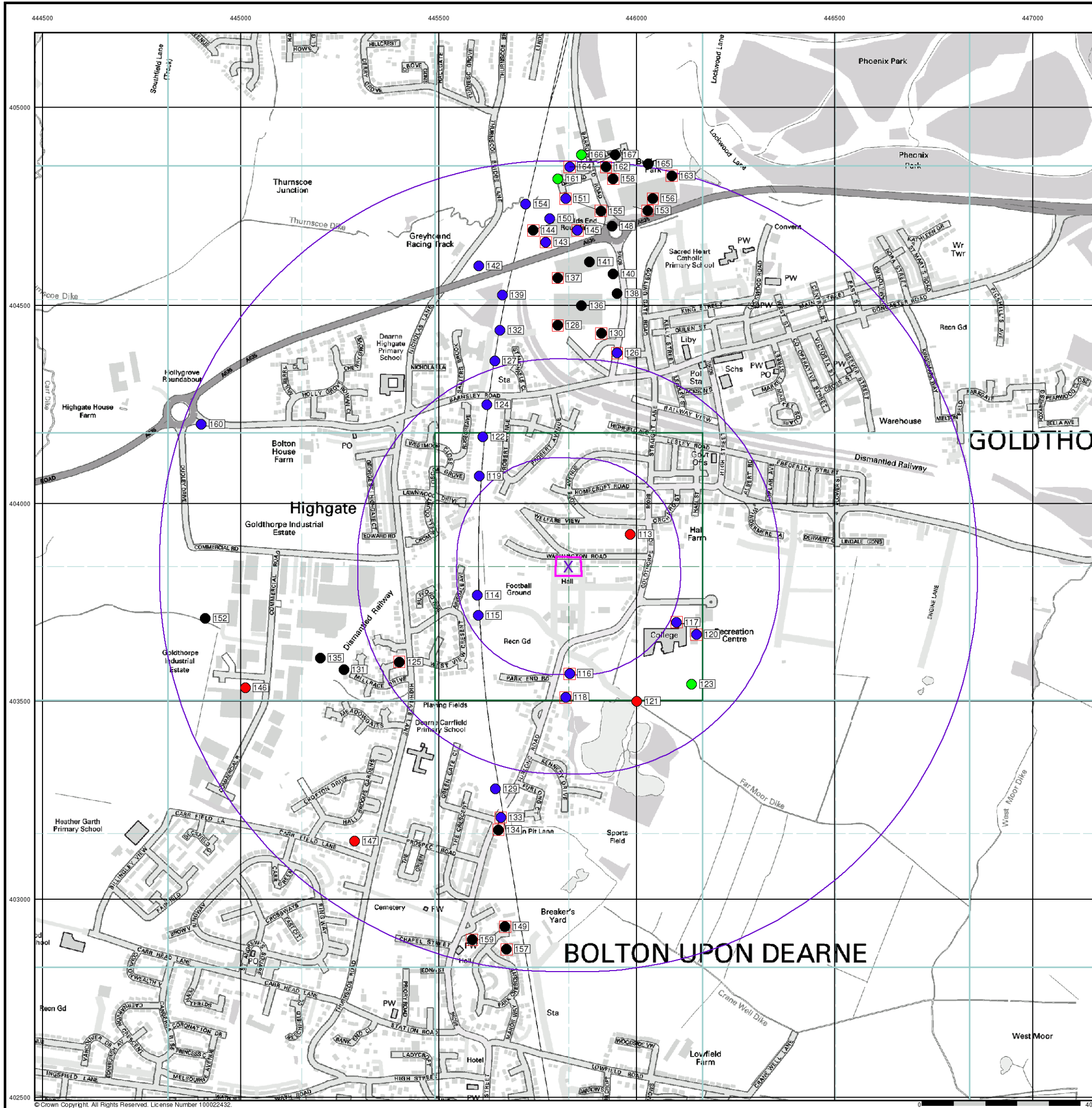


Order Details

Order Number: 71025784_1_1
 Customer Ref: 38885
 National Grid Reference: 445830, 403840
 Slice: A
 Site Area (Ha): 0.31
 Search Buffer (m): 1000

Site Details

Site at 445810, 403850



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General

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

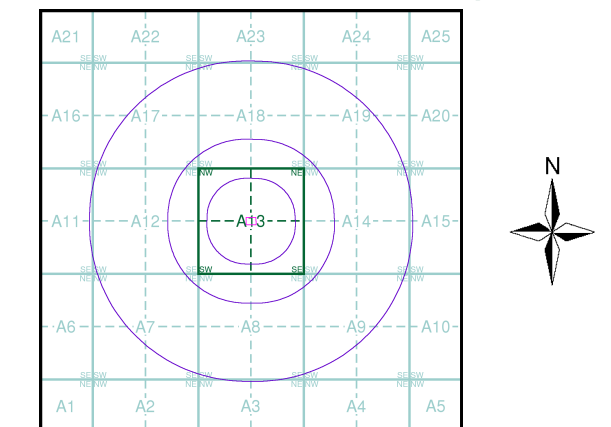
Detailed River Network Data

- Primary River
- Secondary River
- Tertiary River
- Canal
- Canal Tunnel
- Undefined River
- Lake/Reservoir
- Offline Drainage Feature
- Extended Culvert (greater than 50m)
- Underground River (inferred)
- Underground River (local knowledge)
- Downstream of High Water Mark
- Downstream of Seaward Extension
- Not assigned River feature

Contours (height in metres)

- Standard Contour 105
- Master Contour 100
- Spot Height *167.3
- MLW - Mean Low Water
- MHW - Mean High Water

EANRW Detailed River Network Map - Slice A

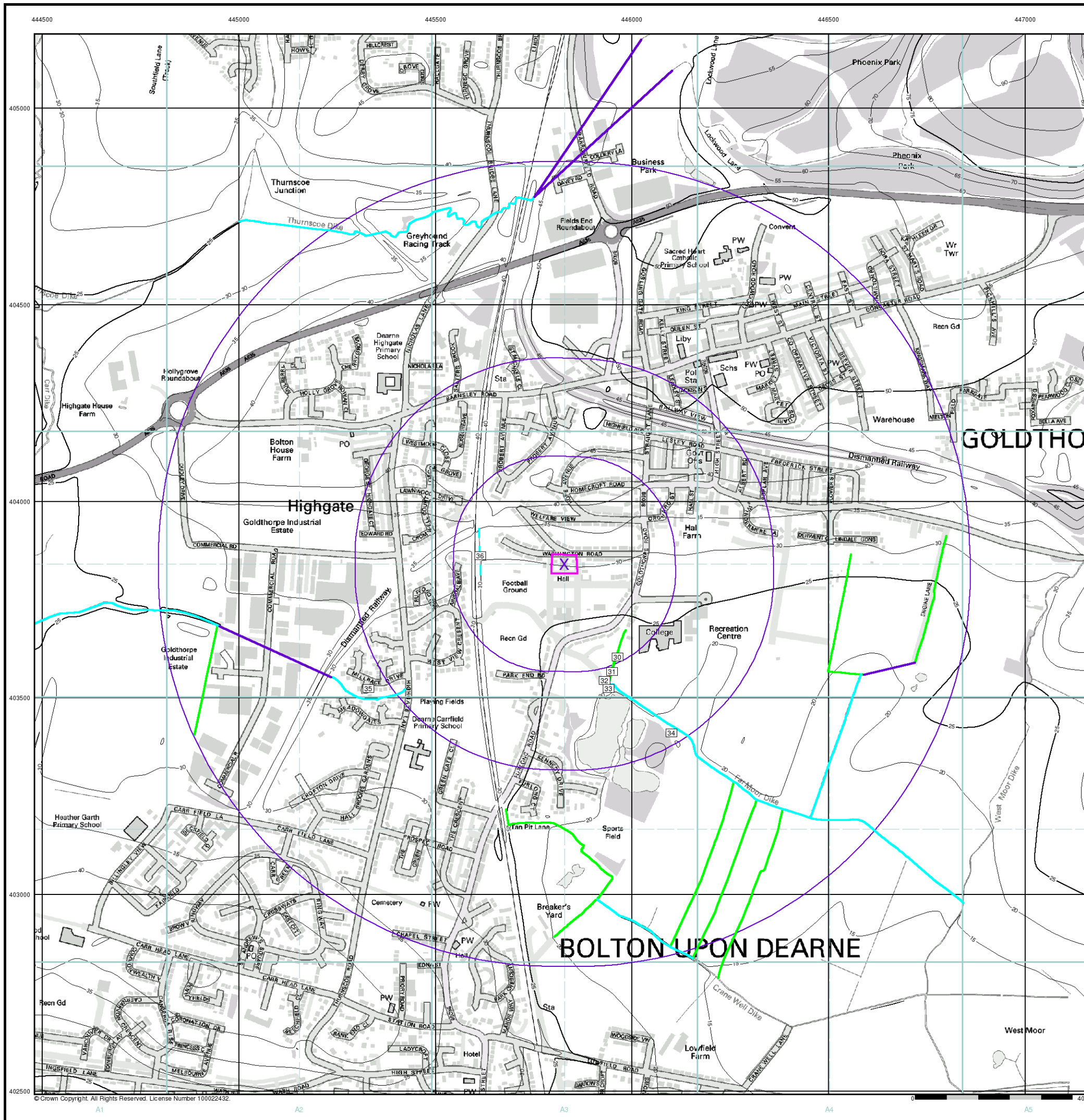


Order Details

Order Number: 71025784_1_1
 Customer Ref: 38885
 National Grid Reference: 445830, 403840
 Slice: A
 Site Area (Ha): 0.31
 Search Buffer (m): 1000




Site Details

Site at 445810, 403850



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General

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

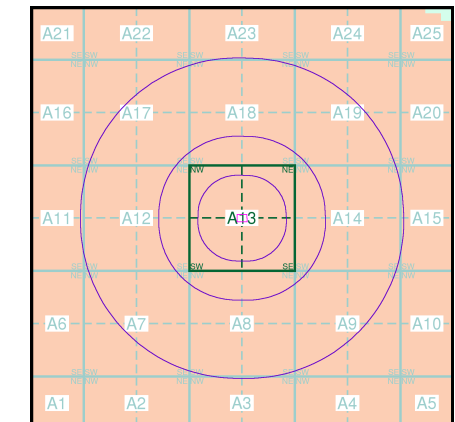
Risk of Flooding from Surface Water

-  High - 30 Year Return
-  Medium - 100 Year Return
-  Low - 1000 Year Return

Suitability

- See the suitability map below
-  National to county
 -  County to town
 -  Town to street
 -  Street to parcels of land
 -  Property

EANRW Suitability Map - Slice A

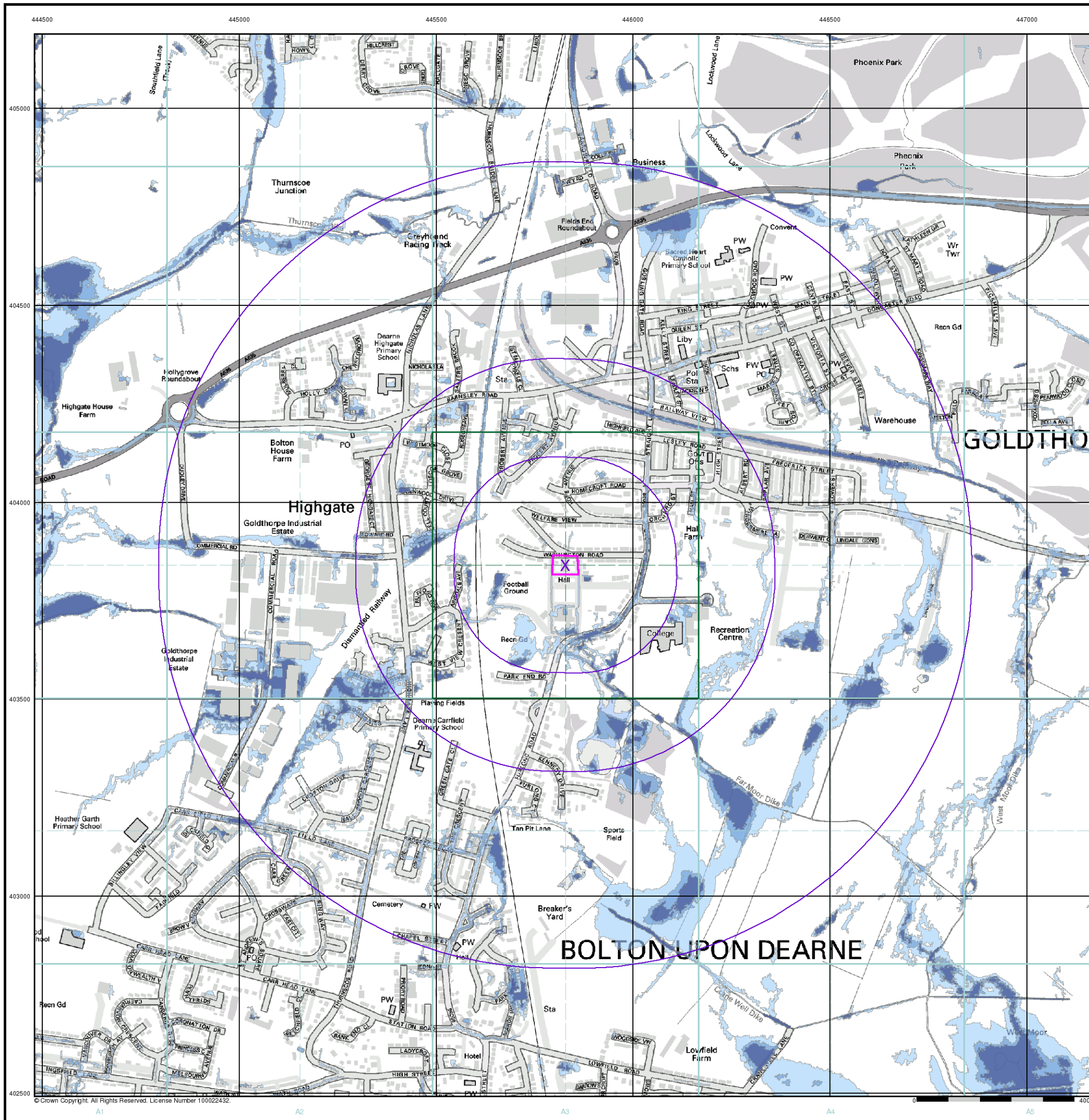


Order Details

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 Customer Ref: 38885
 National Grid Reference: 445830, 403840
 Slice: A
 Site Area (Ha): 0.31
 Search Buffer (m): 1000

Site Details

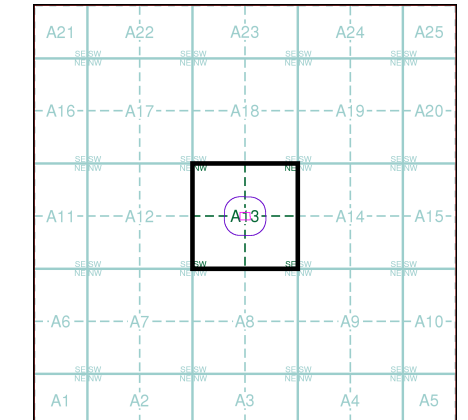
Site at 445810, 403850



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- 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
- Hazardous Substances**
- COMAH Site
 - Explosive Site
 - NIHHS Site
 - Planning Hazardous Substance Consent
 - Planning Hazardous Substance Enforcement
- Geological**
- BGS Recorded Mineral Site
- Industrial Land Use**
- Contemporary Trade Directory Entry
 - Fuel Station Entry

Site Sensitivity Map - Segment A13

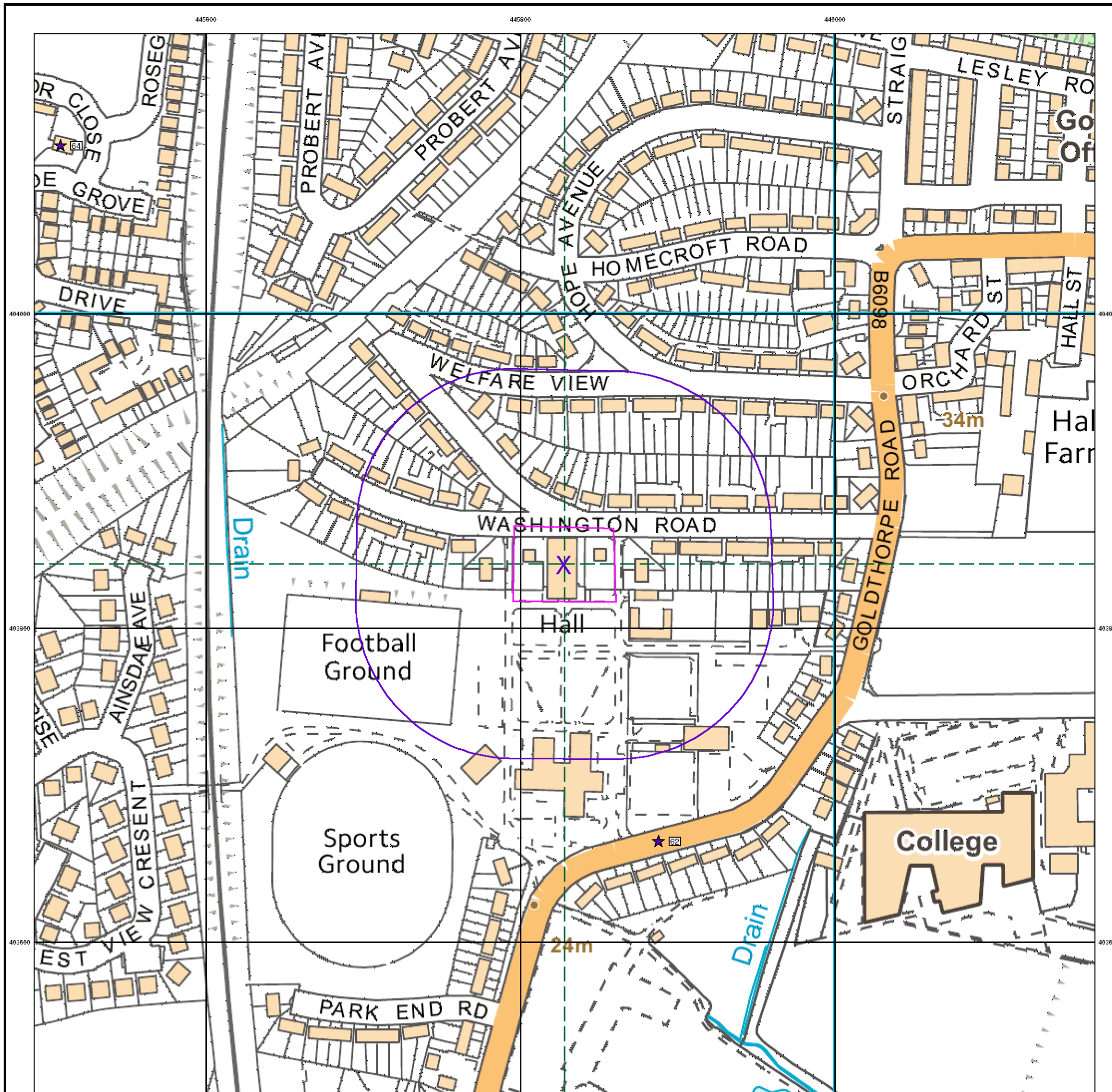


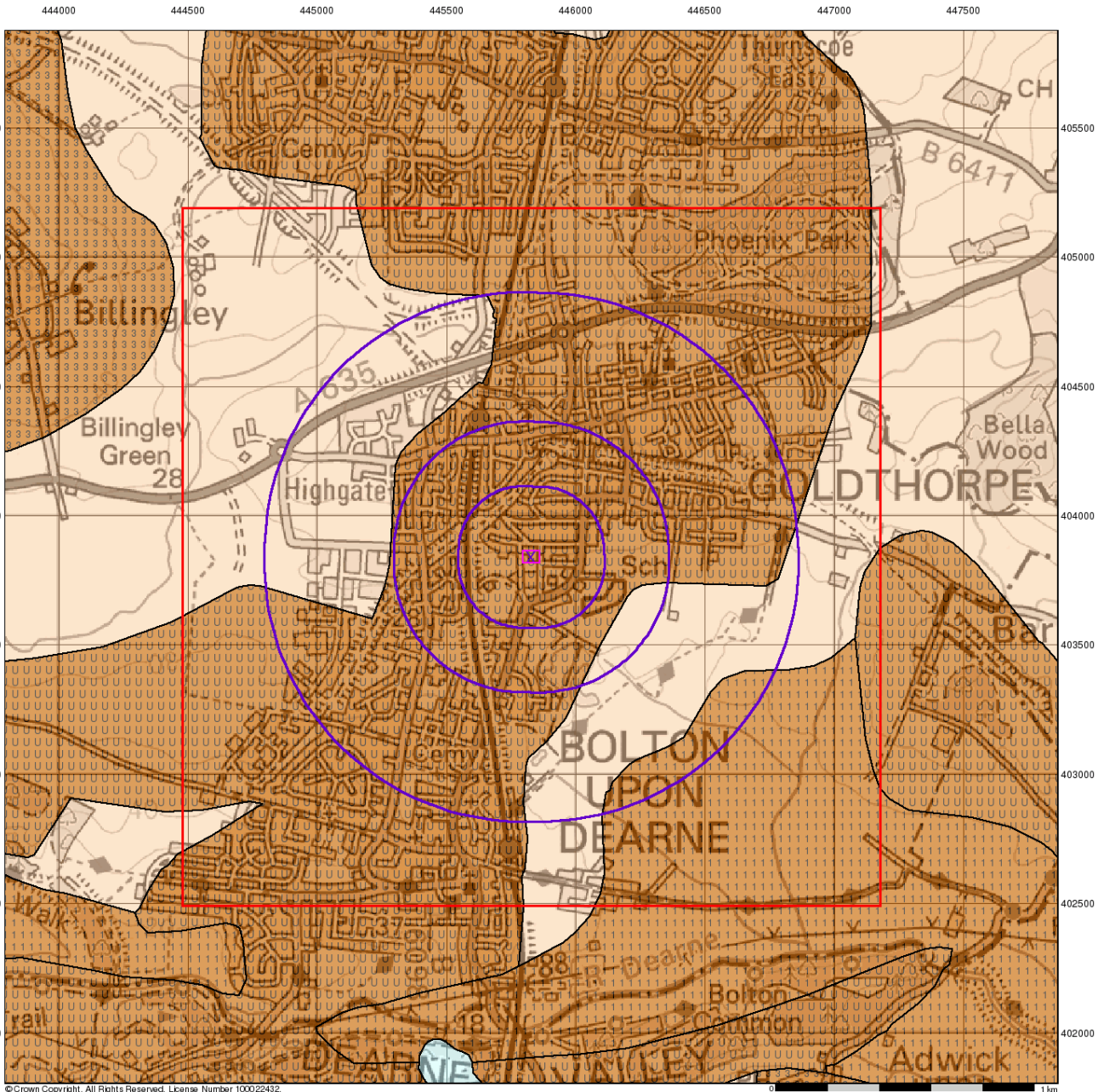
Order Details

Order Number: 71025784_1_1
 Customer Ref: 38885
 National Grid Reference: 445830, 403840
 Slice: A
 Site Area (Ha): 0.31

Site Details

Site at 445810, 403850





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Groundwater Vulnerability

General

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

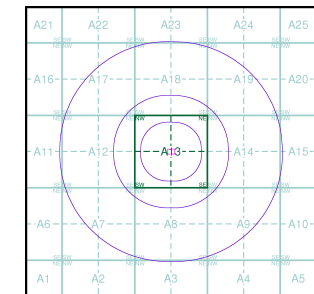
Agency and Hydrological

Geological Classes

- Major Aquifer (Highly Permeable)**
 - High (H) 1, 2, 3, U
 - Intermediate (I) 1, 2
 - Low
- Minor Aquifer (Variably Permeable)**
 - High (H) 1, 2, 3, U
 - Intermediate (I) 1, 2
 - Low
- Non Aquifer (Negligibly Permeable)**
 -
- Water or Sea**
 -
- Drift Deposit**
 -

Soil Classes

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 71025784_1_1
 Customer Ref: 38885
 National Grid Reference: 445830, 403840
 Slice: A
 Site Area (Ha): 0.31
 Search Buffer (m): 1000

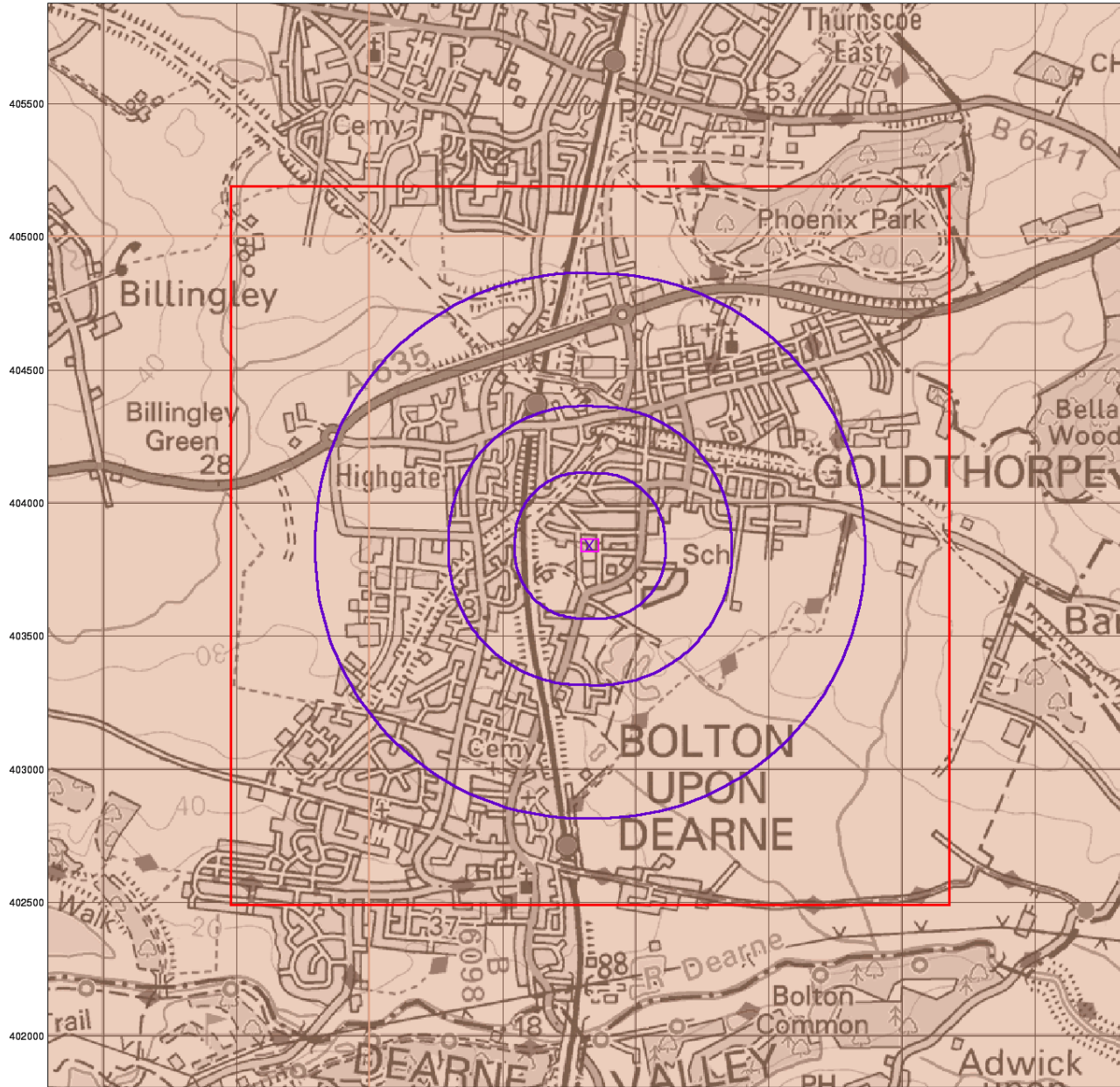
Site Details

Site at 445810, 403850



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

444000 444500 445000 445500 446000 446500 447000 447500



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0 1 km



Bedrock Aquifer Designation

General

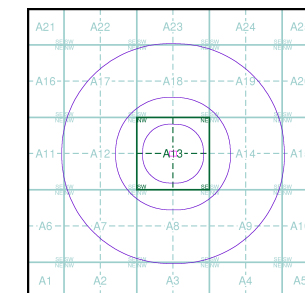
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice A



Order Details

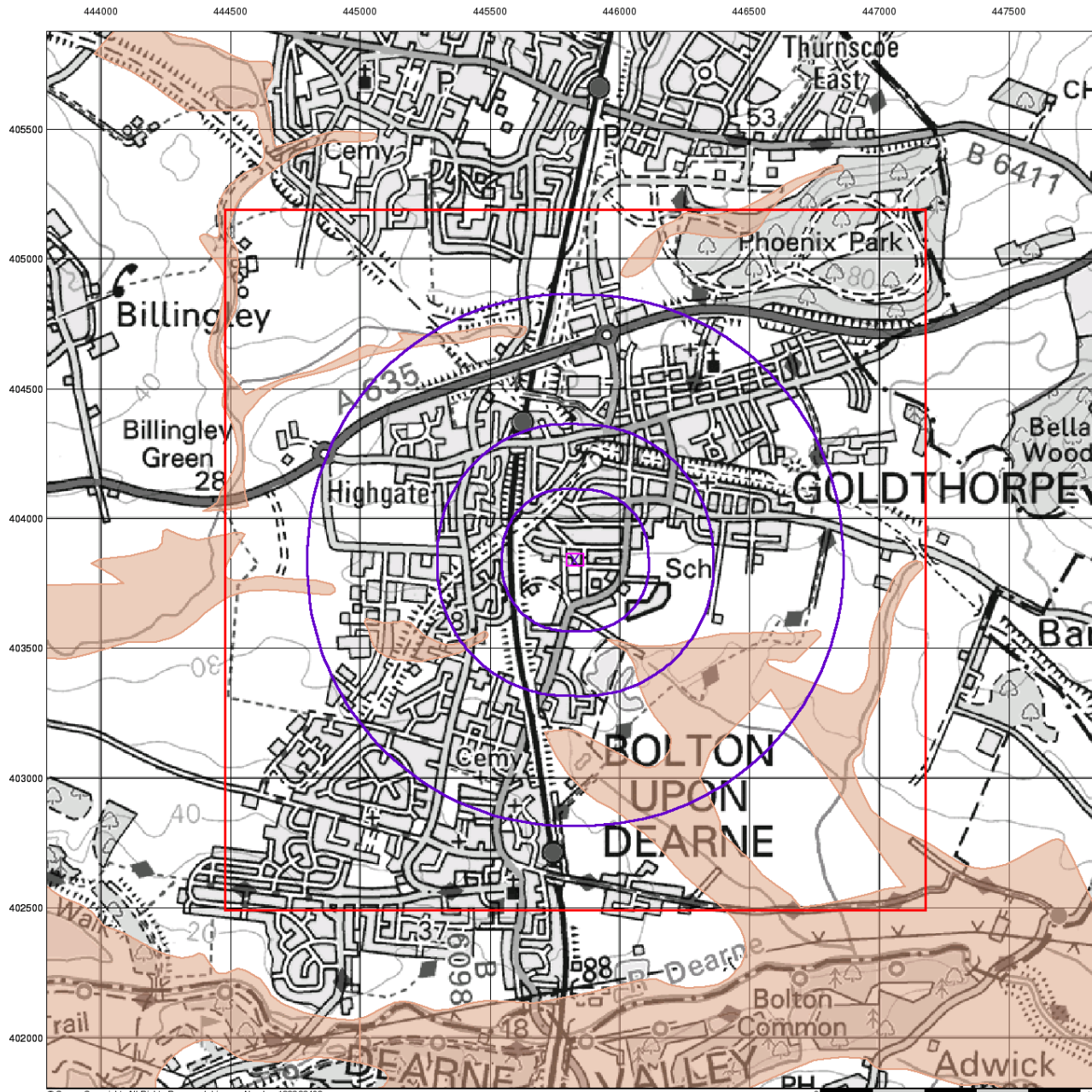
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 Customer Ref: 38885
 National Grid Reference: 445830, 403840
 Slice: A
 Site Area (Ha): 0.31
 Search Buffer (m): 1000

Site Details

Site at 445810, 403850



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 Fax: 0844 844 9951
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Superficial Aquifer Designation

General

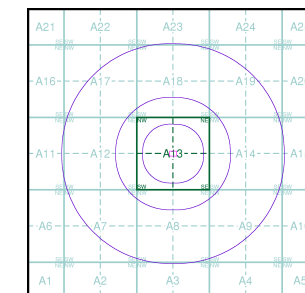
- ◊ Specified Site
- Specified Buffer(s)
- ✕ Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice A



Order Details

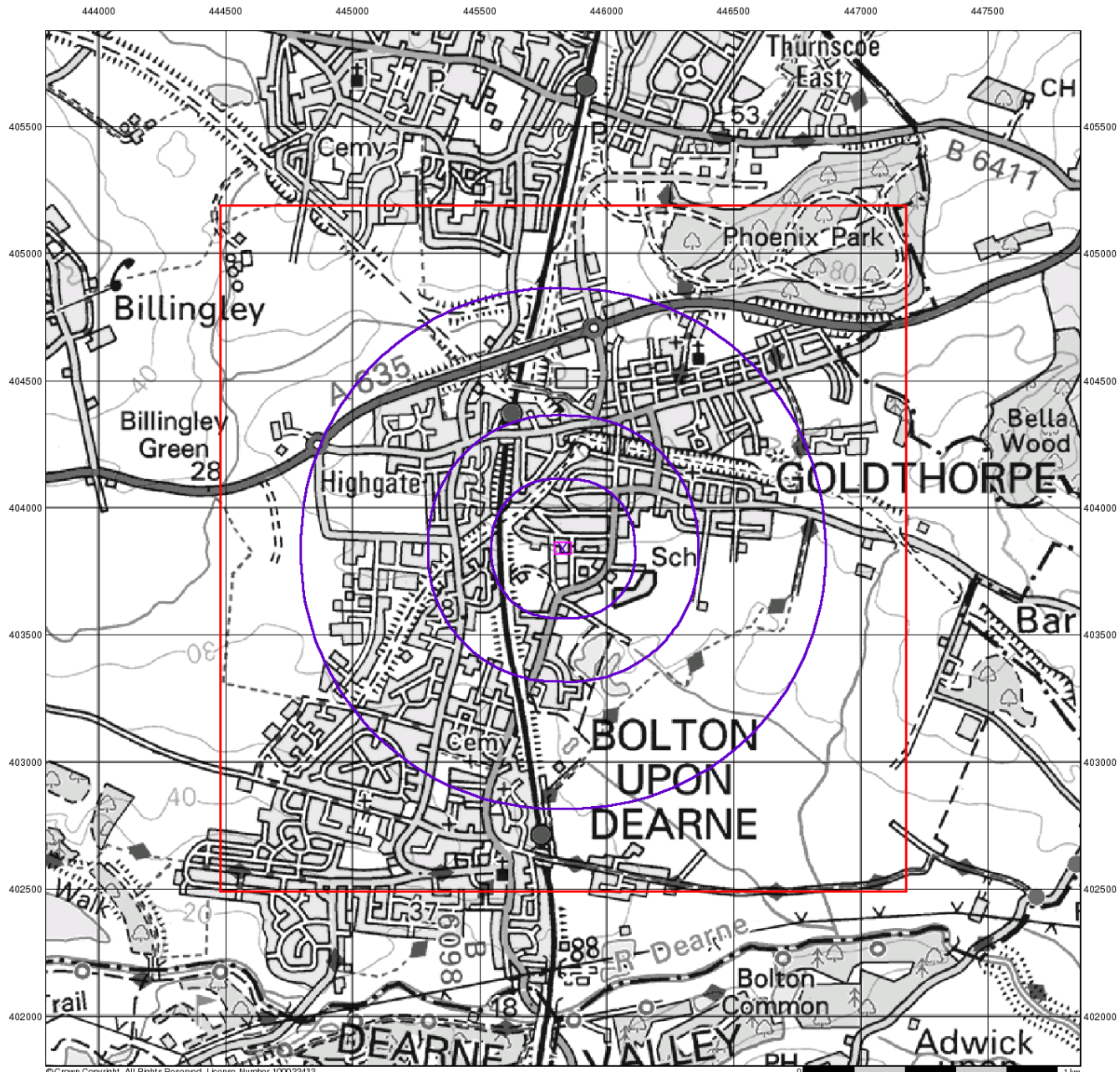
Order Number: 71025784_1_1
 Customer Ref: 38885
 National Grid Reference: 445830, 403840
 Slice: A
 Site Area (Ha): 0.31
 Search Buffer (m): 1000

Site Details

Site at 445810, 403850



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



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Source Protection Zones

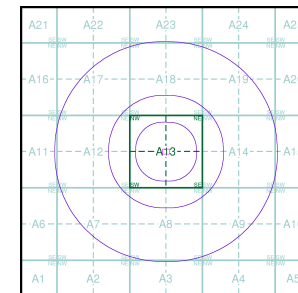
General

- ◻ Specified Site
- Specified Buffer(s)
- X 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)
- Source Protection Zone Borehole

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 71025784_1_1
 Customer Ref: 38885
 National Grid Reference: 445830, 403840
 Slice: A
 Site Area (Ha): 0.31
 Search Buffer (m): 1000

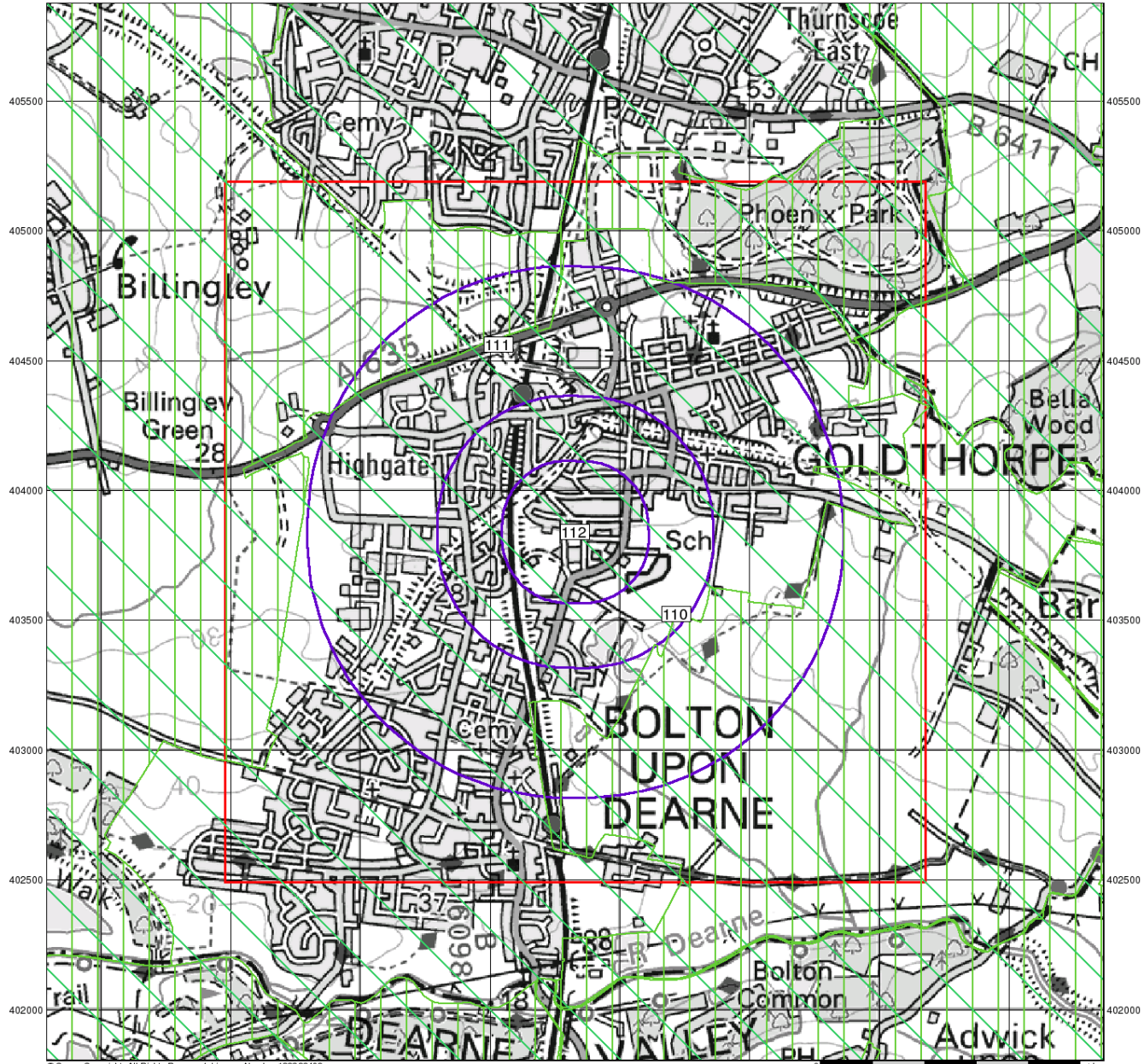
Site Details

Site at 445810, 403850



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

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Sensitive Land Uses

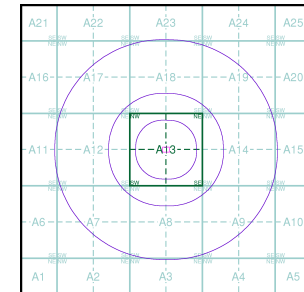
General

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

Sensitive Land Uses

- 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

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 71025784_1_1
 Customer Ref: 38885
 National Grid Reference: 445830, 403840
 Slice: A
 Site Area (Ha): 0.31
 Search Buffer (m): 1000

Site Details

Site at 445810, 403850



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



Issued by:

The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
Website: www.groundstability.com Phone: 0345 762 6848 DX 716176 MANSFIELD 5

**LANDMARK INFORMATION GROUP
LIMITED
SOWTON INDUSTRIAL ESTATE
ABBAY COURT
UNIT 5/7 EAGLE WAY
EXETER
DEVON
EX2 7HY**

Our reference: **51000968561001**
Your reference: **71025784_2|**
Date of your enquiry: **07 August 2015**
Date we received your enquiry: **07 August 2015**
Date of issue: **07 August 2015**

This report is for the property described in the address below and the attached plan.

Non-Residential Coal Authority Mining Report

SITE AT 445810, 403850, SOUTH YORKSHIRE,

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Coal mining	See comments below
Brine Compensation District	No

Information from the Coal Authority

Underground coal mining

Past

The property is in the likely zone of influence from workings in 4 seams of coal at 240m to 640m depth, and last worked in 1978.

Any ground movement from these coal workings should have stopped by now.

In addition the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity. Your attention is drawn to the Comments on Coal Authority Information section of the report.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

Records may be incomplete. Consequently, there may exist in the local area mine entries of which the Coal Authority has no knowledge.

Coal mining geology

The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

Opencast coal mining

Past

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres, since 31st October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of support

The property is in an area for which a notice of entitlement to withdraw support was published in 1983.

The property is not in an area for which a notice has been given under section 41 of the Coal Industry Act 1994, revoking the entitlement to withdraw support.

Working facilities orders

The property is not in an area for which an Order has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

Payments to owners of former copyhold land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Comments on Coal Authority information

In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore if development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Additional Remarks

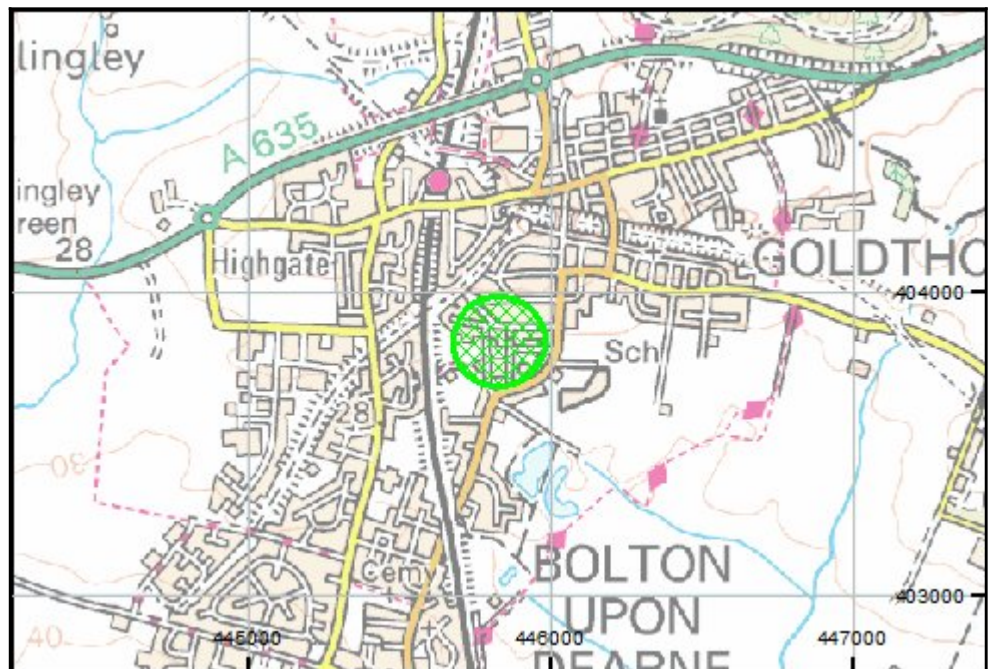
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Location map



Approximate position
of property

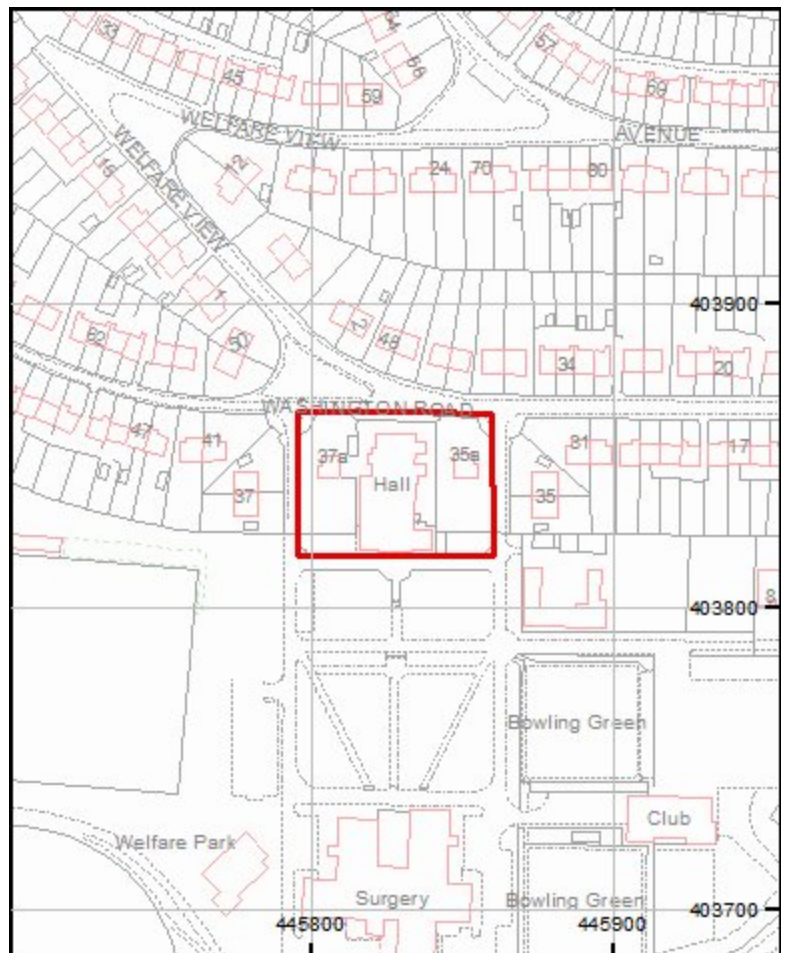


Enquiry boundary

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Key

Approximate position of enquiry
boundary shown



Appendix 3

Trial Pit Logs, TP1 to TP6

Project Name Washington Road	Project No. 38885	Co-ords: - Level: -	Date 20/08/2015
Location: Goldthorpe		Dimensions: - Depth 2.20m	Scale 1:25
Client: The Coalfields Regeneration Trust			Logged By ECM




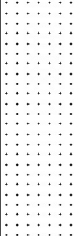
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.20	D					TOPSOIL: Grass over brown slightly gravelly sand. Gravel is fine, sub-rounded to sub-angular of various lithologies. Many rootlets noted. Some evidence of a bonfire at the surface due to presence of ash in topsoil at end nearest the theatre.
0.50	D		0.40			Brown gravelly SAND. Gravel is fine to coarse, sub-rounded to sub-angular of sandstone.
			0.70			Black friable very clayey SAND.
			1.20			COAL.
			1.30			Stiff brown mottled orange and grey CLAY.
1.50	IPP 1	150				
1.50	IPP 2	150				
1.50	IPP 3	125				
1.50	IPP 4	175				
1.50	IPP 5	125				
1.50	D					
			1.90			Very weak MUDSTONE recovered as clayey sandy gravel with ironstone nodules.
2.10	D		2.20			Trialpit Complete at 2.20 m

Remarks: IPP - Pocket penetrometer results which represent unconfined compressive strength in kN/m2.

Groundwater: None encountered.



Project Name Washington Road	Project No. 38885	Co-ords: - Level: -	Date 20/08/2015
Location: Goldthorpe		Dimensions: - Depth 2.30m	Scale 1:25
Client: The Coalfields Regeneration Trust			Logged By ECM


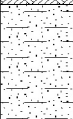
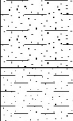
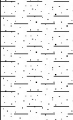
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.30	D		0.40			TOPSOIL: Grass over brown clayey gravelly SAND with rootlets.
0.70	D					Orange-brown friable very clayey SAND.
1.40	D		1.00			Very weak MUDSTONE recovered as clayey gravel. Gravel is fine to medium, sub-angular to angular.
			1.50			Strong SANDSTONE recovered as sandy gravel and cobbles. Gravel and cobbles are fine to coarse, angular to sub-angular.
			2.30		Trialpit Complete at 2.30 m	

Remarks: Terminated due to strong rock.

Groundwater: None encountered.



Project Name Washington Road	Project No. 38885	Co-ords: - Level: -	Date 20/08/2015
Location: Goldthorpe		Dimensions: - Depth 1.75m	Scale 1:25
Client: The Coalfields Regeneration Trust			Logged By ECM





Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	D					TOPSOIL: Grass over brown clayey gravelly SAND with rootlets.
			0.40			Brown clayey SAND with lumps of friable clay.
0.80	D					Very stiff brown mottled orange-grey sandy CLAY.
1.50 1.50	IPP D	400	1.70 1.75			Strong SANDSTONE recovered as sandy gravel and cobbles present at base of trial pit.
Trialpit Complete at 1.75 m						

Remarks: IPP - Pocket penetrometer results which represent unconfined compressive strength in kN/m2. Terminated due to strong rock.

Groundwater: None encountered.



Project Name Washington Road	Project No. 38885	Co-ords: - Level: -	Date 20/08/2015
Location: Goldthorpe		Dimensions: - Depth 2.80m	Scale 1:25
Client: The Coalfields Regeneration Trust			Logged By ECM



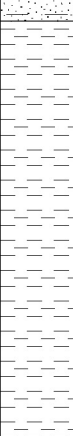

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.20	D		0.45			TOPSOIL: Grass over dark brown very clayey sand with occasional gravel and rootlets. Gravel is fine to medium, sub-rounded to sub-angular of various lithologies.
			1.00			Orange brown clayey SAND
			2.10			COAL. Water seeping into pit through layer.
2.20	D		2.80			Very weak MUDSTONE recovered as fine to medium, sub-angular to angular gravel in a clayey sandy matrix. Some red staining noted. Mudstone got harder with depth and gravel became coarse to cobbles with possible ironstone nodules noted towards the base.
Trialpit Complete at 2.80 m						

Remarks:

Groundwater: Water seepage at 2.1m bgl.



Project Name Washington Road	Project No. 38885	Co-ords: - Level: -	Date 20/08/2015
Location: Goldthorpe		Dimensions: -	Scale 1:25
Client: The Coalfields Regeneration Trust		Depth 2.20m	Logged By ECM


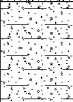



Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.15	D		0.30			TOPSOIL: Grass over brown clayey gravelly SAND with rootlets.
0.60	D		0.70			Brown-orange very clayey SAND.
1.30	D		2.10			Very stiff orange-grey CLAY becoming mudstone with depth.
			2.20			Strong SANDSTONE recovered as slightly clayey sandy gravel and cobbles. Gravel is fine to coarse, angular to sub-angular and tabular.
Trialpit Complete at 2.20 m						

Remarks: Terminated due to strong rock.

Groundwater: Water noted at base of pit.



Project Name Washington Road	Project No. 38885	Co-ords: - Level: -	Date 20/08/2015
Location: Goldthorpe		Dimensions: -	Scale 1:25
Client: The Coalfields Regeneration Trust		Depth 2.00m	Logged By ECM

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.40	D		0.50			TOPSOIL: Grass over dark brown very clayey sand with occasional gravel and rootlets. Gravel is fine to medium, sub-rounded to sub-angular of various lithologies.
0.70	D					Brown-orange very clayey gravelly SAND.
1.20	D		0.85			COAL.
1.40	IPP 1	150	1.00			Stiff to very stiff, brown mottled orange-grey CLAY with pockets of clayey sand.
1.40	IPP 2	300	1.30			Strong SANDSTONE recovered as slightly clayey sandy gravel and cobbles. Gravel is fine to coarse, angular to sub-angular and tabular.
1.40	IPP 3	225	2.00			
Trialpit Complete at 2.00 m						

Remarks: IPP - Pocket penetrometer results which represent unconfined compressive strength in kN/m2. Terminated due to strong rock.

Groundwater: None encountered.



Appendix 4

Test Results, Chemtech Report 56592

Table of Assessment Values

Lead Corrected Mean Calculation



2531



ANALYTICAL TEST REPORT

Contract no: 56592
Contract name: Washington Road, Goldthorpe
Client reference: 38885/20.08.15
Clients name: Eastwood and Partners
Clients address: St Andrews House
23 Kingfield Road
Sheffield
S11 9AS
Samples received: 24 August 2015
Analysis started: 24 August 2015
Analysis completed 01 September 2015
Report issued: 01 September 2015

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by:

Karan Campbell
Director

John Campbell
Director

Dave Bowerbank
Customer Services Co-ordinator

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.
Analytical results are inclusive of stones.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
56592-1	TP1	0.50	Sandy Loam	-	-	12.3
56592-3	TP2	0.30	Loam with Roots	-	-	14.4
56592-4	TP2	0.70	Sandy Clay	-	-	12.2
56592-5	TP3	0.10	Sandy Loam with Roots	-	-	9.0
56592-7	TP4	0.20	Sandy Loam with Roots	-	-	22.5
56592-8	TP5	0.60	Clay	-	-	15.7
56592-10	TP6	0.40	Loam with Roots	-	-	26.5
56592-11	TP6	0.70	Sandy Clay	-	-	12.2

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SOILS

Lab number			56592-1	56592-3	56592-4	56592-5	56592-7	56592-8
Sample id			TP1	TP2	TP2	TP3	TP4	TP5
Depth (m)			0.50	0.30	0.70	0.10	0.20	0.60
Date sampled			20/08/2015	20/08/2015	20/08/2015	20/08/2015	20/08/2015	20/08/2015
Test	Method	Units						
Arsenic (total)	CE127 ^M	mg/kg As	22	20	9.7	15	21	13
Cadmium (total)	CE127 ^M	mg/kg Cd	<0.2	0.2	0.3	0.5	<0.2	0.4
Chromium (total)	CE127 ^M	mg/kg Cr	64	70	47	86	70	58
Chromium (VI)	CE050	mg/kg CrVI	<1	<1	<1	<1	<1	<1
Copper (total)	CE127 ^M	mg/kg Cu	22	55	90	20	91	26
Lead (total)	CE127 ^M	mg/kg Pb	30	114	15	55	257	33
Mercury (total)	CE127 ^M	mg/kg Hg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel (total)	CE127 ^M	mg/kg Ni	23	25	22	25	26	26
Selenium (total)	CE127 ^M	mg/kg Se	2.2	1.2	1.7	0.9	1.4	1.2
Zinc (total)	CE127 ^M	mg/kg Zn	67	180	67	84	160	95
pH	CE004 ^M	units	7.6	7.6	7.8	6.8	6.6	7.7
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	109	-	25	-	-	16
Sulphate (total)	CE062 ^M	mg/kg SO ₄	462	-	209	-	-	401
Sulphur (total)	CE127	% w/w S	0.02	-	<0.01	-	-	0.02
PAH								
Naphthalene	CE087 ^M	mg/kg	<0.01	0.11	<0.01	0.11	0.14	<0.01
Acenaphthylene	CE087 ^M	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthene	CE087 ^M	mg/kg	<0.01	0.03	<0.01	0.02	0.06	<0.01
Fluorene	CE087 ^U	mg/kg	<0.01	0.03	<0.01	0.02	0.04	<0.01
Phenanthrene	CE087 ^M	mg/kg	0.07	0.63	0.03	0.50	1.09	0.03
Anthracene	CE087 ^U	mg/kg	<0.02	0.18	0.04	0.15	0.17	<0.02
Fluoranthene	CE087 ^M	mg/kg	0.07	1.61	<0.02	1.56	3.46	0.08
Pyrene	CE087 ^M	mg/kg	0.08	1.48	<0.02	1.38	3.01	0.09
Benzo(a)anthracene	CE087 ^U	mg/kg	0.03	0.76	<0.02	0.57	1.20	0.03
Chrysene	CE087 ^M	mg/kg	0.03	0.84	<0.01	0.69	1.58	<0.01
Benzo(b)fluoranthene	CE087 ^M	mg/kg	<0.02	0.98	<0.02	0.91	1.85	<0.02
Benzo(k)fluoranthene	CE087 ^M	mg/kg	<0.02	0.47	<0.02	0.37	0.91	<0.02
Benzo(a)pyrene	CE087 ^U	mg/kg	<0.02	0.81	<0.02	0.72	1.63	<0.02
Indeno(123cd)pyrene	CE087 ^M	mg/kg	<0.02	0.66	<0.02	0.64	1.21	<0.02
Dibenz(ah)anthracene	CE087 ^M	mg/kg	<0.02	0.09	<0.02	0.11	0.23	<0.02
Benzo(ghi)perylene	CE087 ^M	mg/kg	<0.02	0.46	<0.02	0.47	0.96	<0.02
PAH (total of USEPA 16)	CE087	mg/kg	0.27	9.14	<0.27	8.21	17.5	<0.27

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SOILS

Lab number			56592-10	56592-11
Sample id			TP6	TP6
Depth (m)			0.40	0.70
Date sampled			20/08/2015	20/08/2015
Test	Method	Units		
Arsenic (total)	CE127 ^M	mg/kg As	21	22
Cadmium (total)	CE127 ^M	mg/kg Cd	0.6	0.3
Chromium (total)	CE127 ^M	mg/kg Cr	73	52
Chromium (VI)	CE050	mg/kg CrVI	<1	<1
Copper (total)	CE127 ^M	mg/kg Cu	27	25
Lead (total)	CE127 ^M	mg/kg Pb	115	26
Mercury (total)	CE127 ^M	mg/kg Hg	<0.5	<0.5
Nickel (total)	CE127 ^M	mg/kg Ni	21	23
Selenium (total)	CE127 ^M	mg/kg Se	1.2	1.4
Zinc (total)	CE127 ^M	mg/kg Zn	129	64
pH	CE004 ^M	units	6.5	7.8
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	-	12
Sulphate (total)	CE062 ^M	mg/kg SO ₄	-	164
Sulphur (total)	CE127	% w/w S	-	<0.01
PAH				
Naphthalene	CE087 ^M	mg/kg	0.11	<0.01
Acenaphthylene	CE087 ^M	mg/kg	<0.01	<0.01
Acenaphthene	CE087 ^M	mg/kg	0.05	<0.01
Fluorene	CE087 ^U	mg/kg	0.04	<0.01
Phenanthrene	CE087 ^M	mg/kg	0.74	0.05
Anthracene	CE087 ^U	mg/kg	0.18	<0.02
Fluoranthene	CE087 ^M	mg/kg	1.80	0.11
Pyrene	CE087 ^M	mg/kg	1.63	0.12
Benzo(a)anthracene	CE087 ^U	mg/kg	0.61	0.06
Chrysene	CE087 ^M	mg/kg	0.79	0.05
Benzo(b)fluoranthene	CE087 ^M	mg/kg	0.96	<0.02
Benzo(k)fluoranthene	CE087 ^M	mg/kg	0.36	<0.02
Benzo(a)pyrene	CE087 ^U	mg/kg	0.72	<0.02
Indeno(123cd)pyrene	CE087 ^M	mg/kg	0.52	<0.02
Dibenz(ah)anthracene	CE087 ^M	mg/kg	0.09	<0.02
Benzo(ghi)perylene	CE087 ^M	mg/kg	0.43	0.04
PAH (total of USEPA 16)	CE087	mg/kg	9.04	0.43

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SOILS

Lab number			56592-1	56592-2
Sample id			TP1	TP3
Depth (m)			1.50	1.50
Date sampled			20/08/2015	20/08/2015
Material Type			Light brown, orange, grey, mottled CLAY	Orange, grey, light brown, mottled, slightly sandy CLAY with occasional coals
Test	Method	Units		
Natural Moisture Content	\$	%	35.3	19.5
Liquid Limit	\$	%	56	41
Plastic Limit	\$	%	25	20
Plasticity Index	\$	%	31	21
Passing 425µm	\$	%	100	99
Soil Classification	\$	-	CH	CI

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SOILS

Lab number	56592-3		
Sample id	TP5		
Depth (m)	1.30		
Date sampled	20/08/2015		
Material Type	Orange, grey, silty CLAY		
Test	Method	Units	
Natural Moisture Content	\$	%	18.1
Liquid Limit	\$	%	39
Plastic Limit	\$	%	21
Plasticity Index	\$	%	18
Passing 425µm	\$	%	95
Soil Classification	\$	-	CI

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg As
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry	M	0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cr
CE050	Chromium (VI)	Acid extraction, Colorimetry	Dry		1	mg/kg CrVI
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry	M	0.5	mg/kg Hg
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry	M	0.3	mg/kg Se
CE127	Zinc (total)	Aqua regia digest, ICP-MS	Dry	M	5	mg/kg Zn
CE004	pH	Based on BS 1377, pH Meter	Wet	M	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	M	10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	M	100	mg/kg SO ₄
CE127	Sulphur (total)	Acid extraction, ICP-MS	Dry		0.01	% w/w S
CE087	Naphthalene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Acenaphthylene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Acenaphthene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Fluorene	Solvent extraction, GC-MS	Wet	U	0.01	mg/kg
CE087	Phenanthrene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Anthracene	Solvent extraction, GC-MS	Wet	U	0.02	mg/kg
CE087	Fluoranthene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Pyrene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(a)anthracene	Solvent extraction, GC-MS	Wet	U	0.02	mg/kg
CE087	Chrysene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Benzo(b)fluoranthene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(k)fluoranthene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(a)pyrene	Solvent extraction, GC-MS	Wet	U	0.02	mg/kg
CE087	Indeno(123cd)pyrene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Dibenz(ah)anthracene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(ghi)perylene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	PAH (total of USEPA 16)	Solvent extraction, GC-MS	Wet		0.27	mg/kg
\$	Material Type	BS1377: Part 2	Wet		-	-
\$	Natural Moisture Content	BS1377: Part 2: Clause 3.2	Wet	U	0.1	%
\$	Liquid Limit	BS1377: Part 2: Clause 4.4	Wet	U	1	%
\$	Plastic Limit	BS1377: Part 2: Clause 5.3	Wet	U	1	%
\$	Plasticity Index	BS1377: Part 2: Clause 5.4	Wet	U	1	%
\$	Passing 425µm	BS1377: Part 2	Wet	U	1	%
\$	Soil Classification	BS1377: Part 2	Wet	U	-	-

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DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

- N No (not deviating sample)
- Y Yes (deviating sample)
- A Sampling date not provided
- B Sampling time not provided (waters only)
- C Sample exceeded holding time(s)
- D Sample not received in appropriate containers
- E Headspace present in sample container
- F Sample not chemically fixed (where appropriate)
- G Sample not cooled
- H Other (specify)


Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
56592-1	TP1	0.50	N	
56592-2	TP1	1.50	N	
56592-3	TP2	0.30	N	
56592-4	TP2	0.70	N	
56592-5	TP3	0.10	N	
56592-6	TP3	1.50	N	
56592-7	TP4	0.20	N	
56592-8	TP5	0.60	N	
56592-9	TP5	1.30	N	
56592-10	TP6	0.40	N	
56592-11	TP6	0.70	N	

Inorganic Compounds	Human Health - Residential with Homegrown Produce (mg/kg)
Arsenic	37
Cadmium	11
Chromium (III)	910
Chromium (VI)	6
Lead	200
Mercury	1.2
Nickel	180
Selenium	250
Copper	2400
Zinc	3700

Organic Compounds	Human Health - Residential with Homegrown Produce (mg/kg)		
	1% SOM	2.5% SOM	6% SOM
Naphthalene	2.3	5.6	13
Acenaphthene	210	510	1100
Acenaphthylene	170	420	920
Fluorene	170	400	860
Phenanthrene	95	220	440
Anthracene	2400	5400	11000
Fluoranthene	280	560	890
Pyrene	620	1200	2000
Benzo(a)anthracene	7.2	11	13
Chrysene	15	22	27
Benzo(b)fluoranthene	2.6	3.3	3.7
Benzo(k)fluoranthene	77	93	10
Benzo(a)pyrene	2.2	2.7	3.0
Dibenz(a,h)anthracene	0.24	0.28	0.3
Indeno(1,2,3-cd)pyrene	27	36	41
Benzo(g,h,i)perylene	320	340	350
Benzene	0.087	0.17	0.37
Toluene	130	290	660
Ethylbenzene	47	110	260
o-Xylene	60	140	330
m-Xylene	59	140	320
p-Xylene	56	130	310

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Prepared	KDL	Checked	CAT	Date	02.09.2015	Job No	38885
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Contaminant	Phytotoxicity			
	pH 5.0 to 5.5	pH 5.5 to 6.0	pH 6.0 to 6.5	pH >7.0
Arsenic	50			
Cadmium	3			
Chromium	400			
Lead	300			
Mercury	1			
Nickel	50	60	75	110
Copper	80	100	135	200
Zinc	200	200	200	300


The assessment concentration for lead is the Category 4 Screening Level produced by Contaminated Land: Applications in Real Environments (CL:AIRE) and outlined in Appendix H of their report SP1010. The others have been taken from Nathanail, C. P., McCaffrey, C., Gillett, A., Ogden, R., and Nathanail, J., 2015, 'The LQM/CIEH S4ULs for Human Health Risk Assessment', Land Quality Press, Nottingham. The metals/metalloids are based on a sandy loam soil and 6% soil organic matter. The assessment values are not intended to be applied to individual sample results where materials are similar, as the levels of contaminants will have a natural variability across the site. Instead, the modified mean value should be compared with the assessment concentration.

The assessment values for phytotoxicity are the levels at which plant growth is thought to be affected. They are taken from the maximum permissible and advisable concentrations in soil after application of soil sludge given in the 'The Code of Good Agricultural Practice for the Protection of Soil', MAFF, 1998.

The assessment of sulphate, water soluble sulphate, elemental sulphur and sulphide is to determine the aggressive nature of the ground with respect to concrete and consequently the results are compared with BRE Special Digest 1:2005 'Concrete in Aggressive Ground'.

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TPH Fraction	Intended Land Use Residential (mg/kg)		
	1% SOM	2.5% SOM	6% SOM
Aliphatic EC 5-6	42	78	160
Aliphatic EC >6-8	100	230	530
Aliphatic EC >8-10	27	65	150
Aliphatic EC >10-12	130 (48) ^{vap}	330 (118) ^{vap}	760 (283) ^{vap}
Aliphatic EC >12-16	1100 (24) ^{sol}	2400 (59) ^{sol}	4,300 (142) ^{sol}
Aliphatic EC >16-35	65,000 (8.48) ^{f, sol}	92,000 (21) ^{f, sol}	110,000 ^f
Aliphatic EC >35-44	65,000 (8.48) ^{f, sol}	92,000 (21) ^{f, sol}	110,000 ^f
Aromatic EC 5-7	70	140	300
Aromatic EC >7-8	130	290	660
Aromatic EC >8-10	34	83	190
Aromatic EC >10-12	74	180	380
Aromatic EC >12-16	140	330	660
Aromatic EC >16-21	260 ^f	540 ^f	930 ^f
Aromatic EC >21-35	1,100 ^f	1,500 ^f	1,700 ^f
Aromatic EC >35-44	1,100 ^f	1,500 ^f	1,700 ^f

^f oral, dermal, and inhalation exposure compared with oral HCV

^{sol} S4UL presented exceeds the solubility saturation limit, which is presented in brackets


^{vap} S4UL presented exceed the vapour saturation limit, which is presented in brackets

The assessment criteria for each of the petroleum hydrocarbon fractions have been taken from Nathanail, C. P., McCaffrey, C., Gillett, A., Ogden, R., and Nathanail, J., 2015, *The LQM/CIEH S4ULs for Human Health Risk Assessment*, Land Quality Press, Nottingham. These are also all based on a sandy loam soil.

Within the Environment Agency Science Report P5-080/TR3, Askari, K. & Pollard, S., 2005 *The UK Approach for Evaluating Human Health Risks from Petroleum Hydrocarbons in Soils* it is stated that the assessment values should not be considered individually; instead the potential additive effects should be calculated. This is achieved by calculating an individual Hazard Quotient (HQ) for each fraction. The HQ is the proportion of the assessment concentration represented by the recorded concentration. The HQs are then added together to form a Hazard Index (HI) and where this exceeds unity a potential significant risk to human health may exist.

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