GIP Ltd.
Ground Investigation & Piling Limited

GROUND INVESTIGATION REPORT FOR A PROPOSED SUBSTATION AT SEVERN ROAD, AVONMOUTH, BRISTOL.

Date: 21st January 2019
Our Ref: DAP/27541

Client: GFP II Ltd
17, The Courtyard
Gorsey Lane
Coleshill
Birmingham
B46 1JA

CONTENTS

APPENDICES

1 Introduction

1.1 It is proposed to construct a Generation Compound on a parcel of land located off Severn Road in Avonmouth, Bristol. The proposals will involve the installation of 29 No. containerised generators and the construction of a small substation, switchgear cabin, welfare cabin and a balancing pond.

1.2 Upon the instruction of GFPII Limited (Client), an intrusive Phase II ground investigation has been carried out comprising five windowless sampler boreholes and five machine excavated trial pits each with appropriate sampling and in-situ testing. Where applicable, the fieldwork was undertaken in accordance with BS 5930. The scope of works was devised by the GIP Limited. A desk study is included, consisting of a review of in-house geological maps and an Envirocheck Report. The purpose of the investigation was to assess the prevailing physical and chemical ground conditions with regards to foundation design and contamination with regard to Human Health.

1.3 This report contains a description of the site, its anticipated geology and strata encountered together with comments and recommendations upon the foundation engineering geology with respect to the construction of the proposed development. An environmental risk assessment is provided which includes comments on the potential for contamination to affect future users and possible remedial measures.

1.4 The geotechnical laboratory tests were undertaken by GIP Ltd and are accredited by the United Kingdom Accreditation Services (UKAS). However, it should be appreciated that opinions and interpretations expressed in this report are outside the scope of UKAS accreditation. The testing was carried out in accordance with BS 1377 and comprised :-

Test Description	Part	Method	UKAS Accredited Test	Number of Tests
Moisture Content	2	3	✓	4
Liquid Limit	2	4	✓	4
Plastic Limit	2	5	✓	4
Remoulded CBR	4	7	✓	4

1.5 Additional testing for a range of chemical contaminants and concrete classification tests were carried out by ALS Life Sciences Limited. The results of all the above tests are in Appendix B and C.

1.6 We are confident that the conclusions drawn from the findings of this investigation and desk study are appropriate for the proposed development. However, we cannot guarantee that they would be accepted by regulatory authorities without question. It is recommended that the reports are submitted and approval gained from such bodies, prior to the undertaking of detailed design, construction work or other irreversible processes.

2 The Site

2.1 The site is located along the northeastern side of Severn Road approximately 5km to the north west of Bristol. National Grid Reference 354340 181250 denotes the approximate centre of the proposed development area.

2.2 At the time of the investigation the site comprised an undeveloped field with a surface cover of long grass. The southwestern boundary consisted of a drainage ditch with Severn Road beyond. The remaining boundaries were made of a hedgerow containing a number of mature trees. A car/truck dealership was located immediately beyond the southeastern boundary.

3. Desk Study

3.1 An Envirocheck Desk Study report has been obtained from Landmark which gives details of historical site usage and also comments upon the environmental setting of the site. The salient points are summarised below.

3.2 Site History

3.2.1 The main features of note contained with the historical maps of the Envirocheck report are summarised below:

3.2.2 **1881-1999:** The site remains as an undeveloped field enclosure from the first edition to the final map editions. A main road forms the southwestern border as at present day and a drain is shown along the southern and northern boundary. An industrial estate is shown on the 1971-1972 plan and remains to the present day although the surrounding area remains undeveloped.

3.3 Environmental Details

3.3.1 The Envirocheck Report Desk Study report provides environmental information regarding the site and immediate area. The key points of note are as follows:-

Agency and Hydrogeological

- The nearest surface watercourse is a drainage ditch which runs around the entire site perimeter.
- There are no recorded pollution incidents to controlled waters within 2km of the site.
- There are no water abstraction points within 1km of the site.
- The bedrock at the site is classified as a ‘Secondary Aquifer - B’ with the overlying superficial soils classified as ‘Unproductive Strata’.
- The site is not located within a Groundwater Source Protection Zone.
- The site lies within an area ‘Benefiting from Flood Defences.

Waste

- There are no BGS Recorded or Historical Landfill sites within 500m of the site.

3.4 Detailed UXO Risk Assessment

3.4.1 A detailed Unexploded Ordnance (UXO) risk assessment was conducted by 1st Line Defence Limited as part of the works. Reference should be made to Appendix D for further details. The report concluded that there is a Low to Medium Risk from items of unexploded German aerial delivered and Allied Ordnance across the site. UXO awareness briefings were issued during fieldworks in accordance with the proposed mitigation measures.

4 Fieldwork

4.1 General Comments

4.1.1 The prevailing ground conditions were determined with the use of windowless sampler boreholes and machine excavated trial pits. All the exploratory holes were undertaken, where appropriate, in accordance with BS5930.

4.2 Windowless Sampler Boreholes

4.2.1 Five windowless sampler boreholes (WS1 to WS5) were carried out across the site at locations in accordance with the proposed layout. Soils samples were recovered in 1m plastic liners and in-situ SPTs taken at 1m intervals in all of the boreholes. The liners were subsequently split, logged and sub-sampled by an Engineer from GIP Limited. The boreholes were terminated at a maximum depth of 5.45m.

4.3 Machine Excavated Trial Pits

4.3.1 Five machine excavated trial pits (TP1-TP5) were carried out at the site at locations in accordance with the proposed layout. The trial pits were excavated to a maximum depth of 3.50m below ground level to investigate *en-masse* the geotechnical design characteristics of the shallow soils and to collect soil samples for laboratory analysis. The trial pits were logged and sub-sampled by an Engineer from GIP Limited on site. Soakaway testing was carried out in broad accordance with BRE365 methodology in TP1 and TP2.

4.4 Instrumentation

4.4.1 A combined gas and groundwater monitoring installation has been installed within WS5. Given the nature of the proposal, ground gas monitoring has not been carried to date although this can be undertaken should the proposals alter.

5 Ground Conditions

5.1 Published Geological Information

5.1.1 Within the accuracy of the available geological information (BGS Sheet 250 and 264, Chepstow and Bristol, 1:50,000 Scale solid and drift edition) the 'solid' geology beneath the site comprises the Mercia Mudstone Group of the Triassic Period. The 'solid' geology is shown to be masked by a superficial cover of Tidal Flat Deposits comprised of 'clay, silt, sand and gravel'. There are no geological faults within influencing distance of the site.

5.2 Encountered Ground Conditions

5.2.1 For full details of the strata encountered reference should be made to the appended engineer verified logs (appendix A), however, the salient features of the engineering geology can be summarised as follows :-

5.2.2 **Made Ground** – A thin cover of a disturbed topsoil type horizon was recorded to a maximum depth of 0.60m in all of the exploratory locations. The soils typically comprised soft and firm friable clay containing many roots and rootlets.

5.2.3 **Tidal Flat Deposits –** Deposits were recorded below the made ground in all of the exploratory locations to a depth of at least 5.45m. The upper soils comprised variably firm and stiff silty clay containing many rootlets to depths typically in the order of 1.00m to 2.00m. The lower deposits comprised very soft and soft silty clay. This was evident on the borehole SPT N' values which were consistently 0 (self weight penetration). Occasional peat horizons and organic rich inclusions were recorded within selected exploratory locations.

5.2.4 **Groundwater** – Groundwater was not encountered within any of the exploratory locations during the short period of time they remained open during drilling/excavation.

6 Comments and Recommendations: Geotechnical

6.1 General Comments

6.1.1 It is proposed to construct a Generation Compound on a parcel of land located off Severn Road in Avonmouth, Bristol. The proposals will involve the installation of 29 No. containerised generators and the construction of a small substation, switchgear cabin, welfare cabin and a balancing pond.

6.2 Foundation Design

6.2.1 As part of the proposals it is proposed to construct a small substation building and install 29 No. containerised generators. It is assumed that the proposed welfare cabin, switchgear cabin and workshop will comprise lightweight temporary type structures and foundation design consideration are not made as part of this report. This ground investigation has consistently recorded Tidal Flat Deposits which possess very poor bearing capacity and settlement characteristics. The ground conditions comprise a mantle of firm and stiff cohesive deposits to a depth in the order of 1.00m to 2.00m which overlie very soft and soft cohesive deposits. Foundation loads are likely to transfer through to the underlying soft soils such that even lightly loaded structures founded on the shallow more competent soils may be subject to high orders of settlement (>50mm).

6.2.2 A building specific assessment of bearing capacity for the substation needs to be carried out based upon actual foundation dimensions. It is possible that a uniform slab raft with a low ground bearing pressure could be sat at surface and not overstress the very soft clays below around 2m. If it can be shown by calculation that bearing failure at depth is not an issue, then the magnitude of likely settlements could be calculated and consideration be given to implication of these on the proposed structure. Reference should be made back to this office to develop this strategy.

6.3 Other Structures

6.3.1 Given the more transient nature of the other structures, it may be feasible to place these on a prepared surface formation but accept that some future movements may occur. If the nature of the structures allows, these could be accommodated by ongoing routine maintenance such as re-packing of formation stone or re levelling of jacked units.

6.3.2 In order to help reduce the orders of potential total and differential settlement it may be possible to incorporate a high tensile geotextile into a granular layer to act as a basal reinforcement something analogous to a load transfer platform for roads over peat or piling mats for heavy plant. The findings of this report will need to be discussed with a specialist in engineering with geosynthetics (e.g. Huesker).

6.4 **Alternative Foundation options**

6.4.1 Reference to the relevant specialists will be needed for alternative foundation options. However preliminary comments are given below.

6.4.2 **Vibro Ground Treatment –** ground improvement by vibro compaction or vibro concrete columns may be feasible but squeezing of the sediments into the stone and vice versa could be one issue, and the concrete columns sinking themselves like a plug into the clays, another.

6.4.3 **Piled Foundations –** A piled foundation solution is a less likely option as the tidal flat deposits could well extend to a significant depth and may prove economically prohibitive particularly considering the nature of the proposals. A deep cable percussive borehole will be needed if this option is to be considered further as the WS boreholes terminated at the limiest of drilling within the soft clays at 5.45m.

6.5 Development Constraints

Groundwater Control

6.5.1 Groundwater was not recorded within any of the exploratory locations during the short period of time they remained open. However, the water table has the potential to vary greatly over the seasons and could be encountered at a shallower depth than recorded during this investigation at construction phase. As such, the risk that groundwater could hinder foundation excavations cannot be fully discounted and provision may need to be made for dewatering measures.

Flood Risk

6.5.2 The desk study and historical maps indicate that the site lies within an area that could be susceptible to flooding. A flood risk assessment should be carried out if not already completed and appropriate mitigation measures should be implemented if required.

6.6 Index Property Tests

6.6.1 Four Index property tests have classified the shallow cohesive soils as being of high plasticity and medium volume change potential according to the current NHBC guidelines. It would be prudent to ensure that construction details comply with the guidelines with respect to any proposed, existing or recently removed trees within influencing distance. A minimum foundation depth of 0.90m would normally be adopted regardless to avoid the zone of seasonal moisture content variations. This will need to be considered if a surface slab raft is utilised.

6.7 Concrete Classification

6.7.1 A range of tests have been carried out by ALS Life Sciences Limited upon selected soil samples in accordance with those listed in BRE Special Digest 1 and the results are included within Appendix C, listed together with the contamination analyses. These tests determine the Class of concrete for the proposed development and in view of the absence of potentially mobile groundwater, the analyses indicate the ACEC Class of AC-1s is required for buried concrete structures.

6.8 Soakaway Design

6.8.1 Soakaway testing was carried out in TP1 and TP2 in general accordance with BRE 365 methodology. A negligible fall of the water level was observed within both of the tests which was insufficient to calculate an infiltration rate. In view of the soakaway test results and the cohesive nature of the soils recorded in this investigation, the site is not deemed suitable for the reliable usage of soakaways.

7 Comments and Recommendations: Contamination

7.1 Conceptual Site Model

7.1.1 In accordance with Environment Agency (EA) document CLR11 'Model Procedures for the Management of Contaminated Land' the information available within the public domain (phase I) and phase II site investigation have been used to generate a preliminary risk assessment. The purpose of this is to confirm and modify the initial conceptual site model to establish whether there are any potentially unacceptable risks present and determine the action required to provide any further information to refine the model. The findings of the conceptual site model are summarised below.

- The site is characterised by a thin cover of topsoil which overlies cohesive tidal flat deposits to a depth of at least 5.45m.
- The site historically has remained an undeveloped open field to the present day.
- No obvious contamination (visual or olfactory) was identified during site works.
- With reference to the Environment Agency website, the bedrock at the site is classified as a 'Secondary Aquifer - B' with the overlying superficial soils classified as 'Unproductive Strata'.
- The site is not located within a Groundwater Source Protection Zone.
- Groundwater was not recorded during this investigation.
- A new generator/substation compound is proposed for the site.

7.2 Potential Sources of Contamination

7.2.1 From the site walkover, the current potential sources of contamination are limited as the site comprised a disused field. Historically, the site has remained undeveloped.

7.3 Potential Contaminants of Concern

7.3.1 Given the presence of a thin cover of made ground in the exploratory locations, soil samples have been tested for a general range of commonly occurring contaminants, including:

- Organics : poly aromatic hydrocarbons (PAH), phenols
- Metals / semi metals : arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium, zinc
- Non metals : soluble sulphide, cyanide, sulphur, asbestos

7.4 Potential Receptors

- Human beings (construction workers and future site occupiers).
- Structures.
- Groundwater / surface water.
- Eco systems.

7.5 Potential Pathways

- Skin / eye contact, ingestion and inhalation during site development and by contact / inhalation from future occupiers / visitors.
- Percolating water may act to mobilise contaminants and transport them downwards under gravity towards the water table.
- Migration of contaminants in groundwater under the local hydraulic gradient.
- Transport of contaminants to the local drainage system via surface run-off.
- Migration of soil gases and volatile vapour flow.

7.6 Contamination Analyses

7.6.1 In order to assess the potential for contamination, three samples of the near surface soils were forwarded to ALS Life Sciences Limited for analysis of a range of contaminants in accordance with the Conceptual Site Model. The samples tested appeared to be representative of the soils present upon the site. It should be appreciated that there remains the potential for unidentified areas of contamination. Suspect areas as may be identified in the future would have to be further investigated/assessed. Risk assessment work has its limitations and uncertainties ranging from those introduced by the type and quality of the data and analytical methods through to the choice of the model adopted.

7.7 Assessment of Risk to Human Health

7.7.1 The CLEA (Contaminated Land Exposure Assessment) model combines information on the toxicity of soil contaminants with estimates of potential exposure by adults and children living, working and/or playing on land affected by contamination over long periods of time. It predicts the amount of contaminant to which they might be exposed based on a given soil contaminant concentration. By comparing predicted exposure with health criteria values on tolerable or acceptable contaminant intakes the model can be used to generate Critical Concentrations (C_c).

7.7.2 Initially, generic C_c have been used as a screening process adopting Soil Screening Values (SSVs) produced by Atkins Consultants and available from the ATRISK^{soil} web site. In this instance, values for 'Commercial with 1% SOM' are considered to be the most appropriate for the nature of the proposed end usage. Where "non-detects" were recorded in the sample data they have been replaced by the relevant method detection limit.

7.7.3 It should be appreciated that the statistical analyses are based upon the results from a number of samples. Generally the larger the population of samples the more accurate the statistical processes are. Where smaller populations of data are available (in this case only three), such statistical analyses are not possible. However, the SSVs provide a useful framework on which to compare the concentrations observed in the samples analysed. The chemical results and a summary comparison sheet of results against the relevant Cc values are appended.

Metal, Non Metal and Phenol Contamination

7.7.4 The analytical data has been compared against the relevant Critical Concentration (Cc) values. All analytes fall below the Cc value. The results of the analyses together with the chemical comparison sheet are appended.

Polyaromatic Hydrocarbons (PAH)

7.7.5 SSVs have been derived for 14 out of the 16 US EPA list of priority contaminants. The analytical data has been compared against the relevant Critical Concentration (Cc) values. All analytes fall below the Cc value. The results of the analyses together with the chemical comparison sheet are appended.

Asbestos

7.7.6 Two samples were analysed for the presence of Amosite, Chrysotile and Crocidolite (brown, white and blue asbestos), fibrous Actinolite, Anthophyllite and Tremolite and non-asbestos fibres. Asbestos was not encountered within any of the samples.

7.8 Assessment of Risk to Controlled Waters

7.8.1 The 'solid' geology which underlie the site are classified as a 'Secondary Aquifer' and the overlying superficial soils are classified as 'Unproductive Strata'. The site is not located within a groundwater Source Protection Zone and groundwater has not been recorded during intrusive works. However, a drainage ditch forms the site perimeter. On balance, in view of the site setting, site history and from the chemical test results it is therefore considered that the risk the site poses to 'Controlled Waters' is deemed to be 'low'.

7.9 Recommendations for Remediation

7.9.1 **Impact on Human Health** – Hazardous contamination was not identified during this investigation and as such, no specific remediation is considered necessary. However, as a basic precaution, construction workers should adopt basic Personnel Protective Equipment (PPE) which should include gloves, boots and overalls and washing facilities should be provided. Given the presence of a cover of made ground and the history of local development to the east of the site, a close watch for any obviously contaminated soils should be implemented during construction works and if suspected materials are encountered further advice should be sought.

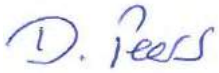
7.9.2 **Impact on Controlled Waters -** It is the remit of the Environment Agency to protect 'Controlled Waters', which includes groundwater and surface waters. The Agency is also a statutory consultee in the planning process. Given the site setting, findings of this investigation and the nature of the proposed development, it is considered unlikely that the Environment Agency would require a specific risk assessment to be carried out for the site under investigation.

7.10 Disposal of Excavated Material

7.10.1 If excavated materials are to be removed for disposal off site, in accordance with the recently introduced EU Landfill Directive (England and Wales) Regulations 2002 there are three main categories; Inert, Non Hazardous and Hazardous Waste. Each category is defined by individual parameters which govern the types of waste accepted for classification. However it should be noted that individual landfill sites will have the final decision regarding the acceptance of the waste for disposal. Therefore, the appended chemical results, including the two Waste Acceptance Criteria (WAC) results should be provided to the preferred landfill operator for their assessment of the results and confirmation of their acceptance of the materials.

FOR AND ON BEHALF OF:

GIP LIMITED



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SENIOR GEO-ENVIRONMENTAL ENGINEER.

(Author contact details: email – dave.p@gipuk.com Phone – 01902 459558)

J.P. Hughes BSc., MSc., C.Geol., C.Sci., Eur. Geol., FGS.

MANAGING DIRECTOR.

APPENDIX A

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Windowless Sampler Borehole Log

Borehole:	WS 1
Sheet 1 of 1	
Logged By:	CFM
Checked By:	DAP
Drilled By:	

Project Number: 27541
Project Name: Severn Road, Avonmouth
Client: G F P II Limited
Engineer:
Date Drilled: 16/10/2018
Diameter: 150mm
Depth Cased: 5.45m
National Grid:
Ground Level:
Final Depth: 5.45m

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests Depth (m bgl)	Samples/Tests Type	SPT 'N' Value [U100 Blows] Hand Vane	Installation /Backfill
MADE GROUND: Soft grey brown sandy friable CLAY with many rootlets. (Disturbed Topsoil Type Horizon)		0.30			0.00	B		
					0.30	B		
Firm and stiff light greyish brown silty CLAY with many rootlets. (Tidal Flat Deposits) - Hand vane test at 0.70m- 72kPa.		1.00			1.00	S	4 (1,1,1,1,1,1)	
					1.00	B		
Firm becoming soft and very soft below 2.00m grey and brown silty CLAY. (Tidal Flat Deposits) - Hand vane test at 1.30m- 52kPa.					2.00	S	0 (0,0,0,0,0,0)	
					2.00	B		
					3.00	S	0 (0,0,0,0,0,0)	
					3.00	B		
					4.00	S	0 (0,0,0,0,0,0)	
					4.00	B		
					5.00	S	0 (0,0,0,0,0,0)	
Borehole Complete at 5.45m		5.45						

Samples/Tests
- U Undisturbed
- D Disturbed
- B Bulk
- W Water
- S/C SPT/CPT
- ES Environmental Sample
- HV Hand Shear Vane
- NR No Recovery
- Water Strike
- Water Level

Other Information:
1. Groundwater not encountered.

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Windowless Sampler Borehole Log

Borehole:	WS 2
Sheet 1 of 1	
Logged By:	CFM
Checked By:	DAP
Drilled By:	

Project Number: 27541
Project Name: Severn Road, Avonmouth
Client: G F P II Limited
Engineer:
Date Drilled: 16/10/2018
Diameter: 150mm
Depth Cased: 5.45m
National Grid:
Ground Level:
Final Depth: 5.45m

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests Depth (m bgl)	Samples/Tests Type	SPT 'N' Value [U100 Blows] Hand Vane	Installation /Backfill
MADE GROUND: Firm grey brown sandy friable CLAY with many rootlets. (Disturbed Topsoil Type Horizon)		0.40			0.00	B		
					0.40	B		
Firm with soft and stiff pockets grey and orange brown slightly sandy friable CLAY with occasional rootlets. (Tidal Flat Deposits) - Hand Vane below 0.80m: 54 kPa					1.00	B	3 (1,1,1,1,0,1)	
					1.00	S		
- Hand Vane below 1.40m: 88 kPa		1.50			1.50	B		
Very soft and soft brown and grey silty CLAY. (Tidal Flat Deposits) - Hand Vane below 1.80m: 40 kPa - Hand vane test below 2.00m- <30kPa.					2.00	S	0 (0,0,0,0,0,0)	
					2.00	B		
					3.00	S	0 (0,0,0,0,0,0)	
					3.00	B		
- Hand Vane below 3.30m: 30 kPa - Hand Vane below 3.50m: 22 kPa - Hand Vane below 3.80m: 28 kPa					4.00	S	0 (0,0,0,0,0,0)	
					4.00	B		
					5.00	S	0 (0,0,0,0,0,0)	
Borehole Complete at 5.45m		5.45						

Samples/Tests
- U Undisturbed
- D Disturbed
- B Bulk
- W Water
- S/C SPT/CPT
- ES Environmental Sample
- HV Hand Shear Vane
- NR No Recovery
- Water Strike
- Water Level

Other Information:
1. Groundwater not encountered.

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Windowless Sampler Borehole Log

Borehole:	WS 3
Sheet 1 of 1	
Logged By:	CFM
Checked By:	DAP
Drilled By:	

Project Number: 27541
Project Name: Severn Road, Avonmouth
Client: G F P II Limited
Engineer:
Date Drilled: 16/10/2018
Diameter: 150mm
Depth Cased: 4.45m
National Grid:
Ground Level:
Final Depth: 4.45m

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests Depth (m bgl)	Samples/Tests Type	SPT 'N' Value [U100 Blows] Hand Vane	Installation /Backfill
MADE GROUND: Grey brown sandy friable CLAY with many rootlets.					0.00	B		
(Disturbed Topsoil Type Horizon)		0.25			0.25	B		
Firm and in parts soft greyish brown and orange brown silty CLAY with some rootlets. (Superficial Deposit)								
- Hand Vane below 0.80m: 68 kPa					1.00	S	5 (1,1,1,1,2,1)	
					1.00	B		
- Hand Vane below 1.40m: 64 kPa								
- Hand Vane below 1.80m: 68 kPa								
Very soft and soft grey and orange brown very silty CLAY with a slight organic odour in parts. (Tidal Flat Deposits)		2.00			2.00	S	0 (0,0,0,0,0,0)	
- Hand Vane below 3.00m: <30 kPa					3.00	S	0 (0,0,0,0,0,0)	
					3.00	B		
					4.00	S	0 (0,0,0,0,0,0)	
Borehole Complete at 4.45m		4.45						

Samples/Tests
- U Undisturbed
- D Disturbed
- B Bulk
- W Water
- S/C SPT/CPT
- ES Environmental Sample
- HV Hand Shear Vane
- NR No Recovery
- Water Strike
- Water Level

Other Information:
1. Groundwater not encountered.

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Windowless Sampler Borehole Log

Borehole:	WS 4
Sheet 1 of 1	
Logged By:	CFM
Checked By:	DAP
Drilled By:	

Project Number: 27541
Project Name: Severn Road, Avonmouth
Client: G F P II Limited
Engineer:
Date Drilled: 16/10/2018
Diameter: 150mm
Depth Cased: 5.45m
National Grid:
Ground Level:
Final Depth: 5.45m

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests Depth (m bgl)	Samples/Tests Type	SPT 'N' Value [U100 Blows] Hand Vane	Installation /Backfill
MADE GROUND: Grey brown sandy friable CLAY with many rootlets.					0.00	B		
(Disturbed Topsoil Type Horizon)		0.30			0.30	B		
Stiff in parts firm slightly sandy friable CLAY with many rootlets.								
(Superficial Deposits)								
- Hand Vane below 0.40m: 106 kPa		1.00			1.00	S	4 (1,1,1,1,1,1)	
Firm in parts stiff greyish brown and orange brown silty CLAY with some rootlets.					1.00	B		
(Tidal Flat Deposits)								
- Hand Vane below 1.40m: 90 kPa								
- Hand Vane below 1.80m: 70 kPa		2.00			2.00	S	0 (0,0,0,0,0,0)	
Very soft and soft grey and greyish brown silty becoming very silty below 3.00m CLAY with some rootlets.								
(Tidal Flat Deposits)					3.00	S	0 (0,0,0,0,0,0)	
- Hand Vane below 3.10m: 38 kPa					3.00	B		
- Hand Vane below 3.30m: 34 kPa								
- Hand Vane below 3.50m: 40 kPa								
- Hand Vane below 3.80m: 34 kPa					4.00	S	0 (0,0,0,0,0,0)	
					4.00	B		
- Hand Vane below 4.40m: 20 kPa								
- Hand Vane below 4.60m: 20 kPa								
					5.00	S	0 (0,0,0,0,0,0)	
Borehole Complete at 5.45m		5.45						

Samples/Tests
- U Undisturbed
- D Disturbed
- B Bulk
- W Water
- S/C SPT/CPT
- ES Environmental Sample
- HV Hand Shear Vane
- NR No Recovery
- Water Strike
- Water Level

Other Information:
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www.gipuk.com

Windowless Sampler Borehole Log

Borehole:	WS 5
Sheet 1 of 1	
Logged By:	CFM
Checked By:	DAP
Drilled By:	

Project Number: 27541
Project Name: Severn Road, Avonmouth
Client: G F P II Limited
Engineer:
Date Drilled: 16/10/2018
Diameter: 150mm
Depth Cased: 5.45m
National Grid:
Ground Level:
Final Depth: 5.45m

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests Depth (m bgl)	Samples/Tests Type	SPT 'N' Value [U100 Blows] Hand Vane	Installation /Backfill
MADE GROUND: Firm grey brown sandy friable CLAY with many rootlets.					0.00	B		
(Disturbed Topsoil Type Horizon)		0.30			0.30	B		
Predominantly firm, in parts stiff brown grey and orange brown and brown grey silty CLAY with occasional rootlets.					1.00	S	5 (1,1,1,2,1,1)	
					1.00	B		
		2.00			2.00	S	2 (1,0,1,0,1,0)	
Very soft and soft brown grey and grey silty to very silty CLAY.					2.00	B		
(Tidal Flat Deposits)								
- Hand Vane below 2.20m: 42 kPa								
					3.00	S	0 (0,0,0,0,0,0)	
- Hand Vane below 3.10m: 38 kPa					3.00	B		
- Hand Vane below 3.30m: 28 kPa								
- Hand Vane below 3.70m: 28 kPa								
- Hand Vane below 3.90m: 38 kPa					4.00	S	0 (0,0,0,0,0,0)	
					4.00	B		
- Hand Vane below 4.40m: 20 kPa								
					5.00	S	0 (0,0,0,0,0,0)	
Borehole Complete at 5.45m		5.45						

Samples/Tests
- U Undisturbed
- D Disturbed
- B Bulk
- W Water
- S/C SPT/CPT
- ES Environmental Sample
- HV Hand Shear Vane
- NR No Recovery
- Water Strike
- Water Level

Other Information:
1. Groundwater not encountered.
2. 50mm gas/groundwater installation was installed to 4.00m (slotted from 4.00m to 1.00m) in a gravel filter, bentonite seal from 1.00m to 0.00m.

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Trial Pit Log

Borehole:	TP 1
Sheet 1 of 1	
Logged By:	CFM
Checked By:	DAP

Project Number: 27541
Project Name: Severn Road, Avonmouth
Client: G F P II Limited
Engineer:
Date Excavated: 16/10/2018
Plant Used: JCB 3CX Excavator

National Grid:
Ground Level:
Final Depth: 2.50m

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests Depth (m bgl)	Samples/Tests Type	Results
MADE GROUND: Firm brown sandy friable CLAY with occasional roots. (Topsoil Type Horizon)					0.10	B	
		0.30					
Firm light brown and light grey brown slightly sandy CLAY with many rootlets. (Tidal Flat Deposits)					0.50	B	
-Hand Vane below 1.00m: 68kPa					1.00	B	
		1.30			1.30	B	
Firm becoming soft below 2.00m brown, mottled light grey and greyish blue silty CLAY with occasional rootlets. (Tidal Flat Deposits) - Hand Vane below 1.50m: 70kPa.							
-Hand Vane below 2.00m: 45kPa.					2.00	B	
		2.50			2.50	B	

Annotated Sketch Drawing (Not to Scale)

Samples/Tests

U	Undisturbed Sample
D	Disturbed Sample
B	Bulk Sample
W	Water Sample
ES	Environmental Sample
HV	Hand Shear Vane

Water Strike
Water Level

Other Information:

Pit Stability: Sides upright and stable

1. Groundwater not encountered.
2. Trial pit terminated at 2.50m for soakaway test to commence.
3. Trial pit backfilled with arisings.

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Trial Pit Log

Borehole:	TP 2
Sheet 1 of 1	
Logged By:	CFM
Checked By:	DAP

Project Number: 27541
Project Name: Severn Road, Avonmouth
Client: G F P II Limited
Engineer:
Date Excavated: 16/10/2018
Plant Used: JCB 3CX Excavator

National Grid:
Ground Level:
Final Depth: 2.10m

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests Depth (m bgl)	Samples/Tests Type	Results
MADE GROUND: Firm brown sandy friable CLAY with occasional roots. (Topsoil Type Horizon)					0.20	B	
					0.60	B	
		0.80					
Stiff light brown and light grey brown slightly sandy silty CLAY with many rootlets. (Tidal Flat Deposits) -Hand Vane below 1.00m: 118kPa -Hand Vane below 1.20m: 110kPa					1.00	B	
		1.40					
Variably firm and soft brown, mottled light grey and greyish blue silty CLAY with occasional rootlet. (Tidal Flat Deposits) -Hand Vane below 1.50m: 60kPa - Becoming slightly gravelly below 1.80m.					1.50	B	
		2.10			2.10	B	

Annotated Sketch Drawing (Not to Scale)

Samples/Tests

U	Undisturbed Sample
D	Disturbed Sample
B	Bulk Sample
W	Water Sample
ES	Environmental Sample
HV	Hand Shear Vane

Water Strike
Water Level

Other Information:

Pit Stability: Sides upright and stable

1. Groundwater not encountered.
2. Trial pit terminated at 2.10m for soakaway test to commence.
3. Trial pit backfilled with arisings.

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Trial Pit Log

Borehole:	TP 3
Sheet 1 of 1	
Logged By:	CFM
Checked By:	DAP

Project Number: 27541
Project Name: Severn Road, Avonmouth
Client: G F P II Limited
Engineer:
Date Excavated: 16/10/2018
Plant Used: JCB 3CX Excavator

National Grid:
Ground Level:
Final Depth: 3.10m

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests Depth (m bgl)	Samples/Tests Type	Results
MADE GROUND: Firm brown sandy slightly gravelly friable CLAY with occasional roots. Gravel is sub angular ceramic, brick and roots. (Topsoil Type Horizon)		0.30			0.20	B	
Stiff brown and in parts light grey brown silty slightly gravelly CLAY with many roots. Gravel is sub rounded quartz. (Tidal Flat Deposits) -Hand Vane below 0.50m: 110kPa					0.50	B	
-Hand Vane below 1.30m: 108kPa					1.00	B	
Soft brown mottled greyish blue becoming greyish blue silty CLAY with occasional relic rootlets. (Tidal Flat Deposits) -Hand Vane below 2.00m: 47kPa		1.80			2.00	B	
-Becoming very soft below 2.50m. Hand Vane test at 2.50m: 20kPa					2.50	B	
		3.10			3.10	B	

Annotated Sketch Drawing (Not to Scale)

Samples/Tests
- U Undisturbed Sample
- D Disturbed Sample
- B Bulk Sample
- W Water Sample
- ES Environmental Sample
- HV Hand Shear Vane

Water Strike
Water Level

Other Information:
Pit Stability: Sides upright and stable

1. Groundwater not encountered.
2. Trial pit backfilled with arisings.

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Trial Pit Log

Borehole:	TP 4
Sheet 1 of 1	
Logged By:	CFM
Checked By:	DAP

Project Number: 27541
Project Name: Severn Road, Avonmouth
Client: G F P II Limited
Engineer:
Date Excavated: 16/10/2018
Plant Used: JCB 3CX Excavator

National Grid:
Ground Level:
Final Depth: 3.30m

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests Depth (m bgl)	Samples/Tests Type	Results
MADE GROUND: Firm brown sandy slightly gravelly friable CLAY with occasional roots. Gravel is sub angular ceramic, brick and quartz. (Disturbed Topsoil Type Horizon)					0.10	B	
		0.60			0.60	B	
Stiff brown and light grey brown silty CLAY with many rootlets. (Tidal Flat Deposits)							
-Hand Vane below 1.00m: 120+kPa					1.00	B	
-Hand Vane below 1.20m: 120+kPa							
		1.50			1.50	B	
Firm becoming soft below approximately 2.00m greyish brown and grey silty CLAY with occasional relic rootlets. (Tidal Flat Deposits)							
-Hand Vane below 1.50m: 58kPa							
- Becoming very soft and soft below 2.50m.					2.50	B	
-Hand Vane below 2.60m: 28kPa							
-Hand Vane below 3.30m: 20kPa					3.30	B	
		3.40					

Annotated Sketch Drawing (Not to Scale)

Samples/Tests

U	Undisturbed Sample
D	Disturbed Sample
B	Bulk Sample
W	Water Sample
ES	Environmental Sample
HV	Hand Shear Vane

Water Strike
Water Level

Other Information:

Pit Stability: Sides upright and stable

1. Groundwater not encountered.
2. Trial pit backfilled with arisings.

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Trial Pit Log

Borehole:	TP 5
Sheet 1 of 1	
Logged By:	CFM
Checked By:	DAP

Project Number: 27541
Project Name: Severn Road, Avonmouth
Client: G F P II Limited
Engineer:
Date Excavated: 16/10/2018
Plant Used: JCB 3CX Excavator

National Grid:
Ground Level:
Final Depth: 3.50m

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests Depth (m bgl)	Samples/Tests Type	Results
MADE GROUND: Firm brown sandy friable CLAY with occasional roots. (Topsoil Type Horizon)					0.20	B	
					0.50	B	
Stiff light brown and grey brown silty CLAY with occasional rootlets. (Tidal Flat Deposits) -Hand Vane below 0.60m: 110kPa		0.60					
-Hand Vane below 0.90m: 120+kPa		1.00			1.00	B	
Firm and in parts stiff grey brown becoming greyish blue silty CLAY with many rootlets. (Tidal Flat Deposits) -Hand Vane below 1.70m: 60kPa					1.70	B	
-Occasional bands of amorphous peat and dark organic clay below 2.50m.					2.50	B	
- Becoming soft and very soft below 2.90m. -Hand Vane below 2.90m: 24kPa, 22kPa, 20kPa					2.90	B	
		3.50			3.50	B	

Annotated Sketch Drawing (Not to Scale)

Samples/Tests
- U Undisturbed Sample
- D Disturbed Sample
- B Bulk Sample
- W Water Sample
- ES Environmental Sample
- HV Hand Shear Vane

Water Strike
Water Level

Other Information:
Pit Stability: Sides upright and stable

1. Groundwater not encountered.
2. Trial pit backfilled with arisings.

In-situ Soakaway Test Record | Test No: SA 1

Contract No: 27541
Site: Severn Road, Avonmouth
Client / Engineer: GFP II Ltd
Date: 16/10/2018

Type of Test: SA
Width of pit (m) 0.60
Length of pit (m) 2.45
Depth of pit (m) 2.50
Standing Water Level Prior to Test (m) 0
Depth of Water at T=0 Below g.l (m) 0.00
Time Taken to Fill to Standing Level (mins) 5

Water Level Records

Time (mins)	Depth to Water (m.b.g.l.)
0	1.00
1	1.00
2	1.00
3	1.00
4	1.00
5	1.00
10	1.00
15	1.00
20	1.00
25	1.01
30	1.01
40	1.01

Time (mins)	Depth to Water (m.b.g.l.)
50	1.01
60	1.01
70	1.01
80	1.01
90	1.01
100	1.01
110	1.01
120	1.01
130	1.01
140	1.01
150	1.01
180	1.02

Time (mins)	Depth to Water (m.b.g.l.)
210	1.02
240	1.03
270	1.03
300	1.03

NOTES

1. Insufficient fall of water level to calculate infiltration rate. Ground assumed to be practically impermeable.

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In-situ Soakaway Test Record | Test No: SA 2

Contract No: 27541
Site: Severn Road, Avonmouth
Client / Engineer: GFP II Ltd
Date: 16/10/2018

Type of Test: SA
Width of pit (m) 0.60
Length of pit (m) 2.30
Depth of pit (m) 2.10
Standing Water Level Prior to Test (m) 0
Depth of Water at T=0 Below g.l (m) 0.00
Time Taken to Fill to Standing Level (mins) 5

Water Level Records

Time (mins)	Depth to Water (m.b.g.l.)
0	0.50
1	0.50
2	0.50
3	0.50
4	0.50
5	0.50
10	0.51
15	0.51
20	0.51
25	0.51
30	0.51
40	0.51

Time (mins)	Depth to Water (m.b.g.l.)
50	0.51
60	0.51
70	0.51
80	0.51
90	0.51
100	0.52
110	0.52
120	0.52
130	0.52
140	0.53
150	0.53
180	0.54

Time (mins)	Depth to Water (m.b.g.l.)
210	0.54
240	0.54
270	0.54

NOTES

1. Insufficient fall of water level to calculate infiltration rate. Ground assumed to be practically impermeable.

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APPENDIX B

LABORATORY REPORT FOR INDEX PROPERTY AND CHEMICAL TESTING

Contract: Severn Road, Avonmouth.

Customer: Green Frog Power.

GIP Ltd. Ground Investigation & Piling Limited
Devonshire House, Ettingshall Road,
Wolverhampton. WV2 2JT
Phone 01902 459558, Fax 01902 459085, email paul.smart@gipuk.com

Job No:- 27541 | Page No:- 1 of 1

Date Received:- 31.10.18 | Date Issued:- 20.11.18

SAMPLE DETAILS			TEST DATE	CLASSIFICATION						CHEMICAL				% PASSING BS SIEVE SIZE		SAMPLE DESCRIPTION	COMMENTS
				Index Properties													
SAMPLE No.	DEPTH m	SAMPLE TYPE		W %	W_L %	W_P %	I_P %	PD (Gas Jar) Mg/m³	WC %	Soluble SO_4 g/L	pH Value	*L.O.I. %	*Total SO_4 %	2.00 mm	0.425 mm	See Exploratory Log	
WS1	0.30	B	05.11.18	23	55	22	33								99		
WS2	0.40	B	05.11.18	23	53	21	32								99		
WS4	0.30	B	05.11.18	23	51	20	31								99		
WS5	0.30	B	05.11.18	23	54	22	32								99		

Sample type		Test abbreviations		Test methods - Unless otherwise stated.	
D	Disturbed	W	Moisture Content	W%	BS1377:Part 2:1990:3.2
B	Bulk disturbed	W_L	Liquid limit	W_L	BS1377:Part 2:1990:4.4
U	Undisturbed	W_P	Plastic limit	W_P	BS1377:Part 2:1990:5.3
S	SPT split spoon	I_P	Index property	I_P	BS1377:Part 2:1990:5.4
W	Ground water	PD	Particle Density	PD	BS1377:Part 2:1990:8.2
T	Tub	L.O.I	Loss on ignition	L.O.I	BS1377:Part 3:1990:4
J	Jar	WC	Water Content	WC%	BS EN ISO 17892-1:2014

Sol SO_4	BS1377:Part 3:1990:5.5
pH Value	BS1377:Part 3:1990:9
Total SO_4	BS1377:Part 3:1990:5.5

Approved signatory:-

Paul Smart, Laboratory Manager……

ilac-MRA UKAS TESTING 1897

Tests marked * are not UKAS accredited.

The reported results relate only to samples received.

 # = Sample mass smaller than BS1377 requirements.

Opinions and interpretations are outside the scope of UKAS accreditation

GROUND INVESTIGATION & PILING LIMITED
TEST REPORT FOR LABORATORY C.B.R.

Job No:- 27541
Received:- 31.10.18
Tested:- 08.11.18
Report:- 13.11.18

Site:- Severn Road, Avonmouth.
Customer:- Green Frog Power.

TP:- 2
Depth:- 0.60m

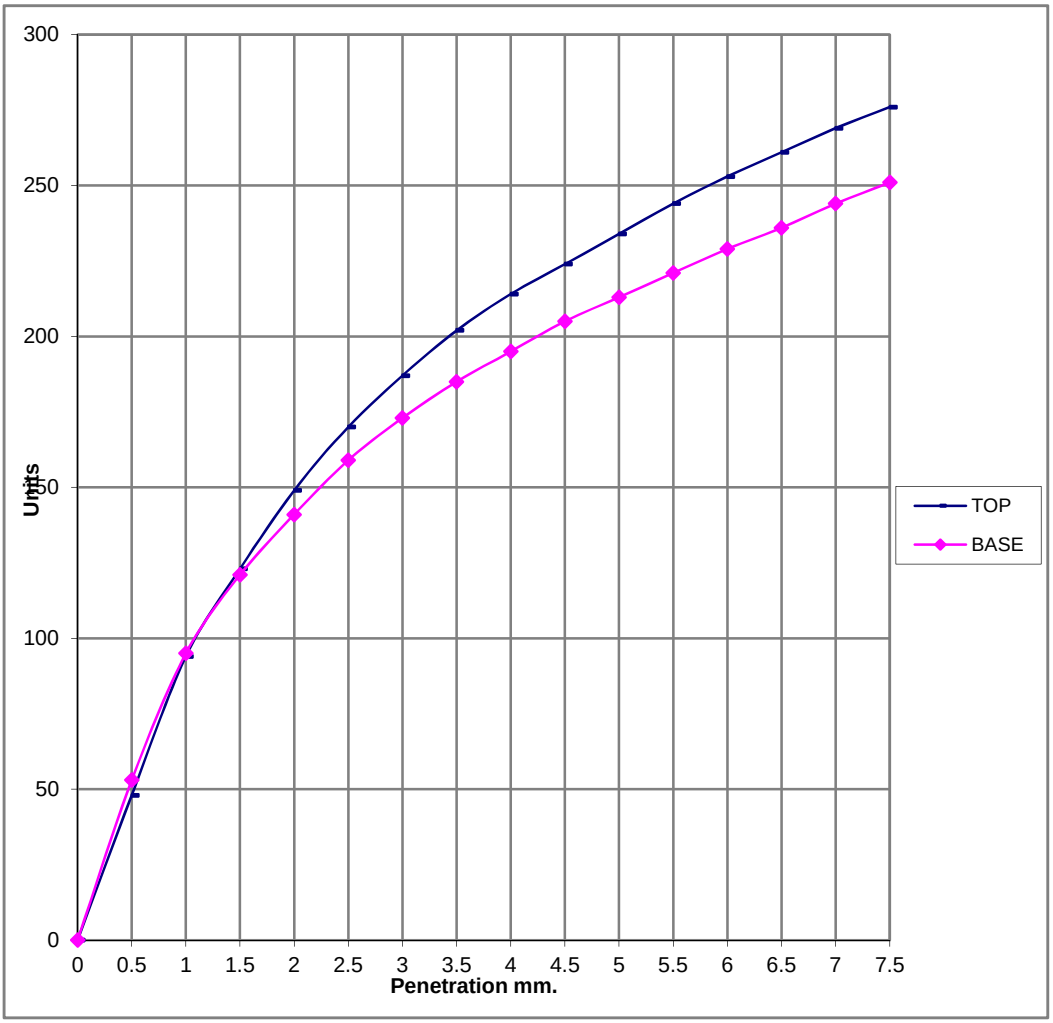
TEST METHODS:-
CBR:
BS1377:Part4:1990:
Clause 7

Moisture Preparation:
BS1377:Part2:1990
Clause 3

California Bearing Ratio top end:	**11 %**
California Bearing Ratio bottom end:	**9.8 %**
California Bearing Ratio Mean Value:	**10 %**
Moisture Content top end	22 %
Moisture Content bottom end:	22 %
Wet Density:	1.95 Mg/m³
Dry Density:	1.59 Mg/m³
Method of compaction:	2.5 kg rammer
Removed material > 20.0mm	0 %

Sample Description:- See Exploratory Log

Authorized by P.R.Smart
Laboratory Manager



The reported results relate only to samples received

1897

GROUND INVESTIGATION & PILING LIMITED
TEST REPORT FOR LABORATORY C.B.R.

Job No:- 27541
Received:- 31.10.18
Tested:- 12.11.18
Report:- 15.11.18

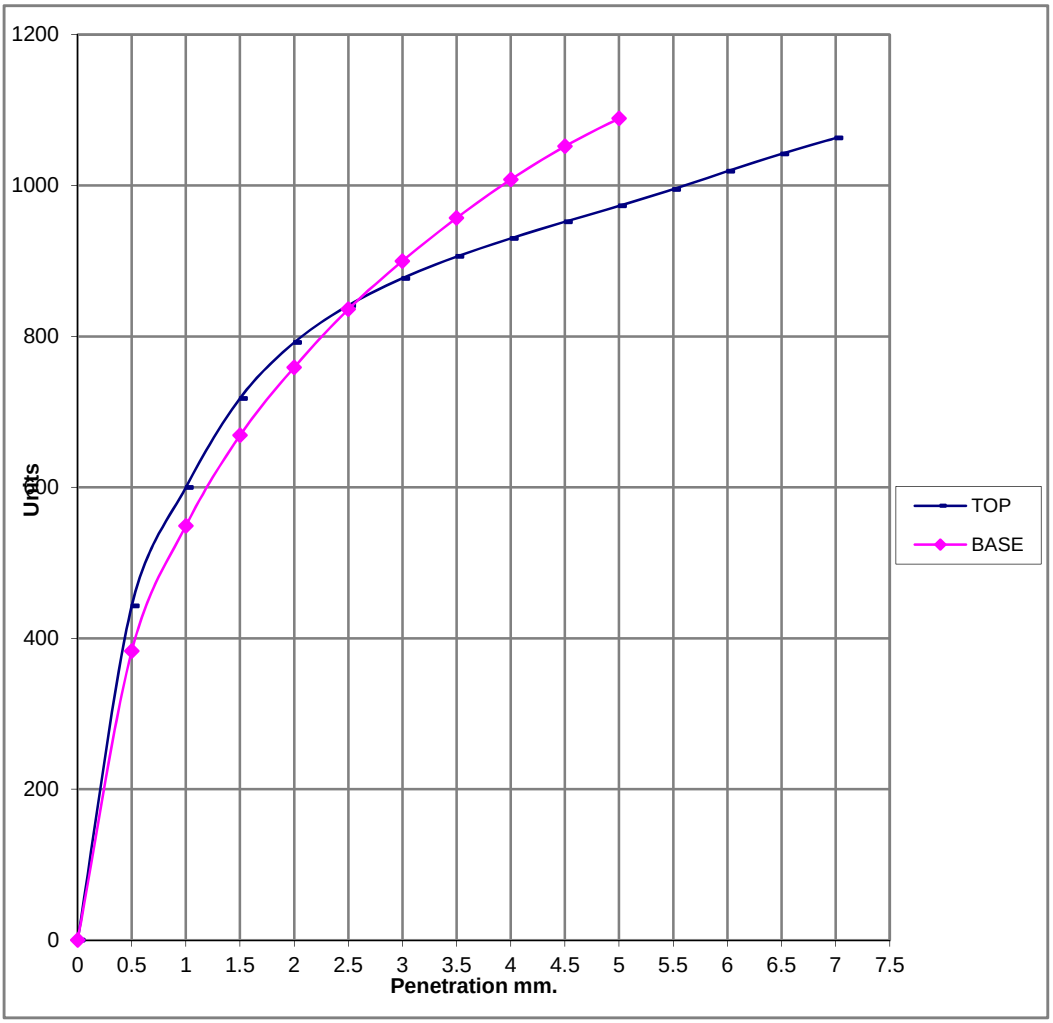
Site:- Severn Road, Avonmouth.
Customer:- Green Frog Power.

TP:- 3
Depth:- 0.50m

TEST METHODS:-		
CBR:	**California Bearing Ratio top end: (Corrected)**	**11 %**
BS1377:Part4:1990:	**California Bearing Ratio bottom end:**	**11 %**
Clause 7	**California Bearing Ratio Mean Value:**	**11 %**
	Moisture Content top end	24 %
	Moisture Content bottom end:	24 %
Moisture Preparation:	Wet Density:	1.86 Mg/m³
BS1377:Part2:1990	Dry Density:	1.50 Mg/m³
Clause 3	Method of compaction:	2.5 kg rammer
	Removed material > 20.0mm	0 %

Sample Description:- See Exploratory Log

Authorized by P.R.Smart
Laboratory Manager



The reported results relate only to samples received

1897

GROUND INVESTIGATION & PILING LIMITED
TEST REPORT FOR LABORATORY C.B.R.

Job No:- 27541
Received:- 31.10.18
Tested:- 08.11.18
Report:- 13.11.18

Site:- Severn Road, Avonmouth.
Customer:- Green Frog Power.

TP:- 4
Depth:- 0.60m

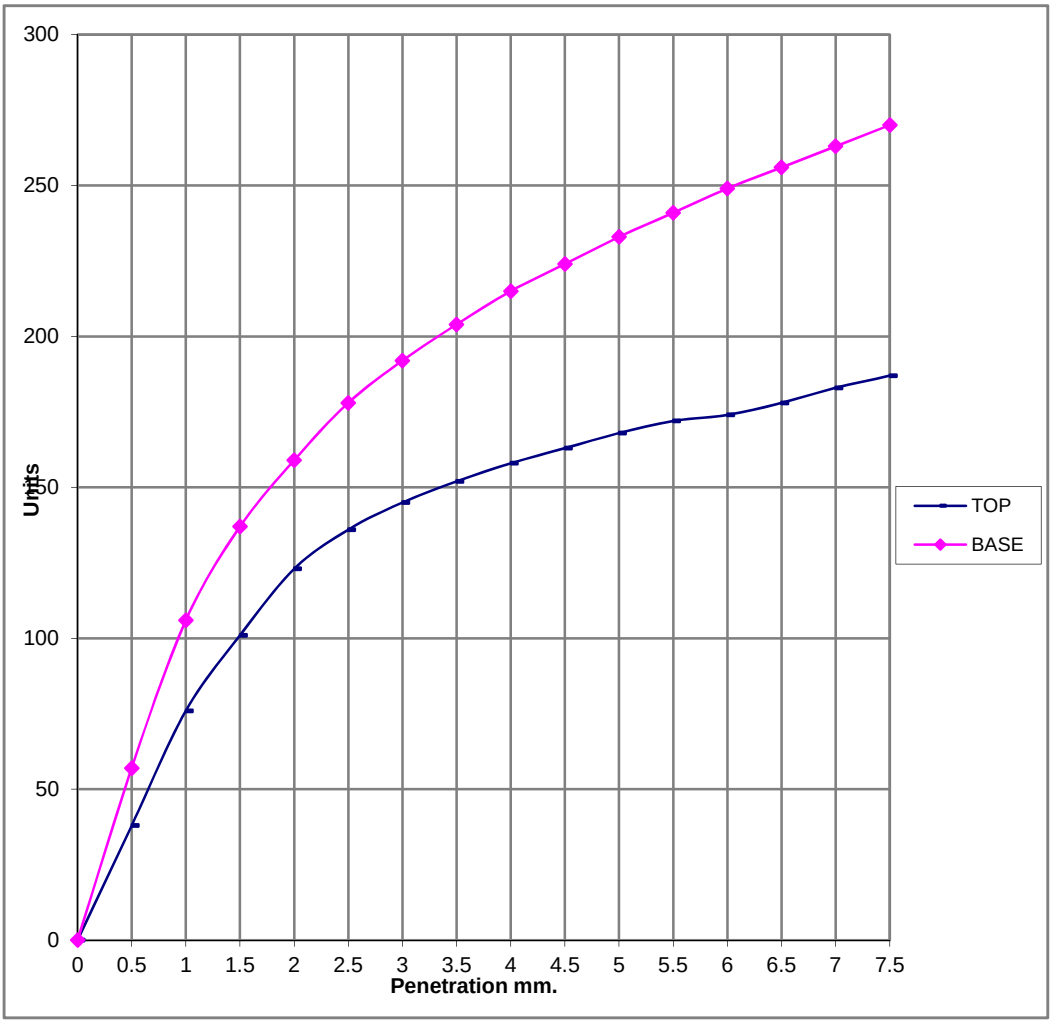
TEST METHODS:-
CBR:
BS1377:Part4:1990:
Clause 7

Moisture Preparation:
BS1377:Part2:1990
Clause 3

California Bearing Ratio top end:	**8.4 %**
California Bearing Ratio bottom end:	**11 %**
California Bearing Ratio Mean Value:	**N/A %**
Moisture Content top end	23 %
Moisture Content bottom end:	22 %
Wet Density:	1.89 Mg/m³
Dry Density:	1.54 Mg/m³
Method of compaction:	2.5 kg rammer
Removed material > 20.0mm	0 %

Sample Description:- See Exploratory Log

Authorized by P.R.Smart
Laboratory Manager



The reported results relate only to samples received

1897

GROUND INVESTIGATION & PILING LIMITED
TEST REPORT FOR LABORATORY C.B.R.

Job No:- 27541
Received:- 31.10.18
Tested:- 12.11.18
Report:- 16.11.18

Site:- Severn Road, Avonmouth.
Customer:- Green Frog Power.

TP:- 5
Depth:- 0.50m

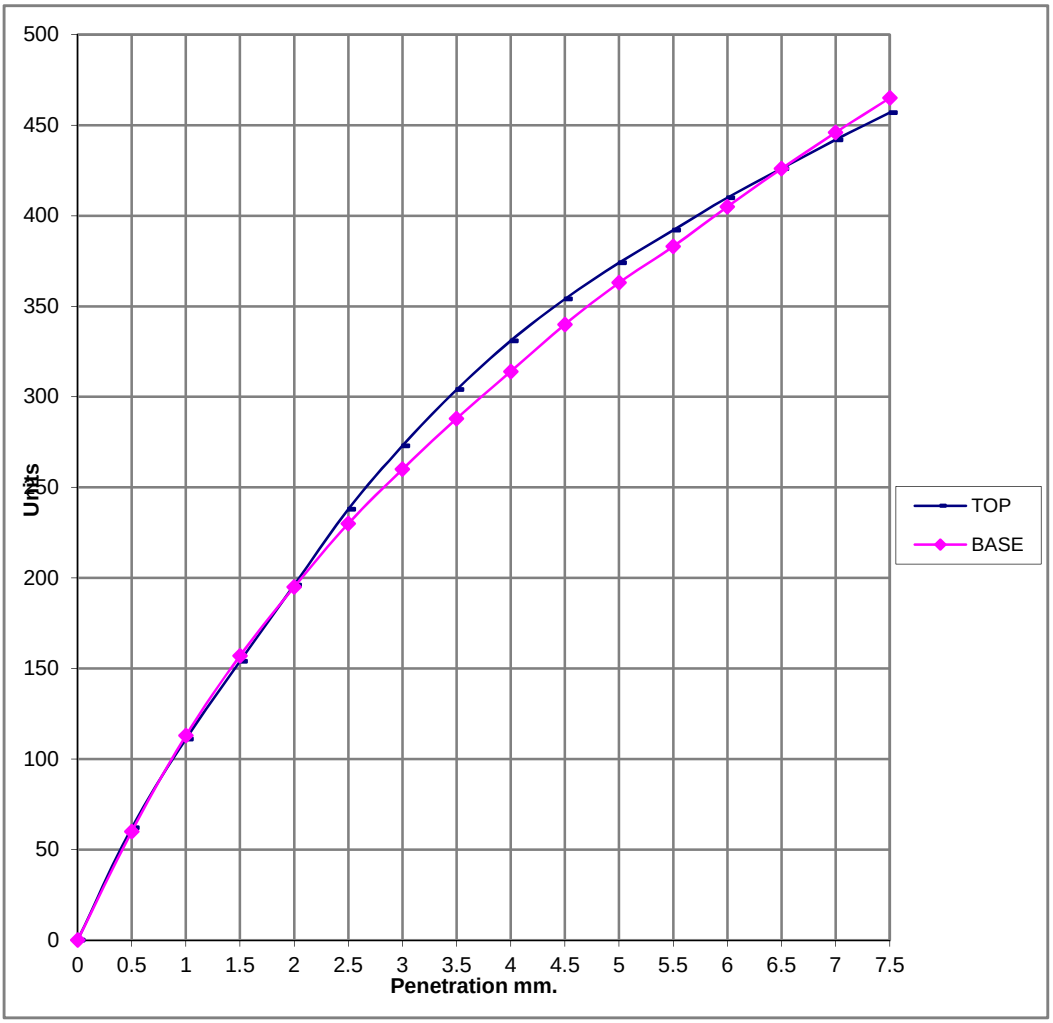
TEST METHODS:-
CBR:
BS1377:Part4:1990:
Clause 7

Moisture Preparation:
BS1377:Part2:1990
Clause 3

California Bearing Ratio top end:	**3.3 %**
California Bearing Ratio bottom end:	**3.2 %**
California Bearing Ratio Mean Value:	**3.3 %**
Moisture Content top end	23 %
Moisture Content bottom end:	23 %
Wet Density:	1.95 Mg/m³
Dry Density:	1.58 Mg/m³
Method of compaction:	2.5 kg rammer
Removed material > 20.0mm	0 %

Sample Description:- See Exploratory Log

Authorized by P.R.Smart
Laboratory Manager



The reported results relate only to samples received

1897

APPENDIX C

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Ground Investigation & Piling Ltd
Ettingshall Road
Wolverhampton
West Midlands
WV2 2JT

Attention: Dave Peers

CERTIFICATE OF ANALYSIS

Date:	14 November 2018
Customer:	H_GIP_WLV
Sample Delivery Group (SDG):	181105-4
Your Reference:	DAP/27541
Location:	Severn Road, Avonmouth
Report No:	480991

This report has been revised and directly supersedes 480495 in its entirety.

We received 5 samples on Saturday November 03, 2018 and 5 of these samples were scheduled for analysis which was completed on Wednesday November 14, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Approved By:

Sonia McWhan
Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	181105-4	**Client Reference:**	DAP/27541	**Report Number:**	480991
Location:	Severn Road, Avonmouth	**Order Number:**	44138	**Superseded Report:**	480495

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
18666777	TP1		0.10 - 0.10	31/10/2018
18666778	TP2		0.60 - 0.60	31/10/2018
18666779	TP4		0.10 - 0.10	31/10/2018
18666780	TP5		0.20 - 0.20	31/10/2018
18666781	WS2		0.00 - 0.00	31/10/2018

Maximum Sample/Coolbox Temperature (°C) : **9.2**

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	181105-4	**Client Reference:**	DAP/27541	**Report Number:**	480991
Location:	Severn Road, Avonmouth	**Order Number:**	44138	**Superseded Report:**	480495

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			18666777	18666778	18666779				18666780	18666781		
Customer Sample Reference			TP1	TP2	TP4				TP5	WS2		
AGS Reference												
Depth (m)			0.10 - 0.10	0.60 - 0.60	0.10 - 0.10				0.20 - 0.20	0.00 - 0.00		
Container			250g Glass jar	400g Tub (ALE214)	60ml Amber Glass Jar	400g Tub (ALE214)	250g Glass jar	400g Tub (ALE214)	60ml Amber Glass Jar	400g Tub (ALE214)	250g Glass jar	400g Tub (ALE214)	60ml Amber Glass Jar
Sample Type			S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 4	X			X				X	X		
Anions by Kone (w)	All	NDPs: 0 Tests: 2		X				X					
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2		X								X	
CEN Readings	All	NDPs: 0 Tests: 2		X				X					
Coronene	All	NDPs: 0 Tests: 2	X				X						
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 3	X				X				X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 2		X				X					
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 2		X				X					
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 3	X				X				X		
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 3	X				X				X		
Fluoride	All	NDPs: 0 Tests: 2		X				X					
GRO by GC-FID (S)	All	NDPs: 0 Tests: 3			X				X				X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 3	X				X				X		
Mercury Dissolved	All	NDPs: 0 Tests: 2		X				X					
Metals in solid samples by OES	All	NDPs: 0 Tests: 3	X				X				X		

Validated

CERTIFICATE OF ANALYSIS

SDG:	181105-4	**Client Reference:**	DAP/27541	**Report Number:**	480991
Location:	Severn Road, Avonmouth	**Order Number:**	44138	**Superseded Report:**	480495

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			18666777			18666778			18666779		18666780	18666781		
Customer Sample Reference			TP1			TP2			TP4		TP5	WS2		
AGS Reference														
Depth (m)			0.10 - 0.10			0.60 - 0.60			0.10 - 0.10		0.20 - 0.20	0.00 - 0.00		
Container			250g Glass jar	400g Tub (ALE214)	60ml Amber Glass Jar	400g Tub (ALE214)	250g Glass jar	400g Tub (ALE214)	60ml Amber Glass Jar	400g Tub (ALE214)	250g Glass jar	400g Tub (ALE214)	60ml Amber Glass Jar	
Sample Type			S	S	S	S	S	S	S	S	S	S	S	
Mineral Oil	All	NDPs: 0 Tests: 2	X				X							
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 2	X				X							
PAH by GCMS	All	NDPs: 0 Tests: 3	X				X				X			
PCBs by GCMS	All	NDPs: 0 Tests: 2	X				X							
pH	All	NDPs: 0 Tests: 5	X			X	X			X	X			
Phenols by HPLC (S)	All	NDPs: 0 Tests: 3	X				X				X			
Phenols by HPLC (W)	All	NDPs: 0 Tests: 2		X				X						
Sample description	All	NDPs: 0 Tests: 5	X			X	X			X	X			
Total Dissolved Solids	All	NDPs: 0 Tests: 2		X				X						
Total Organic Carbon	All	NDPs: 0 Tests: 3	X				X				X			
Total Sulphate	All	NDPs: 0 Tests: 4	X			X				X	X			
Total Sulphur	All	NDPs: 0 Tests: 4	X			X				X	X			
TPH CWG GC (S)	All	NDPs: 0 Tests: 3	X				X				X			
VOC MS (S)	All	NDPs: 0 Tests: 3			X				X					X

CERTIFICATE OF ANALYSIS

SDG:	181105-4	**Client Reference:**	DAP/27541	**Report Number:**	480991
Location:	Severn Road, Avonmouth	**Order Number:**	44138	**Superseded Report:**	480495

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
18666777	TP1	0.10 - 0.10	Dark Brown	Silty Clay Loam	Vegetation	None
18666778	TP2	0.60 - 0.60	Dark Brown	Silty Clay Loam	Vegetation	None
18666779	TP4	0.10 - 0.10	Dark Brown	Loamy Sand	Vegetation	None
18666780	TP5	0.20 - 0.20	Dark Brown	Silty Clay Loam	Stones	Vegetation
18666781	WS2	0.00 - 0.00	Dark Brown	Silty Clay Loam	Vegetation	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	181105-4	**Client Reference:**	DAP/27541	**Report Number:**	480991
Location:	Severn Road, Avonmouth	**Order Number:**	44138	**Superseded Report:**	480495

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP1	TP2	TP4	TP5	WS2
			Depth (m)	0.10 - 0.10	0.60 - 0.60	0.10 - 0.10	0.20 - 0.20	0.00 - 0.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	31/10/2018	31/10/2018	31/10/2018	31/10/2018	31/10/2018
			Sample Time	.	.	.	.	.
			Date Received	03/11/2018	03/11/2018	03/11/2018	03/11/2018	03/11/2018
			SDG Ref	181105-4	181105-4	181105-4	181105-4	181105-4
			Lab Sample No.(s)	18666777	18666778	18666779	18666780	18666781
			AGS Reference					
Moisture Content Ratio (% of as received sample)	%	PM024		16	68	25	18	19
Mineral Oil Surrogate % recovery**	%	TM061		77.7		68.9		
Mineral oil >C10-C40	<1 mg/kg	TM061		<1		<1		
Phenol	<0.01 mg/kg	TM062 (S)		<0.01 M		0.0132 M		<0.01 M
Cresols	<0.01 mg/kg	TM062 (S)		<0.01 M		0.0264 M		0.0246 M
Xylenols	<0.015 mg/kg	TM062 (S)		<0.015 M		<0.015 M		<0.015 M
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)		<0.035 M		<0.035 M		<0.035 M
Organic Carbon, Total	<0.2 %	TM132		0.644 M		2.74 M		
Sulphur, Total	<0.02 %	TM132		0.021	<0.02		0.0387	0.0485
Sulphate, Total potential	<0.06 %	TM132		0.063	0.06		0.116	0.146
Soil Organic Matter (SOM)	<0.35 %	TM132		1.11 #		4.72 #		5.95 #
pH	1 pH Units	TM133		8.5 M	8.42 M	6.86 M	6.94 M	7.27 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #		<0.6 #		<0.6 #
Cyanide, Total	<1 mg/kg	TM153		<1 M		<1 M		<1 M
PCB congener 28	<0.003 mg/kg	TM168		<0.003 M		<0.003 M		
PCB congener 52	<0.003 mg/kg	TM168		<0.003 M		<0.003 M		
PCB congener 101	<0.003 mg/kg	TM168		<0.003 M		<0.003 M		
PCB congener 118	<0.003 mg/kg	TM168		<0.003 M		<0.003 M		
PCB congener 138	<0.003 mg/kg	TM168		<0.003 M		<0.003 M		
PCB congener 153	<0.003 mg/kg	TM168		<0.003 M		<0.003 M		
PCB congener 180	<0.003 mg/kg	TM168		<0.003 M		<0.003 M		
Sum of detected PCB 7 Congeners	<0.021 mg/kg	TM168		<0.021		<0.021		
Arsenic	<0.6 mg/kg	TM181		13.9 M		14.3 M		17.4 M
Cadmium	<0.02 mg/kg	TM181		0.702 M		5.01 M		8.75 M
Chromium	<0.9 mg/kg	TM181		24.2 M		26.9 M		25.3 M
Copper	<1.4 mg/kg	TM181		9.72 M		20.1 M		25.3 M
Lead	<0.7 mg/kg	TM181		26.8 M		117 M		168 M
Mercury	<0.14 mg/kg	TM181		<0.14 M		<0.14 M		<0.14 M
Nickel	<0.2 mg/kg	TM181		33.6 M		26.8 M		26.8 M
Selenium	<1 mg/kg	TM181		1.06 #		<1 #		<1 #
Vanadium	<0.2 mg/kg	TM181		43.7 #		47.1 #		43.4 #
Zinc	<1.9 mg/kg	TM181		125 M		478 M		725 M
Sulphate, Total	<48 mg/kg	TM221		193 M	233 M		297 M	550 M

Validated

CERTIFICATE OF ANALYSIS

SDG:	181105-4	**Client Reference:**	DAP/27541	**Report Number:**	480991
Location:	Severn Road, Avonmouth	**Order Number:**	44138	**Superseded Report:**	480495

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP1	TP2	TP4	TP5	WS2
			Depth (m)	0.10 - 0.10	0.60 - 0.60	0.10 - 0.10	0.20 - 0.20	0.00 - 0.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	31/10/2018	31/10/2018	31/10/2018	31/10/2018	31/10/2018
			Sample Time	-	-	-	-	-
			Date Received	03/11/2018	03/11/2018	03/11/2018	03/11/2018	03/11/2018
			SDG Ref	181105-4	181105-4	181105-4	181105-4	181105-4
			Lab Sample No.(s)	18666777	18666778	18666779	18666780	18666781
			AGS Reference					
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243		0.0469 M	0.0174 M		<0.004 M	0.0042 M
PAH Total 17 (inc Coronene) Moisture Corrected	<10 mg/kg	TM410		<10		<10		
Coronene	<0.2 mg/kg	TM410		<0.2		<0.2		

Validated

CERTIFICATE OF ANALYSIS

SDG:	181105-4	**Client Reference:**	DAP/27541	**Report Number:**	480991
Location:	Severn Road, Avonmouth	**Order Number:**	44138	**Superseded Report:**	480495

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP1	TP4	WS2			
			Depth (m)	0.10 - 0.10	0.10 - 0.10	0.00 - 0.00			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	31/10/2018	31/10/2018	31/10/2018			
			Sample Time	.	.	.			
			Date Received	03/11/2018	03/11/2018	03/11/2018			
			SDG Ref	181105-4	181105-4	181105-4			
			Lab Sample No.(s)	18666777	18666779	18666781			
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218		99.1	103	85			
Acenaphthene-d10 % recovery**	%	TM218		104	101	85.7			
Phenanthrene-d10 % recovery**	%	TM218		98.1	100	86.7			
Chrysene-d12 % recovery**	%	TM218		92.2	89.6	88			
Perylene-d12 % recovery**	%	TM218		90.7	81.6	84.7			
Naphthalene	<0.009 mg/kg	TM218		<0.009 M	<0.009 M	<0.009 M			
Acenaphthylene	<0.012 mg/kg	TM218		<0.012 M	<0.012 M	<0.012 M			
Acenaphthene	<0.008 mg/kg	TM218		<0.008 M	<0.008 M	<0.008 M			
Fluorene	<0.01 mg/kg	TM218		<0.01 M	<0.01 M	<0.01 M			
Phenanthrene	<0.015 mg/kg	TM218		<0.015 M	0.0267 M	0.0321 M			
Anthracene	<0.016 mg/kg	TM218		<0.016 M	<0.016 M	<0.016 M			
Fluoranthene	<0.017 mg/kg	TM218		<0.017 M	0.0832 M	0.0736 M			
Pyrene	<0.015 mg/kg	TM218		<0.015 M	0.0639 M	0.0622 M			
Benz(a)anthracene	<0.014 mg/kg	TM218		<0.014 M	0.0359 M	0.0297 M			
Chrysene	<0.01 mg/kg	TM218		<0.01 M	0.0397 M	0.0339 M			
Benzo(b)fluoranthene	<0.015 mg/kg	TM218		<0.015 M	0.0628 M	0.0296 M			
Benzo(k)fluoranthene	<0.014 mg/kg	TM218		<0.014 M	0.0285 M	<0.014 M			
Benzo(a)pyrene	<0.015 mg/kg	TM218		<0.015 M	0.0377 M	0.0304 M			
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218		<0.018 M	0.036 M	<0.018 M			
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218		<0.023 M	<0.023 M	<0.023 M			
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218		<0.024 M	0.032 M	<0.024 M			
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218		<0.118	0.446	0.291			

Validated

CERTIFICATE OF ANALYSIS

SDG:	181105-4	**Client Reference:**	DAP/27541	**Report Number:**	480991
Location:	Severn Road, Avonmouth	**Order Number:**	44138	**Superseded Report:**	480495

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP1	TP4	WS2			
			Depth (m)	0.10 - 0.10	0.10 - 0.10	0.00 - 0.00			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	31/10/2018	31/10/2018	31/10/2018			
			Sample Time	.	.	.			
			Date Received	03/11/2018	03/11/2018	03/11/2018			
			SDG Ref	181105-4	181105-4	181105-4			
			Lab Sample No.(s)	18666777	18666779	18666781			
			AGS Reference						
GRO Surrogate % recovery**	%	TM089		114 2	107 2	74 2			
GRO TOT (Moisture Corrected)	<0.1 mg/kg	TM089		<0.1 2 M	<0.1 2 M	<0.1 2 M			
Aliphatics >C5-C6	<0.01 mg/kg	TM089		<0.01 2	<0.01 2	<0.01 2			
Aliphatics >C6-C8	<0.01 mg/kg	TM089		<0.01 2	<0.01 2	<0.01 2			
Aliphatics >C8-C10	<0.01 mg/kg	TM089		<0.01 2	<0.01 2	<0.01 2			
Aliphatics >C10-C12	<0.01 mg/kg	TM089		<0.01 2	<0.01 2	<0.01 2			
Aliphatics >C12-C16	<0.1 mg/kg	TM173		<0.1	<0.1	<0.1			
Aliphatics >C16-C21	<0.1 mg/kg	TM173		<0.1	<0.1	0.427			
Aliphatics >C21-C35	<0.1 mg/kg	TM173		<0.1	1.78	3.06			
Aliphatics >C35-C44	<0.1 mg/kg	TM173		<0.1	<0.1	<0.1			
Total Aliphatics >C12-C44	<0.1 mg/kg	TM173		<0.1	1.78	3.48			
Aromatics >EC5-EC7	<0.01 mg/kg	TM089		<0.01 2	<0.01 2	<0.01 2			
Aromatics >EC7-EC8	<0.01 mg/kg	TM089		<0.01 2	<0.01 2	<0.01 2			
Aromatics >EC8-EC10	<0.01 mg/kg	TM089		<0.01 2	<0.01 2	<0.01 2			
Aromatics >EC10-EC12	<0.01 mg/kg	TM089		<0.01 2	<0.01 2	<0.01 2			
Aromatics >EC12-EC16	<0.1 mg/kg	TM173		<0.1	<0.1	<0.1			
Aromatics >EC16-EC21	<0.1 mg/kg	TM173		<0.1	1.13	1.01			
Aromatics >EC21-EC35	<0.1 mg/kg	TM173		<0.1	10.1	13.8			
Aromatics >EC35-EC44	<0.1 mg/kg	TM173		0.322	4.57	1.58			
Aromatics >EC40-EC44	<0.1 mg/kg	TM173		<0.1	1.98	<0.1			
Total Aromatics >EC12-EC44	<0.1 mg/kg	TM173		0.322	15.8	16.4			
Total Aliphatics & Aromatics >C5-C44	<0.1 mg/kg	TM173		0.322	17.6	19.8			

Validated

CERTIFICATE OF ANALYSIS

SDG:	181105-4	**Client Reference:**	DAP/27541	**Report Number:**	480991
Location:	Severn Road, Avonmouth	**Order Number:**	44138	**Superseded Report:**	480495

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP1	TP4	WS2			
			Depth (m)	0.10 - 0.10	0.10 - 0.10	0.00 - 0.00			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	31/10/2018	31/10/2018	31/10/2018			
			Sample Time	.	.	.			
			Date Received	03/11/2018	03/11/2018	03/11/2018			
			SDG Ref	181105-4	181105-4	181105-4			
			Lab Sample No.(s)	18666777	18666779	18666781			
			AGS Reference						
Dibromofluoromethane**	%	TM116		119 2	122 2	127 2			
Toluene-d8**	%	TM116		97.6 2	92.7 2	85.3 2			
4-Bromofluorobenzene**	%	TM116		94.2 2	80.5 2	72.8 2			
Methyl Tertiary Butyl Ether	<0.01 mg/kg	TM116		<0.01 2 M	<0.01 2 M	<0.01 2 M			
Benzene	<0.009 mg/kg	TM116		<0.009 2 M	<0.009 2 M	<0.009 2 M			
Toluene	<0.007 mg/kg	TM116		<0.007 2 M	<0.007 2 M	<0.007 2 M			
Ethylbenzene	<0.004 mg/kg	TM116		<0.004 2 M	<0.004 2 M	<0.004 2 M			
p/m-Xylene	<0.01 mg/kg	TM116		<0.01 2 #	<0.01 2 #	<0.01 2 #			
o-Xylene	<0.01 mg/kg	TM116		<0.01 2 M	<0.01 2 M	<0.01 2 M			
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02 2	<0.02 2	<0.02 2			
Sum of BTEX	<0.04 mg/kg	TM116		<0.04 2	<0.04 2	<0.04 2			

Validated

CERTIFICATE OF ANALYSIS

SDG:	181105-4	**Client Reference:**	DAP/27541	**Report Number:**	480991
Location:	Severn Road, Avonmouth	**Order Number:**	44138	**Superseded Report:**	480495

Asbestos Identification - Solid Samples

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP1 0.10 - 0.10 SOLID 31/10/2018 00:00:00 05/11/2018 17:27:51 181105-4 18666777 TM048	08/11/2018	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS2 0.00 - 0.00 SOLID 31/10/2018 00:00:00 05/11/2018 17:36:02 181105-4 18666781 TM048	08/11/2018	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Validated

CERTIFICATE OF ANALYSIS

SDG:	181105-4	**Client Reference:**	DAP/27541	**Report Number:**	480991
Location:	Severn Road, Avonmouth	**Order Number:**	44138	**Superseded Report:**	480495

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Severn Road, Avonmouth
Mass Sample taken (kg)	0.107	**Natural Moisture Content (%)**	19
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	84
Particle Size <4mm	>95%		

Case	
SDG	181105-4
Lab Sample Number(s)	18666777
Sampled Date	31-Oct-2018
Customer Sample Ref.	TP1
Depth (m)	0.10 - 0.10

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.644	3	5	6
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	<0.04	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	<1	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.5	-	>6	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**C_2 Concⁿ in 10:1 eluate (mg/l)**		**A_2 10:1 concⁿ leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.000636	<0.0005	0.00636	<0.005	0.5	2	25
Barium	0.253	<0.0002	2.53	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.000961	<0.0003	0.00961	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00616	<0.003	0.0616	<0.03	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	0.000463	<0.0002	0.00463	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.00419	<0.001	0.0419	<0.01	4	50	200
Chloride	2.6	<2	26	<20	800	15000	25000
Fluoride	0.601	<0.5	6.01	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	77.4	<5	774	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	4.11	<3	41.1	<30	500	800	1000

Leach Test Information

Date Prepared	06-Nov-2018
pH (pH Units)	8.72
Conductivity (µS/cm)	96.80
Temperature (°C)	18.90
Volume Leachant (Litres)	0.883

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates
14/11/2018 11:28:27

11:28:15 14/11/2018

Validated

CERTIFICATE OF ANALYSIS

SDG:	181105-4	**Client Reference:**	DAP/27541	**Report Number:**	480991
Location:	Severn Road, Avonmouth	**Order Number:**	44138	**Superseded Report:**	480495

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Severn Road, Avonmouth
Mass Sample taken (kg)	0.120	**Natural Moisture Content (%)**	33.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	75
Particle Size <4mm	>95%		

Case	
SDG	181105-4
Lab Sample Number(s)	18666779
Sampled Date	31-Oct-2018
Customer Sample Ref.	TP4
Depth (m)	0.10 - 0.10

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	2.74	3	5	6
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	<0.04	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	<1	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	6.86	-	>6	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**C_2 Concⁿ in 10:1 eluate (mg/l)**		**A_2 10:1 concⁿ leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.000745	<0.0005	0.00745	<0.005	0.5	2	25
Barium	0.0251	<0.0002	0.251	<0.002	20	100	300
Cadmium	0.000253	<0.00008	0.00253	<0.0008	0.04	1	5
Chromium	0.00146	<0.001	0.0146	<0.01	0.5	10	70
Copper	0.00782	<0.0003	0.0782	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.00314	<0.0004	0.0314	<0.004	0.4	10	40
Lead	0.00202	<0.0002	0.0202	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.026	<0.001	0.26	<0.01	4	50	200
Chloride	2.8	<2	28	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	31.3	<5	313	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	7.74	<3	77.4	<30	500	800	1000

Leach Test Information

Date Prepared	06-Nov-2018
pH (pH Units)	8.46
Conductivity (µS/cm)	37.00
Temperature (°C)	18.60
Volume Leachant (Litres)	0.870

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates
14/11/2018 11:28:27

11:28:15 14/11/2018

CERTIFICATE OF ANALYSIS

SDG:	181105-4	**Client Reference:**	DAP/27541	**Report Number:**	480991
Location:	Severn Road, Avonmouth	**Order Number:**	44138	**Superseded Report:**	480495

Table of Results - Appendix

Method No	Reference	Description
PM001		Preparation of Samples for Metals Analysis
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer
TM243		Mixed Anions In Soils By Kone
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	181105-4	**Client Reference:**	DAP/27541	**Report Number:**	480991
Location:	Severn Road, Avonmouth	**Order Number:**	44138	**Superseded Report:**	480495

Test Completion Dates

Lab Sample No(s)	18666777	18666778	18666779	18666780	18666781
Customer Sample Ref.	TP1	TP2	TP4	TP5	WS2
AGS Ref.					
Depth	0.10 - 0.10	0.60 - 0.60	0.10 - 0.10	0.20 - 0.20	0.00 - 0.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	09-Nov-2018	09-Nov-2018		08-Nov-2018	09-Nov-2018
Anions by Kone (w)	09-Nov-2018		09-Nov-2018		
Asbestos ID in Solid Samples	08-Nov-2018				08-Nov-2018
CEN 10:1 Leachate (1 Stage)	06-Nov-2018		06-Nov-2018		
CEN Readings	08-Nov-2018		08-Nov-2018		
Coronene	06-Nov-2018		06-Nov-2018		
Cyanide Comp/Free/Total/Thiocyanate	14-Nov-2018		14-Nov-2018		14-Nov-2018
Dissolved Metals by ICP-MS	09-Nov-2018		09-Nov-2018		
Dissolved Organic/Inorganic Carbon	08-Nov-2018		08-Nov-2018		
EPH CWG (Aliphatic) GC (S)	08-Nov-2018		07-Nov-2018		07-Nov-2018
EPH CWG (Aromatic) GC (S)	08-Nov-2018		07-Nov-2018		07-Nov-2018
Fluoride	08-Nov-2018		08-Nov-2018		
GRO by GC-FID (S)	08-Nov-2018		08-Nov-2018		08-Nov-2018
Hexavalent Chromium (s)	09-Nov-2018		09-Nov-2018		09-Nov-2018
Mercury Dissolved	09-Nov-2018		09-Nov-2018		
Metals in solid samples by OES	08-Nov-2018		08-Nov-2018		09-Nov-2018
Mineral Oil	07-Nov-2018		07-Nov-2018		
PAH 16 & 17 Calc	09-Nov-2018		08-Nov-2018		
PAH by GCMS	08-Nov-2018		08-Nov-2018		07-Nov-2018
PCBs by GCMS	08-Nov-2018		08-Nov-2018		
pH	12-Nov-2018	09-Nov-2018	09-Nov-2018	09-Nov-2018	12-Nov-2018
Phenols by HPLC (S)	09-Nov-2018		09-Nov-2018		09-Nov-2018
Phenols by HPLC (W)	09-Nov-2018		09-Nov-2018		
Sample description	05-Nov-2018	05-Nov-2018	05-Nov-2018	05-Nov-2018	05-Nov-2018
Total Dissolved Solids	08-Nov-2018		08-Nov-2018		
Total Organic Carbon	12-Nov-2018		12-Nov-2018		12-Nov-2018
Total Sulphate	07-Nov-2018	12-Nov-2018		09-Nov-2018	07-Nov-2018
Total Sulphur	07-Nov-2018	09-Nov-2018		07-Nov-2018	07-Nov-2018
TPH CWG GC (S)	08-Nov-2018		08-Nov-2018		08-Nov-2018
VOC MS (S)	08-Nov-2018		08-Nov-2018		08-Nov-2018

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Project Number	27541
Project Name	Severn Road, Avonmouth
Client	GFP II Ltd
Engineer	
Notes	Using SSVs where no free phase hydrocarbons have been observed.

GIP Ltd Ground Investigation & Piling Limited

Devonshire House, Ettingshall Road,
Wolverhampton.
WV2 2JT

Tel 01902 459558
Fax 01902 459085
www.gipuk.com

C_c Values Used: Commercial (1% SOM)

	Hole ID	Sample Depth (m)	Arsenic	Cadmium	Chromium VI	Copper	Lead	Inorganic Mercury	Nickel	Selenium	Vanadium	Zinc	Free Cyanide	Phenols								
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg								
Data values in excess of the C_c are shown in Red	TP1	0.10	13.9	0.702	0.6	9.72	26.8	0.14	33.6	1.06	43.7	125	1	0.035								
	TP4	0.10	14.3	5.01	0.6	20.1	117	0.14	26.8	1	47.1	478	1	0.035								
	WS2	0.00	17.4	8.75	0.6	25.3	168	0.14	26.8	1	43.4	725	1	0.035								
C_c			635	410	49.1	106000	2310	3600	1770	13000	7490	1100000	373	685								
C_c Source			ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	-	-	-	-	-	-	-	-

	Hole ID	Sample Depth (m)	Acenaphthene	Anthracene	Benz (a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(ghi) perylene	Benzo(k) fluoranthene	Chrysene	Dibenzo(ah) anthracene	Fluoranthene	Fluorene	Indeno (123cd) pyrene	Naphthalene	Pyrene						
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg						
Data values in excess of the C_c are shown in Red	TP1	0.10	0.008	0.016	0.014	0.015	0.015	0.024	0.014	0.01	0.023	0.017	0.01	0.018	0.009	0.015						
	TP4	0.10	0.008	0.016	0.0359	0.0377	0.0628	0.032	0.0285	0.0397	0.023	0.0832	0.01	0.036	0.009	0.0639						
	WS2	0.00	0.008	0.016	0.0297	0.0304	0.0296	0.024	0.014	0.0339	0.023	0.0736	0.01	0.018	0.009	0.0622						
C_c			83600	535000	131	26.1	142	1440	1430	14000	14.3	72200	66500	142	90.1	54100						
C_c Source			ATRISK June 2017	ATRISK June 2017	ATRISK 31/03/11	ATRISK 6/17 (MRL)	ATRISK 31/03/11	ATRISK 31/03/11	ATRISK 31/03/11	ATRISK 31/03/11	ATRISK 31/03/11	ATRISK June 2017	ATRISK June 2017	ATRISK 31/03/11	ATRISK June 2017	ATRISK June 2017	-	-	-	-	-	-

	Hole ID	Sample Depth (m)	Aliphatic C5-C6	Aliphatic C6-C8	Aliphatic C8-C10	Aliphatic C10-C12	Aliphatic C12-C16	Aliphatic C16-C35	Aromatic C5-C7	Aromatic C7-C8	Aromatic C8-C10	Aromatic C10-C12	Aromatic C12-C16	Aromatic C16-C21	Aromatic C21-C35	Benzene	Toluene	Ethylbenzene	m-Xylene	o-Xylene	p-Xylene	MTBE
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Data values in excess of the C_c are shown in Red	TP1	0.10	0.01	0.01	0.01	0.01	0.1	0.2	0.01	0.01	0.01	0.01	0.1	0.1	0.1	0.009	0.007	0.004	0.01	0.01	0.01	0.01
	TP4	0.10	0.01	0.01	0.01	0.01	0.1	1.88	0.01	0.01	0.01	0.01	0.1	1.13	10.1	0.009	0.007	0.004	0.01	0.01	0.01	0.01
	WS2	0.00	0.01	0.01	0.01	0.01	0.1	3.487	0.01	0.01	0.01	0.01	0.1	1.01	13.8	0.009	0.007	0.004	0.01	0.01	0.01	0.01
C_c			4490	10400	1370	7900	34000	3620000	12.5	27900	2210	12300	41300	28400	28400	12.5	27900	7660	2830	3030	2720	3140
C_c Source			ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017	ATRISK June 2017

APPENDIX D

Detailed Unexploded Ordnance (UXO) Risk Assessment

Project Name	Hallen Industrial Estate
Client	GIP Ltd
Site Address	Severn Road, Avonmouth, BS10 7SE
Report Reference	DA7182-00
Date	28th September 2018
Originator	OG

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Executive Summary

Site Location and Description

The site is located within the area of Hallen, South Gloucestershire. It is bordered by vegetated land to the north, industrial structures and areas of hardstanding to the east, Severn Road to the south, and further vegetation to the west. The site is currently occupied by a large area of vegetation in the form of grassland, with a trees occupying its outer edge.

The site is approximately centred on the OS grid reference: **ST 5432181227.**

Proposed Works

The proposed works are understood to include 5 windowless sampler boreholes to approximately 5m below ground level, and approximately 6-8 machine excavated trial pits.

Geology and Bomb Penetration Depth

The British Geological Survey (BGS) map shows the bedrock geology of the site to be underlain by the Mercia Mudstone Group - Mudstone and Halite-stone, of the Triassic Period. The superficial deposits are comprised of Tidal Flat Deposits - Clay and Silt, of the Quaternary Period.

Site-specific geotechnical information was not available to 1st Line Defence at the time of the production of this report. An assessment of maximum bomb penetration depth can be made once such data becomes available, or by a UXO specialist during on-site support.

It should be noted that the maximum depth that a bomb could reach may vary across a site and will be largely dependent on the specific underlying geological strata and its density.

UXO Risk Assessment

1st Line Defence has assessed that there is a **Low-Medium Risk** from items of unexploded German aerial delivered and Allied ordnance across the site. This assessment is based on the following factors:

- During WWII, the Rural District of Thornbury sustained a low density bombing campaign, with an average of 10.5 items falling per 1,000 acres according to Home Office statistics. It is considered likely that due to the sites proximity to Avonmouth, RAF Filton, and a number of decoy sites, the localised density of bombing would have been somewhat higher.
- Written bombing records for Gloucestershire indicate a number of bomb strikes in the wider area of the site. However, few specifics are given for the vast majority of incidents. An abandoned bomb register for Gloucestershire indicates that a bomb was abandoned in a field adjacent to Severn Road. This description does fit the proposed site, however due to the length of Severn Road and the fact that the site has structures in close proximity, it is considered unlikely to be referencing the site area.
- As the site was occupied by open fields, it has not been possible to denote any changes to the site on OS mapping; similarly, this is also true for WWII-era aerial photography. No ground disturbances or evidence of cratering is present within the site or in the vicinity, and no structural damage is noted to the east of the site.
- Due to the structures and farm immediately to the east of the site, as well as the roadway to the south, is it anticipated that the site would have seen at least some level of access and observation, making it more likely that evidence of UXBs would have been noted.
- Open vegetated land such as the site would normally be considered to have been unconducive to the detection of UXO. This is due to the ease of UXB entry holes to go unnoticed, although the site area does appear to have been relatively well maintained on WWII-era aerial photography.
- To the immediate east of the site lies Hallen Industrial Estate, a small business park location on Severn Road. Historical mapping first shows a collection of buildings at this location in 1955, however aerial imagery shows structures to be present by at least October 1944 suggesting that they were built during the war years as they do not appear in 1938 mapping. The buildings are unlabelled on the 1955 map edition, and are only labelled as an *Industrial Estate* by 1971, by which time all of the structures appear to have altered considerably. None of the original structures appear to have survived to-date.

UXO Risk Assessment

- The buildings are of some interest as the available WWII-era aerial imagery shows them to comprise a series of nissen-style huts. The huts and the layout of the structures are suggestive of a military facility of some kind. However, although extensive research was undertaken, no direct evidence could be found to confirm that it was military related. If it had been used by the military, there is a possibility that explosive ordnance contamination could have resulted in the area – it was not uncommon for the 'housekeeping' of WWII-era camps and depots to be poor, with unwanted and unused ordnance often buried or discarded at the end of the war.
- Because it has not been possible to entirely discount that the structures were military related, it is recommended that a degree of caution is taken during intrusive works in the immediate vicinity as the risk of encountering UXO may be elevated above the 'background' level for this area of Avonmouth. However, the risk of contamination is not considered significant enough to undertake proactive UXO mitigation.
- A National Filling Factory was located approximately 1km east of the site. This was used during WWI largely for chemical weapons, such as six-inch mustard gas shells. No evidence could be found to this affecting the site area or its immediate vicinity.
- Little significant development has taken place within the proposed site boundary. The risk of UXO remaining is only considered to have been mitigated at the location of and down to the depth of any post-war excavations.

Recommended Risk Mitigation Measures

The following risk mitigation measures are recommended to support the proposed works at the Hallen Industrial Estate site:

All Works

- Site Specific UXO Awareness Briefings to all personnel conducting intrusive works.

Glossary

Abbreviation	Definition
AA	Anti-Aircraft
AFS	Auxiliary Fire Service
AP	Anti-Personnel
ARP	Air Raid Precautions
AWAS	Air Warfare Analysis Section
DA	Delay-action
EOC	Explosive Ordnance Clearance
EOD	Explosive Ordnance Disposal
FP	Fire Pot
GM	G Mine (Parachute mine)
HAA	Heavy Anti-Aircraft
HE	High Explosive
IB	Incendiary Bomb
LAA	Light Anti-Aircraft
LCC	London County Council
LRRB	Long Range Rocket Bomb (V-2)
LSA	Land Service Ammunition
MOL	Molotov (Incendiary Bomb)
OB	Oil Bomb
PAC	Pilotless Aircraft (V-1)
PB	Phosphorous Bomb
PM	Parachute Mine
POW	Prisoner Of War
RAF	Royal Air Force
RCAF	Royal Canadian Air Force
RFC	Royal Flying Corps
RNAS	Royal Naval Air Service
ROF	Royal Ordnance Factory
SA	Small Arms
SAA	Small Arms Ammunition
SD1000	1,000kg high explosive bomb
SD2	Anti-personnel “Butterfly Bomb”
SIP	Self-Igniting Phosphorous
U/C	Unclassified bomb
UP	Unrotated Projectile (rocket)
USAAF	United States Army Air Force
UX	Unexploded
UXAA	Unexploded Anti-Aircraft
UXB	Unexploded Bomb
UXO	Unexploded Ordnance
V-1	Flying Bomb (Doodlebug)
V-2	Long Range Rocket
WAAF	Women’s Auxiliary Air Force
X	Exploded

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1st Line Defence Limited
Detailed Unexploded Ordnance (UXO) Risk Assessment

Site: Hallen Industrial Estate
Client: GIP Ltd

1. Introduction

1.1. Background

1st Line Defence has been commissioned by GIP Ltd to conduct a Detailed Unexploded Ordnance (UXO) Risk Assessment for the proposed works at the Hallen Industrial Estate site.

Buried UXO can present a significant risk to construction works and development projects. The discovery of a suspect device during works can cause considerable disruption to operations as well as cause unwanted delays and expense.

UXO in the UK can originate from three principal sources:

1. Munitions resulting from wartime activities including German bombing in WWI and WWII, long range shelling, and defensive activities.
2. Munitions deposited as a result of military training and exercises.
3. Munitions lost, burnt, buried or otherwise discarded either deliberately, accidentally, or ineffectively.

This report will assess the potential factors that may contribute to the risk of UXO contamination. If an elevated risk is identified at the site, this report will recommend appropriate mitigation measures, in order to reduce the risk to as low as is reasonably practicable. Detailed analysis and evidence will be provided to ensure an understanding of the basis for the assessed risk level and any recommendations.

This report complies with the guidelines outlined in *CIRIA C681*, 'Unexploded Ordnance (UXO) A Guide for the Construction Industry'.

2. Method Statement

2.1. Report Objectives

The aim of this report is to conduct a comprehensive assessment of the potential risk from UXO at the Hallen Industrial Estate site. The report will also recommend appropriate site and work-specific risk mitigation measures to reduce the risk from explosive ordnance during the envisaged works to a level that is as low as reasonably practicable.

2.2. Risk Assessment Process

1st Line Defence has undertaken a five-step process for assessing the risk of UXO contamination:

1. The risk that the site was contaminated with UXO.
2. The risk that UXO remains on the site.
3. The risk that UXO may be encountered during the proposed works.
4. The risk that UXO may be initiated.
5. The consequences of initiating or encountering UXO.

In order to address the above, 1st Line Defence has taken into consideration the following factors:

- Evidence of WWI and WWII German aerial delivered bombing as well as the legacy of Allied occupation.
- The nature and conditions of the site during WWII.
- The extent of post-war development and UXO clearance operations on site.
- The scope and nature of the proposed works and the maximum assessed bomb penetration depth.
- The nature of ordnance that may have contaminated the proposed site area.

2.3. Sources of Information

Every reasonable effort has been made to ensure that relevant evidence has been consulted and presented in order to produce a thorough and comprehensible report for the client. To achieve this the following, which includes military records and archive material held in the public domain, have been accessed:

- The National Archives, Kew, and Gloucestershire Archives.
- Historical mapping datasets.
- Historic England National Monuments Record.
- Relevant information supplied by Gip Ltd.
- Available material from 33 Engineer Regiment (EOD) Archive.
- 1st Line Defence's extensive historical archives, library and UXO geo-datasets.
- Open sources such as published books and internet resources.

Research involved a visit to Gloucestershire Archives and The National Archives.

2.4. General Considerations of Historical Research

This desktop assessment is based largely upon analysis of historical evidence. Every reasonable effort has been made to locate and present significant and pertinent information. 1st Line Defence cannot be held accountable for any changes to the assessed risk level or risk mitigation measures, based on documentation or other data that may come to light at a later date, or which was not available to 1st Line Defence during the production of this report.

It is often problematic and sometimes impossible to verify the completeness and accuracy of WWII-era records. As a consequence, conclusions as to the exact location and nature of a UXO risk can rarely be quantified and are to a degree subjective. To counter this, a range of sources have been consulted and analysed. The same methodology is applied to each report during the risk assessment process. 1st Line Defence cannot be held responsible for any inaccuracies or the incompleteness in available historical information.

3. Background to Bombing Records

During WWII bombing records were gathered by the police, Air Raid Precaution (ARP) wardens and military personnel. Records were maintained in the form of local and regional written records, maps depicting the locations of individual strikes, and maps indicating the levels of damage sustained by structures. Records typically documented when, where and what types of bombs had fallen during an air raid. Records of bomb strikes were made either through direct observation or by post-raid surveys. The immediate priority was focused on assisting casualties and minimising damage. As a result some records were incomplete and contradictory.

The quality, detail and nature of record keeping could vary considerably between boroughs and towns. No two areas identically collated or recorded data. While some local authorities maintained records with a methodical approach, sources in certain areas can be considerably more vague, dispersed, and narrower in scope. Many records were even damaged or destroyed in subsequent bombing raids. Records of raids that took place on sparsely or uninhabited areas were often based upon third party or hearsay information and are therefore not always reliable. Furthermore, records of attacks on military or strategic targets were often maintained separately from the general records and have not always survived.

4. Background to Allied Records

During WWII considerable areas of land were requisitioned by the army for the purpose of defence, training, and the construction of airfields and facilities for munitions production. Records relating to military features vary and some may remain censored. Within urban environments datasets will be consulted detailing the location of munition production as well as air and land defences. In rural locations it may be possible to obtain plans of airfields and military establishments, as well as operational training logs, plans and personal memoirs.

5. UK Regulatory Environment

5.1. General

There is no formal obligation requiring a UXO risk assessment to be undertaken for construction projects in the UK, nor is there any specific legislation stipulating the management or mitigation of UXO risk. However, it is implicit in the legislation outlined below that those responsible for intrusive works (archaeology, site investigation, drilling, piling, excavation etc.) should undertake a comprehensive and robust assessment of the potential risks to employees and that mitigation measures are implemented to address any identified hazards.

5.2. CDM Regulations 2015

The Construction (Design and Management) Regulations 2015 (CDM 2015) define the responsibilities of parties involved in the construction of temporary or permanent structures.

The CDM 2015 establishes a duty of care extending from clients, principle co-ordinators, designers, and contractors to those working on, or affected by, a project. Those responsible for construction projects may therefore be accountable for the personal or proprietary loss of third parties, if correct health and safety procedure has not been applied.

Although the CDM does not specifically reference UXO, the risk presented by such items is both within the scope and purpose of the legislation. It is therefore implied that there is an obligation on parties to:

- Provide an appropriate assessment of potential UXO risks at the site (or ensure such an assessment is completed by others).
- Put in place appropriate risk mitigation measures if necessary.
- Supply all parties with information relevant to the risks presented by the project.
- Ensure the preparation of a suitably robust emergency response plan.

5.3. The 1974 Health and Safety at Work etc. Act

All employers have a responsibility under the Health and Safety at Work etc. Act 1974 and the Management of Health and Safety at Work Regulations 1999, to ensure the health and safety of their employees and third parties, so far as is reasonably practicable and conduct suitable and sufficient risk assessments.

5.4. Additional Legislation

In the event of a casualty resulting from the failure of an employer/client to address the risks relating to UXO, the organisation may be criminally liable under the Corporate Manslaughter and Corporate Homicide Act 2007.

6. Role of Commercial UXO Contractors and The Authorities

6.1. Commercial UXO Contractors

In the event that a risk of UXO contamination is detected at the proposed site, the support of a UXO specialist may be recommended. A UXO specialist may be able to avoid unnecessary call-outs to the authorities through the disposal or removal of low risk items. In addition a specialist will assist in the swift recognition of high risk items, and will thereafter co-ordinate with the local authority with the objective of causing minimal levels of disruption to site operations, whilst putting in place safe and appropriate measures.

For more information on the role of commercial UXO specialists, see *CIRIA C681*.

6.2. The Authorities

The police have a responsibility to co-ordinate the emergency services in the event of an ordnance-related incident at a construction site. Upon inspection they may impose a safety cordon, order an evacuation, and call the military authorities Joint Services Explosive Ordnance Disposal (JSEOD) to arrange for investigation and/or disposal. In the absence of a UXO specialist, police officers will usually employ such precautionary safety measures, thereby causing works to cease, and possibly requiring the evacuation of neighbouring businesses and properties.

The priority given to the police request will depend on JSEOD's judgement of the nature of the UXO risk, the location, people and assets at risk, as well as the availability of resources. The speed of response varies; authorities may respond immediately or in some cases it may take several days for the item of ordnance to be dealt with.

Depending on the on-site risk assessment the item of ordnance may be removed from the site and/or destroyed by a controlled explosion. The latter process is lengthy and may necessitate the establishment of addition cordons and evacuations.

Following the removal of an item of UXO, the military authorities will only undertake further investigations or clearances in high risk situations. If there are regular UXO finds on a site the JSEOD may not treat each occurrence as an emergency and will recommend the construction company puts in place alternative procedures, such as the appointment of a commercial contractor to manage the situation.

7. The Site

7.1. Site Location

The site is located within the area of Hallen, South Gloucestershire. It is bordered by vegetated land to the north, industrial structures and areas of hardstanding to the east, Severn Road to the south, and further vegetation to the west.

The site is approximately centred on the OS grid reference: **ST 5432181227**.

Site location maps are presented in **Annex A**.

7.2. Site Description

The site is currently occupied by a large area of vegetation in the form of grassland, with a trees occupying its outer edge.

A recent aerial photograph and site plan are presented in **Annex B** and **Annex C** respectively.

8. Scope of the Proposed Works

8.1. General

The proposed works are understood to include 5 windowless sampler boreholes to approximately 5m below ground level, and approximately 6-8 machine excavated trial pits.

9. Ground Conditions

9.1. General Geology

The British Geological Survey (BGS) map shows the bedrock geology of the site to be underlain by the Mercia Mudstone Group - Mudstone and Halite-stone, of the Triassic Period. The superficial deposits are comprised of Tidal Flat Deposits - Clay and Silt, of the Quaternary Period.

9.2. Site Specific Geology

Site-specific geotechnical data was not available during the production of this report.

10. Site History

10.1. Introduction

The purpose of this section is to identify the composition of the site pre and post-WWII. It is important to establish the historical use of the site, as this may indicate the site's relation to potential sources of UXO as well as help with determining factors such as the land use, groundcover, likely frequency of access and signs of bomb damage.

10.2. Ordnance Survey Historical Maps

Relevant historical maps were obtained for this report and are presented in **Annex D.** See below for a summary of the site history shown on acquired mapping.

Pre-WWII		
Date	**Scale**	**Description**
1935-38	1:10,560	This map indicates that the site was entirely occupied by open land. Additionally, open land borders to the north and west of the site, with a roadway to the south. *Willow Farm* is labelled to the east of the site, which includes a small structure and an area of open land. A small structure is located to the south across Severn Road.

Post-WWII		
Date	**Scale**	**Description**
1955	1:10,560	This map indicates no changes within the site boundary. Structures are now present immediately east of the site in the vicinity of *Willow Farm*.
1971-72	1:2,500	No changes are evident within the site boundary. Structures to the east of the site are now marked as *Industrial Estate*, with additional and altered structures compared with the previous map edition.

10.3. Historical Aerial Photographs of the Site

1st Line Defence have inquired about obtaining historical air photographs of the site area from the Aerofilms collection. Unfortunately, no relevant records could be found.

11. Aerial Bombing Introduction

11.1. General

During WWI and WWII, many towns and cities across the UK were subjected to bombing which often resulted in extensive damage to city centres, docks, rail infrastructure and industrial areas. The poor accuracy of WWII targeting technology and the nature of bombing techniques often resulted in neighbouring areas to targets sustaining collateral damage.

In addition to raids which concentrated on specific targets, indiscriminate bombing of large areas also took place, this occurred most prominently in the London 'Blitz', though affected many other towns and cities. As discussed in the following sections, a proportion of the bombs dropped on the UK did not detonate as designed. Although extensive efforts were made to locate and deal with these UXBs at the time, many still remain buried and can present a potential risk to construction projects.

The main focus of research for this report will concern German aerial delivered weapons dropped during WWII, although WWI bombing will also be considered.

11.2. Generic Types of WWII German Aerial-delivered Ordnance

Generic Types of WWII German Aerial Delivered Ordnance		
Type	**Frequency**	**Likelihood of detection**
High Explosive (HE) bombs	In terms of weight of ordnance dropped, HE bombs were the most frequently deployed by the Luftwaffe during WWII.	Although efforts were made to identify the presence of unexploded ordnance following an air raid, often the damage and destruction caused by detonated bombs made observation of UXB entry holes impossible. The entry hole of an unexploded bomb can be as little as 20cm in diameter and was easily overlooked in certain ground conditions (see **Annex E**). Furthermore, ARP documents describe the danger of assuming that damage, actually caused by a large UXB, was due to an exploded 50kg bomb. UXBs therefore present the greatest risk to present–day intrusive works.
Aerial or Parachute mines (PM)	There were deployed less frequently than HE and IBs due to size, cost and the difficulty of deployment.	If functioning correctly, PMs generally would have had a slow rate of descent and were very unlikely to have penetrated the ground. Where the parachute failed, mines would have simply shattered on impact if the main charge failed to explode. There have been extreme cases when these items have been found unexploded. However, in these scenarios, the ground was either extremely soft or the munition fell into water.
1kg Incendiary bombs (IB)	In terms of the number of weapons dropped, small IBs were the most numerous. Millions of these were dropped throughout WWII.	IBs had very limited penetration capability and in urban areas would often have been located in post-raid surveys. If they failed to initiate and fell in water, on soft vegetated ground, or bombed rubble, they could have gone unnoticed.
Large Incendiary bombs (IB)	These were not as common as the 1kg IBs, although they were more frequently deployed than PMs and AP bomblets.	If large IBs did penetrate the ground, complete combustion did not always occur and in such cases they could remain a risk to intrusive works.
Anti-personnel (AP) bomblets	These were not commonly used and are generally considered to pose a low risk to most works in the UK.	SD2 bomblets were packed into containers holding between 6 and 108 submunitions. They had little ground penetration ability and should have been located by the post-raid survey unless they fell into water, dense vegetation or bomb rubble.

An understanding of the type and characteristics of the ordnance used by the Luftwaffe during WWII allows an informed assessment of the hazards posed by any unexploded items that may remain in situ on a site. Images and brief summaries of the characteristics of the above listed German aerial delivered ordnance are presented in **Annex F**.

11.3. Failure Rate of German Aerial-delivered Ordnance

It has been estimated that 10% of WWII German aerial delivered HE bombs failed to explode as designed. Reasons for why such weapons might have failed to function as designed include:

- Malfunction of the fuze or gain mechanism (manufacturing fault, sabotage by forced labour or faulty installation).
- Many were fitted with a clockwork mechanism that could become immobilised on impact.
- Failure of the bomber aircraft to arm the bombs due to human error or an equipment defect.
- Jettisoning the bomb before it was armed or from a very low altitude. This most likely occurred if the bomber aircraft was under attack or crashing.

From 1940 to 1945 bomb disposal teams dealt with a total of 50,000 explosive items of 50kg, over, 7,000 anti-aircraft projectiles and 300,000 beach mines. Unexploded ordnance is still regularly encountered across the UK, see press articles in **Annex G**.

11.4. V-Weapons

Hitler's 'V-weapon' campaign began from mid-1944. It used newly developed unmanned cruise missiles and rockets. The V-1 known as the *flying bomb* or *pilotless aircraft* and the V-2, a long range rocket, were launched from bases in Germany and occupied Europe. A total of 9,251 V-1s and 1,115 V-2s were recorded in the United Kingdom.

Although these weapons caused considerable damage, their range was limited by their position of deployment across Europe and as a result the vast majority of V-weapon strikes were directed against targets in the south-east of England, predominantly in the London Boroughs and Home Counties. This limitation of capability meant targets in Bristol and south-west England were generally too far to be considered for V-weapon strikes by the Luftwaffe.

The risk from V-weapons in Gloucestershire is therefore considered negligible and will not be further addressed in this report.

12. UXB Ground Penetration

12.1. General

An important consideration when assessing the risk from a UXB is the likely maximum depth of burial. There are several factors which determine the depth that an unexploded bomb will penetrate:

- Mass and shape of bomb.
- Height of release.
- Velocity and angle of bomb.
- Nature of the ground cover.
- Underlying geology.

Geology is perhaps the most important variable. If the ground is soft, there is a greater potential of deeper penetration. For example, peat and alluvium are easier to penetrate than gravel and sand, whereas layers of hard strata will significantly retard and may stop the trajectory of a UXB.

12.2. The J-Curve Effect

J-curve is the term used to describe the characteristic curve commonly followed by an aerial delivered bomb dropped from height after it penetrates the ground. Typically, as the bomb is slowed by its passage through underlying soils, its trajectory curves towards the surface. Many UXBs are found with their nose cone pointing upwards as a result of this effect. More importantly however is the resulting horizontal offset from the point of entry. This is typically a distance of about one third of the bomb's penetration depth, but can be up to 15m.

12.3. WWII UXB Penetration Studies

During WWII the Ministry of Home Security undertook a major study on actual bomb penetration depths, carrying out statistical analysis on the measured depths of 1,328 bombs as reported by bomb disposal (BD) teams. Conclusions were made as to the likely average and maximum depths of penetration of different sized bombs in different geological strata.

For example, the largest common German bomb (500kg) had a likely concluded penetration depth of 6m in sand or gravel but 11m in clay. The maximum observed depth for a 500kg bomb was 11.4m and for a 1,000kg bomb 12.8m. Theoretical calculations suggested that significantly greater penetration depths were probable.

12.4. Site Specific Bomb Penetration Considerations

When considering an assessment of the bomb penetration at the site of proposed works the following parameters have been used:

- WWII geology – Mercia Mudstone Group.
- Impact angle and velocity – 10-15° from vertical and 270 metres per second.
- Bomb mass and configuration – The 500kg SC HE bomb, without retarder units or armour piercing nose (this was the largest of the common bombs used against Britain).

It has not been possible to determine maximum bomb penetration capabilities at this stage due to the lack of site-specific borehole geotechnical information. An assessment can be made once such information becomes available or by an UXO Specialist on-site.

13. Initiation of Unexploded Ordnance

13.1. General

Unexploded ordnance does not spontaneously explode. All high explosive filling requires significant energy to create the conditions for detonation to occur. In the case of unexploded German bombs discovered within the construction site environment, there are a number of potential initiation mechanisms.

13.2. UXB Initiation Mechanisms

UXB Initiation	
Direct Impact	Unless the fuze or fuze pocket is struck, there needs to be a significant impact e.g. from piling or large and violent mechanical excavation, onto the main body of the weapon to initiate a buried iron bomb. Such violent action can cause the bomb to detonate.
Re- starting the Clockwork Fuze	A small proportion of German WWII bombs employed clockwork fuzes. It is probable that significant corrosion would have taken place within the fuze mechanism over the last 70+ years that would prevent clockwork mechanisms from functioning. Nevertheless, it was reported that the clockwork fuze in a UXB dealt with by 33 EOD Regiment in Surrey in 2002 did re-start.
Friction Impact	The most likely scenario resulting in the detonation of a UXB is friction impact initiating the shock-sensitive fuze explosive. The combined effects of seasonal changes in temperature and general degradation over time can cause explosive compounds to crystallise and extrude out from the main body of the bomb. It may only require a limited amount of energy to initiate the extruded explosive which could detonate the main charge.

Annex G2 details incidents where intrusive works have caused items of UXO to detonate, resulting in death or injury and damage to plant.

13.3. Effects of Detonation

When considering the potential consequences of a detonation, it is necessary to identify the significant receptors that may be affected. The receptors that may potentially be at risk from a UXO detonation on a construction site will vary depending on the site specific conditions but can be summarised as follows:

- People – site workers, local residents and general public.
- Plant and equipment – construction plant on site.
- Services – subsurface gas, electricity, telecommunications.
- Structures – not only visible damage to above ground buildings, but potentially damage to foundations and the weakening of support structures.
- Environment – introduction of potentially contaminating materials.

14. The Risk from German Aerial Delivered UXBs

14.1. World War I

During WWI Britain was targeted and bombed by Zeppelin Airships as well as Gotha and Giant fixed-wing aircraft. A WWI map of air raids and naval bombardments across England is presented in **Annex H**. The site area is not featured on this map, which suggests that the area received no recorded WWII bombing incidents.

WWI bombs were generally smaller than those used in WWII and were dropped from a lower altitude. This resulted in limited UXB penetration depths. Aerial bombing was often such a novelty at the time that it attracted public interest and even spectators to watch the raids in progress. For these reasons there is a limited risk that UXBs passed undiscovered in the urban environment. When combined with the relative infrequency of attacks and an overall low bombing density the risk from WWI UXBs is considered low and will not be further addressed in this report.

14.2. World War II Bombing of Gloucestershire

The Luftwaffe's main objective for the attacks on Britain was to inhibit the country's economic and military capability. To achieve this they targeted airfields, depots, docks, warehouses, wharves, railway lines, factories, and power stations. As the war progressed the Luftwaffe bombing campaign expanded to include the indiscriminate bombing of civilian areas in an attempt to subvert public morale.

During WWII, the site was located within the Rural District of Thornbury, which sustained an overall low density of bombing, see the following section. However, the site area is anticipated to have sustained a higher than average density of bombing throughout WWII, due to its relative locality to the County Borough of Bristol, which sustained a very high density of bombing, and its proximity to a number of decoy bombing sites. Avonmouth was also a potential target for Luftwaffe bombers due to its industrial and dock areas (as shown on Luftwaffe reconnaissance photography in **Annex I**).

Records of bombing incidents in the civilian areas of the region were collected by the Air Raid Precautions wardens and collated by the Civil Defence Office. Some other organisations, such as port and railway authorities, maintained separate records. Records would be in the form of typed or hand written incident notes, maps and statistics. Bombing data was carefully analysed, not only due to the requirement to identify those parts of the country most needing assistance, but also in an attempt to find patterns in the Germans' bombing strategy in order to predict where future raids might take place.

Records of bombing incidents for the Rural District of Thornbury are presented in the following sections.

14.3. WWII Home Office Bombing Statistics

The following table summarises the quantity of German aerial delivered bombs (excluding 1kg incendiaries and anti-personnel bombs) dropped on the Rural District of Thornbury between 1940 and 1945.

Record of German Ordnance Dropped on the Rural District of Thornbury		
Area Acreage		**61,337**
Weapons	High Explosive bombs (all types)	**605**
	Parachute mines	**3**
	Oil bombs	34
	Phosphorus bombs	**1**
	Fire pots	**3**
	Pilotless aircraft (V-1)	**0**
	Long range rocket bombs (V-2)	**0**
Total		**646**
Number of Items per 1,000 acres		**10.5**

Source: Home Office Statistics
This table does not include UXO found during or after WWII.

Detailed records of the quantity and locations of the 1kg incendiary and anti-personnel bombs were not routinely maintained by the authorities as they were frequently too numerous to record. Although the risk relating to IBs is lesser than that relating to larger HE bombs, they were similarly designed to inflict damage and injury. Anti-personnel bombs were used in much smaller quantities and are rarely found today but are potentially more dangerous. Although Home Office statistics were not recorded, both types of item should not be overlooked when assessing the general risk to personnel and equipment.

14.4. Gloucestershire Abandoned Bomb Register

This register, obtained from the Gloucestershire Archives, typically recorded details such as the date a bomb fell, the location, estimated size as well as the reason for the bomb's abandonment. It is not known, however, how comprehensive this record is. Details relating to the general area of the site are presented in the table below.

Gloucestershire Abandoned Bombs		
Date Range	**Type of Bomb**	**Comments**
16th March 1941	50kg HE	300 yards north-east of West House Farm, Hallen. Evacuation is waterlogged.
2nd November 1940	50kg HE	In field off Severn Road, Hallen. Evacuation is waterlogged.

14.5. Gloucestershire Unexploded Bomb Index Book

This index book, obtained from the Gloucestershire Archives, records the location and date of UXB's. No other specific information regarding its size or exact location are given. The table below presents records relevant to the site area.

Gloucestershire Abandoned Bombs	
Date Range	**Location**
15th October 1940	Hallen
3rd December 1940	Hallen
6th December 1940	Hallen, Worthy Farm
19th March 1941	Hallen, Westhouse Farm
4th April 1941	Hallen, Berwick Lane
3rd July 1941	Hallen Marsh

14.6. Gloucestershire Bomb Incident Records

Incident Record Books were obtained from the Gloucestershire Archives. These books detail the date, location and type of bomb. Many of these records simply refer to *Hallen* or *Almondsbury*, and do not give exact locations. On some occasions, more specific information is given, such as an HE bomb falling at *Hallen Farm* on 4th September 1940 and 3 HE's in *Hallen*, Hayrick burnt. No record relates explicitly to the site location or any structures in its immediate vicinity.

14.7. A Note on the Historical Record

Bombing in the rural areas of Gloucestershire was mostly recorded centrally in several sources, such as County index books and collections of written incident records. There does not appear to be one single source with a complete list of incidents in rural areas. Therefore, there is not considered to be a completed bombing record for the site area.

As the site was in close proximity to a farm and other structures, it is possible that these would be mentioned in the record set in order to locate the incidents, although much of the record set appears to refer to broad areas.

14.8. WWII-Era Aerial Photographs

A range of WWII-era aerial photographs displaying the site area were consulted. These photographs provide record of the potential composition of the site during the war, as well as its condition immediately following the war (see **Annex J**).

WWII-Era Aerial Photographs		
Date	**Sources**	**Description**
30th October 1944	National Monuments Office (Historic England)	This image shows the site and its immediate surrounds. The site is occupied by open fields, with hedges around its perimeter. A number of structures are to the east of the site. No obvious signs of bomb damage (such as cleared ground or cratering) can be seen within the site or in the vicinity.
4th December 1946	National Monuments Office (Historic England)	This image shows a partial view of the site. Hay bales appear to occupy the site, along with open fields. No evidence of damage can be seen in this image.

14.9. Bombing Decoy Sites

The decoy principal – drawing German bombers away from their designated targets onto dummy sites five or six miles away – began in WWI to protect RAF stations. In 1939, a new department was set up to investigate and coordinate the concept of defence by deception. A whole range of decoy sites were developed – some of them became very elaborate and covered large areas.

Common WWII Decoy Site Variants	
Decoy Type	**Description**
K-site	Daytime dummy airfield. Dummy aircraft and infrastructure.
Q-site	Night time dummy airfield. Intended to represent the working lights of an airfield after dark.
QL	Night time dummy infrastructure. Replicating the lights and workings of marshalling yards, naval installations, armament factories etc.
QF	Fire based decoy. Initially for aircraft factories, RAF maintenance units and ordnance works to simulate them on fire following bombing.
Oil QF	Simulation of burning oil tanks.
Starfish	Replicating a city under incendiary attack.

By June 1944, decoy sites had been attacked on 730 occasions. Attacks ranged from a single night-time bomber dropping its load onto a "Q" site, to the mass attacks on Starfish sites. In diverting the high explosives and incendiaries from the intended targets, they were undoubtedly responsible for saving the lives of thousands of people.

Works planned in the vicinity of WWII decoy sites can be at an elevated risk from UXBs as the facilities were specifically designed to be bombed. It was not uncommon for evidence of UXBs at a decoy site to be overlooked following a raid. Given that the sites were on open ground, sometimes agricultural fields, UXB entry holes were not always evident.

Records indicate that bombing decoy sites were present in the region of the proposed site during WWII. The closest decoy site was a QF decoy with QL (indicating its use as a night-time infrastructure

decoy, but that it was also fire-based) was situated approximately 2.4km north of the site. The presence and proximately of this decoy site is likely to have attributed to a higher than average density of bombing in the Rural District of Thornbury. Additional decoy sites are located 2.5km south of the site, and to the far east and south-west.

14.10. Abandoned Bombs

A post air-raid survey of buildings, facilities, and installations would have included a search for evidence of bomb entry holes. If evidence of an entry hole was encountered, Bomb Disposal Officer Teams would normally have been requested to attempt to locate, render safe, and dispose of the bomb. Occasionally, evidence of UXBs was discovered but due to a relatively benign position, access problems, or a shortage of resources the UXB could not be exposed and rendered safe. Such an incident may have been recorded and noted as an 'abandoned bomb'.

Given the inaccuracy of WWII records and the fact that these bombs were 'abandoned', their locations cannot be considered definitive or the lists exhaustive. The MoD states that 'action to make the devices safe would be taken only if it was thought they were unstable'. It should be noted that other than the 'officially' abandoned bombs, there will inevitably be UXBs that were never recorded.

In-house geo-data sets indicate a number of abandoned bombs in the general area of the site, including one approximately 450m north of the site in the vicinity of Minor's Farm, one to the south west in the vicinity of West House Farm, and another to the south-east on Hallen Farm. Many more abandoned bombs are located in the Avonmouth area. No officially registered abandoned bombs are located within the site boundary or its immediate adjacent areas.

14.11. Bomb Disposal Tasks

The information service from the Explosive Ordnance Disposal (EOD) Archive Information Office at 33 Engineer Regiment (EOD) is currently facing considerable delay. It has therefore not been possible to include any updated official information regarding bomb disposal/clearance tasks with regards to this site. A database of known disposal/clearance tasks has been referred to which does not make reference to such instances occurring within the site of proposed works. If any relevant information is received at a later date GIP Ltd will be advised.

14.12. Evaluation of German Aerial Delivered UXB Risk

Factors	Conclusion
Density of Bombing *It is important to consider the bombing density when assessing the possibility that UXBs remain in an area. High levels of bombing density could allow for error in record keeping due to extreme damage caused to the area.*	The Rural District of Thornbury was subject to an overall low density of bombing, with an average of 10.5 bombs recorded per 1,000 acres according to Home Office statistics. However, due to the site's proximity to Avonmouth (which contained a number of viable Luftwaffe targets) and its locality between a number of bombing decoy sites, it is considered likely that the localised density of bombing in the site area would have been higher. However, no records of bombing incidents within the site boundary or in the immediate vicinity could be found within the available record set. A number of records relate simply to *Hallen* or *Almondsbury* within which the site was located, and there is reference to an abandoned bomb in a field adjacent to Severn Road (which could concievably include the site location). However, due to the size of the road and the fact that landmarks are present in close proximity to the site location, it is not thought likely to be the case in this instance.

Damage *If buildings or structures on a site sustained bomb or fire damage any resulting rubble and debris could have obscured the entry holes of unexploded bombs dropped during the same, or later, raids. Similarly, a High Explosive bomb strike in an area of open agricultural land will have caused soil disturbance, increasing the risk that a UXB entry hole would be overlooked.*	No obvious signs of bomb damage (such as cratering or disturbed ground) are present within or adjacent to the site location on WWII-era aerial photography. No signs of structural change is evident on OS mapping to any structure within the vicinity. Due to the date of imagery, it is possible that any such signs of damage would no longer be visible.
Access Frequency *UXO in locations where access was irregular would have a greater chance of passing unnoticed than at those that were regularly occupied. The importance of a site to the war effort is also an important consideration as such sites are likely to have been both frequently visited and subject to post-raid checks for evidence of UXO.*	Whilst the site was occupied by open fields, it was situated immediately adjacent to a number of structures and a farm. Additionally, Severn Road was located on its immediate southern and south-western borders. As such, it is thought likely that the area would have received some level of access, as well as general observation. Post-raid checks for items of UXO therefore would have likely been carried out to some extent.
Ground Cover *The nature of the ground cover present during WWII would have a substantial influence on any visual indication that may indicate UXO being present.*	The site was occupied by open fields, with hedges on its borders. This type of ground cover is not generally considered conducive to the detection of UXO, as it provides a means for evidence of UXBs (such as bomb entry holes) to go unnoticed.
Bomb Failure Rate	There is no evidence to suggest that the bomb failure rate in the locality of the site would have been dissimilar to the 10% normally used.
Abandoned Bombs	1st Line Defence holds no records of abandoned bombs at or within the site vicinity. Geo-data sets indicate abandoned bombs approximately 500m north of the site, 750m south-east, and 900m south-west. Additionally, written records suggest an abandoned bomb 'in field off Severn Road', although the exact location is not given. The site itself was a field off of Severn Road.
Bombing Decoy sites	The closest bombing decoy site was a QF site located approximately 2.3km north of the site. Further decoy sites are present in the surrounding area. It is likely that the presence of this decoy site led to a higher bombing density in this area than average for the district.
Bomb Disposal Tasks	1st Line Defence could find no evidence of bomb disposal tasks within the site boundary and immediate area.

15. The Risk from Allied Ordnance

15.1. General

The potential risk of encountering Allied ordnance on construction sites is particularly elevated in areas previously associated with military activity. This includes munitions deposited by military training exercises, dumped as a result of poor working practices, or deliberately placed to prevent adversary occupation and from other home defence activities. For example, contamination from items of Land Service (LSA) and Small Arms Ammunition (SAA) may result from historical occupation of an area or its use for military training.

It should be highlighted that no direct evidence could be found to indicate that the site formerly had any military occupation or usage that could have led to contamination with such items of Allied ordnance. It is conceivable that the structures present to the immediate east of the site were military related (see below), but it has not proved possible to confirm this.

15.2. Hallen Industrial Estate

To the immediate east of the site lies Hallen Industrial Estate, a small business park location on Severn Road. Historical mapping first shows a collection of buildings at this location in 1955, however aerial imagery shows structures to be present by at least October 1944 suggesting that they were built during the war years as they do not appear in 1938 mapping. The buildings are unlabelled on the 1955 map edition, and are only labelled as an *Industrial Estate* by 1971, by which time all of the structures appear to have altered considerably. None of the original structures appear to have survived to-date.

The buildings are of some interest as the available WWII-era aerial imagery shows them to comprise a series of nissen-style huts. The huts and the layout of the structures are suggestive of a military facility of some kind. However, although extensive research was undertaken, no direct evidence could be found to confirm that it was military related. If it had been used by the military, there is a possibility that explosive ordnance contamination could have resulted in the area – it was not uncommon for the 'housekeeping' of WWII-era camps and depots to be poor, with unwanted and unused ordnance often buried or discarded at the end of the war.

Because it has not been possible to entirely discount that the structures were military related, it is recommended that a degree of caution is taken during intrusive works in the immediate vicinity as the risk of encountering UXO may be elevated above the 'background' level for this area of Avonmouth. However, the risk of contamination is not considered significant enough to undertake proactive UXO mitigation.

15.3. Defending the UK From Aerial Attack

During WWII the Ministry of Defence employed a number of defence tactics against the Luftwaffe from bombing major towns, cities, manufacturing areas, ports and airfields. These can be divided into passive and active defences (examples are provided in the table below).

Active Defences	Passive Defences
• Anti-aircraft gun emplacements to engage enemy aircraft. • Fighter aircraft to act as interceptors. • Rockets and missiles were used later during WWII.	• Blackouts and camouflaging to hinder the identification of Luftwaffe targets. • Decoy sites were located away from targets and used dummy buildings and lighting to replicate urban, military, or industrial areas. • Barrage balloons forced enemy aircraft to greater altitudes. • Searchlights were often used to track and divert adversary bomber crews during night raids.

Active defences such as anti-aircraft artillery present a greater risk of UXO contamination than passive defences. Unexploded ordnance resulting from dogfights and fighter interceptors is rarely encountered and difficult to accurately qualify.

15.4. Anti-Aircraft Artillery (AAA)

During WWII three main types of gun sites existed: heavy anti-aircraft (HAA), light anti-aircraft (LAA) and 'Z' batteries (ZAA). If the projectiles and rockets fired from these guns failed to explode or strike an aircraft they would descend back to land. The table below provides further information on the operation and ordnance associated with these type of weapons.

Anti-Aircraft Artillery				
Item	**Description**			
HAA	These large calibre guns such as the 3.7" QF (Quick Firing) were used to engage high flying enemy bombers., They often fired large HE projectiles, which were usually initiated by integral fuzes triggered by impact, area, time delay or a combination of aforementioned mechanisms. The closest HAA battery was located approximately 1.9km south-west of the site, however the range of a projectile can be up to 15km.			
LAA	These mobile guns were intended to engage fast, low flying aircraft. They were typically rotated between locations on the perimeters of towns and strategically important industrial works. As they could be moved to new positions with relative ease when required, records of their locations are limited. The most numerous of these were the 40mm Bofors gun which could fire up to 120 x 40mm HE projectiles per minute to over 1,800m.			
Variations in HAA and LSA Ammunition	**Gun type**	**Calibre**	**Shell Weight**	**Shell Dimensions**
	3.0 Inch	76mm	7.3kg	76mm x 356mm
	3.7 Inch	94mm	12.7kg	94mm x 438mm
	4.5 Inch	114mm	24.7kg	114mm x 578mm
	40mm	40mm	0.9kg	40mm x 311mm
Z-AA	The three inch unrotated rocket/projectile known as the UP-3 had initially been developed for the Royal Navy. The UP-3 was also used in ground-based single and 128-round launchers known as ''Z'' batteries. The rocket, containing a high explosive warhead was often propelled by cordite.			

29mm Spigot Mortars (Blacker Bombards)	This was an infantry anti-tank weapon. A heavy steel rod (spigot) would be driven into the hollow tail of a projectile to ignite the explosive charge located in the rear of the projectile, and lead to it being propelled toward a target. It was not an effective method of air defence and was mainly used in defensive positons at key locations. If encountered, a spigot mortar projectile will resemble a mortar round, but with an elongated metal tail rod.
Quick Firing (QF) 1 and 2 Pounder	QF 1 and 2 Pounders, or 'pom poms' were a light battery most often used by the navy. During the beginning of WWII they were used to defend targets in the absence of more effective LAA or HAA.
Machine Gun Posts	These were established at some significant military and industrial positions. Machine guns were a largely ineffective form of AAA. Machine guns usually fired the .303 Round.

The conditions in which an HAA or LAA projectiles may have fallen unnoticed within a site area are analogous to those regarding aerial delivered ordnance. For detailed analysis on the ground conditions and access frequency within the proposed site, see the evaluation of German Bombing Records in, **Section 14.11**.

Unexploded anti-aircraft ammunition is likely to be found close to WWII ground level. If encountered, the high explosive fill and fragmentation hazard of these items could present a significant risk to workers and equipment.

Illustrations of Anti-Aircraft artillery, projectiles and rockets are presented at **Annex K**.

15.5. Evaluation of Allied Ordnance Risk

1st Line Defence has considered the following potential sources of Allied ordnance contamination:

Sources of Contamination	Conclusion
Military Camps *Military camps present an elevated risk from ordnance simply due to the large military presence and likelihood of associated live ordnance training.*	1st Line Defence could find no evidence of a military camp within the site.
Anti-Aircraft Defences *Anti-Aircraft defences were employed across the country. Proximity to anti-aircraft defences increases the chance of encountering AA projectiles.*	1st Line Defence could find no evidence of Anti-Aircraft defences such as a HAA or LAA gun emplacement occupying or bordering the site. The closest HAA was located approximately 1.9km south-west of the site, however the range of a projectile can be up to 15km. The conditions in which HAA or LAA projectiles may have fallen unnoticed within a site footprint are analogous to those regarding German aerial delivered ordnance.
Home Guard Activity *The Home Guard regularly undertook training and ordnance practice in open areas, as well as burying ordnance as part of anti-invasion defences.*	Evidence of Home Guard training areas and activities is difficult to obtain. 1st Line Defence has no evidence of any Home Guard activities on the site.
Defensive Positions *Defensive positions suggest the presence of military activity, which is often indicative of ordnance storage, usage or disposal.*	There is no evidence of any defensive features formerly located on or bordering the site footprint.

Training or firing ranges *Areas of ordnance training saw historical ordnance usage in large numbers, often with inadequate disposal of expended and live items. The presence of these ranges significantly impact on the risk of encountering items of ordnance in their vicinity.*	There is no evidence of such features affecting the site.
Defensive Minefields *Minefields were placed in strategic areas to defend the country in the event of a German invasion. Minefields were not always cleared with an appropriate level of vigilance.*	There is no evidence of defensive minefields affecting the site.
Ordnance Manufacture *Ordnance manufacture indicates an increased chance that items of ordnance were stored, or disposed of, within a location.*	There is evidence of a National Filling Factory approximately 1km west of the site. This was the No. 23 Chittening Factory, which was formed to produce chemical weapons such as mustard gas shells during WWI. No direct evidence could be found to indicate that that this would have affected the site, or that the structures to the immediate east were affiliated with this factory or used for military purposes.
Military Related Airfields *Military airfields present an elevated risk from ordnance simply due to the large military presence and likelihood of associated live ordnance training or bombing practice.*	The site was not situated within the perimeters or vicinity of a military airfield. RAF Filton was located approximately 3.3km east of the site.

16. Ordnance Clearance and Post-WWII Ground Works

16.1. General

It is important to consider the extent to which any explosive ordnance clearance (EOC) activities or extensive ground works have occurred on site. This may indicate previous ordnance contamination or reduce the risk that ordnance remains undiscovered.

16.2. UXO Clearance

1st Line Defence has no evidence that any official ordnance clearance operations have taken place on site. Note however that we have not received confirmation of this fact from 33 EOD Regiment.

16.3. Post-war Redevelopment

Little significant development has taken place within the proposed site boundary.

The risk of UXO remaining is considered to have been mitigated at the location of and down to the depth of any post-war excavations which may have occurred.

17. 1st Line Defence Risk Assessment

17.1. Risk Assessment Stages

Taking into account the quality of the historical evidence, the assessment of the overall risk from unexploded ordnance is based on the following five considerations:

1. That the site was contaminated with unexploded ordnance.
2. That unexploded ordnance remains on site.
3. That such items will be encountered during the proposed works.
4. That ordnance may be initiated by the works operations.
5. The consequences of encountering or initiating ordnance.

UXO Risk Assessment	
Quality of the Historical Record	The research has evaluated pre- and post-WWII Ordnance Survey maps, Luftwaffe reconnaissance imagery, official registers of abandoned and unexploded bombs in Gloucestershire, incident record books, high-resolution WWII-era aerial photography, and in-house record sets. The record set is of generally poor quality, with it mostly lacking in detail and completeness in the available written record set. Many of the written records give vague locations of incidents, and simply refer to the wider parish. One example of a more specific record refers to the street, although due to its length and the lack of landmarks given it remains impossible to know the exact location. It has not been possible to confirm the exact nature and use of the buildings immediately east of the site during WWII. It is possible that they were military-related, but no direct evidence to confirm this could be found.
The Risk that the Site was Contaminated with UXO	After considering the following facts, 1st Line Defence has assessed that there is a **Low-Medium Risk** that items of unexploded German aerial delivered and anti-aircraft ordnance could have fallen unrecorded within the site boundary, with the risk from Allied ordnance also assessed as **Low-Medium**. • During WWII, the Rural District of Thornbury sustained a low density bombing campaign, with an average of 10.5 items falling per 1,000 acres according to Home Office statistics. It is considered likely that due to the sites proximity to Avonmouth, RAF Filton, and a number of decoy sites, the localised density of bombing would have been somewhat higher. • Written bombing records for Gloucestershire indicate a number of bomb strikes in the wider area of the site. However, few specifics are given for the vast majority of incidents. An abandoned bomb register for Gloucestershire indicates that a bomb was abandoned in a field adjacent to Severn Road. This description does fit the proposed site, however due to the length of Severn Road and the fact that the site has structures in close proximity, it is considered unlikely to be referencing the site area. • As the site was occupied by open fields, it has not been possible to denote any changes to the site on OS mapping; similarly, this is also true for WWII-era aerial photography. No ground disturbances or evidence of cratering is present within the site or in the vicinity, and no structural damage is noted to the east of the site. • Due to the structures and farm immediately to the east of the site, as well as the roadway to the south, is it anticipated that the site would have seen at least some level of access and observation, making it more likely that evidence of UXBs would have been noted.

	• Open vegetated land such as the site would normally be considered to have been unconducive to the detection of UXO. This is due to the ease of UXB entry holes to go unnoticed, although the site area does appear to have been relatively well maintained on WWII-era aerial photography. • To the immediate east of the site lies Hallen Industrial Estate, a small business park location on Severn Road. Historical mapping first shows a collection of buildings at this location in 1955, however aerial imagery shows structures to be present by at least October 1944 suggesting that they were built during the war years as they do not appear in 1938 mapping. The buildings are unlabelled on the 1955 map edition, and are only labelled as an *Industrial Estate* by 1971, by which time all of the structures appear to have altered considerably. None of the original structures appear to have survived to-date. • The buildings are of some interest as the available WWII-era aerial imagery shows them to comprise a series of nissen-style huts. The huts and the layout of the structures are suggestive of a military facility of some kind. However, although extensive research was undertaken, no direct evidence could be found to confirm that it was military related. If it had been used by the military, there is a possibility that explosive ordnance contamination could have resulted in the area – it was not uncommon for the 'housekeeping' of WWII-era camps and depots to be poor, with unwanted and unused ordnance often buried or discarded at the end of the war. • Because it has not been possible to entirely discount that the structures were military related, it is recommended that a degree of caution is taken during intrusive works in the immediate vicinity as the risk of encountering UXO may be elevated above the 'background' level for this area of Avonmouth. However, the risk of contamination is not considered significant enough to undertake proactive UXO mitigation. • A National Filling Factory was located approximately 1km east of the site. This was used during WWI largely for chemical weapons, such as six-inch mustard gas shells. No evidence could be found to this affecting the site area or its immediate vicinity.
The Risk that UXO Remains on Site	Little significant development has taken place within the proposed site boundary. The risk of UXO remaining is only considered to have been mitigated at the location of and down to the depth of any post-war excavations.
The Risk that UXO may be Encountered during the Works	The most likely scenarios under which items of UXO could be encountered during construction works is during piling, drilling operations or bulk excavations for basement levels. The risk of encountering will depend on the extent of the works, such as the numbers of boreholes/piles (if required) and the volume of the excavations. An aerial delivered bomb may come to rest at any depth between just below ground level and its maximum penetration depth. Consequently there is also a possibility that UXBs could be encountered during shallow excavations (for services or site investigations) into the original WWII ground level.
The Risk that UXO may be Initiated	The risk that UXO could be initiated if encountered will depend on its condition, how it is found, and the energy with which it is struck. Certain construction activities such as piling and percussive drilling pose a greater risk of initiating UXO in comparison to machine excavation, where the force of impact is generally lower and the item is more likely to be observed. If a UXB is struck by piling or percussive drilling equipment, the force of the impact can be sufficient to detonate the main high explosive charge irrespective of the condition of the fuze or other components. Violent vibration might also impart enough energy to a chemical detonator for it to function, and there is a potential risk that clockwork fuzes could restart.

	If piling works are planned at the Hallen Industrial Estate site there is a potential risk that a UXB, if present, could be initiated. The risk of initiation is assessed to be lower for any shallow intrusive works planned.
The Consequences of Encountering or Initiating Ordnance	The repercussions of the inadvertent detonation of items of UXO during intrusive ground works are potentially severe, both in terms of human and financial cost. A serious risk to life and limb, damage to plant and total site shutdown during follow-up investigations are potential outcomes. If appropriate risk mitigation measures are undertaken, the chances of initiating an item of UXO during ground works is comparatively low. The primary consequence of encounter of UXO will therefore be economic. This would be particularly notable in the case of sites with a high-profile or where it is necessary to evacuate the public from the surrounding area. A site may be closed from a few hours to a week with potentially significant cost in lost time. It should be noted that even the discovery of suspected or possible items of UXO during intrusive works (if handled solely through the authorities), may also involve loss of production. Generally, the first action of the police in most cases will be to isolate the locale whilst awaiting military assistance, even if this becomes unnecessary.

17.2. Assessed Risk Level

Taking into consideration the findings of this study, 1st Line Defence has assessed that there is a **Low-Medium Risk** from German and Allied unexploded ordnance at the site of proposed works.

Low-Medium

Ordnance Type	Risk Level			
	Negligible	Low	Medium	High
German Unexploded HE Bombs		✓		
German 1kg Incendiary Bombs		✓		
Anti-Aircraft Artillery Projectiles		✓		
Allied Military Land Service Ammunition (Grenades, Mortars etc.)		✓		

18. Proposed Risk Mitigation Methodology

18.1. General

The following risk mitigation measures are recommended to support the proposed works at the Hallen Industrial Estate site:

Type of Work	Recommended Mitigation Measure
All Works	• **Site Specific UXO Awareness Briefings to all personnel conducting intrusive works.** As a minimum precaution, all personnel working on the site should be briefed on the basic identification of UXO and what to do in the event of encountering a suspect item. This should in the first instance be undertaken by a UXO Specialist. Posters and information on the risk of UXO can be held in the site office for reference.

In making this assessment and recommending these risk mitigation measures, if known, the works outlined in the 'Scope of the Proposed Works' section were considered. Should the planned works be modified or additional intrusive engineering works be considered, 1st Line Defence should be consulted to see if a re-assessment of the risk or mitigation recommendations is necessary.

1st Line Defence Limited **28th September 2018**

This Report has been produced in compliance with the Construction Industry Research and Information Association (CIRIA) C681 guidelines for the writing of Detailed UXO Risk Assessments.

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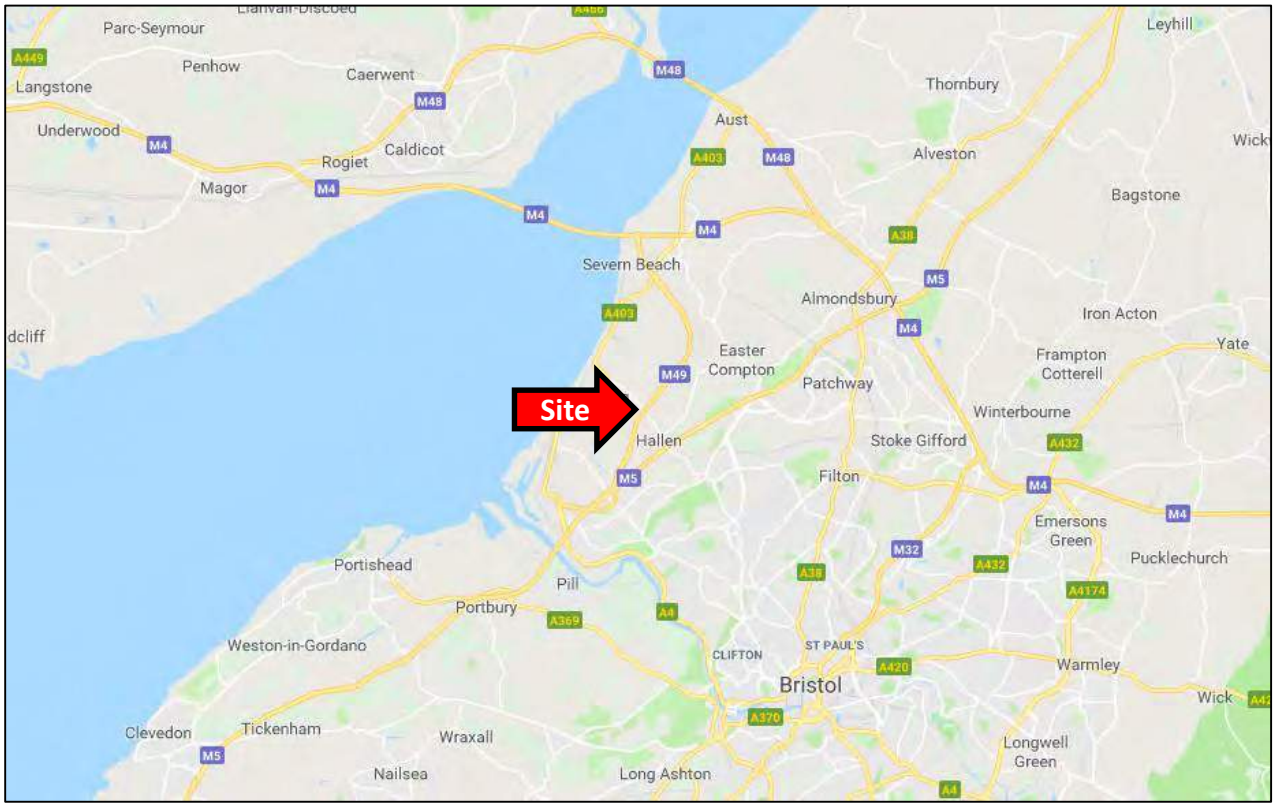
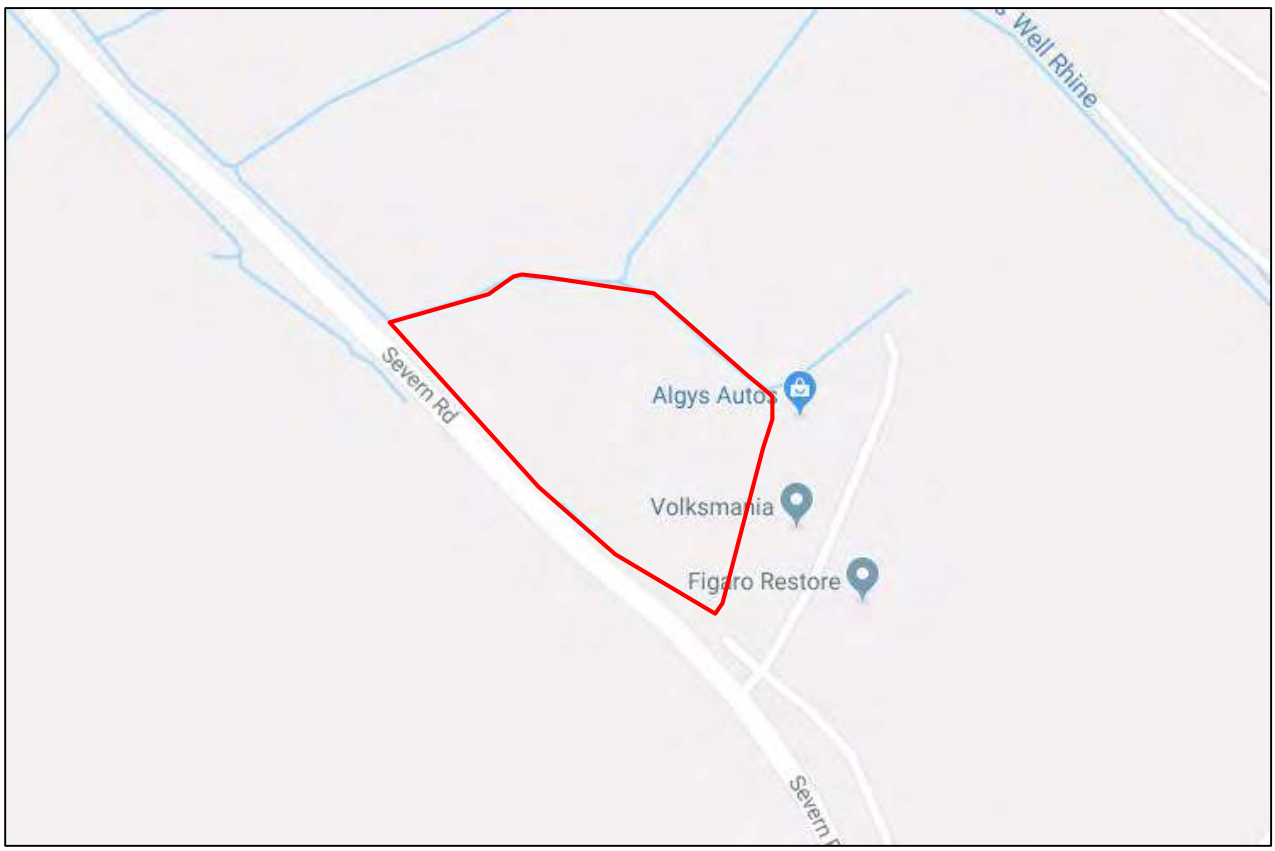
This report has been prepared by 1st Line Defence Limited with all reasonable care and skill. The report contains historical data and information from third party sources. 1st Line Defence Limited has sought to verify the accuracy and comprehensiveness of this information where possible but cannot be held accountable for any inherent errors. Furthermore, whilst every reasonable effort has been made to locate and access all relevant historical information, 1st Line Defence cannot be held responsible for any changes to risk level or mitigation recommendations resulting from documentation or other information which may come to light at a later date.

Site Location Maps

Annex: **A**





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Email: info@1stlinedefence.co.uk
Tel: +44 (0)1992 245 020

Client: **GIP Ltd**

Project: **Hallen Industrial Estate**

Ref: **DA7182-00**

Source: Google Maps

Approximate site boundary

N

Recent Aerial Photography

Annex: **B**

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Ref: **DA7182-00**

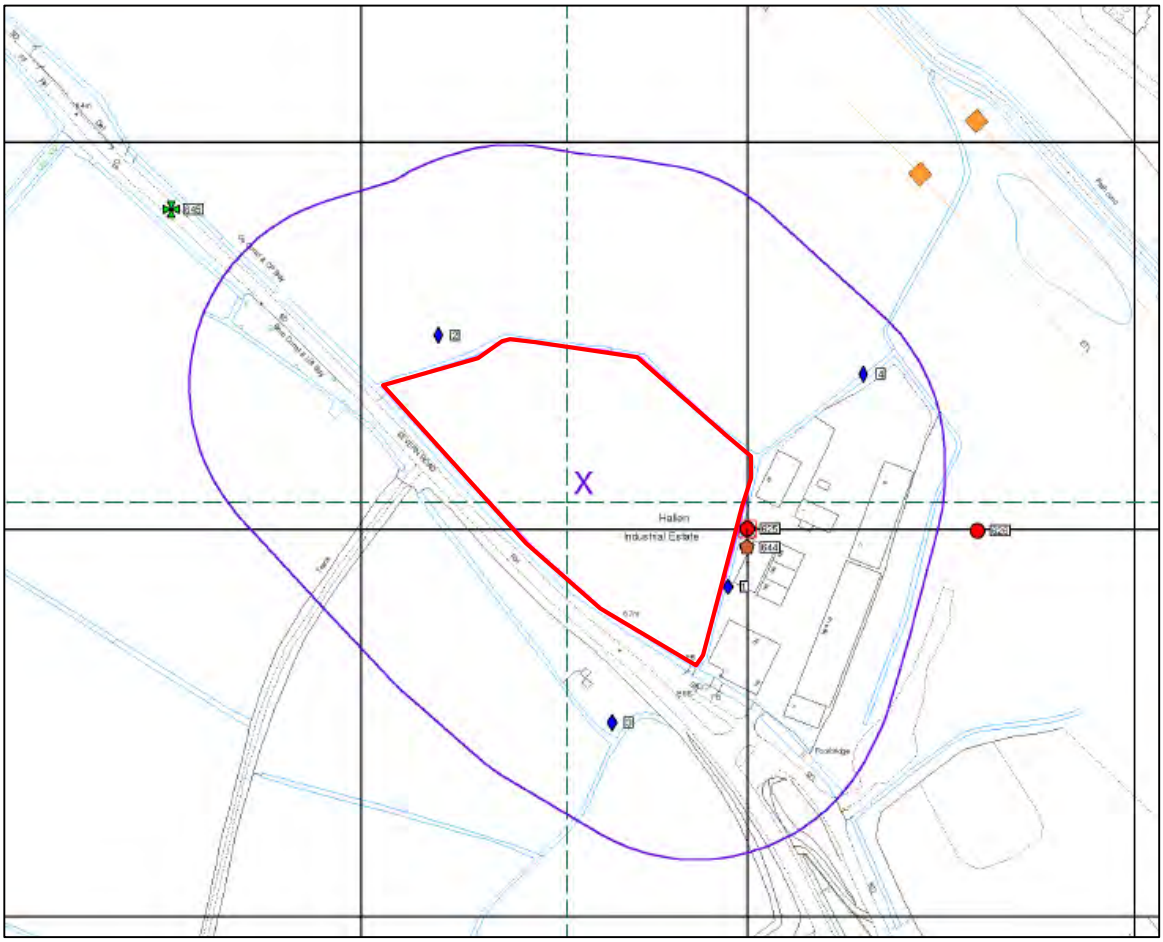
Source: Google Earth ™ Mapping Services

Approximate site boundary

N

Client Provided Site Plan

Annex: C



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Client: **GIP Ltd**

Project: **Hallen Industrial Estate**

Ref: **DA7182-00**

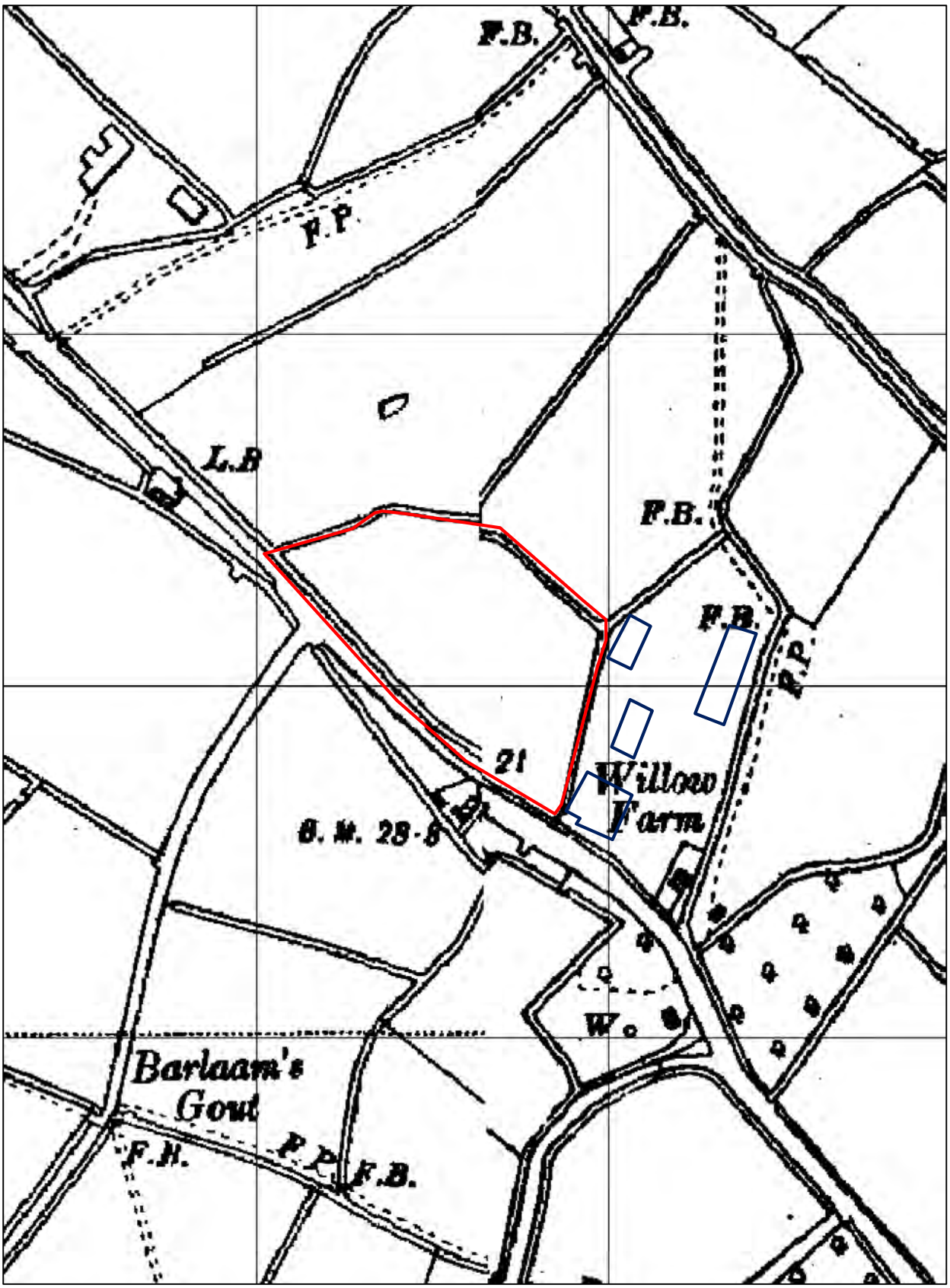
Source: GIP Ltd

Approximate site boundary

N

1935-38 Historical Map

Annex: D1



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Client: **GIP Ltd**

Approximate site boundary

N

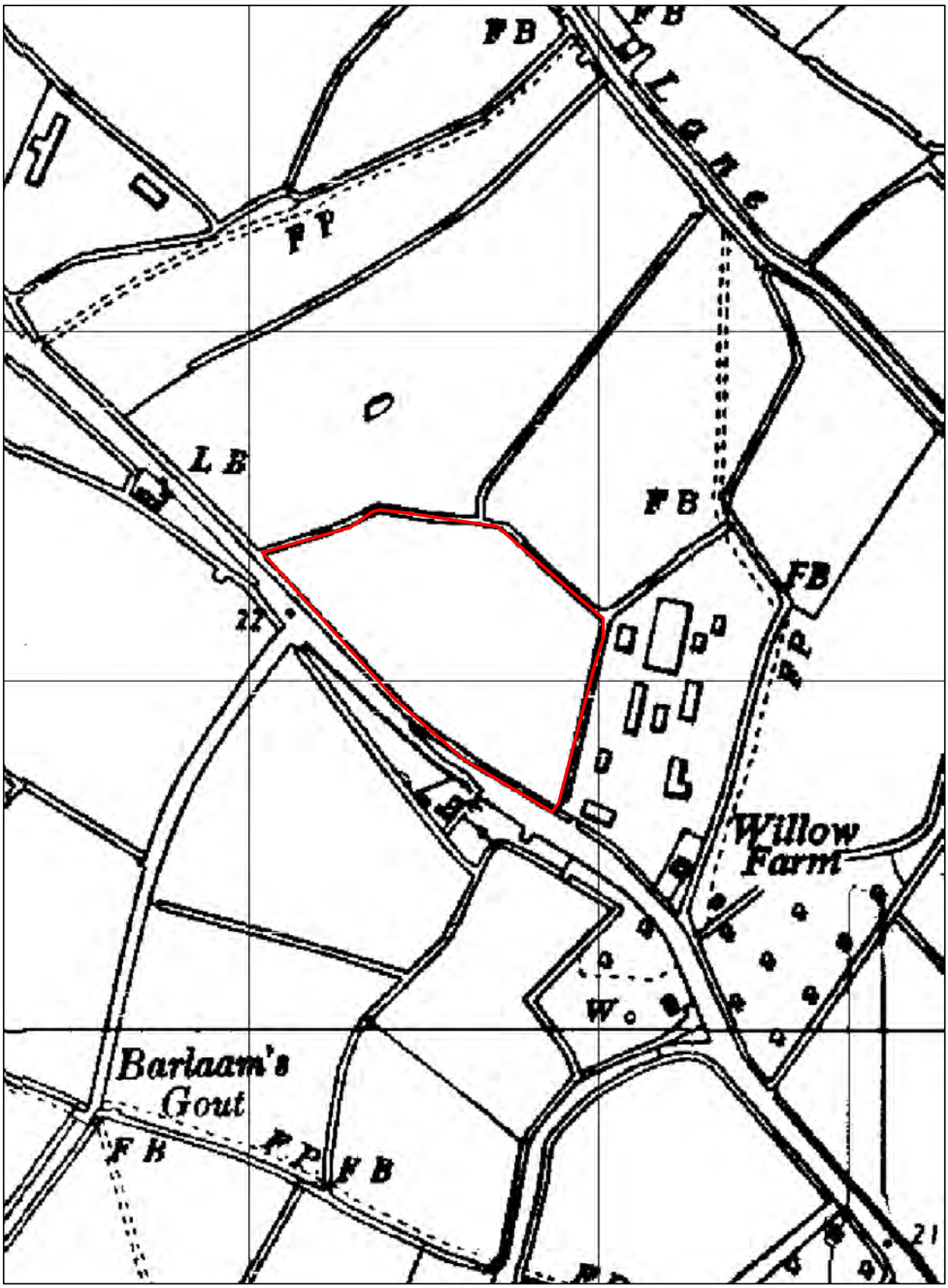
Project: **Hallen Industrial Estate**

Ref: **DA7182-00**

Source: Landmark Maps

1955 Historical Map

Annex: D2



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Project: **Hallen Industrial Estate**

Ref: **DA7182-00**

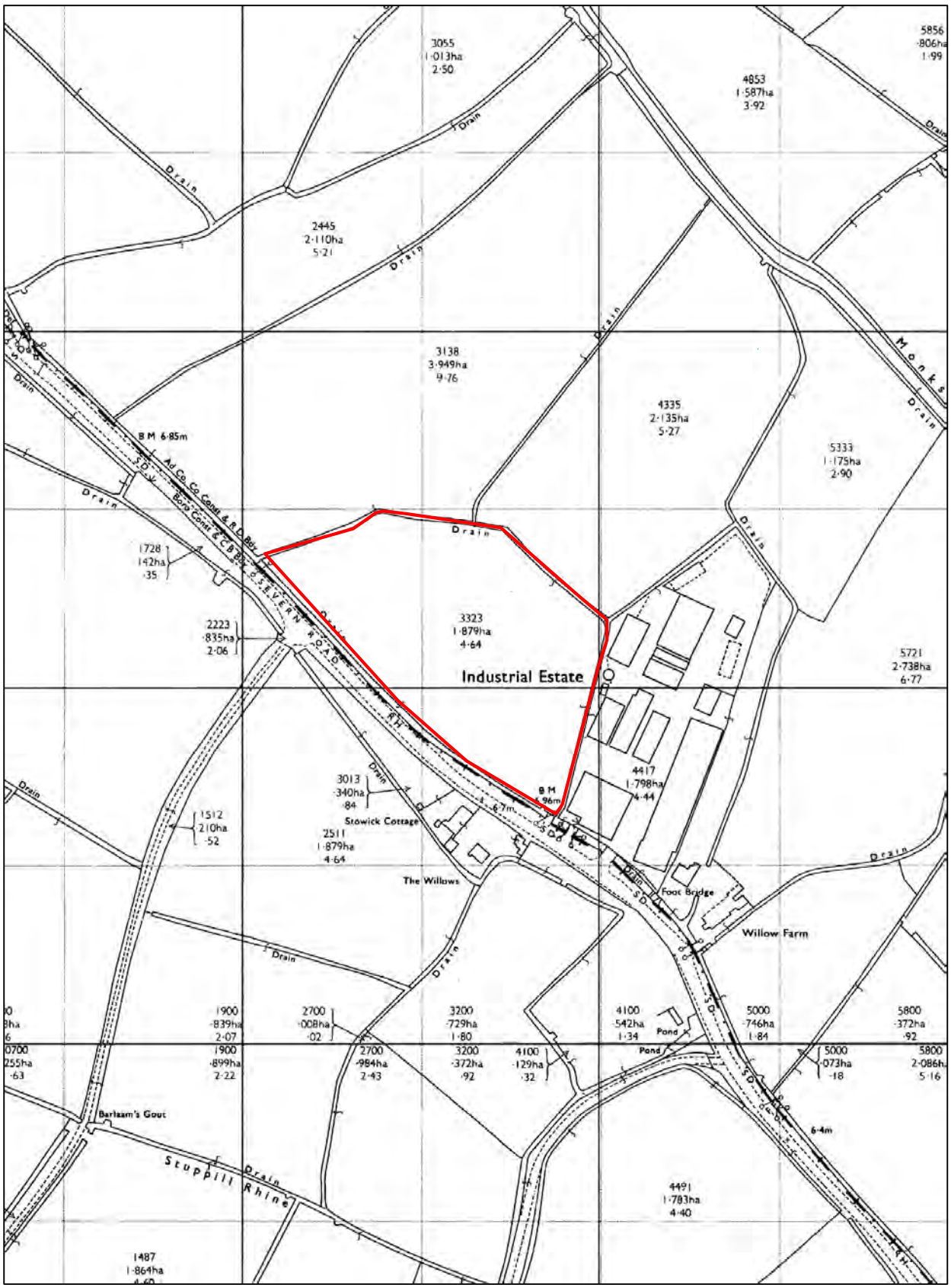
Source: Landmark Maps

Approximate site boundary

N

1971-72 Historical Map

Annex: D3



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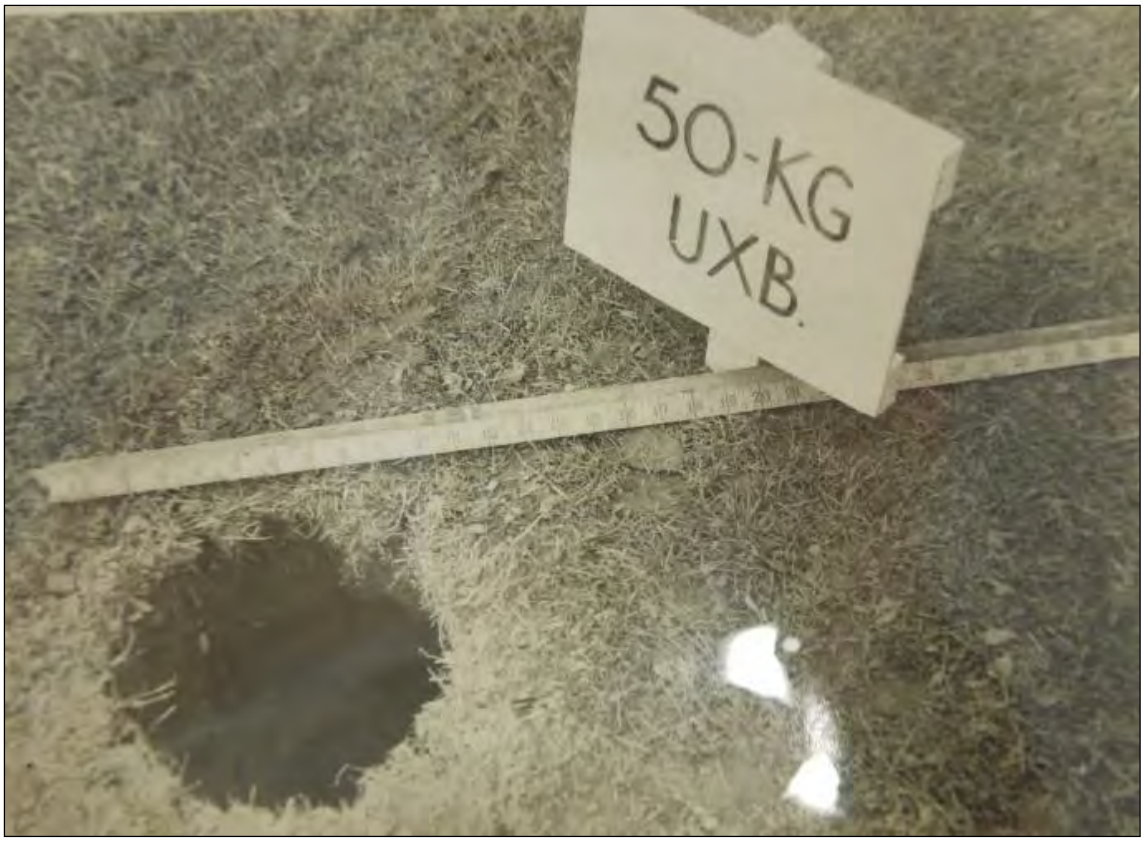
Source: Landmark Maps

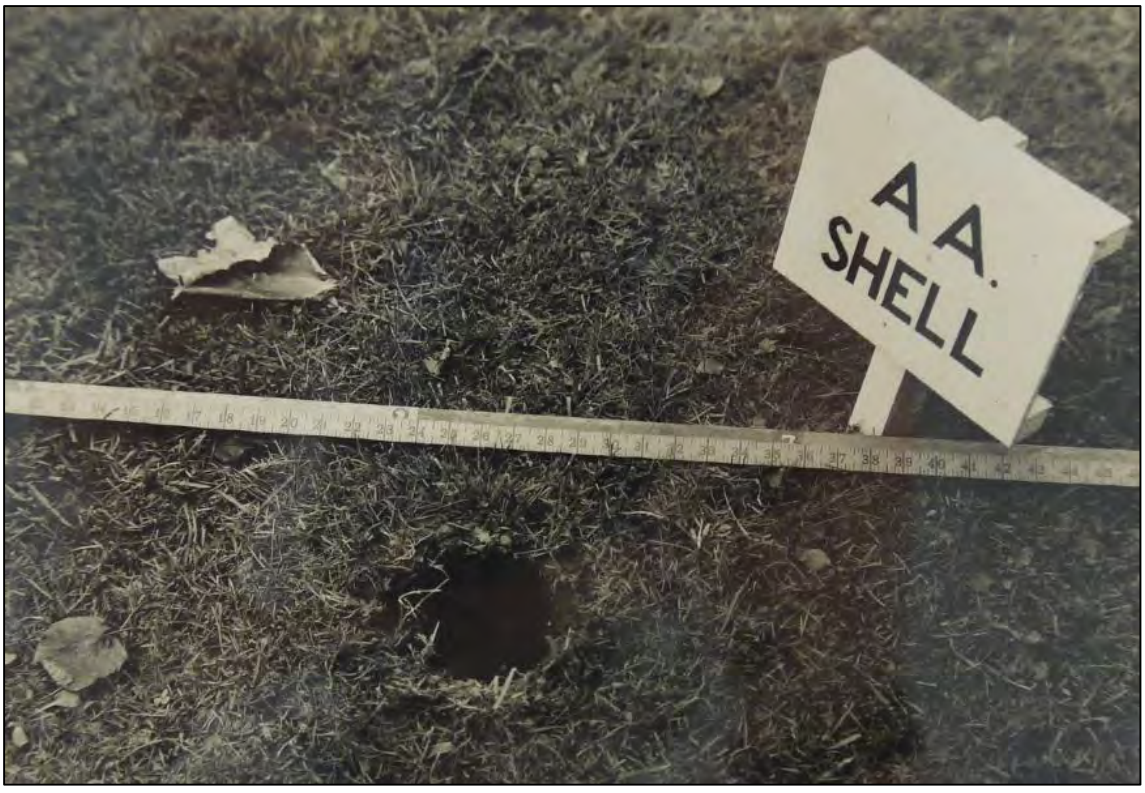
Approximate site boundary

N

Unexploded Bomb Entry Hole Example

Annex: **E**





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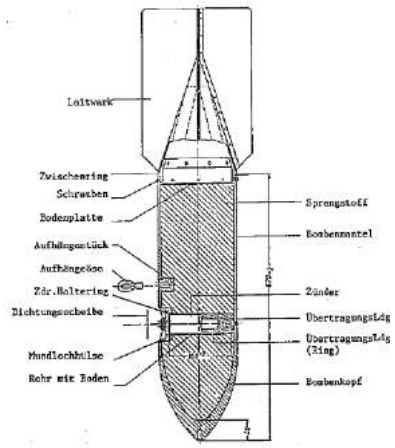
Ref: **DA7182-00**

Source: The National Archives

Examples of German Air-Delivered Ordnance

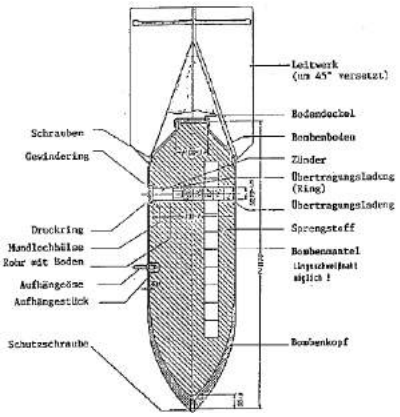
SC 50kg High Explosive Bomb

Bomb Weight	40-54kg (88-119lb)
Explosive Weight	c25kg (55lb)
Fuze Type	Impact fuze/electro-mechanical time delay fuze
Bomb Dimensions	1,090 x 280mm (42.9 x 11.0in)
Body Diameter	200mm (7.87in)
Use	Against lightly damageable materials, hangars, railway rolling stock, ammunition depots, light bridges and buildings up to three stories.
Remarks	The smallest and most common conventional German bomb. Nearly 70% of bombs dropped on the UK were 50kg.



SC 250kg High Explosive Bomb

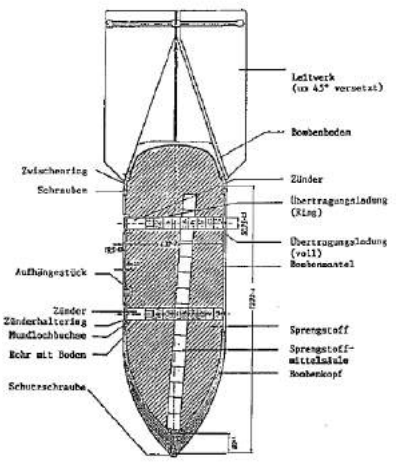
Bomb Weight	245-256kg (540-564lb)
Explosive Weight	125-130kg (276-287lb)
Fuze Type	Electrical impact/mechanical time delay fuze.
Bomb Dimensions	1640 x 512mm (64.57 x 20.16in)
Body Diameter	368mm (14.5in)
Use	Against railway installations, embankments, flyovers, underpasses, large buildings and below-ground installations.
Remarks	It could be carried by almost all German bomber aircraft, and was used to notable effect by the Junkers Ju-87 Stuka (Sturzkampfflugzeug or dive-bomber).

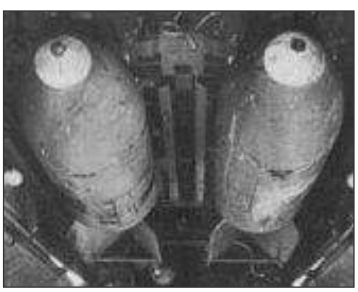


SC250 bomb being loaded onto German bomber

SC 500kg High Explosive Bomb

Bomb Weight	480-520kg (1,058-1,146lb)
Explosive Weight	250-260kg (551-573lb)
Fuze Type	Electrical impact/mechanical time delay fuze.
Bomb Dimensions	1957 x 640mm (77 x 25.2in)
Body Diameter	470mm (18.5in)
Use	Against fixed airfield installations, hangars, assembly halls, flyovers, underpasses, high-rise buildings and below-ground installations.
Remarks	40/60 or 50/50 Amatol TNT, trialene. Bombs recovered with Trialen filling have cylindrical paper wrapped pellets 1-15/16 in. in length and diameter forming





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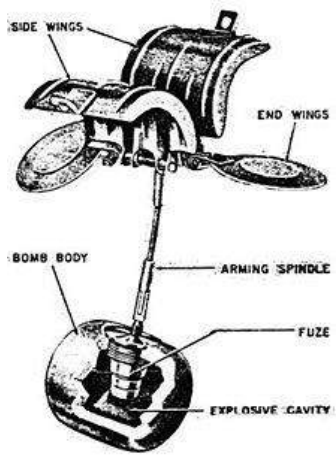
Source: Various sources

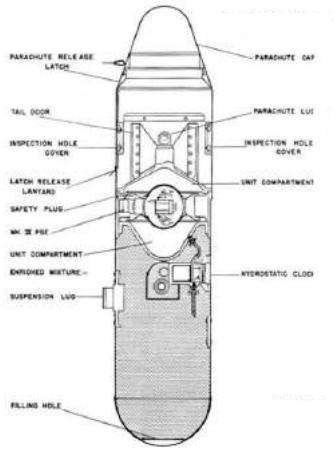
SD2 Anti-Personnel 'Butterfly Bomb'

Bomb Weight	2kg (4.41lb)
Explosive Weight	7.5oz (225 grams) of Amatol surrounded by a layer of bituminous composition.
Fuze Type	41 fuze (time) , 67 fuze (clockwork time delay) or 70 fuze (anti-handling device)
Body Diameter	3in (7.62 cm) diameter, 3.1in (7.874) long
Use	Designed as an anti-personnel/ fragmentation weapon. They were delivered by air, being dropped in containers of 23-144 sub-munitions that opened at a predetermined height, thus scattering the bombs.
Remarks	Very rare. First used against Ipswich in 1940, but were also dropped on Kingston upon Hull, Grimsby and Cleethorpes in June 1943, amongst various other targets in UK. As the bombs fell the outer case flicked open by springs which caused four light metal drogues with a protruding 5 inch steel cable to deploy in the form of a parachute & wind vane which armed the device as it span.



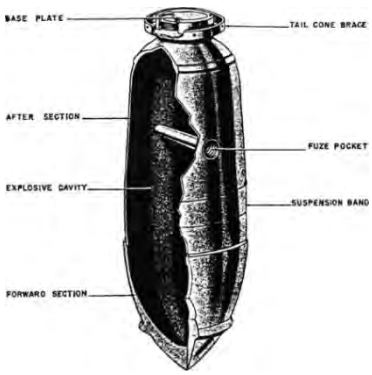
Parachute Mine (Luftmine B / LMB)

Bomb Weight	Approx. 990kg (2176lb)
Explosive Weight	Approx. 705kg (1,554lb)
Fuze Type	Impact/ Time delay / hydrostatic pressure fuze
Dimensions	2.64m x 0.64m (3.04m with parachute housing)
Use	Against civilian, military and industrial targets. Used as blast bombs and designed to detonate above ground level to maximise damage to a wider area.
Remarks	Deployed a parachute when dropped in order to control its descent. Had the potential to destroy a whole street of housing in a 100m radius.



SC 1000kg

Bomb Weight	993-1027kg (2,189-2,264lb)
Explosive Weight	530-620kg (1168-1367lb)
Fuze Type	Electrical impact/mechanical time delay fuze.
Filling	Mixture of 40% amatol and 60% TNT, but when used as an anti-shipping bomb it was filled with Trialen 105, a mixture of 15% RDX, 70% TNT and 15% aluminium powder.
Bomb Dimensions	2800 x 654mm (110 x 25.8in)
Body Diameter	654mm (18.5in)
Use	SC type bombs are General Purpose Bombs used primarily for general demolition work. Constructed of parallel walls with comparatively heavy noses. They are usually of three piece welded construction



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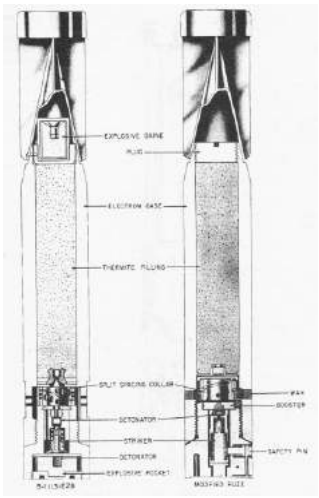
Source: Various sources

German Incendiary Bombs

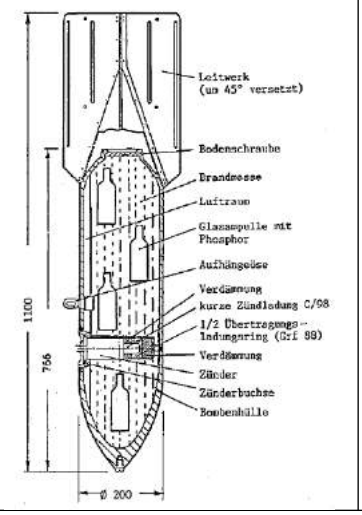
1kg Incendiary Bomb

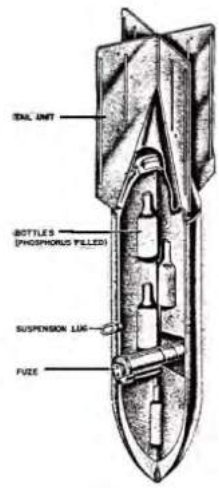
Bomb Weight	1.0 and 1.3kg (2.2 and 2.9lb)
Explosive Weight	680g (1.3lb) Thermite 8-15gm Explosive Nitropenta
Fuze Type	Impact fuze
Bomb Dimensions	350 x 50mm (13.8 x 1.97in)
Body Diameter	50mm (1.97in)
Use	As incendiary – dropped in clusters against towns and industrial complexes
Remarks	Magnesium alloy case. Sometimes fitted with high explosive charge. The body is a cylindrical alloy casting threaded internally at the nose to receive the fuze holder and fuze.



C50 A Incendiary Bomb

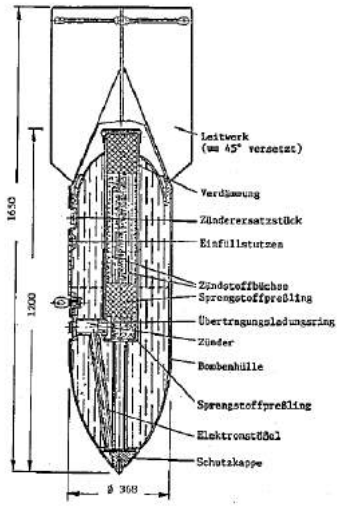
Bomb Weight	c41kg (90.4lb)
Explosive Weight	0.03kg (0.066lb)
Incendiary Filling	12kg (25.5lb) liquid filling with phosphor igniters in glass phials. Benzine 85%; Phosphorus 4%; Pure Rubber 10%
Fuze Type	Electrical impact fuze
Bomb Dimensions	1,100 x 280mm (43.2 x 8in)
Use	Against all targets where an incendiary effect is required
Remarks	Early fill was a phosphorous/carbon disulphide incendiary mixture





Flam C-250 Oil Bomb

Bomb Weight	125kg (276lb)
Explosive Weight	1kg (2.2lb)
Fuze Type	Super-fast electrical impact fuze
Filling	Mixture of 30% petrol and 70% crude oil
Bomb Dimensions	1,650 x 512.2mm (65 x 20.2in)
Body Diameter	368mm (14.5in)
Use	Often used for surprise attacks on ground troops, against troop barracks and industrial installations. Thin casing – not designed for ground penetration



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Source: Various sources

Recent Unexploded Bomb Finds, UK

Annex: **G1**

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England Regions London

Bermondsey bomb: World War Two device safely removed

24 March 2015 | London Share

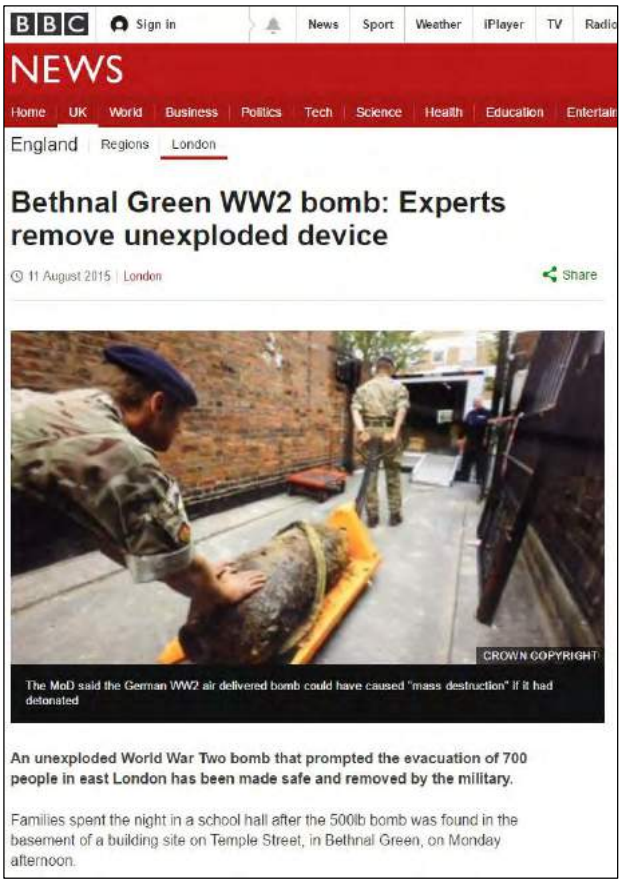
RUPERT FRERE

The bomb measured about 5ft (1.5m) in length

An unexploded World War Two bomb found in south London has been driven away safely under police and Army escort.

The 500lb (250kg) device was found on a building site in Grange Walk, Bermondsey on Monday.

250kg HE bomb found in Bermondsey March 2015



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England Regions London

Bethnal Green WW2 bomb: Experts remove unexploded device

11 August 2015 | London Share

CROWN COPYRIGHT

The MoD said the German WW2 air delivered bomb could have caused "mass destruction" if it had detonated

An unexploded World War Two bomb that prompted the evacuation of 700 people in east London has been made safe and removed by the military.

Families spent the night in a school hall after the 500lb bomb was found in the basement of a building site on Temple Street, in Bethnal Green, on Monday afternoon.

250kg HE bomb found in Bethnal Green, Aug 2016

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NEWS

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England Regions Somerset

Bath WW2 bomb scare: Device defused, police say

13 May 2016 | Somerset Share

EPA

The bomb was found on the site of a former school on Thursday

A 500lb World War Two bomb found on the site of a former school in Bath has been defused and made safe.

250kg HE bomb found in Bath, May 2016

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England Regions London

Wembley WW2 live bomb posed 'risk to life'

22 May 2015 | London Share

SERGEANT RUPERT FRERE RLC

A blast wall was put up around the bomb to minimise damage if it exploded

An unexploded World War Two bomb uncovered by builders near Wembley Stadium posed "a genuine risk to life", the Army has said.

50kg HE bomb found in Wembley, May 2015

BASF has confirmed that an explosive device, most likely a World War II-era bomb, caused the blast that left one person injured Tuesday at a plant construction site in Germany.

The explosion was reported at BASF's Ludwigshafen toluene diisocyanate (TDI) plant, which recently broke ground for a 300,000 metric tons per year TDI production plant and other construction to expand its facilities.

1st March 2013

BASF is expanding their its Ludwigshafen location by expanding several plants and building a TDI plant, which was the site of an explosion on Tuesday (Feb. 26). One person was injured in the blast, which BASF believes was caused when excavation work detonated a bomb.

Early reports had speculated that excavation work had detonated a bomb from World War II. While the age of the bomb has not been confirmed, BASF has said that an explosive device was detonated.

BASF Provides Some Details

Responding to a request from *PaintSquare News* for more information on Wednesday (Feb. 27), BASF's manager of media relations and corporate communications Europe, Ursula von Stetten, wrote in an email, "So here [are] the facts: The detonation took place at 10:00 a.m. One person was injured; the injury is not serious. He will be kept in the hospital for some days.

"Cause of the detonation was an explosive device, presumably a bomb deriving from the Second World War. The device detonated when grounding work was done. No details on [a] delay [are] available. At the moment, the exact circumstances of the incident are [being] evaluated."

19th September 2013

WWII bomb injures 17 at Hattingen construction site

Published: 19 Sep 08 16:53 CET

Share +1 0 Tweet 0

Seventeen people were injured on Friday when a construction crew unwittingly detonated a buried World War II-era bomb in Hattingen.

- Liberals grit teeth ahead of May state election (17 Mar 12)
- Nazi death camp guard Demjanjuk dies (17 Mar 12)
- Stupid stunt causes bomb scare chaos (16 Mar 12)

An excavator apparently drove over a 250-kilogramme (550 pound) American bomb, damaging surrounding buildings. Most of the injured suffered auditory trauma from the blast, and the excavator operator suffered injuries to his hands, police in the German state of North Rhine-Westphalia said.

"The hole was astoundingly small for such a large bomb full of so many explosives," Armin Gebhard, head of the Arnsberg department for military ordnance removal, told The Local. "But of course it damaged all the surrounding buildings too. We are really happy it wasn't worse."

World War II Bomb Explodes on German Motorway

A highway construction worker in Germany accidentally struck an unexploded World War II bomb, causing an explosion which killed him and wrecked several passing cars.

Tweet 0 Recommend 1

23rd October 2006

AP

A cutting machine lies wrecked by the side of the A3 motorway next to a small crater left by the explosion.

A World War II bomb has exploded during construction work on a German highway, killing one worker and injuring several motorists who were driving past, police said.

The worker had been cutting through the road surface near the south-western town of Aschaffenburg when his machine struck the bomb and triggered it. Police said they weren't sure yet what type of bomb it was. "The explosion seems to have been too small for it to have been an aircraft bomb," a police spokesman said.

The A3 Autobahn linking the cities of Frankfurt and Würzburg has been blocked in both directions.

More than 60 years since the end of World War II, construction workers still frequently unearth unexploded bombs and it is not uncommon for whole city districts to be cordoned off and even evacuated while bomb disposal experts defuse them.

Indeed, just last week, some 22,000 people were evacuated from their homes in Hanover when three World War II bombs were discovered.

Allied pilots rained nearly 2 million tons of explosives on Germany during the war. Landmines, hand grenades, mortar bombs and anti-tank devices from the fighting on German soil at the end of the war are also found, and authorities say it will take decades before the country is cleared of duds.

Between 400 and 600 bombs are discovered a year in the state of North Rhine-Westphalia alone, where the heavily industrialized Ruhr region was a major target for Allied bombers.

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2 June 2010 Last updated at 15:37

Share

World War II bomb kills three in Germany

Three people have been killed and six injured trying to defuse a World War II bomb in central Germany.

2nd June 2010

All the victims were involved in an operation to defuse the bomb

Workers building a sports stadium had earlier unearthed the bomb in the town of Goettingen.

It was not immediately clear why the bomb, reportedly weighing 500kg (1,100lb), had detonated.

Unexploded WWII bombs dropped by Allied planes are frequently found in Germany, though it is unusual for them to explode unexpectedly.

A special commission is investigating the causes of the explosion, while prosecutors are considering whether the team leader should face charges of manslaughter through culpable negligence, the BBC's Oana Lungescu reports from Berlin.

The blast happened an hour before the defusing operation was due to start.

Officials said the three men who died were experienced sappers, or combat engineers, who over 20 years had defused up to 700 bombs.

More than 7,000 people were immediately evacuated when the 500kg bomb was found. Several schools, a kindergarten and local companies remain closed.

June 2006

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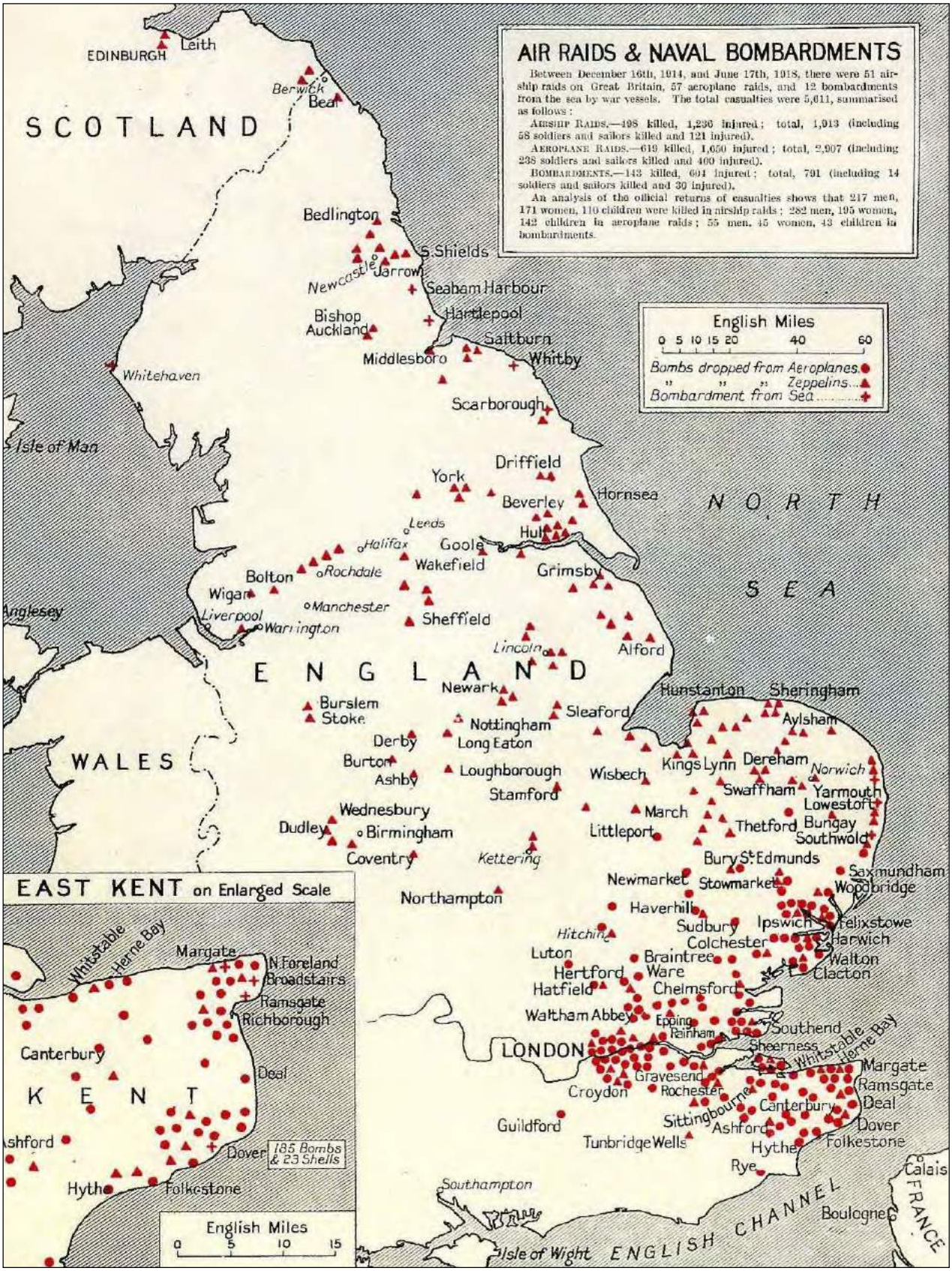
Source: Various news sources

WWI Map of Air Raids and Naval Bombardments

Annex: **H**



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Source: J. Morris, *German Air Raids on Britain*

Luftwaffe Photograph, 1st October 1940

Avon Avonmouth

A. Transit – Grain silos and Docks

GB 56 64– Designated Luftwaffe target

The site located approximately 3.5km north-east of the Grain silos and Docks.

RAF Aerial Photography 30th October 1944

Annex: **J1**

1ST LINE DEFENCE

Unit 3, Maple Park
Essex Road, Hoddesdon,
Hertfordshire. EN11 0EX
Email: info@1stlinedefence.co.uk
Tel: +44 (0)1992 245 020

Client: **GIP Ltd**

Approximate site boundary

N

Project: **Hallen Industrial Estate**

Ref: **DA7182-00**

Source: National Monuments Record Office (Historic England)

RAF Aerial Photography 4th December 1946

Annex: **J2**

1ST LINE DEFENCE

Unit 3, Maple Park
Essex Road, Hoddesdon,
Hertfordshire. EN11 0EX
Email: info@1stlinedefence.co.uk
Tel: +44 (0)1992 245 020

Client: **GIP Ltd**

Approximate site boundary

N

Project: **Hallen Industrial Estate**

Ref: **DA7182-00**

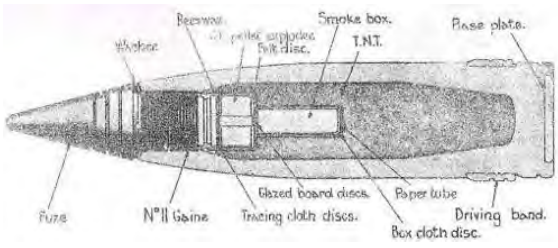
Source: National Monuments Record Office (Historic England)

Examples of Anti-Aircraft Projectiles

Annex: K

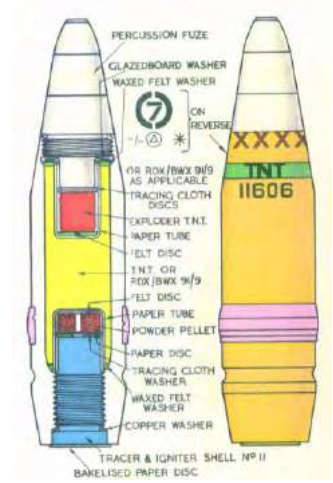
3.7 Inch QF Anti-Aircraft Projectile

Projectile Weight	28lb (12.6 kg)
Explosive Weight	2.52lbs
Fuze Type	Mechanical Time Fuze
Dimensions	3.7in x 14.7in (94mm x 360mm)
Rate of Fire	10 to 20 rounds per minute
Use	The 3.7in AA Mks 1-3 were the standard Heavy Anti-Aircraft guns of the British Army.
Ceiling	30,000ft to 59,000ft



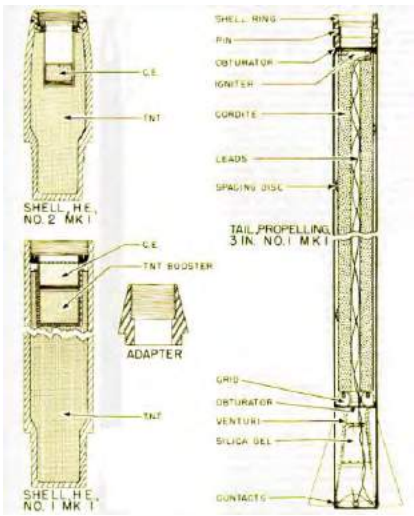
40mm Bofors Projectile

Projectile Weight	1.96lb (0.86kg)
Explosive Weight	300g (0.6lb)
Fuze Type	Impact Fuze
Rate of Fire	120 rounds per minute
Projectile Dimensions	40 x 180mm
Ceiling	23,000ft (7000m)
Remarks	Light quick fire high explosive anti-aircraft projectile. Each projectile fitted with small tracer element. If no target hit, shell would explode when tracer burnt out. Designed to engage aircraft flying below 2,000ft



3in Unrotated Projectile (UP) Anti-Aircraft Rocket ("Z" Battery)

HE Projectile Weight	3.4kg (7.6lb)
Explosive Weight	0.96kg (2.13lb)
Filling	High Explosive – TNT. Fitted with aerial burst fuzing
Dimensions of projectile	236 x 83mm (9.29 x 3.25in)
Remarks	As a short range rocket-firing anti-aircraft weapon developed for the Royal Navy. It was used extensively by British ships during the early days of World War II. The UP was also used in ground-based single and 128-round launchers known as Z Batteries. Shell consists of a steel cylinder reduced in diameter at the base and threaded externally to screw into the shell ring of the rocket motor



1ST LINE DEFENCE

Unit 3, Maple Park
Essex Road, Hoddesdon,
Hertfordshire. EN11 0EX
Email: info@1stlinedefence.co.uk
Tel: +44 (0)1992 245 020

Client: **GIP Ltd**

Project: **Hallen Industrial Estate**

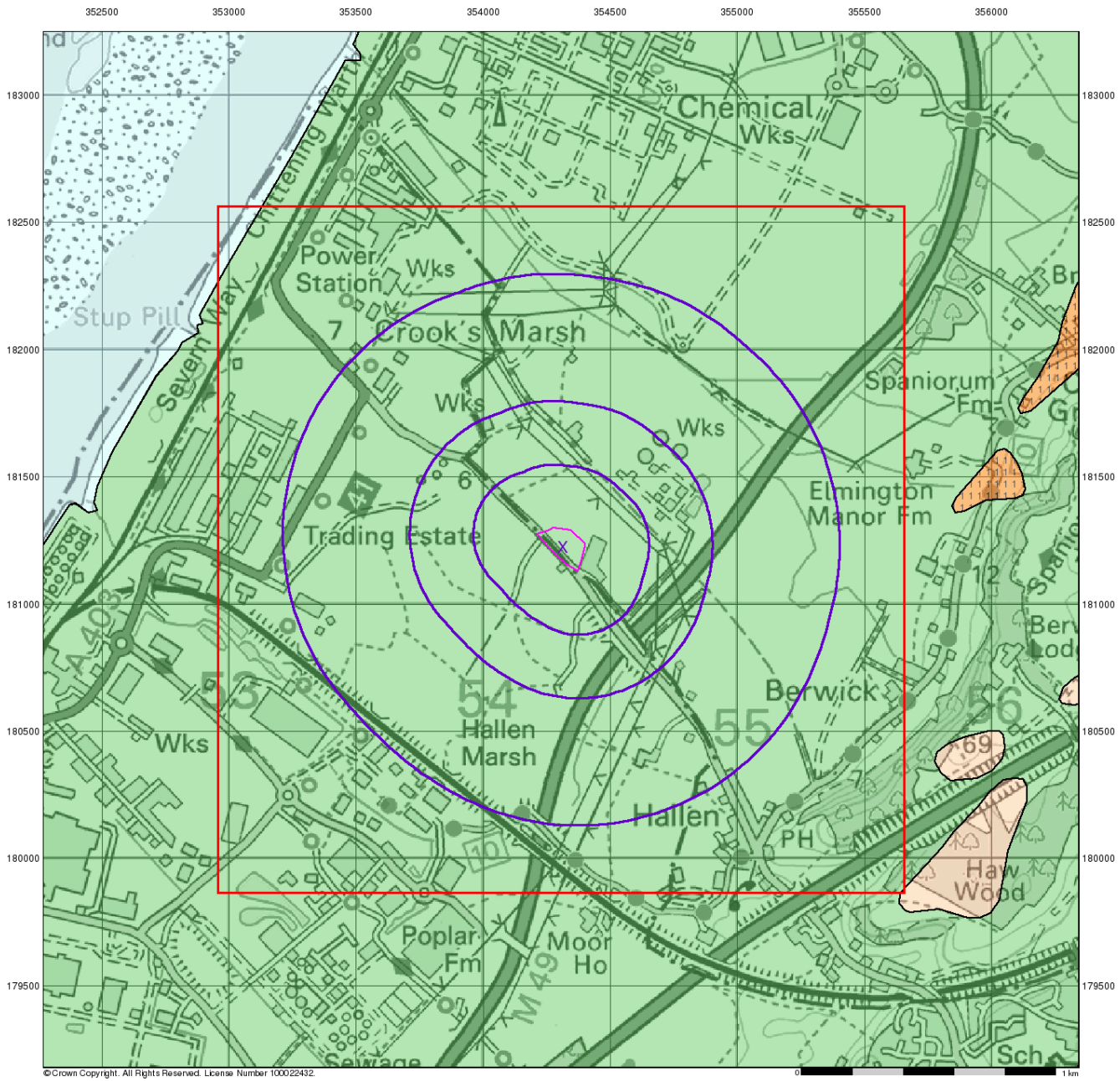
Ref: **DA7182-00**

Source: Various sources

1ST LINE DEFENCE
Unit 3, Maple Park
Essex Road
Hoddesdon
Hertfordshire
EN11 0EX
Tel: 01992 245020

www.1stlinedefence.co.uk

1ST LINE DEFENCE



GIP Ltd.
Ground Investigation & Piling Limited

Groundwater Vulnerability

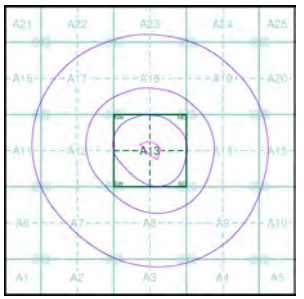
General

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

Agency and Hydrological

Geological Classes	Soil 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	

Site Sensitivity Context Map - Slice A



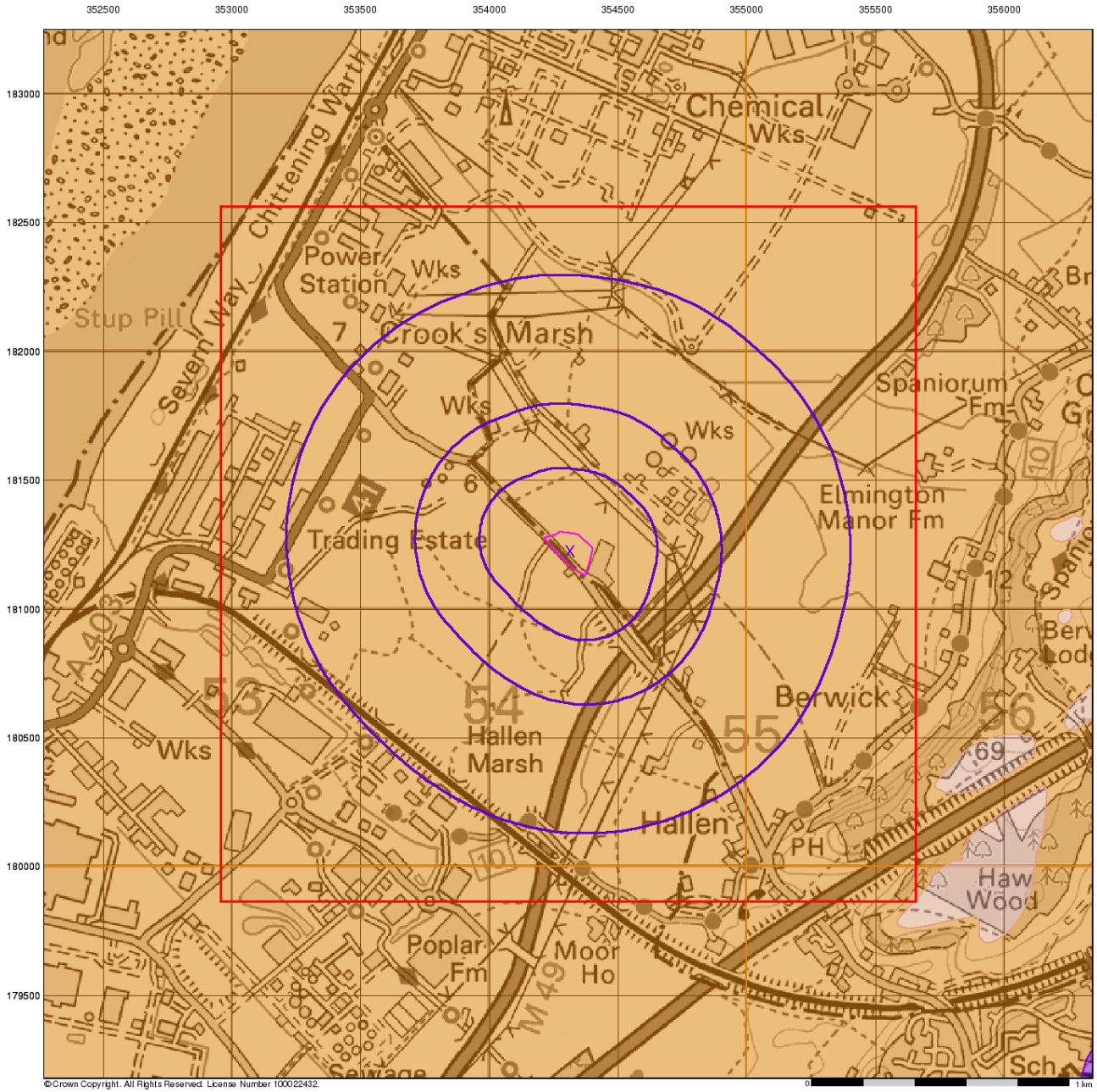
Order Details

Order Number:	177910072_1_1
Customer Ref:	DAP/27541
National Grid Reference:	354320, 181220
Slice:	A
Site Area (Ha):	1.75
Search Buffer (m):	1000

Site Details

Severn Road, Hallen, BRISTOL, BS10 7SE

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



GIP Ltd.
Ground Investigation & Piling Limited

Bedrock Aquifer Designation

General

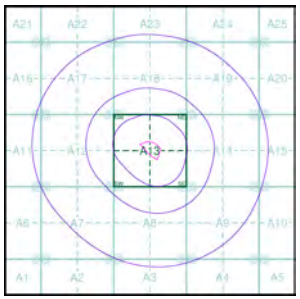
Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

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



Order Details

Order Number:	177910072_1_1
Customer Ref:	DAP/27541
National Grid Reference:	354320, 181220
Slice:	A
Site Area (Ha):	1.75
Search Buffer (m):	1000

Site Details

Severn Road, Hallen, BRISTOL, BS10 7SE

Landmark INFORMATION GROUP
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Fax: 0844 844 9951
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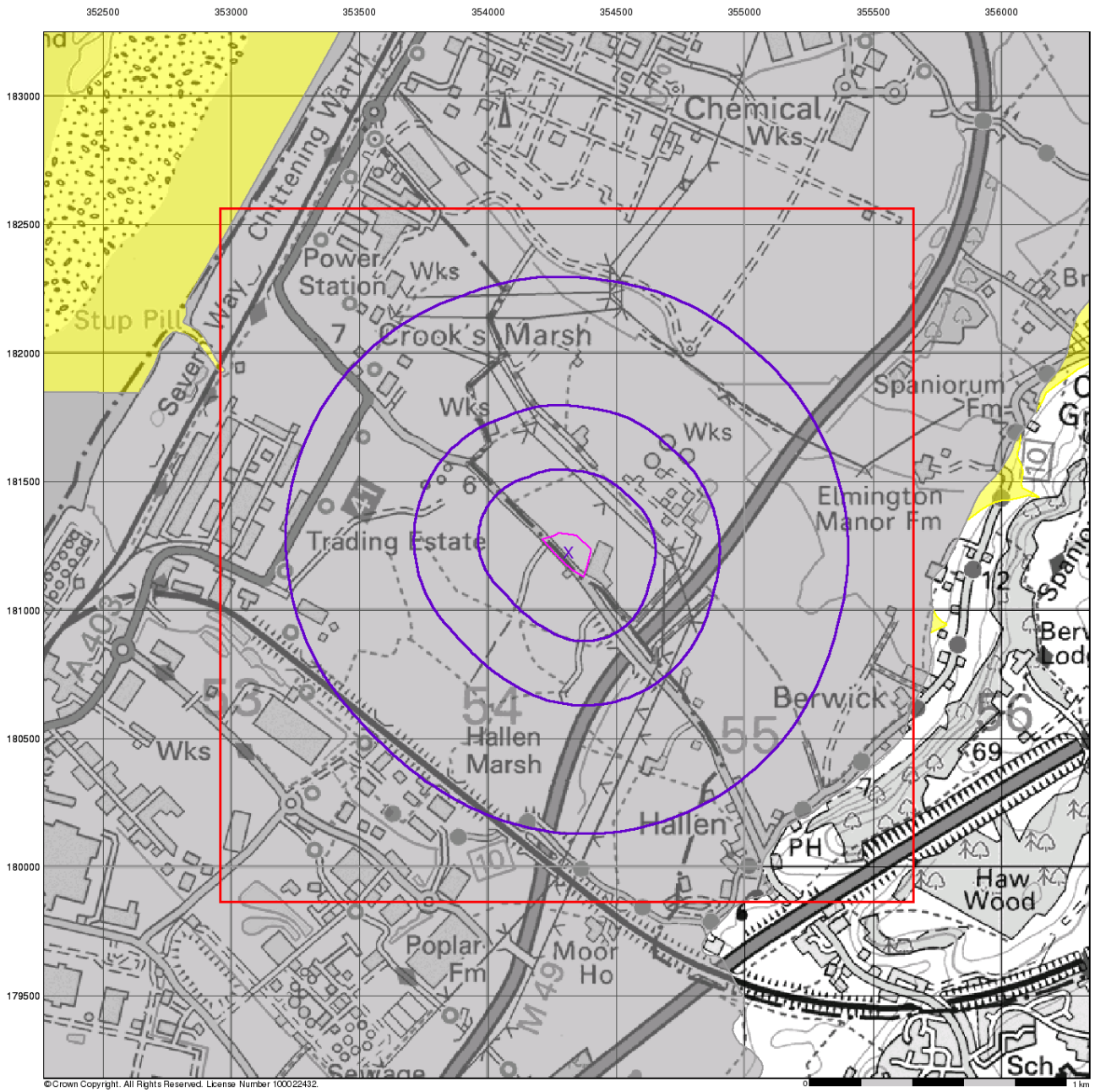


GIP Ltd.
Ground Investigation & Piling Limited

Superficial Aquifer Designation

General

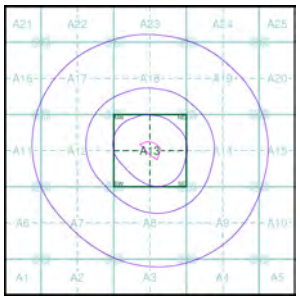
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

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:	177910072_1_1
Customer Ref:	DAP/27541
National Grid Reference:	354320, 181220
Slice:	A
Site Area (Ha):	1.75
Search Buffer (m):	1000

Site Details

Severn Road, Hallen, BRISTOL, BS10 7SE

Landmark INFORMATION GROUP
Tel: 0844 844 9952
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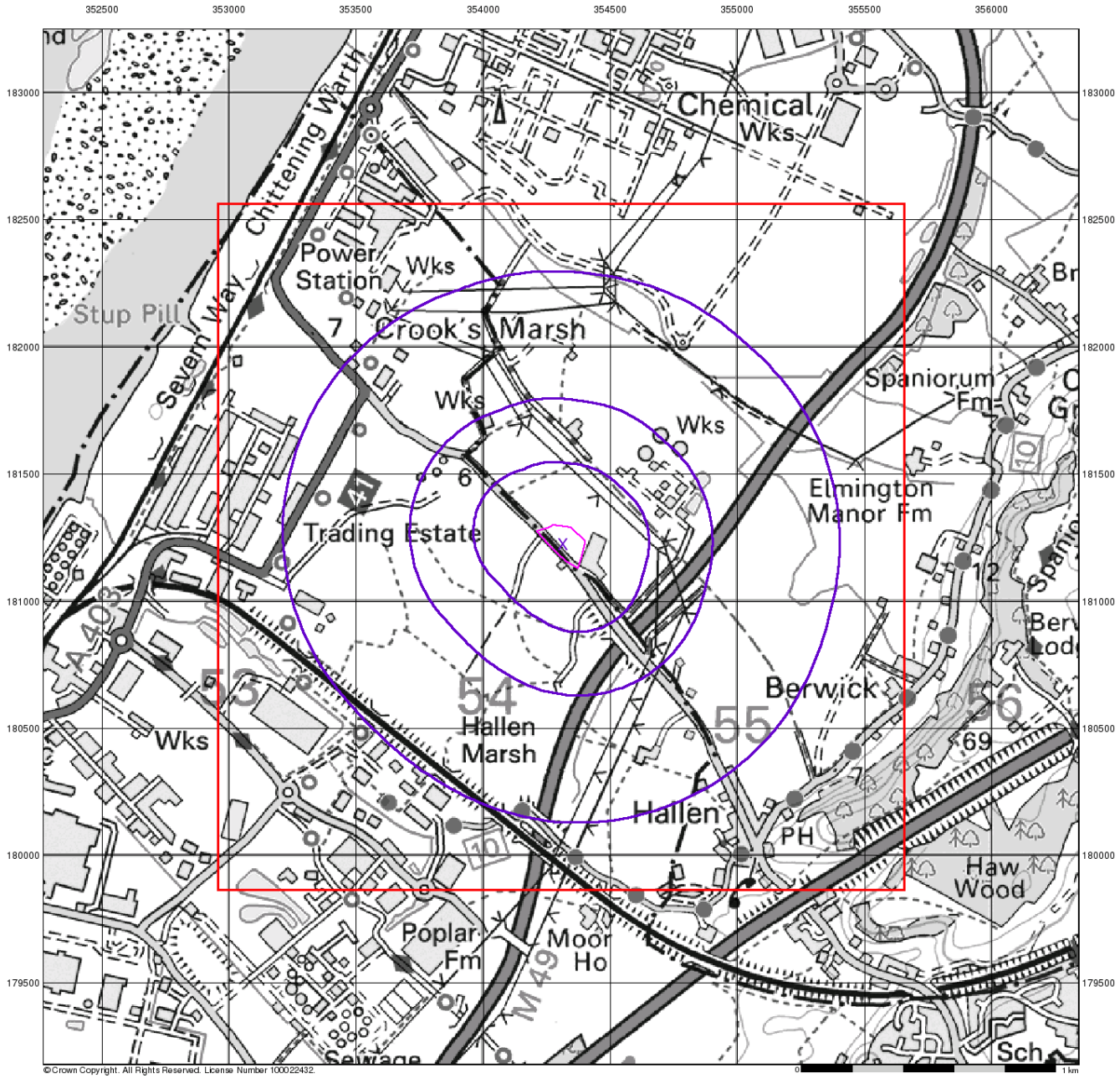


GIP Ltd.
Ground Investigation & Piling Limited

Source Protection Zones

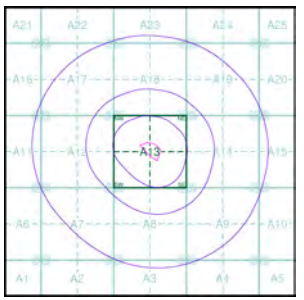
General

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



Order Details

Order Number:	177910072_1_1
Customer Ref:	DAP/27541
National Grid Reference:	354320, 181220
Slice:	A
Site Area (Ha):	1.75
Search Buffer (m):	1000

Site Details

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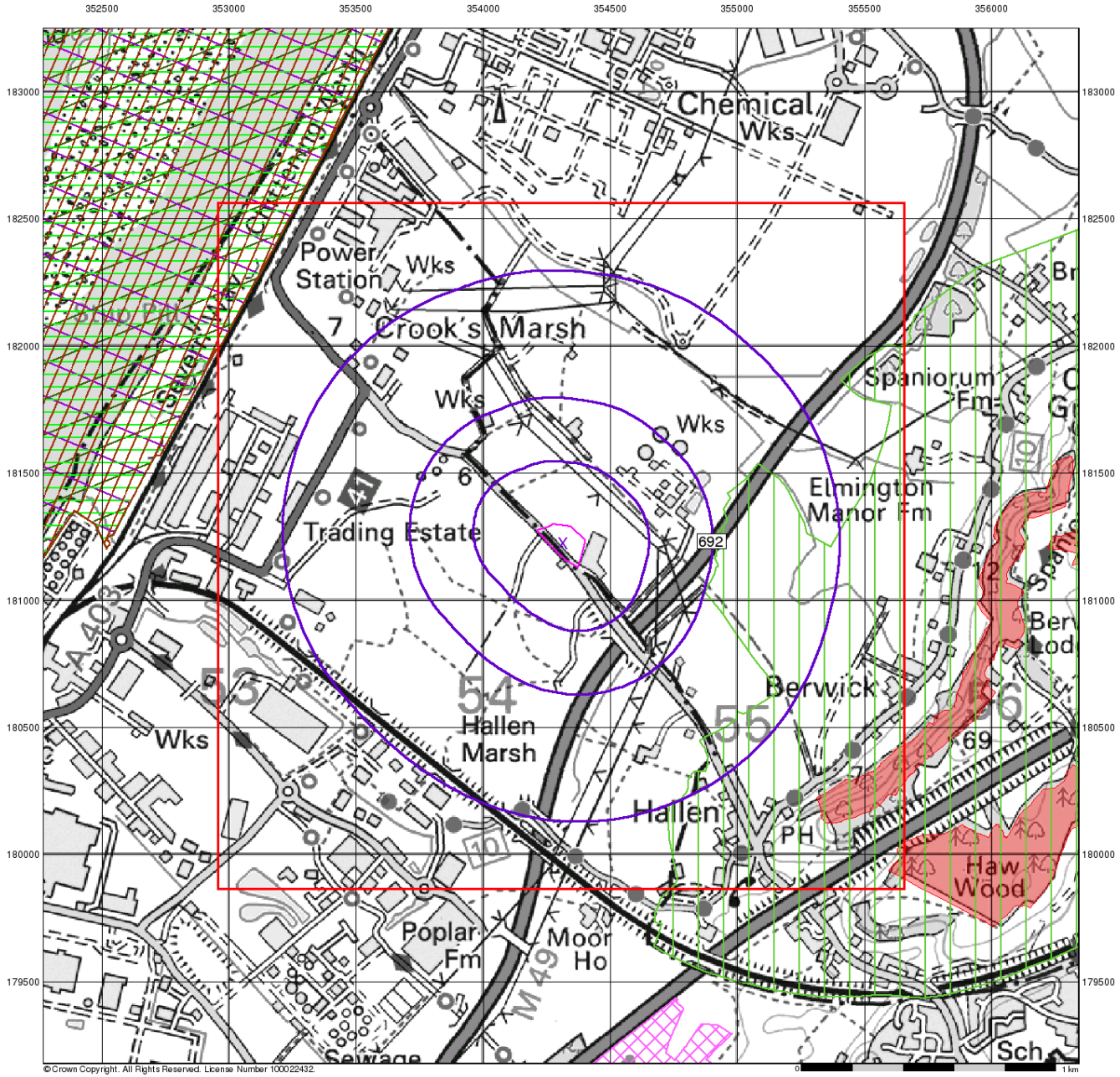


GIP Ltd.
Ground Investigation & Piling Limited

Sensitive Land Uses

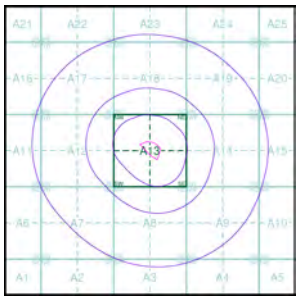
General

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:	177910072_1_1
Customer Ref:	DAP/27541
National Grid Reference:	354320, 181220
Slice:	A
Site Area (Ha):	1.75
Search Buffer (m):	1000

Site Details

Severn Road, Hallen, BRISTOL, BS10 7SE

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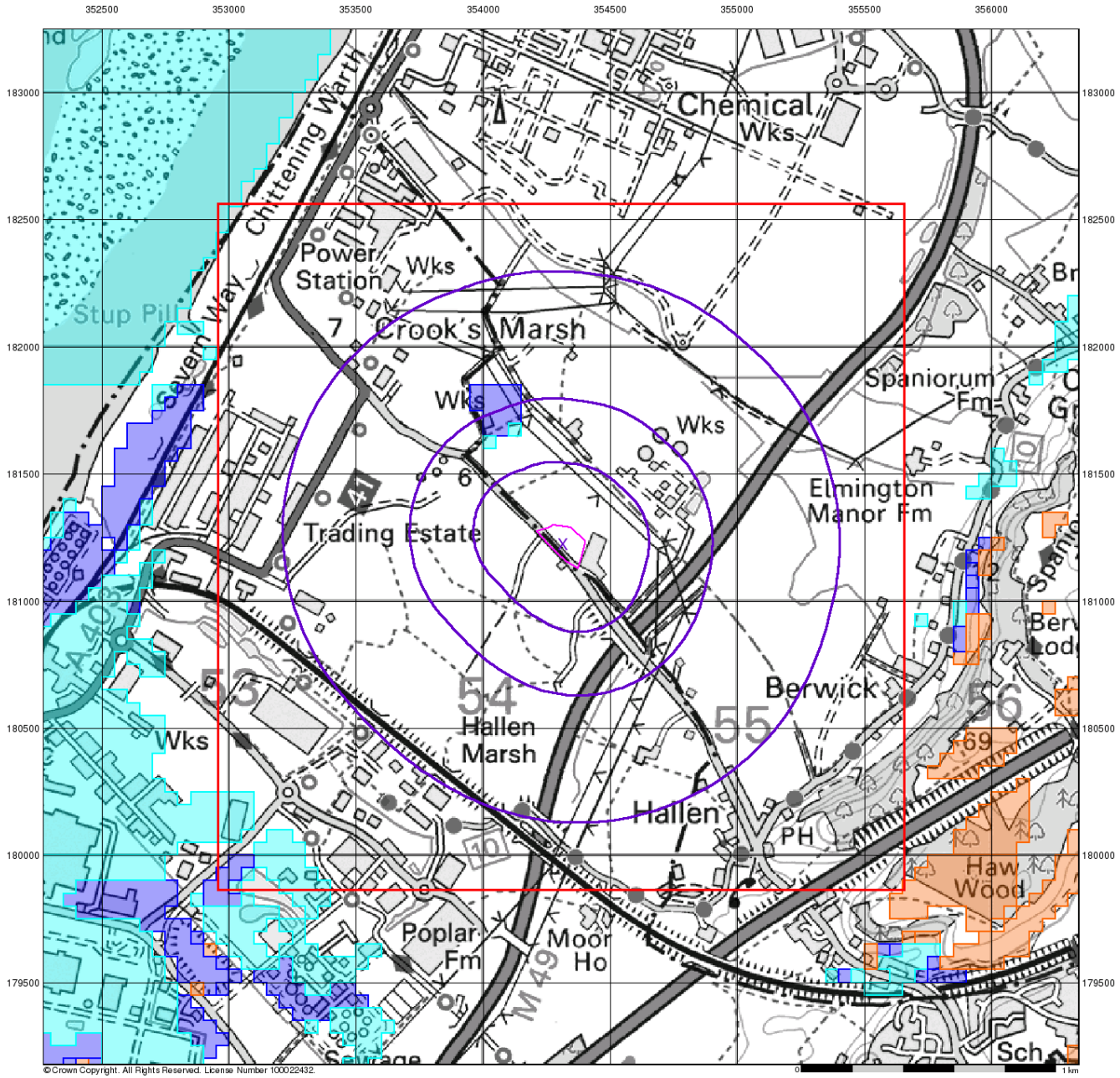


GIP Ltd.
Ground Investigation & Piling Limited

BGS Flood GFS Data

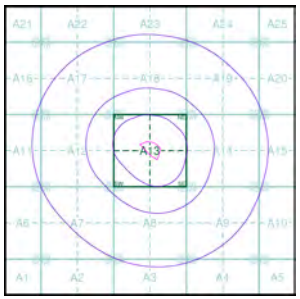
General

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

Order Number:	177910072_1_1
Customer Ref:	DAP/27541
National Grid Reference:	354320, 181220
Slice:	A
Site Area (Ha):	1.75
Search Buffer (m):	1000

Site Details

Severn Road, Hallen, BRISTOL, BS10 7SE

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

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
177910072_1_1

Customer Reference:
DAP/27541

National Grid Reference:
354320, 181220

Slice:
A

Site Area (Ha):
1.75

Search Buffer (m):
1000

Site Details:

Severn Road
Hallen
BRISTOL
BS10 7SE

Client Details:

Mr J Hughes
Gip Ltd
Devonshire House
Ettingshall Road
Wolverhampton
WV2 2JT

Prepared For:

Green Frog Power

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 the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

Report Version v53.0

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	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1		4	6	17
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices	pg 7				1
Integrated Pollution Controls	pg 8			1	16
Integrated Pollution Prevention And Control	pg 10			8	5
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 13				1
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature		Yes			
Pollution Incidents to Controlled Waters					
Prosecutions Relating to Authorised Processes	pg 13				1
Registered Radioactive Substances	pg 14				1
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register	pg 14			2	2
Water Abstractions	pg 14				(*4)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 15	Yes	n/a	n/a	n/a
Drift Deposits			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 15	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 15	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 15	Yes		n/a	n/a
Flooding from Rivers or Sea without Defences	pg 15	Yes		n/a	n/a
Areas Benefiting from Flood Defences	pg 16	Yes		n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 16	1	51	135	397

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	pg 81				4
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)	pg 81				2
Licensed Waste Management Facilities (Locations)	pg 82		5	2	8
Local Authority Landfill Coverage	pg 85	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites	pg 85			2	1
Potentially Infilled Land (Non-Water)					
Potentially Infilled Land (Water)	pg 85				2
Registered Landfill Sites	pg 86				3
Registered Waste Transfer Sites	pg 87		1		
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)	pg 88		1	3	1
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents	pg 88			1	1
Planning Hazardous Substance Enforcements					

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 89	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 89	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 91				1
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards				n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 91	Yes		n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 91	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 91	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 91	Yes		n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 93		13	1	8
Fuel Station Entries					
Points of Interest - Commercial Services	pg 94		4	3	2
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 95	1		19	37
Points of Interest - Public Infrastructure	pg 100		3		3
Points of Interest - Recreational and Environmental					
Gas Pipelines	pg 100				2
Underground Electrical Cables					

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland					
Areas of Adopted Green Belt	pg 102			1	
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: Potential for Groundwater Flooding to Occur at Surface	A18SW (NW)	364	1	354050 181600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A18SW (N)	375	1	354150 181650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (NW)	393	1	354100 181650
1	**Discharge Consents** Operator: Crimson Developments Ltd Property Type: DOMESTIC PROPERTY (MULTIPLE) (INCL FARM HOUSES) Location: Hallen Industrial Estate, Severn Road, Hallen, Bristol Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 101116 Permit Version: 1 Effective Date: 22nd February 2000 Issued Date: 24th February 2000 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Un-Named Rhine **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A13SE (SE)	3	2	354390 181170
2	**Discharge Consents** Operator: Cala Homes (Western) Limited Property Type: DOMESTIC PROPERTY (MULTIPLE) (INCL FARM HOUSES) Location: Street Farm, Land Adjacent To, Halstock, Yeovil, Somerset Authority: Environment Agency, South West Region Catchment Area: Yeo Reference: 071264 Permit Version: 1 Effective Date: 23rd August 1990 Issued Date: Not Supplied Revocation Date: 1st October 1996 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Un-Named Tributary **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Located by supplier to within 10m	A13NW (NW)	17	2	354240 181300
3	**Discharge Consents** Operator: Bristol City Council Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: The Willows, Severn Road, Hallen, Bristol, Bs10 7rz Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 012642 Permit Version: 1 Effective Date: 7th February 1995 Issued Date: 14th February 1995 Revocation Date: 1st October 1996 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Onto Land/Into Watercourse Receiving Water: Un-Named Watercourse **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Located by supplier to within 100m	A13SE (S)	48	2	354330 181100
4	**Discharge Consents** Operator: Mr P Fish, Fish & Skips Property Type: WASTE COLLECTION/TREATMENT/DISPOSAL/MATERIALS RECOVERY Location: Fish & Skips Hallen Works, Severn Road, Hallen, Bristol, Bs10 7se Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 101121 Permit Version: 1 Effective Date: 29th February 2000 Issued Date: 15th March 2000 Revocation Date: 2nd April 2002 Discharge Type: Trade Effluent Discharge-Site Drainage Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of Stut Pill **Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13NE (E)	73	2	354460 181280

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	**Discharge Consents** Operator: The Oil And Pipelines Agency Property Type: GROUNDWATER REMEDIATION SITES/CIVIL ENGINEERING Location: British Pipeline Agency Ltd, Berwick Lane, Hallen, Bristol, Bs10 7rs Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 011967 Permit Version: 1 Effective Date: 2nd February 1993 Issued Date: 4th February 1993 Revocation Date: 24th October 2014 Discharge Type: Trade Effluent Discharge-Site Drainage Discharge Environment: Freshwater Stream/River Receiving Water: Monks Well Rhine **Status: Surrendered under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A14SW (E)	350	2	354750 181200
6	**Discharge Consents** Operator: Wessex Water Services Ltd Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Halstock Stw, Sewage Treatment Works, Halstock, Somerset, Ba22 9rl Authority: Environment Agency, South West Region Catchment Area: Yeo Reference: 071221 Permit Version: 1 Effective Date: 25th April 1990 Issued Date: 11th May 1990 Revocation Date: 29th March 2006 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of River Yeo **Status: New Consent, by Application (Water Resources Act 1991, Section 113 & Schedule 12)** Positional Accuracy: Located by supplier to within 100m	A18SW (N)	403	2	354300 181700
6	**Discharge Consents** Operator: Wessex Water Services Ltd Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Halstock Stw, Sewage Treatment Works, Halstock, Somerset, Ba22 9rl Authority: Environment Agency, South West Region Catchment Area: Yeo Reference: 071221 Permit Version: 1 Effective Date: 25th April 1990 Issued Date: 11th May 1990 Revocation Date: 29th March 2006 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of River Yeo **Status: New Consent, by Application (Water Resources Act 1991, Section 113 & Schedule 12)** Positional Accuracy: Located by supplier to within 100m	A18SW (N)	403	2	354300 181700
7	**Discharge Consents** Operator: D Hales Ltd Property Type: WHOLESALE TRADE (NOT MOTOR VEHICLES) Location: Land Off Ableton Lane/Minors Lane, Off Severn Road, Avonmouth, Bristol Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 102225 Permit Version: 1 Effective Date: 12th August 2003 Issued Date: 15th October 2003 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of The Stup Pill **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A18SW (NW)	477	2	353980 181690

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Discharge Consents** Operator: Bg Storage Property Type: SUB-STATION/ELECTRICITY/GAS/AIR CONDITIONING SUPPLY Location: British Gas Transco Storage, Severn Road, Hallen, Bristol Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 100158 Permit Version: 1 Effective Date: 24th March 1997 Issued Date: 24th March 1997 Revocation Date: 16th April 2008 Discharge Type: Trade Effluent Discharge-Site Drainage Discharge Environment: Freshwater Stream/River Receiving Water: Monks Well Rhine **Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A14NW (E)	496	2	354880 181365
8	**Discharge Consents** Operator: British Gas Plc Property Type: SUB-STATION/ELECTRICITY/GAS/AIR CONDITIONING SUPPLY Location: British Gas Transco Storage, Severn Road, Hallen, Bristol Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 010152 Permit Version: 1 Effective Date: 1st April 1986 Issued Date: Not Supplied Revocation Date: 1st October 1996 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Monks Well Rhine **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Located by supplier to within 100m	A14NW (E)	497	2	354880 181370
9	**Discharge Consents** Operator: Viridor Waste Management Limited Property Type: WASTE COLLECTION/TREATMENT/DISPOSAL/MATERIALS RECOVERY Location: Avonmouth Efw Facility Former Sevalco Site North, Severn Road, Avonmouth, Bristol, Bs11 0yu Authority: Environment Agency, South West Region Catchment Area: Not Supplied Reference: Eprzb3934ag Permit Version: 1 Effective Date: 2nd July 2013 Issued Date: 2nd July 2013 Revocation Date: 12th June 2014 Discharge Type: Trade Discharge - Process Water Discharge Environment: Freshwater Stream/River Receiving Water: Stup Pill Rhyne **Status: Surrendered under EPR 2010** Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	525	2	353800 181600
9	**Discharge Consents** Operator: Sevalco Ltd Property Type: Non-Ferrous Industries Location: 1 Henbury Road , Westbury-On-Trym , BRISTOL, Avon Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 021566/1 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 10th October 1972 Revocation Date: Not Supplied Discharge Type: Trade Effluent Discharge-Treated Effluent Discharge Environment: Saline Estuary Receiving Water: Severn Bridge-Middle Grounds, Licence Status: Lapsed, Revoked Or Cancelled **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	525	2	353800 181600

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	**Discharge Consents** Operator: D Hales Ltd Property Type: WHOLESALE TRADE (NOT MOTOR VEHICLES) Location: Land Off Ableton Lane/Minors Lane, Off Severn Road, Avonmouth, Bristol Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 102226 Permit Version: 1 Effective Date: 12th August 2003 Issued Date: 15th October 2003 Revocation Date: Not Supplied Discharge Type: Trade Effluent Discharge-Site Drainage Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of The Stup Pill **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	552	2	353950 181760
11	**Discharge Consents** Operator: Sevalco Ltd Property Type: Non-Ferrous Industries Location: North Site , Severn Road , Avonmouth , BRISTOL Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 011933/1 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 3rd March 1992 Revocation Date: Not Supplied Discharge Type: Trade Effluent Discharge-Treated Effluent Discharge Environment: Saline Estuary Receiving Water: Severn Bridge-Middle Grounds, Licence Status: Lapsed, Revoked Or Cancelled **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	629	2	353750 181700
12	**Discharge Consents** Operator: Clugston Construction Limited Property Type: WASTE COLLECTION/TREATMENT/DISPOSAL/MATERIALS RECOVERY Location: Avonmouth Efw Facility Former Sevalco Site North, Severn Road, Avonmouth, Bristol, Bs11 0yu Authority: Environment Agency, South West Region Catchment Area: Not Supplied Reference: Eprhb3391wq Permit Version: 1 Effective Date: 13th February 2018 Issued Date: 13th February 2018 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Stuppill Rhine **Status: New issued under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A17SW (NW)	744	2	353621 181726
12	**Discharge Consents** Operator: Clugston Construction Limited Property Type: WASTE COLLECTION/TREATMENT/DISPOSAL/MATERIALS RECOVERY Location: Avonmouth Efw Facility Former Sevalco Site North, Severn Road, Avonmouth, Bristol, Bs11 0yu Authority: Environment Agency, South West Region Catchment Area: Not Supplied Reference: Eprhb3391wq Permit Version: 1 Effective Date: 13th February 2018 Issued Date: 13th February 2018 Revocation Date: Not Supplied Discharge Type: Trade Effluent Discharge-Site Drainage Discharge Environment: Freshwater Stream/River Receiving Water: Stuppill Rhine **Status: New issued under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A17SW (NW)	744	2	353621 181726

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
13	**Discharge Consents** Operator: Hill Hire Plc Property Type: MAKING OF GLASS/CERAMICS/CEMENT/CUTTING STONE Location: Severn Valley Brickworks, Chittening Road, Avonmouth, Bristol, Bs11 0yb Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 102159 Permit Version: 1 Effective Date: 22nd April 2003 Issued Date: 26th February 2004 Revocation Date: 29th December 2003 Discharge Type: Trade Discharges - Site Drainage (Contam Surface Water, Not Waste Site) Discharge Environment: Freshwater Stream/River Receiving Water: Stup Pill Rhine **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A17SW (NW)	796	2	353560 181730
13	**Discharge Consents** Operator: Hill Hire Plc Property Type: MAKING OF GLASS/CERAMICS/CEMENT/CUTTING STONE Location: Severn Valley Brickworks, Chittening Road, Avonmouth, Bristol, Bs11 0yb Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 102159 Permit Version: 2 Effective Date: 30th December 2003 Issued Date: 30th December 2003 Revocation Date: Not Supplied Discharge Type: Trade Discharges - Site Drainage (Contam Surface Water, Not Waste Site) Discharge Environment: Freshwater Stream/River Receiving Water: Stup Pill Rhine **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A17SW (NW)	796	2	353560 181730
14	**Discharge Consents** Operator: Tarmac Bricks & Tiles Ltd Property Type: MAKING OF GLASS/CERAMICS/CEMENT/CUTTING STONE Location: Tarmac Bricks & Tiles Ltd Severn Valley Factory, Severn Road, Avonmouth, Bristol, Bs11 0yl Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 012424 Permit Version: 1 Effective Date: 1st March 1994 Issued Date: 15th March 1994 Revocation Date: 4th March 1999 Discharge Type: Trade Discharges - Process Effluent - Water Company (Wtw) Discharge Environment: Controlled Sea Receiving Water: Stup Pill **Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	805	2	353640 181840
15	**Discharge Consents** Operator: Tarmac Bricks & Tiles Ltd Property Type: MAKING OF GLASS/CERAMICS/CEMENT/CUTTING STONE Location: Severn Valley Brickworks, Chittening Road, Avonmouth, Bristol, Bs11 0yb Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 021239 Permit Version: 1 Effective Date: 11th February 1983 Issued Date: Not Supplied Revocation Date: 1st March 1994 Discharge Type: Trade Discharges - Process Effluent - Water Company (Wtw) Discharge Environment: Unknown Receiving Water: Not Supplied **Status: Revoked: Appeal period (Water Act 1989, Schedule 12, 6 & 8)** Positional Accuracy: Located by supplier to within 100m	A17SW (NW)	807	2	353600 181800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
15	**Discharge Consents** Operator: Hill Hire Plc Property Type: MAKING OF GLASS/CERAMICS/CEMENT/CUTTING STONE Location: Severn Valley Brickworks, Chittening Road, Avonmouth, Bristol, Bs11 0yb Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 102159 Permit Version: 2 Effective Date: 30th December 2003 Issued Date: 30th December 2003 Revocation Date: Not Supplied Discharge Type: Trade Effluent Discharge Environment: Freshwater Stream/River Receiving Water: Stup Pill Rhine **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A17SW (NW)	825	2	353560 181780
16	**Discharge Consents** Operator: Hill Hire Plc Property Type: MAKING OF GLASS/CERAMICS/CEMENT/CUTTING STONE Location: Severn Valley Brickworks, Chittening Road, Avonmouth, Bristol, Bs11 0yb Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 102159 Permit Version: 1 Effective Date: 22nd April 2003 Issued Date: 26th February 2004 Revocation Date: 29th December 2003 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Stup Pill Rhine **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A17SW (NW)	839	2	353550 181790
16	**Discharge Consents** Operator: Hill Hire Plc Property Type: MAKING OF GLASS/CERAMICS/CEMENT/CUTTING STONE Location: Severn Valley Brickworks, Chittening Road, Avonmouth, Bristol, Bs11 0yb Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 102159 Permit Version: 2 Effective Date: 30th December 2003 Issued Date: 30th December 2003 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Stup Pill Rhine **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A17SW (NW)	839	2	353550 181790
16	**Discharge Consents** Operator: Hill Hire Plc Property Type: MAKING OF GLASS/CERAMICS/CEMENT/CUTTING STONE Location: Severn Valley Brickworks, Chittening Road, Avonmouth, Bristol, Bs11 0yb Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 102159 Permit Version: 1 Effective Date: 22nd April 2003 Issued Date: 26th February 2004 Revocation Date: 29th December 2003 Discharge Type: Trade Discharges - Site Drainage (Contam Surface Water, Not Waste Site) Discharge Environment: Freshwater Stream/River Receiving Water: Stup Pill Rhine **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A17SW (NW)	888	2	353520 181830

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	**Discharge Consents** Operator: Hill Hire Plc Property Type: MAKING OF GLASS/CERAMICS/CEMENT/CUTTING STONE Location: Severn Valley Brickworks, Chittening Road, Avonmouth, Bristol, Bs11 0yb Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 102159 Permit Version: 2 Effective Date: 30th December 2003 Issued Date: 30th December 2003 Revocation Date: Not Supplied Discharge Type: Trade Discharges - Site Drainage (Contam Surface Water, Not Waste Site) Discharge Environment: Freshwater Stream/River Receiving Water: Stup Pill Rhine **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A17SW (NW)	888	2	353520 181830
17	**Discharge Consents** Operator: Bristol City Council Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: Hallen Farm, Severn Road, Hallen, Bristol, Bs10 7rz Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 101334 Permit Version: 1 Effective Date: 26th October 2000 Issued Date: 8th November 2000 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Rhine **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A9SW (SE)	882	2	354700 180310
18	**Discharge Consents** Operator: Bristol & Avon Waste Management Ltd Property Type: WASTE COLLECTION/TREATMENT/DISPOSAL/MATERIALS RECOVERY Location: Recycling Depot, Chittening Ind Est Severn Road, Chittening, Avonmouth, Bristol, Bs11 0yl Authority: Environment Agency, South West Region Catchment Area: Severn Estuary Coast Zone Reference: 103664 Permit Version: 1 Effective Date: 1st June 2007 Issued Date: 19th April 2007 Revocation Date: Not Supplied Discharge Type: Trade Effluent Discharge-Site Drainage Discharge Environment: Freshwater Stream/River Receiving Water: Stuphill Rhyne **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A17SW (W)	892	2	353384 181607
19	**Prosecutions Relating to Controlled Waters** Location: Severn Estuary, Chittening Road, Bristol, Bs11 0yu Prosecution Text: Discharging cynadide into a nearby watercourse - case referred to crown court Prosecution Act: Wra91 S85(1) Hearing Date: 14th November 2004 Verdict: Guilty Fine: 240000 Cost: 70000 Positional Accuracy: Manually positioned within the geographical locality	A17SW (NW)	864	2	353433 181647
20	**Enforcement and Prohibition Notices** Location: Severn Road, Avonmouth Docks Estate, Avonmouth, BRISTOL, Avon, BS11 0YU Permit Reference: AF2841 Enforcement Date: 22nd November 1994 Details: Press Release HM101, Discharge of aqueous effluent to River Severn outside permitted times; under EPA90. Positional Accuracy: Manually positioned to the address or location	A17SW (NW)	853	2	353441 181638

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
21	**Integrated Pollution Controls** Name: National Grid Transco Ltd Location: Severn Road, Hallen, Bristol, Avon, BS10 7SQ Authority: Environment Agency, South West Region Permit Reference: By1433 Dated: 13th September 2004 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.1 A (A) Gasification and associated processes within the Fuel & Power Industry **Status: Revoked - Now IPPC** Positional Accuracy: Automatically positioned to the address	A14NW (E)	379	2	354770 181325
22	**Integrated Pollution Controls** Name: National Grid Transco Ltd Location: Avonmouth Lng Facility, Severn Road, BRISTOL, Avon, BS10 7SQ Authority: Environment Agency, South West Region Permit Reference: BD8037 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.1 A (A) Gasification and associated processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the road within the address or location	A17SE (NW)	612	2	353723 181642
22	**Integrated Pollution Controls** Name: Astrazeneca Uk Ltd Location: Avlon Works, Severn Road, Hallen, BRISTOL, Avon, BS10 7ZE Authority: Environment Agency, South West Region Permit Reference: BE7672 Dated: 21st April 1999 Process Type: IPC major (substantial) variation Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the road within the address or location	A17SE (NW)	642	2	353693 181652
23	**Integrated Pollution Controls** Name: Sevalco Ltd Location: Severn Road, Chittening, Bristol, BS11 0YU Authority: Environment Agency, South West Region Permit Reference: CA4714 Dated: 19th May 2006 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.2 A (A) Carbonisation and associated processes within the Fuel & Power Industry **Status: Revoked - Now IPPC** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	851	2	353442 181637
23	**Integrated Pollution Controls** Name: Sevalco Ltd Location: Severn Road, Chittening, BRISTOL, BS11 0YU Authority: Environment Agency, South West Region Permit Reference: Bz2125 Dated: 27th June 2005 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.2 A (A) Carbonisation and associated processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	851	2	353442 181637
23	**Integrated Pollution Controls** Name: Sevalco Ltd Location: Severn Road, Chittening, BRISTOL, Avon, BS11 0YU Authority: Environment Agency, South West Region Permit Reference: Bx8980 Dated: 12th May 2004 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.2 A (A) Carbonisation and associated processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	851	2	353442 181637
23	**Integrated Pollution Controls** Name: Sevalco Ltd Location: Severn Road, Chittening, BRISTOL, Avon, BS11 0YU Authority: Environment Agency, South West Region Permit Reference: Bw9158 Dated: 16th November 2003 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.2 A (A) Carbonisation and associated processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	851	2	353442 181637

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
23	**Integrated Pollution Controls** Name: Sevalco Ltd Location: Severn Road, Chittening, BRISTOL, Avon, BS11 0YU Authority: Environment Agency, South West Region Permit Reference: Bv5246 Dated: 4th September 2003 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.2 A (A) Carbonisation and associated processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	851	2	353442 181637
23	**Integrated Pollution Controls** Name: Sevalco Ltd Location: Severn Road, Chittening, BRISTOL, Avon, BS11 0YU Authority: Environment Agency, South West Region Permit Reference: Bu6662 Dated: 14th April 2003 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.2 A (A) Carbonisation and associated processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	851	2	353442 181637
23	**Integrated Pollution Controls** Name: Sevalco Ltd Location: Sevalco Site Office, Severn Road, Chittening, Bristol, Avon, BS11 0YL Authority: Environment Agency, South West Region Permit Reference: Bj0064 Dated: 18th July 2000 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.2 A (A) Carbonisation and associated processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	851	2	353442 181637
23	**Integrated Pollution Controls** Name: Sevalco Ltd Location: Severn Road, Chittening, BRISTOL, Avon, BS11 0YU Authority: Environment Agency, South West Region Permit Reference: Bg9854 Dated: 18th May 2000 Process Type: IPC major (substantial) variation Description: 1.2 A (A) Carbonisation and associated processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	851	2	353442 181637
23	**Integrated Pollution Controls** Name: Sevalco Ltd Location: Severn Road, BRISTOL, Avon, BS11 0YL Authority: Environment Agency, South West Region Permit Reference: BD6824 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.2 A (A) Carbonisation and associated processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	851	2	353442 181637
24	**Integrated Pollution Controls** Name: Seabank Power Ltd Location: SEABANK POWER LTD, Aran Lodge, Severn Road, Hallen, BRISTOL, Avon, BS10 7RZ Authority: Environment Agency, South West Region Permit Reference: Bl9577 Dated: 12th October 2001 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.3 A (A) Combustion processes within the Fuel & Power Industry **Status: Revoked - Now IPPC** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	959	2	354924 180345
24	**Integrated Pollution Controls** Name: Seabank Power Ltd Location: SEABANK POWER LTD, Aran Lodge, Severn Road, Hallen, BRISTOL, Avon, BS10 7RZ Authority: Environment Agency, South West Region Permit Reference: BD9483 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.3 A (B) Combustion processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	959	2	354924 180345

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
24	**Integrated Pollution Controls** Name: Seabank Power Ltd Location: SEABANK POWER LTD, Aran Lodge, Severn Road, Hallen, BRISTOL, Avon, BS10 7RZ Authority: Environment Agency, South West Region Permit Reference: BB1660 Dated: 8th September 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.3 A (B) Combustion processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	959	2	354924 180345
24	**Integrated Pollution Controls** Name: Seabank Power Ltd Location: SEABANK POWER LTD, Aran Lodge, Severn Road, Hallen, BRISTOL, Avon, BS10 7RZ Authority: Environment Agency, South West Region Permit Reference: AY7160 Dated: 13th November 1997 Process Type: IPC major (substantial) variation Description: 1.3 A (B) Combustion processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	959	2	354924 180345
24	**Integrated Pollution Controls** Name: Seabank Power Ltd Location: SEABANK POWER LTD, Aran Lodge, Severn Road, Hallen, BRISTOL, Avon, BS10 7RZ Authority: Environment Agency, South West Region Permit Reference: AR1051 Dated: 14th September 1995 Process Type: IPC new application Description: 1.3 A (B) Combustion processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	959	2	354924 180345
25	**Integrated Pollution Prevention And Control** Name: Suez Recycling And Recovery Uk Ltd Location: Severnside Energy Recovery Centre Epr/Zp3937kl, Severside Energy Recovery Centre, Severn Road,,Hallen, BRISTOL, Avon, BS10 7SP Authority: Environment Agency, South West Region Permit Reference: YP3634RY Original Permit Ref: Zp3937kl Effective Date: 10th September 2016 **Status: Effective** Application Type: Variation App. Sub Type: Standard Positional Accuracy: Located by supplier to within 10m Activity Code: 5.1 A(1) (B) Activity Description: THE INCINERATION OF NON-HAZARDOUS WASTE IN AN INCINERATION OR CO-INCINERATION PLANT WITH A CAPACITY EXCEEDING 3 TONNES PER HOUR. Primary Activity: Y	A14NW (E)	378	2	354770 181320
25	**Integrated Pollution Prevention And Control** Name: Sita Uk Limited Location: Severnside Energy Recovery Centre Epr/Zp3937kl, Severside Energy Recovery Centre, Severn Road,,Hallen, BRISTOL, Avon, BS10 7SP Authority: Environment Agency, South West Region Permit Reference: DP3739EQ Original Permit Ref: Zp3937kl Effective Date: 3rd December 2013 **Status: Superseded By Variation** Application Type: Variation App. Sub Type: Standard Positional Accuracy: Located by supplier to within 10m Activity Code: 5.1 A(1) (B) Activity Description: THE INCINERATION OF NON-HAZARDOUS WASTE IN AN INCINERATION OR CO-INCINERATION PLANT WITH A CAPACITY EXCEEDING 3 TONNES PER HOUR. Primary Activity: Y	A14NW (E)	378	2	354770 181320

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
25	**Integrated Pollution Prevention And Control** Name: Sita Uk Limited Location: Severnside Energy Recovery Centre Epr/Zp3937kl, Severside Energy Recovery Centre, Severn Road,,Hallen, BRISTOL, Avon, BS10 7SP Authority: Environment Agency, South West Region Permit Reference: LP3936NN Original Permit Ref: Zp3937kl Effective Date: 31st October 2013 **Status:** **Superseded By Variation** Application Type: Variation App. Sub Type: Minor Positional Accuracy: Located by supplier to within 10m Activity Code: 5.1 A(1) (C) Activity Description: Incineration Of Non Hazardous Waste Greater Than 1 T/Hr Primary Activity: Y	A14NW (E)	378	2	354770 181320
25	**Integrated Pollution Prevention And Control** Name: National Grid Gas Plc Location: Avonmouth Lng Facility Epr/Sp3639lr, Avonmouth Lng Facility, Severn Road,Hallen,, BRISTOL, BS10 7SQ Authority: Environment Agency, South West Region Permit Reference: SP3639LR Original Permit Ref: Sp3639lr Effective Date: 31st May 2007 **Status:** **Superseded By Variation** Application Type: Application App. Sub Type: New Positional Accuracy: Located by supplier to within 10m Activity Code: 1.2 A(1) (A) Activity Description: Gasification, Liquifac. And Refining; Refining Gas Greater Or Equal To 1000 Te/12 Months Primary Activity: N Activity Code: 1.1 A(1) (A) Activity Description: Combustion; Any Fuel Greater Or Equal To 50Mw Primary Activity: Y	A14NW (E)	378	2	354770 181320
25	**Integrated Pollution Prevention And Control** Name: National Grid Gas Plc Location: Avonmouth Lng Storage Facility, Avonmouth Lng Facility, Severn Road,Hallen,, BRISTOL, BS10 7SQ Authority: Environment Agency, South West Region Permit Reference: YP3732AS Original Permit Ref: Sp3639lr Effective Date: 16th January 2017 **Status:** **Surrender Effective** Application Type: Surrender App. Sub Type: Whole Positional Accuracy: Automatically positioned to the address Activity Code: 1.2 A(1) (A) Activity Description: Gasification, Liquifac. And Refining; Refining Gas Greater Or Equal To 1000 Te/12 Months Primary Activity: N Activity Code: 1.1 A(1) (A) Activity Description: Combustion; Any Fuel Greater Or Equal To 50Mw Primary Activity: Y	A14NW (E)	379	2	354770 181324
25	**Integrated Pollution Prevention And Control** Name: Seabank Power Ltd Location: Seabank Power Station Epr/Bv3006in, Severn Road, Hallen,,, BRISTOL, BS10 7SP Authority: Environment Agency, South West Region Permit Reference: UP3432AV Original Permit Ref: Bv3006in Effective Date: 1st January 2016 **Status:** **Effective** Application Type: Variation App. Sub Type: Standard Positional Accuracy: Automatically positioned to the address Activity Code: 1.1 A(1) (A) Activity Description: Combustion; Any Fuel Greater Or Equal To 50Mw Primary Activity: Y	A14NW (E)	379	2	354770 181325

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
25	**Integrated Pollution Prevention And Control** Name: Seabank Power Ltd Location: Seabank Power Station Epr/Bv3006in, Severn Road, Hallen,,, BRISTOL, BS10 7SP Authority: Environment Agency, South West Region Permit Reference: Np3739sq Original Permit Ref: Bv3006in Effective Date: 26th November 2004 **Status:** **Superseded By Variation** Application Type: Variation App. Sub Type: Minor Positional Accuracy: Automatically positioned to the address Activity Code: 1.1 A(1) (A) Activity Description: Combustion; Any Fuel Greater Or Equal To 50Mw Primary Activity: Y	A14NW (E)	379	2	354770 181325
25	**Integrated Pollution Prevention And Control** Name: Seabank Power Ltd Location: Seabank Power Station Epr/Bv3006in, 1, Severn Road,Hallen,, Bristol, BS10 7SQ Authority: Environment Agency, South West Region Permit Reference: Bv3006in Original Permit Ref: Bv3006in Effective Date: 5th March 2004 **Status:** **Superseded By Variation** Application Type: Application App. Sub Type: New Positional Accuracy: Automatically positioned to the address Activity Code: 1.1 A(1) (A) Activity Description: Combustion; Any Fuel Greater Or Equal To 50Mw Primary Activity: Y	A14NW (E)	379	2	354770 181325
26	**Integrated Pollution Prevention And Control** Name: Viridor Waste Management Ltd Location: Severn Road Resource Rc - Efw Epr/Gp3834hy, Severn Road Resource Recovery Centre Energy From Waste Facility, Severn Road,,Avonmouth, Bristol, BS11 0YU Authority: Environment Agency, South West Region Permit Reference: YP3738YN Original Permit Ref: Gp3834hy Effective Date: 27th November 2017 **Status:** **Effective** Application Type: Variation App. Sub Type: Standard Positional Accuracy: Located by supplier to within 100m Activity Code: 0.0 Associated Process Activity Description: Associated Process Primary Activity: N Activity Code: 5.1 A(1) (B) Activity Description: THE INCINERATION OF NON-HAZARDOUS WASTE IN AN INCINERATION OR CO-INCINERATION PLANT WITH A CAPACITY EXCEEDING 3 TONNES PER HOUR. Primary Activity: Y	A17SE (NW)	593	2	353800 181700
26	**Integrated Pollution Prevention And Control** Name: Viridor Waste Management Ltd Location: Severn Road Resource Rc - Efw Epr/Gp3834hy, Severn Road Resource Recovery Centre Energy From Waste Facility, Severn Road,,Avonmouth, Bristol, BS11 0YU Authority: Environment Agency, South West Region Permit Reference: BP3430VN Original Permit Ref: Gp3834hy Effective Date: 13th February 2014 **Status:** **Superseded By Variation** Application Type: Variation App. Sub Type: Minor Positional Accuracy: Located by supplier to within 100m Activity Code: 0.0 Associated Process Activity Description: Associated Process Primary Activity: N Activity Code: 5.1 A(1) (B) Activity Description: THE INCINERATION OF NON-HAZARDOUS WASTE IN AN INCINERATION OR CO-INCINERATION PLANT WITH A CAPACITY EXCEEDING 3 TONNES PER HOUR. Primary Activity: Y	A17SE (NW)	593	2	353800 181700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
26	**Integrated Pollution Prevention And Control** Name: Viridor Waste Management Ltd Location: Severn Road Resource Rc - Efw Epr/Gp3834hy, Severn Road Resource Recovery Centre, Severn Road,,Chittening, BRISTOL, Avon, BS11 0YU Authority: Environment Agency, South West Region Permit Reference: GP3834HY Original Permit Ref: Gp3834hy Effective Date: 21st September 2011 **Status:** **Superseded By Variation** Application Type: Application App. Sub Type: New Positional Accuracy: Located by supplier to within 100m Activity Code: 5.1 A(1) (C) Activity Description: Incineration Of Non Hazardous Waste Greater Than 1 T/Hr Primary Activity: Y	A17SE (NW)	593	2	353800 181700
27	**Integrated Pollution Prevention And Control** Name: Sevalco Limited Location: Sevalco Limited, Sevalco Limited, Severn Road,,, Chittening, Avon, BS11 0YU Authority: Environment Agency, South West Region Permit Reference: MP3035HZ Original Permit Ref: Yp3538ly Effective Date: 30th November 2011 **Status:** **Surrender Effective** Application Type: Surrender App. Sub Type: Whole Positional Accuracy: Automatically positioned to the address Activity Code: 1.1 B (A) Activity Description: Combustion; Any Fuel Greater Or Equal To 20Mw But Less Than 50Mw (Unless 1.1 A(1) B) Primary Activity: Y	A17SW (NW)	851	2	353442 181637
27	**Integrated Pollution Prevention And Control** Name: Sevalco Limited Location: Severn Road, Chittening, Bristol, BS11 0YU Authority: Environment Agency, South West Region Permit Reference: YP3538LY Original Permit Ref: Yp3538ly Effective Date: 1st August 2007 **Status:** **Superseded By Variation** Application Type: Application App. Sub Type: New Positional Accuracy: Automatically positioned to the address Activity Code: 1.1 B (A) Activity Description: Combustion; Any Fuel Greater Or Equal To 20Mw But Less Than 50Mw (Unless 1.1 A(1) B) Primary Activity: Y	A17SW (NW)	851	2	353442 181637
28	**Local Authority Pollution Prevention and Controls** Name: West Brick Ltd Location: Severn Road, Chittening, BRISTOL, BS11 0YL Authority: Bristol City Council, Environmental Health Department Permit Reference: Af2876 Dated: 6th May 1992 Process Type: Application under SI 318, 1989 The Control of Industrial Air Pollution (Registration of Works) Regulations 1989 Description: Processes registered under S. 9 of the Alkali Act 1906 and S. 5 of the Health & Safety at Work Act 1974 **Status:** **Authorised** Positional Accuracy: Manually positioned to the road within the address or location	A17SW (NW)	955	3	353474 181880
	Nearest Surface Water Feature	A13NE (N)	0	-	354328 181292
29	**Prosecutions Relating to Authorised Processes** Location: Land To The Rear Of Sevalco, Severn Road, Bristol, Bs11 0yu Prosecution Text: Storing controlled waste on land without a waste management licence - 15 month prison sentence served Prosecution Act: Epr10 Hearing Date: 2nd December 2011 Verdict: Guilty Fine: 0 Costs: 0 Positional Accuracy: Manually positioned to the address or location	A17SW (NW)	851	2	353442 181637

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
30	**Registered Radioactive Substances** Name: Growhow Uk (East) Ltd Location: Growhow Site,Severn Road,Hallen, BRISTOL, BS10 7SJ Authority: Environment Agency, South West Region Permit Reference: CD9313 Dated: 9th September 2009 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Application has been authorised and any conditions apply to the operator** Positional Accuracy: Manually positioned within the geographical locality	A17SW (NW)	878	2	353525 181820
31	**Substantiated Pollution Incident Register** Authority: Environment Agency - South West Region, Wessex Area Incident Date: 3rd March 2010 Incident Reference: 758438 Water Impact: Category 4 - No Impact Air Impact: Category 3 - Minor Incident Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 10m Pollutant: Asbestos Waste Pollutant: Specific Waste Materials: Commercial Waste Pollutant: Specific Waste Materials: Household Waste Pollutant: Specific Waste Materials: Metal Wastes Pollutant: Specific Waste Materials: Tyres	A18SE (N)	368	2	354339 181661
32	**Substantiated Pollution Incident Register** Authority: Environment Agency - South West Region, Wessex Area Incident Date: 2nd February 2005 Incident Reference: 290809 Water Impact: Category 3 - Minor Incident Air Impact: Category 2 - Significant Incident Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 10m Pollutant: Other Pollutant	A14NW (NE)	414	2	354711 181511
33	**Substantiated Pollution Incident Register** Authority: Environment Agency - South West Region, Wessex Area Incident Date: 2nd February 2008 Incident Reference: 561280 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 10m Pollutant: Oils And Fuel: Other Oil Or Fuel	A17SW (NW)	884	2	353393 181608
34	**Substantiated Pollution Incident Register** Authority: Environment Agency - South West Region, Wessex Area Incident Date: 7th February 2005 Incident Reference: 291946 Water Impact: Category 2 - Significant Incident Air Impact: Category 3 - Minor Incident Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 10m Pollutant: Oils And Fuel: Kerosene And Aviation Fuel	A17SW (NW)	912	2	353460 181790
	Water Abstractions Operator: Rhodia Uk Limited Licence Number: 18/54/020/G/132 Permit Version: 101 Location: Madam Farm (Borehole No 9) Authority: Environment Agency, South West Region Abstraction: Chemicals: Non-Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st January 2005 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A1NE (SW)	1543	2	353150 180150

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Rhodia Uk Limited Licence Number: 18/54/020/G/132 Permit Version: 101 Location: Madam Farm (Borehole No 9) Authority: Environment Agency, South West Region Abstraction: Chemicals: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st January 2005 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A1NE (SW)	1543	2	353150 180150
	Water Abstractions Operator: Rhodia Organique Fine Limited Licence Number: 18/54/020/G/132 Permit Version: 100 Location: Madam Farm (Borehole No 9) Authority: Environment Agency, South West Region Abstraction: Chemicals: Non-Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st January 1999 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A1NE (SW)	1543	2	353150 180150
	Water Abstractions Operator: Rhodia Organique Fine Limited Licence Number: 18/54/020/G/132 Permit Version: 100 Location: Madam Farm (Borehole No 9) Authority: Environment Agency, South West Region Abstraction: Chemicals: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Borehole Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st January 1999 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A1NE (SW)	1543	2	353150 180150
	Groundwater Vulnerability Soil Classification: Not classified Map Sheet: Sheet 37 Southern Cotswolds Scale: 1:100,000	A13NE (NE)	0	2	354315 181224
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - B	A13NE (NE)	0	1	354315 181224
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A13NE (NE)	0	1	354315 181224
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	0	2	354319 181226
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	0	2	354315 181224
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	0	2	354315 181224

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Areas Benefiting from Flood Defences Type: Area Benefiting from Flood Defences Boundary Accuracy: As Supplied	A13NE (NE)	0	2	354315 181224
	Flood Water Storage Areas None				
	Flood Defences None				
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 96.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NE (NE)	0	4	354363 181272
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 124.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SE (E)	1	4	354397 181203
37	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 217.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SW (SW)	1	4	354284 181192
38	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 124.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NE (N)	1	4	354321 181294
39	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 90.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NE (E)	2	4	354404 181237
40	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (NW)	3	4	354208 181273
41	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 218.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NE (N)	3	4	354329 181294
42	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 111.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (NW)	4	4	354208 181273

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
43	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 48.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (W)	19	4	354222 181231
44	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 164.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SW (SW)	24	4	354259 181181
45	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 71.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (W)	25	4	354189 181265
46	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (W)	25	4	354189 181259
47	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 33.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SE (S)	34	4	354344 181103
48	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 67.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SE (SE)	43	4	354408 181104
49	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 74.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SE (S)	55	4	354332 181091
50	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 102.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (NW)	87	4	354138 181319
51	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (NW)	87	4	354132 181307

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
52	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (NW)	87	4	354137 181318
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 211.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NE (NE)	92	4	354476 181291
54	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 159.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NE (NE)	93	4	354472 181300
55	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NE (NE)	93	4	354476 181293
56	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 358.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (NW)	112	4	354226 181408
57	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 62.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (NW)	113	4	354128 181350
58	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 100.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SE (SE)	114	4	354455 181050
59	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SE (SE)	116	4	354462 181055
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 313.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SE (SE)	116	4	354466 181059

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
61	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 137.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SW (S)	128	4	354291 181030
62	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 148.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SW (S)	128	4	354263 181041
63	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 243.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SW (SW)	169	4	354143 181100
64	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 27.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (NW)	180	4	354080 181396
65	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 90.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SE (S)	182	4	354366 180948
66	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 124.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (NW)	184	4	354179 181456
67	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 214.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (NW)	186	4	354183 181460
68	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (NW)	186	4	354185 181461
69	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 43.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (NW)	186	4	354185 181461

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
70	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 79.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (N)	186	4	354238 181479
71	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 84.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SE (S)	190	4	354371 180940
72	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 150.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (N)	191	4	354223 181481
73	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 202.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (NW)	192	4	354060 181390
74	**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: Severn Lower Vale Primacy: 2	A13SE (SE)	204	4	354570 181071
75	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (NW)	206	4	354067 181420
76	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 171.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (NW)	208	4	354066 181423
77	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 46.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SE (SE)	208	4	354500 180964
78	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NE (NE)	212	4	354496 181437

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
79	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 105.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NW (N)	212	4	354302 181508
80	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 222.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 1	A13NW (NW)	213	4	354042 181402
81	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 85.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SE (SE)	213	4	354576 181063
82	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 168.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NE (NE)	213	4	354497 181438
83	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 138.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NE (NE)	213	4	354497 181438
84	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 543.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Monks' Well Rhine Catchment Name: Severn Lower Vale Primacy: 2	A13NE (NE)	222	4	354500 181448
85	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NE (E)	227	4	354613 181319
86	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 89.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13NE (E)	230	4	354616 181321
87	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 103.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 2	A13SW (S)	258	4	354244 180907

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
88	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 2	A13SW (S)	258	4	354230 180913
89	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 133.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SW (S)	260	4	354230 180913
90	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 120.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 2	A13SW (S)	260	4	354193 180930
91	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	269	4	354338 180863
92	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 25.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NE (W)	269	4	353945 181245
93	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	270	4	354340 180862
94	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 104.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	272	4	354350 180859
95	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 146.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 1	A12NE (W)	277	4	353933 181245
96	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 296.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NE (W)	277	4	353935 181272

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
97	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 179.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NE (W)	282	4	353934 181225
98	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	283	4	354683 181253
99	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	283	4	354392 181567
100	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 120.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	288	4	354689 181247
101	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	288	4	354383 181574
102	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	290	4	354385 181576
103	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 34.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	292	4	354398 181576
104	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SW (SW)	293	4	354117 180953
105	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 2	A13SW (SW)	293	4	354117 180953

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
106	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SE (SE)	294	4	354557 180900
107	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.5 Watercourse Level: Underground Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 2	A13SW (SW)	295	4	354113 180953
108	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 2	A13SW (SW)	295	4	354110 180955
109	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SW (SW)	296	4	354106 180957
110	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 226.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 2	A13SW (SW)	296	4	354106 180957
111	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SW (SW)	297	4	354114 180949
112	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 64.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	297	4	354380 181584
113	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SE (SE)	298	4	354559 180896
114	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SE (SE)	298	4	354562 180898

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
115	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 27.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SE (SE)	299	4	354585 180919
116	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 153.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SE (SE)	300	4	354606 180940
117	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 113.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SW (SW)	302	4	354112 180945
118	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 331.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A13SW (SW)	305	4	354101 180950
119	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 33.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	313	4	354307 181609
120	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 112.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	324	4	354414 181605
121	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 17.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	332	4	354406 181615
122	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	332	4	354406 181615
123	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	336	4	354334 181630

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
124	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 163.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	344	4	354324 181639
125	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 103.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SW (SE)	345	4	354707 181037
126	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 50.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	354	4	354471 180790
127	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 85.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SE (W)	355	4	353884 181137
128	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 378.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 1	A12SE (W)	355	4	353884 181137
129	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 73.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	356	4	354357 180771
130	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 195.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	359	4	354354 180771
131	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 201.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	369	4	354426 180765
132	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 50.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NE (NW)	370	4	353940 181525

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
133	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 27.6 Watercourse Level: Underground Permanent: True Watercourse Name: Monks' Well Rhine Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	371	4	354766 181159
134	**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: Severn Lower Vale Primacy: 2	A14SW (SE)	372	4	354707 180966
135	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 66.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SW (N)	372	4	354305 181670
136	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 118.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NE (SE)	374	4	354535 180792
137	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (NE)	374	4	354492 181632
138	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 87.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (NE)	374	4	354492 181632
139	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 122.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (NE)	376	4	354491 181634
140	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 100.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	377	4	354346 180754
141	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 31.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SW (SE)	378	4	354722 180982

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
142	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 389.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SE (SW)	380	4	353961 180985
143	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 352.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SW (NW)	382	4	354112 181653
144	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 264.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SE (SW)	390	4	353897 181044
145	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labourham Rhyne Catchment Name: Brue and Axe North Primacy: 2	A12SE (SW)	390	4	353897 181044
146	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 54.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	390	4	354650 180855
147	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 267.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	390	4	354670 180875
148	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	390	4	354779 181130
149	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SE (W)	393	4	353887 181052
150	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Monks' Well Rhine Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	393	4	354784 181139

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
151	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SE (W)	394	4	353885 181054
152	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17SE (NW)	395	4	353932 181552
153	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SE (W)	396	4	353882 181055
154	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Monks' Well Rhine Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	399	4	354790 181134
155	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 196.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	399	4	354790 181134
156	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 337.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NW (S)	400	4	354167 180787
157	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 55.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	400	4	354507 180753
158	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Monks' Well Rhine Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	400	4	354790 181132
159	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 156.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	400	4	354800 181193

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
160	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 106.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NE (NW)	403	4	353843 181436
161	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 75.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17SE (NW)	403	4	353953 181585
162	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 35.0 Watercourse Level: Underground Permanent: True Watercourse Name: Monks' Well Rhine Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	403	4	354792 181129
163	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 67.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SE (W)	404	4	353877 181049
164	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 129.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SE (W)	404	4	353877 181049
165	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 249.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17SE (NW)	404	4	353924 181557
166	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NE (SE)	405	4	354622 180810
167	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NE (NW)	409	4	353895 181533
168	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 84.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NE (NW)	412	4	353855 181479

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
169	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NE (SE)	412	4	354626 180804
170	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 75.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NE (SE)	412	4	354626 180804
171	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 136.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SW (NW)	415	4	353977 181616
172	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	415	4	354816 181222
173	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 151.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SW (N)	417	4	354255 181714
174	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 48.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	417	4	354377 181705
175	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 68.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SW (N)	422	4	354258 181720
176	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 245.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NW (SW)	423	4	354038 180848
177	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 208.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NE (W)	423	4	353818 181428

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
178	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 202.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SW (NW)	425	4	353991 181637
179	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 50.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	425	4	354826 181216
180	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 46.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Monks' Well Rhine Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	432	4	354816 181104
181	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 84.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NE (NW)	434	4	353830 181480
182	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 45.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	435	4	354476 180707
183	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 53.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	435	4	354400 181720
184	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 65.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NE (SE)	436	4	354573 180743
185	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 38.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	436	4	354816 181091
186	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 67.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	437	4	354353 181728

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
187	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 37.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	442	4	354842 181279
188	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 152.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NW (S)	447	4	354137 180751
189	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 47.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	448	4	354846 181288
190	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 53.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NE (W)	450	4	353785 181416
191	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 33.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SW (SE)	453	4	354758 180891
192	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 111.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	455	4	354845 181129
193	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (NE)	459	4	354547 181701
194	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 177.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SW (N)	466	4	354193 181756
195	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 170.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SE (SW)	467	4	353838 180994

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
196	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 181.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SE (SW)	467	4	353838 180994
197	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 112.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	471	4	354532 180687
198	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 16.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	471	4	354446 181749
199	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.8 Watercourse Level: Underground Permanent: True Watercourse Name: Monks' Well Rhine Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	472	4	354848 181069
200	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 139.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (NE)	472	4	354555 181711
201	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 212.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	473	4	354864 181336
202	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	474	4	354846 181057
203	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SW (N)	474	4	354302 181772
204	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 44.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Monks' Well Rhine Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	475	4	354850 181066

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
205	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 204.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	475	4	354848 181056
206	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 117.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SW (N)	475	4	354301 181772
207	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8NE (SE)	476	4	354543 180685
208	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 41.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	477	4	354878 181264
209	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.0 Watercourse Level: Underground Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8NE (SE)	478	4	354544 180683
210	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 113.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8NE (SE)	479	4	354544 180682
211	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	482	4	354440 180652
212	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	485	4	354441 181764
213	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	485	4	354441 181764

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
214	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 36.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	486	4	354775 180856
215	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 132.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	486	4	354442 181765
216	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 95.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	487	4	354439 180647
217	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 37.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SE (W)	490	4	353754 181099
218	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 101.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	492	4	354676 180742
219	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 195.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	495	4	354784 180854
220	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	498	4	354436 181778
221	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 106.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	500	4	354434 181780
222	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 152.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	511	4	354909 181291

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
223	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 277.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SE (W)	512	4	353722 181125
224	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 180.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Monks' Well Rhine Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	512	4	354881 181034
225	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 200.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	512	4	354881 181034
226	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	513	4	354914 181216
227	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	513	4	354914 181219
228	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 40.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	514	4	354780 180815
229	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	514	4	354915 181218
230	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	517	4	354919 181217
231	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	517	4	354919 181217

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
232	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 77.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	520	4	354684 180713
233	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SW (E)	523	4	354924 181213
234	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 31.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	527	4	354315 180606
235	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 97.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	529	4	354930 181214
236	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 166.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	529	4	354786 180799
237	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 46.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	532	4	354902 181416
238	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (NE)	533	4	354575 181769
239	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 83.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (NE)	537	4	354574 181774
240	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SW (N)	539	4	354151 181822

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
241	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 91.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SW (N)	541	4	354152 181824
242	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 96.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SW (N)	543	4	354159 181828
243	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 74.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17SE (NW)	544	4	353943 181747
244	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17SE (NW)	544	4	353939 181744
245	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17SE (NW)	544	4	353943 181747
246	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 58.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	544	4	354945 181257
247	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 189.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	545	4	354348 180586
248	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 81.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	568	4	354394 180562
249	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	568	4	354394 180562

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
250	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 66.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NW (S)	569	4	354229 180579
251	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	569	4	354398 180562
252	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	569	4	354924 181460
253	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 67.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	572	4	354759 180707
254	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	572	4	354931 181453
255	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 112.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SE (W)	575	4	353647 181165
256	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 143.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NE (S)	575	4	354403 180556
257	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 52.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	580	4	354774 180711
258	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	580	4	354361 181873

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
259	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 35.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	580	4	354361 181873
260	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 23.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NW (S)	581	4	354201 180575
261	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.7 Watercourse Level: Underground Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8NE (SE)	582	4	354630 180607
262	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 325.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NE (W)	583	4	353636 181360
263	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 70.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	583	4	354358 181876
264	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 172.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	584	4	354981 181308
265	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 43.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Brue and Axe South Primacy: 1	A12NE (W)	585	4	353640 181393
266	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NE (W)	585	4	353640 181393
267	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 153.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NE (SE)	586	4	354615 180596

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268	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 135.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NW (SW)	588	4	354057 180624
269	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 157.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8NE (SE)	588	4	354633 180603
270	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 59.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	588	4	354942 181469
271	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SW (NE)	590	4	354673 181779
272	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 38.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SW (NE)	590	4	354673 181779
273	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 146.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (E)	591	4	354966 181409
274	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (N)	591	4	354395 181879
275	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 223.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 1	A12NE (W)	592	4	353641 181430
276	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 34.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NW (S)	595	4	354179 180568

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277	**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: Severn Lower Vale Primacy: 2	A8NW (SW)	597	4	354039 180635
278	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NW (SW)	597	4	354039 180635
279	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NW (SW)	597	4	354040 180634
280	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 99.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NW (N)	598	4	354230 181894
281	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 124.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17SE (NW)	602	4	353882 181778
282	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 108.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SW (NE)	603	4	354652 181807
283	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 351.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	605	4	353622 181407
284	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 37.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NW (SW)	610	4	354024 180627
285	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 21.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NW (SW)	610	4	354024 180627

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286	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NW (SW)	618	4	353989 180640
287	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NW (SW)	618	4	353989 180640
288	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 105.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NE (N)	618	4	354452 181897
289	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 162.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	619	4	354833 180715
290	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 127.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SW (NE)	621	4	354847 181672
291	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 17.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NW (NE)	622	4	354950 181530
292	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 102.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (E)	622	4	354996 181417
293	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NE (N)	622	4	354442 181903
294	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SW (NE)	623	4	354842 181678

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295	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 186.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SW (NE)	623	4	354709 181793
296	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 19.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NE (N)	624	4	354440 181905
297	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 34.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SE (E)	625	4	355026 181210
298	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SE (E)	625	4	355026 181210
299	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 34.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SW (NE)	625	4	354924 181580
300	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SE (E)	626	4	355027 181209
301	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 91.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	626	4	354757 180635
302	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 216.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SE (E)	628	4	355029 181208
303	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SW (S)	629	4	354167 180536

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
304	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 99.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SW (S)	629	4	354171 180534
305	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 106.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (NE)	629	4	354605 181861
306	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 19.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SW (NE)	629	4	354847 181681
307	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (NE)	629	4	354605 181861
308	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SW (NE)	629	4	354686 181816
309	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 84.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NE (SW)	630	4	353922 180674
310	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 88.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18SE (NE)	632	4	354606 181863
311	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 300.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SW (NE)	633	4	354690 181819
312	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 265.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NW (N)	634	4	354093 181909

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
313	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 42.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NW (SW)	635	4	354016 180603
314	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SE (SW)	637	4	353706 180887
315	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 30.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NE (N)	637	4	354329 181933
316	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 169.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (E)	640	4	355041 181248
317	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 241.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	643	4	354363 180487
318	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	643	4	354363 180487
319	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 109.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NW (N)	644	4	354099 181916
320	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	645	4	354365 180484
321	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 157.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (NE)	645	4	354986 181509

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
322	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SW (SE)	645	4	354975 180897
323	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 73.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SW (SE)	646	4	354975 180893
324	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SW (SE)	646	4	354975 180893
325	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 161.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SW (SE)	647	4	354977 180894
326	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 42.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SE (SW)	648	4	353697 180881
327	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 42.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17SE (NW)	650	4	353688 181659
328	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 224.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17SE (NW)	651	4	353908 181849
329	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 55.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NE (SW)	652	4	353848 180710
330	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	653	4	354951 180825

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
331	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 143.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	654	4	354952 180825
332	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 146.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	657	4	354379 180473
333	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 79.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SW (S)	662	4	354251 180479
334	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 68.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SW (S)	662	4	354251 180479
335	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.1 Watercourse Level: Underground Permanent: True Watercourse Name: Monks' Well Rhine Catchment Name: Severn Lower Vale Primacy: 2	A14SE (SE)	663	4	354993 180893
336	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 228.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NE (SW)	664	4	353691 180861
337	**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: Severn Lower Vale Primacy: 2	A12SW (W)	664	4	353578 181076
338	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 651.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Monks' Well Rhine Catchment Name: Severn Lower Vale Primacy: 2	A14SE (SE)	665	4	354994 180889
339	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SW (W)	668	4	353575 181072

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
340	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 179.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SW (W)	669	4	353574 181071
341	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 25.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SW (W)	669	4	353574 181071
342	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	671	4	354521 180475
343	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 43.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NE (SW)	675	4	353964 180588
344	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 59.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NE (N)	680	4	354535 181941
345	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 50.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	681	4	354534 180468
346	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NE (SW)	688	4	353660 180862
347	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 23.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8NW (SW)	688	4	353993 180556
348	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 58.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NE (SW)	691	4	353660 180858

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
349	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 107.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17SE (NW)	692	4	353655 181686
350	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 317.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SW (W)	694	4	353546 181080
351	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 44.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NE (N)	700	4	354361 181993
352	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 181.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NE (SW)	701	4	353834 180657
353	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 21.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NE (SW)	701	4	353835 180657
354	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NE (SW)	701	4	353835 180657
355	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (E)	705	4	355056 181499
356	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 173.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SW (S)	708	4	354043 180494
357	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 135.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (E)	709	4	355078 181449

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
358	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 68.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (E)	709	4	355078 181449
359	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 130.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (E)	712	4	355061 181506
360	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.9 Watercourse Level: Underground Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	713	4	354740 180519
361	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19NW (NE)	716	4	354665 181929
362	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 61.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	717	4	354716 180499
363	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 184.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	718	4	354811 180561
364	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	719	4	354527 180427
365	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 33.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19NW (NE)	719	4	354667 181931
366	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	720	4	354530 180428

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
367	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 60.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	721	4	354532 180426
368	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 74.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	721	4	354532 180426
369	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 16.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	721	4	354743 180510
370	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 133.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	721	4	354743 180510
371	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 125.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	722	4	354805 180551
372	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 77.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NE (SW)	725	4	353827 180632
373	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8SW (S)	726	4	354285 180409
374	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 103.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	726	4	354794 180538
375	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 165.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	727	4	354728 180495

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376	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 174.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SW (SW)	730	4	354012 180495
377	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 190.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 2	A8SW (S)	731	4	354285 180405
378	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 52.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NW (N)	732	4	354272 182030
379	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 115.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	734	4	353482 181354
380	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 72.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	734	4	353482 181354
381	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NE (N)	736	4	354392 182025
382	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 108.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NE (N)	736	4	354392 182025
383	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 20.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	737	4	354959 180682
384	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 73.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NE (N)	740	4	354383 182031

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
385	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 31.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NE (N)	742	4	354555 182000
386	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 101.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (SW)	745	4	353964 180507
387	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SW (SW)	747	4	353970 180500
388	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 175.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NW (N)	748	4	354216 182043
389	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 183.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NE (SW)	749	4	353633 180798
390	**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: Severn Lower Vale Primacy: 2	A9SW (SE)	751	4	354688 180448
391	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NW (N)	752	4	354034 182010
392	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 137.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19NW (NE)	753	4	354683 181961
393	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 21.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	756	4	354690 180443

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
394	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 23.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	758	4	354970 180661
395	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 222.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SW (NE)	758	4	354920 181792
396	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 152.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (E)	764	4	355116 181506
397	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 58.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	772	4	354678 180420
398	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 51.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	773	4	354575 180384
399	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NE (N)	773	4	354565 182030
400	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (NE)	774	4	355011 181712
401	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 111.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (NE)	774	4	355013 181711
402	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 240.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NE (SE)	778	4	355006 180678

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
403	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 197.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NE (SW)	779	4	353638 180746
404	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	780	4	354980 180640
405	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 115.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 1	A18NE (N)	783	4	354570 182039
406	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 29.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 1	A18NE (N)	783	4	354570 182039
407	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (E)	785	4	355179 181343
408	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 34.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NW (SE)	785	4	354981 180633
409	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 110.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SW (S)	787	4	354096 180394
410	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (E)	790	4	355181 181361
411	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 257.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Red Rhine Catchment Name: Severn Lower Vale Primacy: 2	A19NW (NE)	790	4	354783 181945

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
412	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (NE)	791	4	355089 181628
413	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (E)	791	4	355185 181344
414	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	793	4	353457 181518
415	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 32.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (NE)	793	4	355090 181630
416	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 106.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17SW (NW)	797	4	353583 181764
417	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 140.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NE (SW)	800	4	353791 180563
418	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 119.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NE (SW)	800	4	353791 180563
419	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	801	4	353451 181525
420	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 40.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	801	4	353452 181527

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
421	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	801	4	353449 181516
422	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 173.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	801	4	353411 181287
423	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 182.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 1	A17SW (W)	802	4	353464 181562
424	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 25.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (SW)	803	4	353866 180500
425	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 170.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	803	4	353426 181441
426	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 193.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	805	4	354585 180353
427	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 68.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	806	4	353439 181501
428	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 81.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SW (S)	808	4	354260 180329
429	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	808	4	353442 181520

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
430	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 38.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	809	4	353442 181522
431	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 198.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SE (E)	811	4	355185 181016
432	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 38.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19NW (NE)	812	4	354723 182007
433	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (NE)	813	4	355120 181617
434	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 116.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (SW)	816	4	353841 180501
435	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.2 Watercourse Level: Underground Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	816	4	354767 180415
436	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.2 Watercourse Level: Underground Permanent: True Watercourse Name: Red Rhine Catchment Name: Severn Lower Vale Primacy: 2	A19SW (NE)	816	4	354907 181880
437	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NE (SE)	816	4	354992 180597
438	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 80.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	819	4	354765 180410

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
439	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 274.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Red Rhine Catchment Name: Severn Lower Vale Primacy: 2	A18NE (N)	819	4	354470 182098
440	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 224.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Red Rhine Catchment Name: Severn Lower Vale Primacy: 1	A18NE (N)	819	4	354470 182098
441	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 223.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NW (N)	820	4	354024 182077
442	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 23.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SE (E)	821	4	355214 181109
443	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 483.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Red Rhine Catchment Name: Severn Lower Vale Primacy: 2	A19SW (NE)	821	4	354916 181879
444	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	822	4	353391 181325
445	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	825	4	353388 181313
446	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 177.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (NE)	825	4	355137 181611
447	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 116.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SW (S)	827	4	354179 180326

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
448	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	828	4	354840 180446
449	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 39.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NE (SE)	828	4	354996 180585
450	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NE (SE)	828	4	354996 180585
451	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 106.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SW (W)	830	4	353463 180916
452	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	830	4	354852 180452
453	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 151.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NE (SE)	830	4	355008 180594
454	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NE (SW)	832	4	353642 180663
455	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	832	4	354855 180451
456	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SE (E)	832	4	355228 181127

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
457	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 45.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SE (E)	833	4	355230 181136
458	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 95.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	834	4	354641 180340
459	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 137.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NE (SW)	836	4	353639 180661
460	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (E)	836	4	355221 181402
461	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 63.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	836	4	354857 180447
462	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 75.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SE (E)	836	4	355232 181131
463	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 157.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (E)	836	4	355221 181402
464	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	838	4	353500 180832
465	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 176.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (E)	838	4	355223 181402

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
466	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 40.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	839	4	353498 180833
467	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 70.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	839	4	353373 181314
468	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 30.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Red Rhine Catchment Name: Severn Lower Vale Primacy: 2	A19NW (NE)	839	4	354713 182042
469	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 152.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	841	4	353371 181302
470	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 28.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	842	4	353406 181517
471	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SW (W)	844	4	353437 180938
472	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SW (W)	844	4	353437 180938
473	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 21.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SW (W)	845	4	353438 180936
474	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 101.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	846	4	353494 180827

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
475	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	848	4	354879 180449
476	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	848	4	354881 180451
477	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 166.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	848	4	354881 180451
478	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	852	4	354716 180349
479	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 281.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (S)	852	4	354650 180324
480	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 440.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19NW (NE)	855	4	354742 182046
481	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19NW (NE)	855	4	354742 182046
482	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	857	4	353465 180854
483	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SE (E)	857	4	355256 181165

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
484	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 114.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	858	4	354364 180272
485	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	858	4	354364 180272
486	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	859	4	354723 180345
487	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	859	4	354723 180345
488	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 45.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	861	4	353461 180853
489	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	861	4	353461 180853
490	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NE (SE)	861	4	355009 180548
491	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 317.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NE (SE)	861	4	355009 180548
492	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 82.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SE (E)	862	4	355261 181172

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
493	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19NW (NE)	864	4	354750 182051
494	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	865	4	353460 180847
495	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 38.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	866	4	353459 180845
496	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 84.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (NE)	869	4	355193 181595
497	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 86.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	870	4	354733 180337
498	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 83.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	871	4	354375 180259
499	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 60.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9NE (SE)	874	4	355127 180688
500	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 718.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19NW (NE)	875	4	354761 182058
501	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 88.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NW (N)	876	4	354001 182129

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
502	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NW (N)	876	4	354209 182171
503	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 78.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NW (N)	876	4	354209 182171
504	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 208.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	877	4	354888 180419
505	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (E)	879	4	355280 181257
506	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 106.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (E)	879	4	355280 181257
507	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14NE (E)	882	4	355283 181242
508	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 112.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (E)	882	4	355211 181585
509	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 37.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (W)	889	4	353423 180860
510	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 118.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NW (N)	889	4	354199 182184

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
511	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (W)	891	4	353423 180860
512	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 63.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (W)	894	4	353421 180857
513	**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: Severn Lower Vale Primacy: 2	A14SE (E)	897	4	355266 180985
514	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 286.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SE (E)	897	4	355266 180985
515	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	899	4	354885 180391
516	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 50.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	901	4	353342 181509
517	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 71.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	902	4	354885 180388
518	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 67.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	903	4	353309 181288
519	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 79.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12NW (W)	903	4	353309 181288

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
520	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 52.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 1	A17SW (NW)	907	4	353499 181834
521	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SE (E)	907	4	355301 181111
522	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 107.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SW (S)	913	4	354002 180296
523	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17SW (NW)	913	4	353509 181857
524	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SE (E)	913	4	355307 181111
525	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 181.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Red Rhine Catchment Name: Severn Lower Vale Primacy: 1	A18NW (N)	913	4	354276 182211
526	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 130.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SE (S)	916	4	354447 180217
527	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 171.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17SW (NW)	916	4	353513 181866
528	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (S)	916	4	353955 180315

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
529	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 156.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17NE (NW)	917	4	353699 182034
530	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 87.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19NW (NE)	918	4	354844 182058
531	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 141.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A11NE (W)	919	4	353293 181242
532	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 102.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A8SW (S)	920	4	354100 180252
533	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 24.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 1	A17SW (NW)	920	4	353459 181802
534	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 52.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SE (E)	922	4	355316 181111
535	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 101.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A14SE (E)	922	4	355316 181111
536	**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: Severn Lower Vale Primacy: 2	A7SE (SW)	925	4	353656 180516
537	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 169.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 1	A17SW (NW)	925	4	353442 181785

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
538	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 19.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	928	4	353468 180719
539	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 21.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (SW)	930	4	353652 180513
540	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 242.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (SW)	930	4	353652 180513
541	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 98.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SW (W)	932	4	353297 181098
542	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 44.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (S)	935	4	353946 180299
543	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 19.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	935	4	353600 180558
544	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	935	4	353598 180561
545	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 19.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17NW (NW)	935	4	353524 181908
546	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (S)	935	4	353944 180300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
547	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 117.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (SW)	935	4	353842 180357
548	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 68.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	936	4	354840 180319
549	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 72.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17SW (NW)	940	4	353488 181873
550	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.6 Watercourse Level: Underground Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	943	4	354805 180292
551	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 61.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (NE)	943	4	355242 181663
552	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 259.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (NE)	943	4	355242 181663
553	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 185.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	945	4	353449 180716
554	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 61.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	945	4	353449 180716
555	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.8 Watercourse Level: Underground Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	946	4	354815 180293

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
556	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	947	4	354812 180290
557	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 67.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A18NW (N)	948	4	354052 182218
558	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 92.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17NW (NW)	950	4	353539 181945
559	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 67.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SW (SW)	951	4	353598 180537
560	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.1 Watercourse Level: Underground Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	952	4	354872 180319
561	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SW (SW)	954	4	353628 180502
562	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 53.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (SW)	954	4	353783 180374
563	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 226.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	954	4	354812 180283
564	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	957	4	354880 180318

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
565	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 79.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A3NE (S)	958	4	354316 180173
566	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 50.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (SW)	958	4	353787 180366
567	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	959	4	353579 180545
568	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 181.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A3NE (S)	962	4	354334 180168
569	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A3NE (S)	962	4	354334 180168
570	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 123.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (SW)	962	4	353827 180336
571	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.4 Watercourse Level: Underground Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	964	4	354882 180311
572	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 164.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A3NE (S)	964	4	354336 180167
573	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 27.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (SW)	964	4	353784 180361

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
574	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 115.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A12SW (W)	965	4	353328 180888
575	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17NW (NW)	967	4	353593 182017
576	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 31.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	968	4	353572 180541
577	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A15SW (E)	969	4	355369 181196
578	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 355.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hallen Rhine Catchment Name: Severn Lower Vale Primacy: 2	A9SW (SE)	970	4	354887 180307
579	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A15SW (E)	971	4	355372 181200
580	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 120.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A15SW (E)	972	4	355373 181205
581	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A15SW (E)	973	4	355366 181097
582	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 55.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (E)	973	4	355293 181626

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
583	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 171.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	975	4	353546 180558
584	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7NW (SW)	975	4	353546 180558
585	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A15SW (E)	976	4	355359 181036
586	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 1	A17SW (NW)	976	4	353319 181668
587	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 65.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A23SW (N)	978	4	354114 182262
588	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 1	A17SW (NW)	978	4	353314 181664
589	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A15SW (E)	978	4	355370 181096
590	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 191.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (S)	979	4	353924 180260
591	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17NW (NW)	979	4	353584 182025

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
592	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 84.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Stuppill Rhine Catchment Name: Severn Lower Vale Primacy: 1	A17SW (NW)	979	4	353313 181662
593	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 27.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A11SE (W)	979	4	353246 181115
594	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 74.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A15SW (E)	980	4	355363 181038
595	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17NW (NW)	982	4	353582 182027
596	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 263.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A15SW (E)	983	4	355376 181097
597	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A15SW (E)	983	4	355376 181097
598	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (E)	984	4	355316 181600
599	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 17.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (E)	984	4	355316 181600
600	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A20SW (E)	984	4	355323 181581

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
601	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 58.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A23SE (N)	984	4	354385 182276
602	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17NW (NW)	985	4	353580 182030
603	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 16.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (E)	985	4	355317 181599
604	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 108.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A20SW (E)	987	4	355330 181573
605	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (NE)	987	4	355301 181644
606	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A20SW (E)	990	4	355327 181586
607	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 332.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A17NW (NW)	991	4	353576 182034
608	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (SW)	991	4	353769 180338
609	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (NE)	991	4	355251 181746

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
610	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 60.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A23SW (N)	992	4	354080 182270
611	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 29.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A19SE (NE)	993	4	355303 181653
612	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 192.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (SW)	995	4	353672 180407
613	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 27.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A20SW (E)	995	4	355335 181580
614	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SE (SW)	997	4	353765 180334
615	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A15SW (E)	998	4	355390 181096
616	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A20SW (E)	999	4	355326 181614
617	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SW (SW)	1000	4	353614 180453
618	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 35.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Lower Vale Primacy: 2	A7SW (SW)	1000	4	353614 180453

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
619	**Historical Landfill Sites** Licence Holder: The County Council of Avon Location: Hallen, Avonmouth Name: Crooks Marsh Farm Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD09497 First Input Date: 31st December 1986 Last Input Date: Not Supplied Specified Waste Type: Deposited Waste included Inert and Industrial Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 0100/9930 BGS Ref: Not Supplied Other Ref: S/BL/T/30	A18SW (N)	543	2	354153 181826
620	**Historical Landfill Sites** Licence Holder: The County Council of Avon Location: Hallen, Avonmouth Name: Crooks Marsh Farm Sevalco Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD09496 First Input Date: 31st October 1977 Last Input Date: 31st December 1979 Specified Waste Type: Deposited Waste included Inert, Industrial and Commercial Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 0100/0005 BGS Ref: Not Supplied Other Ref: S/NA/T/5A	A18NW (N)	641	2	354106 181915
621	**Historical Landfill Sites** Licence Holder: The County Council of Avon Location: Hallen, Avonmouth Name: Crooks Marsh Farm Sevalco Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD09816 First Input Date: 31st October 1977 Last Input Date: 31st December 1979 Specified Waste Type: Deposited Waste included Inert, Industrial and Commercial Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 0100/0005 BGS Ref: Not Supplied Other Ref: S/NA/T/5	A19SW (NE)	650	2	354806 181750
622	**Historical Landfill Sites** Licence Holder: Tarmac Econowaste Limited Location: Hallen, Bristol, Avon Name: Land at Fishers Farm Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD09110 First Input Date: 31st December 1987 Last Input Date: 31st December 1993 Specified Waste Type: Deposited Waste included Inert, Industrial, Commercial and Household Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 0100/0087 BGS Ref: Not Supplied Other Ref: L/NA/T/87	A9SW (SE)	852	2	354896 180457
623	**Licensed Waste Management Facilities (Landfill Boundaries)** Name: Berwick Farm Landfill Site Licence Number: 27242 Location: Berwick Farm Landfill, Berwick Farm Landfill Site, Berwick Lane, Hallen, Bristol, Avon, BS10 7RS Licence Holder: Cliffeville Ltd Authority: Environment Agency - South West Region, Wessex Area Site Category: Other Landfill Sites Taking Special Waste Max Input Rate: Not Supplied **Licence Status: Modified** Issued: 14th December 1982 Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A14SW (E)	513	2	354882 181035

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
624	**Licensed Waste Management Facilities (Landfill Boundaries)** Name: Crooks Marsh Farm Landfill Site Licence Number: 27256 Location: Crooks Marsh Farm, Land / Premises At, Crooks Marsh Farm, Hallen, Bristol, Avon, BS10 7SF Licence Holder: Bristol City Council Authority: Environment Agency - South West Region, Wessex Area Site Category: Co-disposal Landfill Sites Max Input Rate: Not Supplied **Licence Status: Issued** Issued: 16th January 1986 Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A17SE (NW)	671	2	353926 181880
625	**Licensed Waste Management Facilities (Locations)** Licence Number: 26188 Location: Unit N1, Hallen Industrial Estate, Severn Road, Hallen, Bristol, Avon, BS10 7SE Operator Name: Euro Recycling Ltd Operator Location: Not Supplied Authority: Environment Agency - South West Region, Wessex Area Site Category: Household, Commercial And Industrial Transfer Stations **Licence Status: Surrendered** Issued: 17th January 2006 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: 3rd February 2010 IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A13SE (E)	5	2	354400 181200
625	**Licensed Waste Management Facilities (Locations)** Licence Number: 26171 Location: The Recycling Centre, (Unit C), Hallen Ind Est, Severn Road, Hallen, Bristol, Avon, BS10 7SE Operator Name: Hills Waste Solutions Limited Operator Location: Not Supplied Authority: Environment Agency - South West Region, Wessex Area Site Category: HCI Waste TS + treatment **Licence Status: Transferred** Issued: 23rd June 2005 Last Modified: 25th November 2014 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A13SE (E)	5	2	354400 181200
625	**Licensed Waste Management Facilities (Locations)** Licence Number: 26016 Location: Fish & Skips, Severn Road, Hallen, Bristol, Avon, BS10 7SE Operator Name: Fish Paul Operator Location: Not Supplied Authority: Environment Agency - South West Region, Wessex Area Site Category: Household, Commercial And Industrial Transfer Stations **Licence Status: Revoked** Issued: 19th June 2000 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: 16th January 2003 Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A13SE (E)	5	2	354400 181200
625	**Licensed Waste Management Facilities (Locations)** Licence Number: 26096 Location: Unit J1 Hallen Ind Est, Severn Road, Hallen, Bristol, Avon, BS10 7SE Operator Name: Fallows Marc Operator Location: Not Supplied Authority: Environment Agency - South West Region, Wessex Area Site Category: End of Life Vehicles **Licence Status: Transferred** Issued: 14th September 2004 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13SE (E)	29	2	354424 181199

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
626	**Licensed Waste Management Facilities (Locations)** Licence Number: 103266 Location: Willow Farm, Severn Road, Hallen, Bristol, Avon, BS10 7SE Operator Name: M J Church (Plant) Ltd Operator Location: Not Supplied Authority: Environment Agency - South West Region, Wessex Area Site Category: Use of waste in construction <100,000 tps **Licence Status: Surrendered** Issued: 11th November 2011 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: 31st December 2013 IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13SE (E)	121	2	354519 181199
627	**Licensed Waste Management Facilities (Locations)** Licence Number: 401161 Location: Land Off Severn Road, Severnside, South Glos, BS10 7SE Operator Name: Bristol & Avon Transport & Recycling Ltd Operator Location: Not Supplied Authority: Environment Agency - South West Region, Wessex Area Site Category: Use of waste in a deposit for recovery op **Licence Status: Modified** Issued: 16th May 2014 Last Modified: 2nd January 2018 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13SE (SE)	252	2	354623 181083
628	**Licensed Waste Management Facilities (Locations)** Licence Number: 402202 Location: Land Near Minor's Farm, Severnside, Hallen, Bristol, Avon, BL10 7SF Operator Name: Keyway Limited Operator Location: Not Supplied Authority: Environment Agency - South West Region, Wessex Area Site Category: Use of waste in a deposit for recovery op **Licence Status: Surrendered** Issued: 27th May 2015 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: 19th December 2017 IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A18SW (N)	403	2	354300 181700
629	**Licensed Waste Management Facilities (Locations)** Licence Number: 26079 Location: Ableton Lane, Severn Beach, Chittening, Bristol, Avon, BS10 0YB Operator Name: D Hales Ltd Operator Location: Not Supplied Authority: Environment Agency - South West Region, Wessex Area Site Category: Metal Recycling Sites (Vehicle Dismantlers) **Licence Status: Issued** Issued: 9th October 2003 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A18SW (NW)	568	2	354000 181800
630	**Licensed Waste Management Facilities (Locations)** Licence Number: 402770 Location: Area F, Severn Road, Hallen, Bristol, Avon, BS10 7SB Operator Name: Bristol & Avon Transport & Recycling Ltd Operator Location: Not Supplied Authority: Environment Agency - South West Region, Wessex Area Site Category: Use of waste in a deposit for recovery op **Licence Status: Issued** Issued: 24th June 2016 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	634	2	354899 180776

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
631	**Licensed Waste Management Facilities (Locations)** Licence Number: 27256 Location: Land / Premises At, Crooks Marsh Farm, Hallen, Bristol, Avon, BS10 7SF Operator Name: Bristol City Council Operator Location: Not Supplied Authority: Environment Agency - South West Region, Wessex Area Site Category: Co-disposal Landfill Sites **Licence Status: Issued** Issued: 16th January 1986 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Approximate location provided by supplier	A18NW (N)	755	2	354000 182000
632	**Licensed Waste Management Facilities (Locations)** Licence Number: 26213 Location: The Old Brickworks, Severn Road, Avonmouth, Bristol, Avon, BS10 0YL Operator Name: D Hales Ltd Operator Location: Not Supplied Authority: Environment Agency - South West Region, Wessex Area Site Category: Metal Recycling Sites (Vehicle Dismantlers) **Licence Status: Issued** Issued: 27th February 2008 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A17SW (NW)	850	2	353440 181630
633	**Licensed Waste Management Facilities (Locations)** Licence Number: 100449 Location: Chittening Road Recycling Centre, Chittening Road Ind Est, Avonmouth, Bristol, Avon, BS11 0YU Operator Name: Bristol & Avon Remediation Ltd Operator Location: Not Supplied Authority: Environment Agency - South West Region, Wessex Area Site Category: Metal Recycling Sites (Mixed) **Licence Status: Issued** Issued: 30th October 2009 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A11NE (W)	972	2	353280 181550
634	**Licensed Waste Management Facilities (Locations)** Licence Number: 104006 Location: Units A, B & C Estuary Park, Chittening Road, Avonmouth, Bristol, Avon, BS11 0YB Operator Name: Veolia E S (U K) Limited Operator Location: Not Supplied Authority: Environment Agency - South West Region, Wessex Area Site Category: Use of waste to manufacture timber <75,000 tpy **Licence Status: Transferred** Issued: 24th May 2012 Last Modified: 24th June 2013 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A11NE (W)	985	2	353233 181384

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
634	**Licensed Waste Management Facilities (Locations)** Licence Number: 102356 Location: Units A, B & C Estuary Park, Chittening Road, Avonmouth, Bristol, Avon, BS11 0YB Operator Name: Veolia E S (U K) Ltd Operator Location: Not Supplied Authority: Environment Agency - South West Region, Wessex Area Site Category: HCI Waste TS + treatment **Licence Status: Transferred** Issued: 12th March 2012 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A11NE (W)	985	2	353233 181384
635	**Licensed Waste Management Facilities (Locations)** Licence Number: 402136 Location: Crooks Marsh Landfill Restoration, Ableton Lane, Avonmouth, Bristol, Avon, BS11 0YL Operator Name: Buckingham Group Contracting Limited Operator Location: Not Supplied Authority: Environment Agency - South West Region, Wessex Area Site Category: Use of waste in a deposit for recovery op **Licence Status: Issued** Issued: 15th May 2015 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	987	2	353880 182203
	Local Authority Landfill Coverage Name: South Gloucestershire Unitary Council - Has supplied landfill data		0	5	354315 181224
	Local Authority Landfill Coverage Name: Bristol City Unitary Authority - Has no landfill data to supply		1	6	354281 181190
636	**Local Authority Recorded Landfill Sites** Location: Crooks Marsh Landfill, Avonmouth Reference: Not Supplied Authority: South Gloucestershire Council, Environmental Services Department **Last Reported Status: Closed** Types of Waste: Ash From Avonmouth Incinerator Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A18SE (NE)	374	5	354490 181633
637	**Local Authority Recorded Landfill Sites** Location: Crooks Marsh Landfill, Avonmouth Reference: Not Supplied Authority: South Gloucestershire Council, Environmental Services Department **Last Reported Status: Closed** Types of Waste: Ash From Avonmouth Incinerator Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A18SW (NW)	387	5	354112 181649
638	**Local Authority Recorded Landfill Sites** Location: Crooks Marsh Landfill, Avonmouth Reference: Not Supplied Authority: South Gloucestershire Council, Environmental Services Department **Last Reported Status: Closed** Types of Waste: Ash From Avonmouth Incinerator Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A17SE (NW)	639	5	353912 181838
639	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1955	A17NE (NW)	906	11	353633 181970
640	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1955	A17SW (NW)	969	11	353415 181825

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
641	**Registered Landfill Sites** Licence Holder: Avon Waste Management Joint Committee Licence Reference: S/BL/T/ 30A Site Location: Crooks Marsh.(Port Bristol/Sevalco), Hallen, Avonmouth, Bristol, Avon Licence Easting: 354250 Licence Northing: 182000 Operator Location: Brunel House, St Georges Road, BRISTOL, Avon, BS1 5UY Authority: Environment Agency - South West Region, North Wessex Area Site Category: Landfill Max Input Rate: Undefined Waste Source Restrictions: No known restriction on source of waste Status: Record supersededSuperseded Dated: 1st January 1986 Preceded By Licence: Not Given Superseded By Licence: L/BL/T/329 Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Com. + Ind. Waste Ex Sevalco Ltd Com. + Ind. Waste Ex Tarmac Westbrick Construction And Demolition Wastes Excavation Materials Incinerator Res. Ex Avonmouth Def.Inc. Environment Agency must give specific authorisation for this waste to be acceptedWaste requires prior approval: Waste N.O.S.	A18NW (N)	703	2	354250 182000
642	**Registered Landfill Sites** Licence Holder: Avon C.C. Licence Reference: S/NA/T/ 5A Site Location: Crooks Marsh Farm (Sevalco), Hallen, Avonmouth, Bristol, Avon Licence Easting: 354400 Licence Northing: 182000 Operator Location: PO Box 87, Avon House North, BRISTOL, Avon, BS99 7SG Authority: Environment Agency - South West Region, North Wessex Area Site Category: Landfill Max Input Rate: Undefined Waste Source Restrictions: No known restriction on source of waste Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 19th September 1978 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Construction And Demolition Wastes Excavated Natural Materials $ Incinerator Residues Prohibited Waste: Biodegradable/Putrescible Waste Household Waste Paper/Cardboard Waste Toxic/Poisonous Wastes Environment Agency must give specific authorisation for this waste to be acceptedWaste requires prior approval: Asbestos Brick Making Wastes Com. + Ind. Non-Haz. Waste	A18NE (N)	712	2	354400 182000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Registered Landfill Sites				
643	Licence Holder: Bristol The City Council Of Licence Reference: L/BL/T/329 Site Location: Crooks Marsh Farm, Hallen, Avonmouth, Bristol, Avon Licence Easting: 353900 Licence Northing: 182100 Operator Location: Brunel House, St Georges Road, BRISTOL, Avon, BS1 5UY Authority: Environment Agency - South West Region, North Wessex Area Site Category: Landfill Max Input Rate: Undefined Waste Source Restrictions: No known restriction on source of waste Status: Operational as far as is knownOperational Dated: 26th March 1997 Preceded By Licence: S/BL/T/ 30A Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Com./Ind. Waste Ex Sevalco Ltd Construction And Demolition Wastes Excavation Waste Incin'Res. Ex Avonmouth Refuse Disp.Wk Environment Agency must give specific authorisation for this waste to be acceptedWaste requires prior approval: Other Wastes	A17NE (NW)	883	2	353900 182100
	Registered Waste Transfer Sites				
644	Licence Holder: P Fish t/a Fish & Skips Licence Reference: EAWML26016 Site Location: Hallen Works; Severn Road, Hallen, Avonmouth, BRISTOL, Avon, BS10 7SE Operator Location: Hallen Works; Severn Road, Hallen, Avonmouth, BRISTOL, Avon, BS10 7SE Authority: Environment Agency - South West Region, North Wessex Area Site Category: Transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Operational as far as is knownOperational Dated: 19th June 2000 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned within the geographical locality Boundary Quality: Not Supplied Authorised Waste: Degradable Household/Commercial/Industrial Waste - Comprising Ukw 21.00.00 Inert Materials Ukw 22.01.00 Gen/Biodeg - Naturally Occurring Rocks/Soil With Organic Matter Ukw 22.02.01 Gen/Biodeg - Mixed Construction And Demolition Waste Ukw 22.03.00 Gen/Biodeg - Plaster/Plasterboard (Not Other Calcium Sulphate Waste) Ukw 22.04.01 Gen/Biodeg - Paper & Card Ukw 22.04.02 Gen/Biodeg - Plastic & Polymers (Not Paints/Sealants/Adhesives/Resins) Ukw 22.04.03 Gen/Biodeg - Rubber (Not Tyres) Ukw 22.04.04 Gen/Biodeg - Tyres Ukw 22.04.05 Gen/Biodeg - Synthetic Textiles Ukw 22.04.06 Gen/Biodeg - Mixed/Unidentified Textiles Ukw 22.04.07 Gen/Biodeg - Wood/Untreated Timber (Not Sawdust/Shavings/Chippings/Etc) Ukw 22.04.08 Gen/Biodeg - Treated Timber (Not Sawdust/Shavings/Bark) Ukw 22.04.09 Gen/Biodeg - Laminates (Not Paper/Card/Metal/Asbestos) Ukw 22.05.00 Gen/Biodeg - Co-Mingled Material Separated For Recycling Ukw 22.06.03 Gen/Biodeg - Vegetation/Vegetable Waste Ukw 22.06.05 Gen/Biodeg - Mixtures Of Vegetation/Soil/Stones Ukw 23.01.00 Ferrous Metal Scrap (Not Metal Compounds) Ukw 23.02.00 Non-Ferrous Metal Scrap (Not Compounds/Catalysts/Etc) Prohibited Waste: Liquid Wastes Other Waste/Waste Not Otherwise Specified Powders Sludge Wastes Special Waste (As In Epa 1990:S62 Of 1996 Regs) Wet Wastes	A13SE (E)	5	2	354400 181200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
645	**Control of Major Accident Hazards Sites (COMAH)** Name: Flogas Britain Limited Location: Avonmouth Lpg Terminal, Avonmouth Lpg Storage Facility, Severn Road,Hallen, Bristol, Bs10, 7SQ Reference: Not Supplied Type: Upper Tier **Status: Active** Positional Accuracy: Manually positioned to the road within the address or location	A13NW (NW)	143	7	354102 181365
646	**Control of Major Accident Hazards Sites (COMAH)** Name: Seabank Power Ltd Location: Severn Road, Hallen, Bristol, BS10 7SP Reference: Not Supplied Type: Lower Tier **Status: Record Ceased To Be Supplied Under COMAH Regulations** Positional Accuracy: Automatically positioned to the address	A14NW (E)	379	7	354770 181325
646	**Control of Major Accident Hazards Sites (COMAH)** Name: National Grid Gas Plc Location: Severn Road, Hallen, Bristol, BS10 7SQ Reference: Not Supplied Type: Upper Tier **Status: Active** Positional Accuracy: Automatically positioned to the address	A14NW (E)	379	7	354770 181325
647	**Control of Major Accident Hazards Sites (COMAH)** Name: Transco Plc Location: Avonmouth LNG Plant, Severn Road, Hallen, BRISTOL, Avon, BS10 7SQ Reference: 1030098 Type: Upper Tier **Status: Active** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	494	7	354688 181643
648	**Control of Major Accident Hazards Sites (COMAH)** Name: Sevalco Ltd Location: Severn Road, Chittening, BRISTOL, BS11 0YU Reference: Not Supplied Type: Upper Tier **Status: Active** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	851	7	353442 181637
649	**Planning Hazardous Substance Consents** Name: Flogas Britain Ltd Location: Flogas Britain Ltd, Severn Road, Hallen, Bristol, South Gloucestershire, Bs10 7sq Authority: South Gloucestershire Council, Development Control: Planning Application Ref: PT16/1817/HS Hazardous Substance: Liquefied extremely flammable gas (including LPG) and natural gas (whether liquefied or not) Maximum Quantity: 44 Application date: 22nd April 2016 **Decision: Unknown at time of reportUnknown** Positional Accuracy: Manually positioned to the address or location	A14NW (E)	379	8	354770 181324
650	**Planning Hazardous Substance Consents** Name: Sevalco Ltd Location: Severn Road, Avonmouth, Bristol, Bs11 0yu Authority: Bristol City Council, Planning Department Application Ref: 08/03940/W Hazardous Substance: Combination of Dangerous Substances Maximum Quantity: 0 Application date: 10th September 2008 **Decision: Withdrawn** Positional Accuracy: Manually positioned to the address or location	A17SW (NW)	851	9	353443 181638

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Triassic Rocks (Undifferentiated)	A13NE (NE)	0	1	354315 181224
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: 1.8 - 2.2 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: 200 - 300 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (NE)	0	1	354315 181224
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: 2.2 - 3.0 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: 200 - 300 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (E)	99	1	354500 181224
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: 2.2 - 3.0 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: 300 - 600 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (S)	130	1	354315 181000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: 2.2 - 3.0 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: 200 - 300 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (N)	202	1	354315 181500
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: 300 - 600 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (W)	212	1	354000 181224
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: 3.0 - 6.0 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: 200 - 300 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (NE)	263	1	354500 181500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: 1.8 - 2.2 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: 300 - 600 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SW (SW)	341	1	354000 181000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: 2.2 - 3.0 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: 100 - 200 mg/kg Nickel Concentration: 15 - 30 mg/kg	A14NE (E)	599	1	355000 181224
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: 3.0 - 6.0 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: 300 - 600 mg/kg Nickel Concentration: 15 - 30 mg/kg	A8SE (S)	630	1	354315 180500
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: >6.0 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: 100 - 200 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18NE (N)	702	1	354315 182000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: 3.0 - 6.0 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: 100 - 200 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18NE (N)	728	1	354500 182000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: 2.2 - 3.0 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: 200 - 300 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18NW (N)	755	1	354000 182000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: 1.8 - 2.2 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: 200 - 300 mg/kg Nickel Concentration: 15 - 30 mg/kg	A9SE (SE)	888	1	355000 180500
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: 3.0 - 6.0 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 100 - 200 mg/kg Nickel Concentration: 15 - 30 mg/kg	A19NE (NE)	968	1	355000 182000
651	**BGS Recorded Mineral Sites** Site Name: Severn Valley Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 368 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Quaternary Geology: Tidal Flat Deposits Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	995	1	353850 182200
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	354315 181224
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	354315 181224
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	354315 181224
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	354315 181224
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	354315 181224
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	354315 181224
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	354315 181224

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Radon Potential - Radon Protection Measures Protection Measure: No 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	354315 181224

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
652	**Contemporary Trade Directory Entries** Name: Car & Truck (Bristol) Ltd Location: Unit A, Hallen Industrial Estate, Severn Road, Hallen, BS10 7SE Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	15	-	354413 181211
652	**Contemporary Trade Directory Entries** Name: Car & Truck Bristol Ltd Location: Unit A, Hallen Industrial Estate, Severn Road, Hallen, BS10 7SE Classification: Car Body Repairs **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (E)	15	-	354413 181211
652	**Contemporary Trade Directory Entries** Name: A C S Location: Western Contractors Estate, Severn Road, Hallen, Bristol, Avon, BS10 7SE Classification: Car Breakers & Dismantlers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	16	-	354417 181226
652	**Contemporary Trade Directory Entries** Name: P L M Transport Location: Western Contractors Estate, Severn Road, Hallen, Bristol, Avon, BS10 7SE Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	26	-	354417 181181
652	**Contemporary Trade Directory Entries** Name: Volksmania Location: Unit J/1, Hallen Industrial Estate, Severn Road, Hallen, Bristol, BS10 7SE Classification: Car Breakdown & Recovery Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (E)	34	-	354430 181202
652	**Contemporary Trade Directory Entries** Name: Hallen Plant Services Location: Unit 1, Hallen Industrial Estate, Severn Road, Hallen, Bristol, BS10 7SE Classification: Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	38	-	354436 181208
652	**Contemporary Trade Directory Entries** Name: P R D Partfinder.Co.Uk Location: Unit J2,Hallen Ind Est,Severn Rd, Hallen, Bristol, Avon, BS10 7SE Classification: Car Breakers & Dismantlers **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A13SE (E)	46	-	354439 181190
652	**Contemporary Trade Directory Entries** Name: Mercury Fuel Systems Location: Hallen Ind Est,Severn Rd, Hallen, Bristol, Avon, BS10 7SE Classification: Coal & Smokeless Fuel Merchants & Distributors **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A13SE (E)	47	-	354438 181180
652	**Contemporary Trade Directory Entries** Name: Algys Autos Location: Unit B2, Hallen Industrial Estate, Severn Road, Hallen, BS10 7SE Classification: Car Dealers - Used **Status: Active** Positional Accuracy: Manually positioned to the address or location	A13SE (SE)	63	-	354446 181149
652	**Contemporary Trade Directory Entries** Name: Algys Autos Ltd Location: Hallen Ind Est,Severn Rd, Hallen, Bristol, Avon, BS10 7SE Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A13SE (SE)	63	-	354446 181149
652	**Contemporary Trade Directory Entries** Name: Able Waste Management Ltd Location: Unit B3, Hallen Industrial Estate, Severn Road, Hallen, Bristol, BS10 7SE Classification: Waste Disposal Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	65	-	354446 181141
652	**Contemporary Trade Directory Entries** Name: Awesome Imports Location: Hallen Industrial Estate, Severn Road, Hallen, BRISTOL, BS10 7SE Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	70	-	354451 181141

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
653	**Contemporary Trade Directory Entries** Name: A & F Body Repairs Location: Western Contractors Estate, Severn Road, Hallen, Bristol, Avon, BS10 7SE Classification: Commercial Vehicle Bodybuilders & Repairers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	23	-	354399 181132
654	**Contemporary Trade Directory Entries** Name: Copart Location: Severn Road, Chittening, Bristol, BS11 0YL Classification: Salvage Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (NW)	468	-	353996 181688
655	**Contemporary Trade Directory Entries** Name: Bristol Trucking Co Ltd Location: Severn Rd, Hallen, Bristol, BS10 7RZ Classification: Transport Equipment - Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A9SW (SE)	794	-	354838 180486
656	**Contemporary Trade Directory Entries** Name: Sevalco Ltd Location: Severn Road, Chittening, Bristol, BS11 0YU Classification: Chemicals & Allied Products **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	851	-	353442 181637
657	**Contemporary Trade Directory Entries** Name: Andersons Waste Management Ltd Location: Aran Lodge, Severn Road, Hallen, Bristol, BS10 7RZ Classification: Waste Disposal Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	959	-	354924 180345
657	**Contemporary Trade Directory Entries** Name: X Sel Ltd Location: Severn Road, Hallen, Bristol, BS10 7RZ Classification: Radiographic Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	959	-	354924 180345
658	**Contemporary Trade Directory Entries** Name: Yusen Logistics (Uk) Ltd Location: The Link Building, Smoke Lane, Bristol, BS11 0YA Classification: Distribution Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SE (W)	966	-	353288 180989
658	**Contemporary Trade Directory Entries** Name: Malcolm Logistics Location: The Link Building, Smoke Lane, Bristol, BS11 0YA Classification: Road Haulage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A11SE (W)	966	-	353288 180989
659	**Contemporary Trade Directory Entries** Name: Hays Secure Destruction Location: Unit F,Chittening Ind Est, Chittening, Bristol, BS11 0YB Classification: Shredding Equipment & Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A11NE (W)	968	-	353244 181288
660	**Contemporary Trade Directory Entries** Name: N Y K Logistics (Uk) Ltd Location: The Link Building,Severn Rd, Chittening, Bristol, Avon, BS11 0YL Classification: Distribution Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A17NW (NW)	979	-	353456 181896
661	**Points of Interest - Commercial Services** Name: Car & Truck Bristol Ltd Location: Unit A Hallen Industrial Estate, Severn Road, Hallen, BS10 7SE Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13SE (E)	15	10	354413 181211
661	**Points of Interest - Commercial Services** Name: Hallen Import Specialists Ltd Location: Unit N/1 Hallen Industrial Estate, Severn Road, Hallen, Bristol, BS10 7SE Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13SE (SE)	22	10	354398 181132

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
661	**Points of Interest - Commercial Services** Name: Able Waste Management Location: Unit B/3 Hallen Industrial Estate, Severn Road, Hallen, Bristol, BS10 7SE Category: Recycling Services Class Code: Recycling, Reclamation and Disposal Positional Accuracy: Positioned to address or location	A13SE (E)	33	10	354424 181184
661	**Points of Interest - Commercial Services** Name: Volksmania Location: Unit J/1 Hallen Industrial Estate, Severn Road, Hallen, Bristol, BS10 7SE Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13SE (E)	34	10	354430 181201
662	**Points of Interest - Commercial Services** Name: Copart Ltd Location: Minors Farm, Ableton Lane, Hallen, Bristol, BS10 7SF Category: Recycling Services Class Code: Scrap Metal Merchants Positional Accuracy: Positioned to address or location	A18SE (N)	369	10	354339 181661
663	**Points of Interest - Commercial Services** Name: Copart Location: Severn Road, Chittening, Bristol, BS11 0YL Category: Recycling Services Class Code: Scrap Metal Merchants Positional Accuracy: Positioned to address or location	A18SW (NW)	467	10	353996 181688
663	**Points of Interest - Commercial Services** Name: Copart UK Ltd Location: Severn Road, Chittening, Bristol, BS11 0YL Category: Recycling Services Class Code: Scrap Metal Merchants Positional Accuracy: Positioned to address or location	A18SW (NW)	468	10	353996 181688
664	**Points of Interest - Commercial Services** Name: Expert Logistics Location: The Link Building, Smoke Lane, Bristol, BS11 0YA Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A11SE (W)	966	10	353288 180989
664	**Points of Interest - Commercial Services** Name: Malcolm Logistics Location: The Link Building, Smoke Lane, Bristol, BS11 0YA Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A11SE (W)	967	10	353288 180988
665	**Points of Interest - Manufacturing and Production** Name: Hallen Industrial Estate Location: BS10 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A13NE (E)	0	10	354362 181220
666	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS10 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A13NE (NE)	302	10	354586 181477
666	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS10 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A13NE (NE)	312	10	354592 181485
667	**Points of Interest - Manufacturing and Production** Name: Tanks Location: BS10 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A13NE (NE)	316	10	354607 181477
667	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS10 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A13NE (NE)	322	10	354606 181486

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
667	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS10 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A13NE (NE)	323	10	354610 181483
667	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS10 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A13NE (NE)	328	10	354610 181490
667	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS10 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A13NE (NE)	328	10	354613 181488
667	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS10 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A14NW (NE)	333	10	354669 181435
668	**Points of Interest - Manufacturing and Production** Name: K G Hardwick Location: Ableton Lane, Hallen, Bristol, BS10 7SF Category: Farming Class Code: Livestock Farming Positional Accuracy: Positioned to address or location	A18SE (N)	369	10	354339 181661
668	**Points of Interest - Manufacturing and Production** Name: Keith Gerald Hardwick Location: Minors Farm, Ableton Lane, Hallen, Bristol, BS10 7SF Category: Farming Class Code: Livestock Farming Positional Accuracy: Positioned to address or location	A18SE (N)	369	10	354339 181661
669	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS10 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A18SE (NE)	396	10	354631 181563
669	**Points of Interest - Manufacturing and Production** Name: Tanks Location: BS10 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A19SW (NE)	458	10	354692 181592
669	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS10 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A19SW (NE)	496	10	354690 181644
670	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A12NE (NW)	454	10	353808 181482
670	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A12NE (W)	458	10	353784 181438
670	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A12NE (NW)	496	10	353754 181465

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
670	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A12NE (NW)	506	10	353768 181516
670	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12NE (NW)	531	10	353724 181484
670	**Points of Interest - Manufacturing and Production** Name: Works Location: BS11 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12NE (NW)	537	10	353717 181482
670	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A12NE (NW)	559	10	353709 181518
670	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A12NE (NW)	597	10	353667 181517
671	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A12NE (NW)	457	10	353832 181527
672	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17SE (NW)	466	10	353894 181615
672	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17SE (NW)	478	10	353927 181657
673	**Points of Interest - Manufacturing and Production** Name: Gas Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A19SW (NE)	506	10	354648 181693
674	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17SE (NW)	554	10	353748 181576
675	**Points of Interest - Manufacturing and Production** Name: A M & C W Simmons Location: Severn Road, Hallen, Bristol, BS10 7SB Category: Farming Class Code: Livestock Farming Positional Accuracy: Positioned to address or location	A9NW (SE)	563	10	354791 180753
675	**Points of Interest - Manufacturing and Production** Name: Ashley M Simmons Location: Stowick Farm, Severn Road, Hallen, Bristol, BS10 7SB Category: Farming Class Code: Livestock Farming Positional Accuracy: Positioned to address or location	A9NW (SE)	563	10	354791 180753

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
676	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A17SE (NW)	693	10	353684 181722
676	**Points of Interest - Manufacturing and Production** Name: Tanks Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17SE (NW)	693	10	353684 181722
677	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A17SE (NW)	707	10	353756 181814
677	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17SE (NW)	729	10	353664 181754
677	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17SE (NW)	734	10	353711 181810
677	**Points of Interest - Manufacturing and Production** Name: Works Location: BS11 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17SE (NW)	737	10	353706 181809
677	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	790	10	353721 181893
678	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17SE (NW)	721	10	353796 181862
678	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17SE (NW)	728	10	353809 181880
679	**Points of Interest - Manufacturing and Production** Name: Tanks Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17SW (NW)	725	10	353621 181694
679	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A17SW (NW)	756	10	353595 181710
679	**Points of Interest - Manufacturing and Production** Name: Tanks Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17SW (NW)	770	10	353586 181723

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
679	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17SW (NW)	803	10	353559 181741
679	**Points of Interest - Manufacturing and Production** Name: Tanks Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17SW (NW)	807	10	353562 181753
679	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17SW (NW)	823	10	353542 181752
679	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A17SW (NW)	824	10	353534 181742
680	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17SW (NW)	727	10	353560 181595
680	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17SW (NW)	736	10	353562 181619
680	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A17SW (NW)	769	10	353563 181687
680	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17SW (NW)	811	10	353516 181690
680	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A17SW (NW)	813	10	353501 181669
681	**Points of Interest - Manufacturing and Production** Name: Simply Organic Location: Hallen Farm, Severn Road, Hallen, Bristol, BS10 7RZ Category: Farming Class Code: Livestock Farming Positional Accuracy: Positioned to address or location	A9SW (S)	818	10	354662 180364
681	**Points of Interest - Manufacturing and Production** Name: S R & C E Moorlen Location: Severn Road, Hallen, Bristol, BS10 7RZ Category: Farming Class Code: Livestock Farming Positional Accuracy: Positioned to address or location	A9SW (S)	818	10	354662 180364
682	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17SW (NW)	829	10	353469 181642

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
682	**Points of Interest - Manufacturing and Production** Name: Works Location: BS11 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17SW (NW)	830	10	353469 181643
683	**Points of Interest - Manufacturing and Production** Name: Tank Location: BS11 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17SW (W)	849	10	353413 181560
684	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17NW (NW)	857	10	353618 181891
685	**Points of Interest - Manufacturing and Production** Name: Castle Works Location: BS10 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A9SW (SE)	999	10	354955 180318
686	**Points of Interest - Public Infrastructure** Name: Euro Recycling Location: Unit N/1 Hallen Industrial Estate, Severn Road, Hallen, Bristol, BS10 7SE Category: Infrastructure and Facilities Class Code: Recycling Centres Positional Accuracy: Positioned to address or location	A13SE (SE)	22	10	354399 181132
686	**Points of Interest - Public Infrastructure** Name: Able Waste Management Ltd Location: Unit B/3 Hallen Industrial Estate, Severn Road, Hallen, Bristol, BS10 7SE Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A13SE (E)	33	10	354424 181183
686	**Points of Interest - Public Infrastructure** Name: Able Waste Management Ltd Location: Unit B/3 Hallen Industrial Estate, Severn Road, Hallen, Bristol, BS10 7SE Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A13SE (E)	33	10	354424 181184
687	**Points of Interest - Public Infrastructure** Name: Refuse Tip Location: BS10 Category: Infrastructure and Facilities Class Code: Refuse Disposal Facilities Positional Accuracy: Positioned to an adjacent address or location	A14SW (E)	574	10	354963 181108
688	**Points of Interest - Public Infrastructure** Name: Sluice Location: BS11 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A12NW (W)	607	10	353627 181438
689	**Points of Interest - Public Infrastructure** Name: Refuse Tip Location: BS10 Category: Infrastructure and Facilities Class Code: Refuse Disposal Facilities Positional Accuracy: Positioned to an adjacent address or location	A9NE (SE)	944	10	355241 180758
690	**Gas Pipelines** Name: FM14 - Pucklechurch to Seabank Nat Grid: Owned By National Grid Diameter (mm): 450 Building Proximity Distance (m): 39 Status: Active Pipe Length (m): 27674.6 Pipe Number: Feeder 14	A14NW (NE)	576	11	354900 181525

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
691	**Gas Pipelines** Name: SP - Pucklechurch to Seabank Nat Grid: Maintained For Third Party By National Grid Diameter (mm): 0 Building Proximity Distance (m): Not Supplied Status: Active Pipe Length (m): 27312.3 Pipe Number: Seabank Power	A19NW (NE)	770	11	354801 181909

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
692	**Areas of Adopted Green Belt** Authority: South Gloucestershire Council Plan Name: South Gloucestershire Council Local Plan **Status: Adopted** Plan Date: 31st January 2006	A14NW (E)	500	13	354901 181232

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Monmouthshire Council - Environment Department	January 2015	Annual Rolling Update
South Gloucestershire Council - Environmental Services Department	January 2015	Annual Rolling Update
Bristol City Council - Environmental Health Department	March 2014	Annual Rolling Update
North Somerset Council - Environmental Health Department	September 2014	Annual Rolling Update
Discharge Consents		
Environment Agency - Welsh Region	August 2014	Quarterly
Environment Agency - South West Region	July 2018	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - South West Region	March 2013	As notified
Environment Agency - Welsh Region	March 2013	As notified
Integrated Pollution Controls		
Environment Agency - South West Region	October 2008	Variable
Environment Agency - Welsh Region	October 2008	Variable
Integrated Pollution Prevention And Control		
Environment Agency - South West Region	July 2018	Quarterly
Environment Agency - Welsh Region	July 2018	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Bristol City Council - Environmental Health Department	February 2015	Variable
South Gloucestershire Council - Environmental Services Department	January 2015	Variable
Monmouthshire Council - Environmental Health Department	June 2014	Variable
North Somerset Council - Environmental Health Department	September 2013	Variable
Local Authority Pollution Prevention and Controls		
Bristol City Council - Environmental Health Department	February 2015	Annual Rolling Update
South Gloucestershire Council - Environmental Services Department	January 2015	Annual Rolling Update
Monmouthshire Council - Environmental Health Department	June 2014	Annual Rolling Update
North Somerset Council - Environmental Health Department	March 2015	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Bristol City Council - Environmental Health Department	February 2015	Variable
South Gloucestershire Council - Environmental Services Department	January 2015	Variable
Monmouthshire Council - Environmental Health Department	June 2014	Variable
North Somerset Council - Environmental Health Department	September 2013	Variable
Nearest Surface Water Feature		
Ordnance Survey	September 2017	
Pollution Incidents to Controlled Waters		
Environment Agency - Welsh Region	December 1998	Not Applicable
Environment Agency - South West Region	September 1999	Not Applicable
Prosecutions Relating to Authorised Processes		
Environment Agency - South West Region	March 2013	As notified
Environment Agency - Welsh Region	March 2013	As notified
Prosecutions Relating to Controlled Waters		
Environment Agency - South West Region	March 2013	As notified
Environment Agency - Welsh Region	March 2013	As notified
Registered Radioactive Substances		
Environment Agency - South West Region	January 2015	
Environment Agency - Welsh Region	January 2015	
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

Agency & Hydrological	Version	Update Cycle
Substantiated Pollution Incident Register		
Environment Agency - South West Region - North Wessex Area	July 2018	Quarterly
Environment Agency - South West Region - Wessex Area	July 2018	Quarterly
Environment Agency Wales - South East Area	July 2018	Quarterly
Water Abstractions		
Environment Agency - South West Region	July 2018	Quarterly
Environment Agency - Welsh Region	July 2018	Quarterly
Water Industry Act Referrals		
Environment Agency - South West Region	October 2017	Quarterly
Environment Agency - Welsh Region	October 2017	Quarterly
Groundwater Vulnerability		
Environment Agency - Head Office	April 2015	Not Applicable
Drift Deposits		
Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations		
British Geological Survey - National Geoscience Information Service	August 2015	As notified
Superficial Aquifer Designations		
British Geological Survey - National Geoscience Information Service	August 2015	As notified
Source Protection Zones		
Environment Agency - Head Office	January 2018	Quarterly
Extreme Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	May 2018	Quarterly
Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	May 2018	Quarterly
Areas Benefiting from Flood Defences		
Environment Agency - Head Office	May 2018	Quarterly
Flood Water Storage Areas		
Environment Agency - Head Office	May 2018	Quarterly
Flood Defences		
Environment Agency - Head Office	May 2018	Quarterly
OS Water Network Lines		
Ordnance Survey	May 2018	Quarterly
Surface Water 1 in 30 year Flood Extent		
Environment Agency - Head Office	October 2013	As notified
Surface Water 1 in 100 year Flood Extent		
Environment Agency - Head Office	October 2013	As notified
Surface Water 1 in 1000 year Flood Extent		
Environment Agency - Head Office	October 2013	As notified
Surface Water Suitability		
Environment Agency - Head Office	October 2013	As notified
BGS Groundwater Flooding Susceptibility		
British Geological Survey - National Geoscience Information Service	May 2013	As notified

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	April 2018	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - South West Region	October 2008	Not Applicable
Environment Agency - Welsh Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - South West Region - North Wessex Area	April 2018	Quarterly
Environment Agency - South West Region - Wessex Area	April 2018	Quarterly
Environment Agency Wales - South East Area	April 2018	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - South West Region - North Wessex Area	July 2018	Quarterly
Environment Agency - South West Region - Wessex Area	July 2018	Quarterly
Environment Agency Wales - South East Area	July 2018	Quarterly
Local Authority Landfill Coverage		
Bristol City Council	May 2000	Not Applicable
Monmouthshire Council - Environment	May 2000	Not Applicable
North Somerset Council	May 2000	Not Applicable
South Gloucestershire Council - Environmental Services Department	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
Bristol City Council	May 2000	Not Applicable
Monmouthshire Council - Environment	May 2000	Not Applicable
North Somerset Council	May 2000	Not Applicable
South Gloucestershire Council - Environmental Services Department	May 2000	Not Applicable
Potentially Infilled Land (Non-Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Registered Landfill Sites		
Environment Agency - South West Region - North Wessex Area	March 2003	Not Applicable
Environment Agency - South West Region - Wessex Area	March 2003	Not Applicable
Environment Agency Wales - South East Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - South West Region - North Wessex Area	March 2003	Not Applicable
Environment Agency - South West Region - Wessex Area	March 2003	Not Applicable
Environment Agency Wales - South East Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency - South West Region - North Wessex Area	March 2003	Not Applicable
Environment Agency - South West Region - Wessex Area	March 2003	Not Applicable
Environment Agency Wales - South East 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	Variable
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
Bristol City Council - Planning Department	April 2015	Variable
Monmouthshire Council - Environment	February 2016	Variable
North Somerset Council	February 2016	Variable
South Gloucestershire Council - Development Control: Planning	May 2016	Variable
Planning Hazardous Substance Consents		
Bristol City Council - Planning Department	April 2015	Variable
Monmouthshire Council - Environment	February 2016	Variable
North Somerset Council	February 2016	Variable
South Gloucestershire Council - Development Control: Planning	May 2016	Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology		
British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Estimated Soil Chemistry		
British Geological Survey - National Geoscience Information Service	October 2015	As notified
BGS Recorded Mineral Sites		
British Geological Survey - National Geoscience Information Service	May 2018	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	As notified
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	June 2015	As notified
Potential for Compressible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	As notified
Potential for Ground Dissolution Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	As notified
Potential for Landslide Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	As notified
Potential for Running Sand Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	As notified
Radon Potential - Radon Affected Areas		
British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures		
British Geological Survey - National Geoscience Information Service	July 2011	As notified

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	May 2018	Quarterly
Fuel Station Entries Catalist Ltd - Experian	August 2018	Quarterly
Gas Pipelines National Grid	July 2014	
Points of Interest - Commercial Services PointX	June 2018	Quarterly
Points of Interest - Education and Health PointX	June 2018	Quarterly
Points of Interest - Manufacturing and Production PointX	June 2018	Quarterly
Points of Interest - Public Infrastructure PointX	June 2018	Quarterly
Points of Interest - Recreational and Environmental PointX	June 2018	Quarterly
Underground Electrical Cables National Grid	December 2015	

Sensitive Land Use	Version	Update Cycle
Ancient Woodland		
Natural England	August 2018	Bi-Annually
Areas of Adopted Green Belt		
Bristol City Council	February 2018	As notified
Monmouthshire Council	February 2018	As notified
North Somerset Council	February 2018	As notified
South Gloucestershire Council	February 2018	As notified
Areas of Unadopted Green Belt		
Bristol City Council	February 2018	As notified
Monmouthshire Council	February 2018	As notified
North Somerset Council	February 2018	As notified
South Gloucestershire Council	February 2018	As notified
Areas of Outstanding Natural Beauty		
Natural England	August 2018	Bi-Annually
Environmentally Sensitive Areas		
Natural England	January 2017	
Forest Parks		
Forestry Commission	April 1997	Not Applicable
Local Nature Reserves		
Monmouthshire Council	August 2018	Bi-Annually
Natural England	August 2018	Bi-Annually
Marine Nature Reserves		
Natural England	January 2018	Bi-Annually
National Nature Reserves		
Natural England	August 2018	Bi-Annually
National Parks		
Natural England	April 2017	Bi-Annually
Nitrate Vulnerable Zones		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	October 2015	
Ramsar Sites		
Natural England	August 2018	Bi-Annually
Natural Resources Wales	February 2018	Bi-Annually
Sites of Special Scientific Interest		
Natural England	February 2018	Bi-Annually
Special Areas of Conservation		
Natural England	August 2018	Bi-Annually
Natural Resources Wales	August 2018	Bi-Annually
Special Protection Areas		
Natural England	August 2018	Bi-Annually
Natural Resources Wales	August 2018	Bi-Annually

Data Suppliers

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Peter Brett Associates	

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	**Bristol City Council - Environmental Health Department** Brunel House, St Georges Road, Bristol, Avon, BS1 5UY	Telephone: 0117 922 2500
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	**South Gloucestershire Council - Environmental Services Department** Council Offices, Castle Street, Thornbury, Gloucestershire, BS35 1HF	Telephone: 01454 863485 Fax: 01454 863642 Website: www.southglos.gov.uk
6	**Bristol City Council** The Council House, College Green, Bristol, Avon, BS1 5TR	Telephone: 0117 922 2000 Fax: 0117 922 3886 Website: www.bristol-city.gov.uk
7	**Health and Safety Executive** 5S.2 Redgrave Court, Merton Road, Bootle, L20 7HS	Website: www.hse.gov.uk
8	**South Gloucestershire Council - Development Control: Planning** Council Offices, Castle Street, Thornbury, Gloucestershire, BS35 1HF	Telephone: 01454 868686 Fax: 01454 863067 Website: www.southglos.gov.uk
9	**Bristol City Council - Planning Department** Brunel House, St Georges Road, Bristol, Avon, BS1 5UY	Telephone: 0117 922 2000 Fax: 0117 922 3861
10	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
11	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9966 Fax: 0844 844 9951 Email: helpdesk@landmark.co.uk Website: www.landmark.co.uk
12	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
13	**South Gloucestershire Council** Council Offices, Castle Street, Thornbury, Bristol, Gloucestershire, BS12 1HF	Telephone: 01454 868686 Fax: 01454 419754 Website: www.southglos.gov.uk
14	**Natural Resources Wales** Ty Cambria, 29 Newport Road, Cardiff, CF24 0TP	Telephone: 0300 065 3000 Email: enquiries@naturalresourceswales.gov.uk
15	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
-	**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

Useful Contacts

Contact	Name and Address	Contact Details
-	**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.

Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WMGR	Infilled Ground	Artificial Deposit	Not Supplied - Holocene
	MGR	Made Ground (Undivided)	Artificial Deposit	Not Supplied - Holocene
	WGR	Worked Ground (Undivided)	Void	Not Supplied - Holocene

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	TFD	Tidal Flat Deposits	Clay and Silt	Not Supplied - Holocene
	TFD	Tidal Flat Deposits	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	HEAD	Head	Clay, Silt, Sand and Gravel	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WBCT	Westbury Formation and Cotham Member (Undifferentiated)	Mudstone and Limestone, Interbedded	Not Supplied - Rhaetian
	WCT	Wilmcote Limestone Member	Limestone and Mudstone, Interbedded	Not Supplied - Rhaetian
	BAN	Blue Anchor Formation	Mudstone	Not Supplied - Norian
	MMG	Mercia Mudstone Group	Mudstone and Halite-stone	Not Supplied - Early Triassic
	MMG	Mercia Mudstone Group	Mudstone	Not Supplied - Early Triassic
	MMMF	Mercia Mudstone Group (Marginal Facies)	Conglomerate	Not Supplied - Triassic

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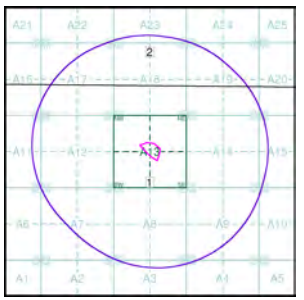
Geology 1:50,000 Maps

This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.
The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	1	**Map ID:**	2
Map Sheet No:	264	**Map Sheet No:**	250
Map Name:	Bristol	**Map Name:**	Chepstow
Map Date:	2004	**Map Date:**	1981
Bedrock Geology:	Available	**Bedrock Geology:**	Available
Superficial Geology:	Available	**Superficial Geology:**	Available
Artificial Geology:	Available	**Artificial Geology:**	Not Available
Faults:	Not Supplied	**Faults:**	Not Supplied
Landslip:	Available	**Landslip:**	Available
Rock Segments:	Not Supplied	**Rock Segments:**	Not Supplied

Geology 1:50,000 Maps - Slice A

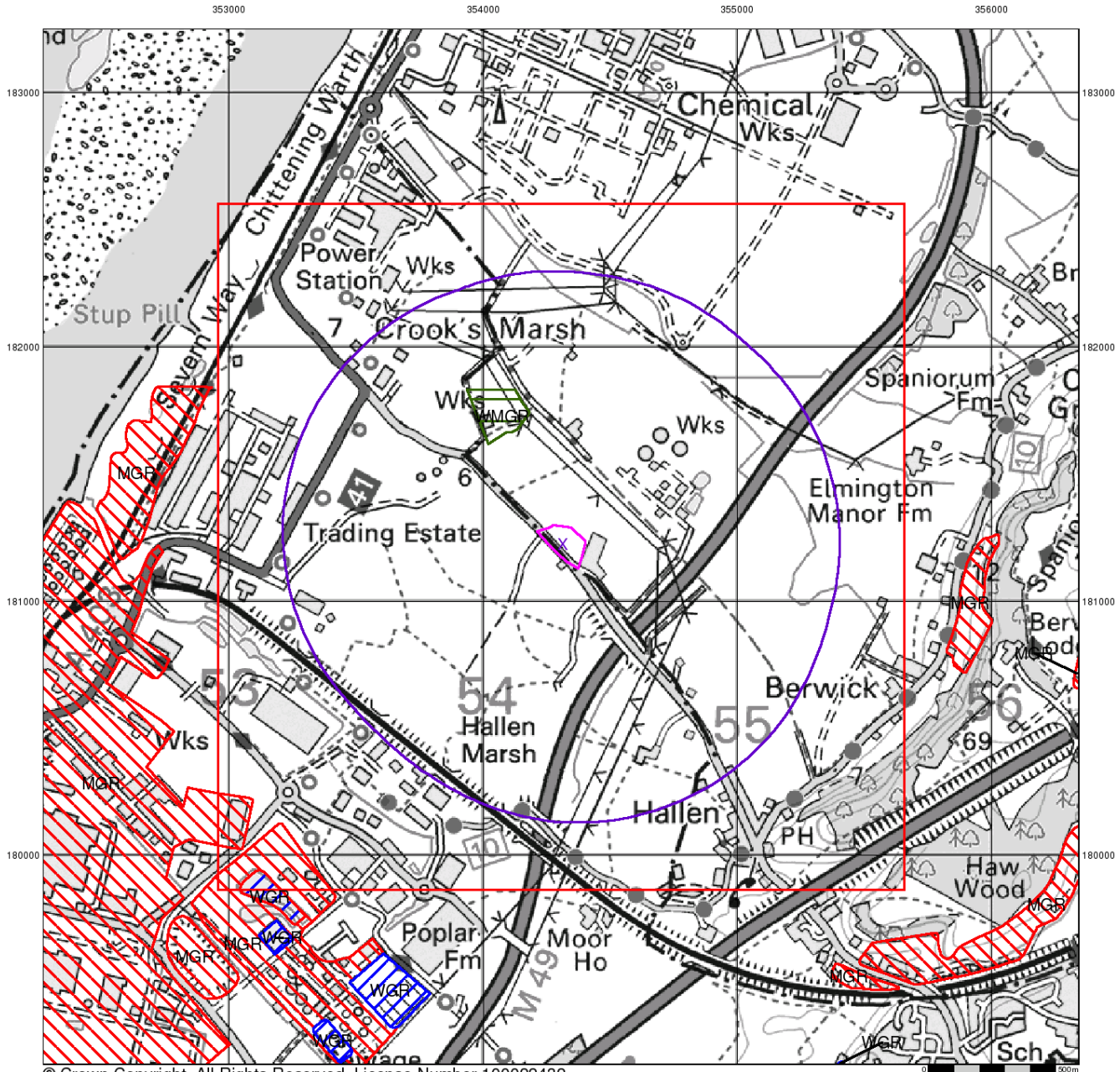


Order Details:

Order Number:	177910072_1_1
Customer Reference:	DAP/27541
National Grid Reference:	354320, 181220
Slice:	A
Site Area (Ha):	1.75
Search Buffer (m):	1000

Site Details:

Severn Road, Hallen, BRISTOL, BS10 7SE



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Artificial Ground and Landslip

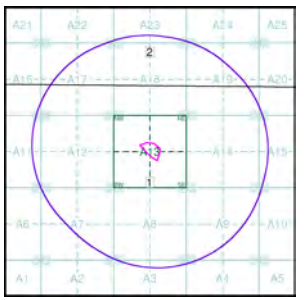
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



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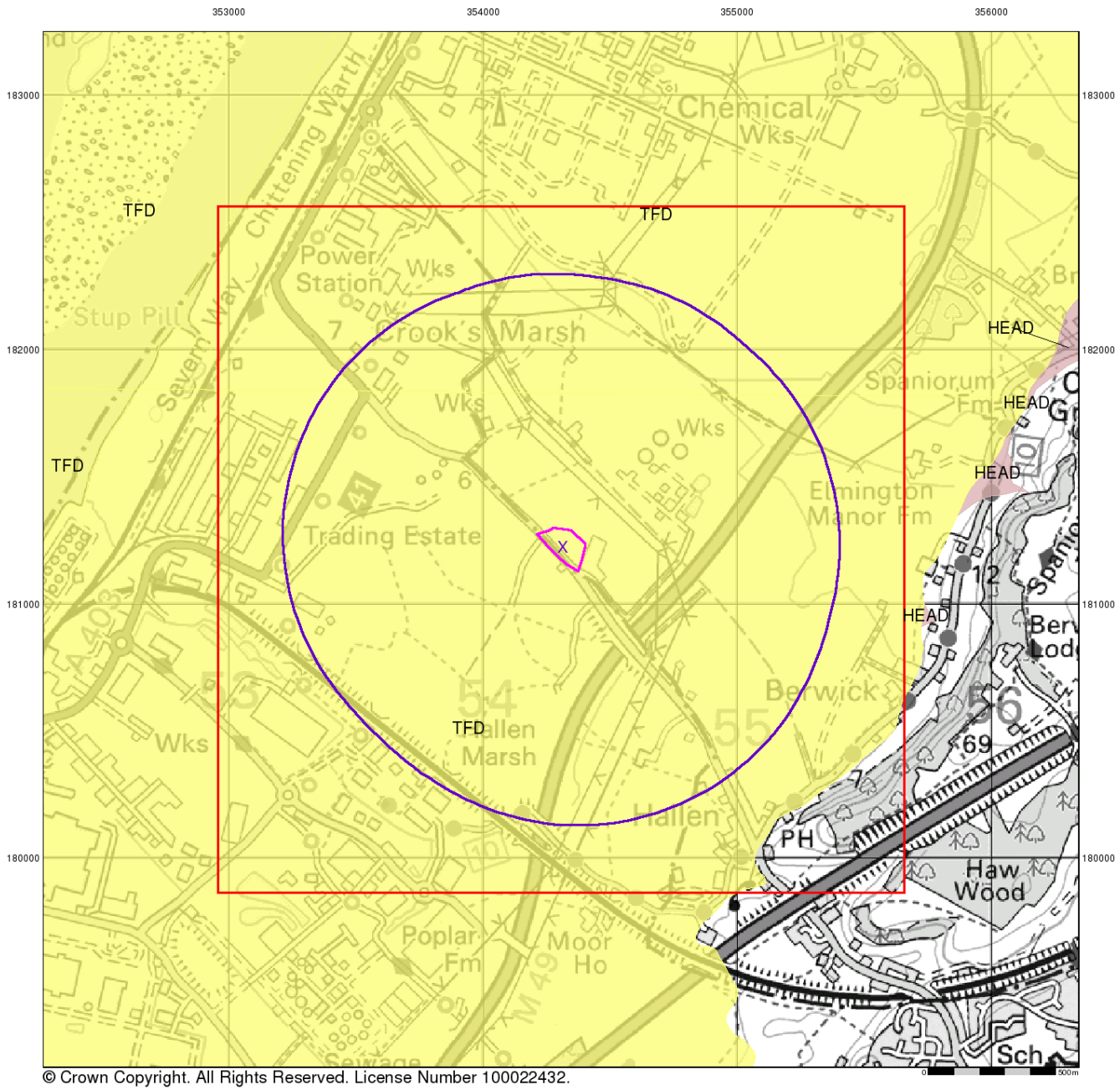
Site Details:

Severn Road, Hallen, BRISTOL, BS10 7SE

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



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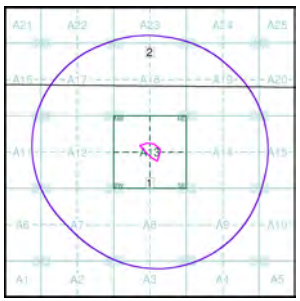
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



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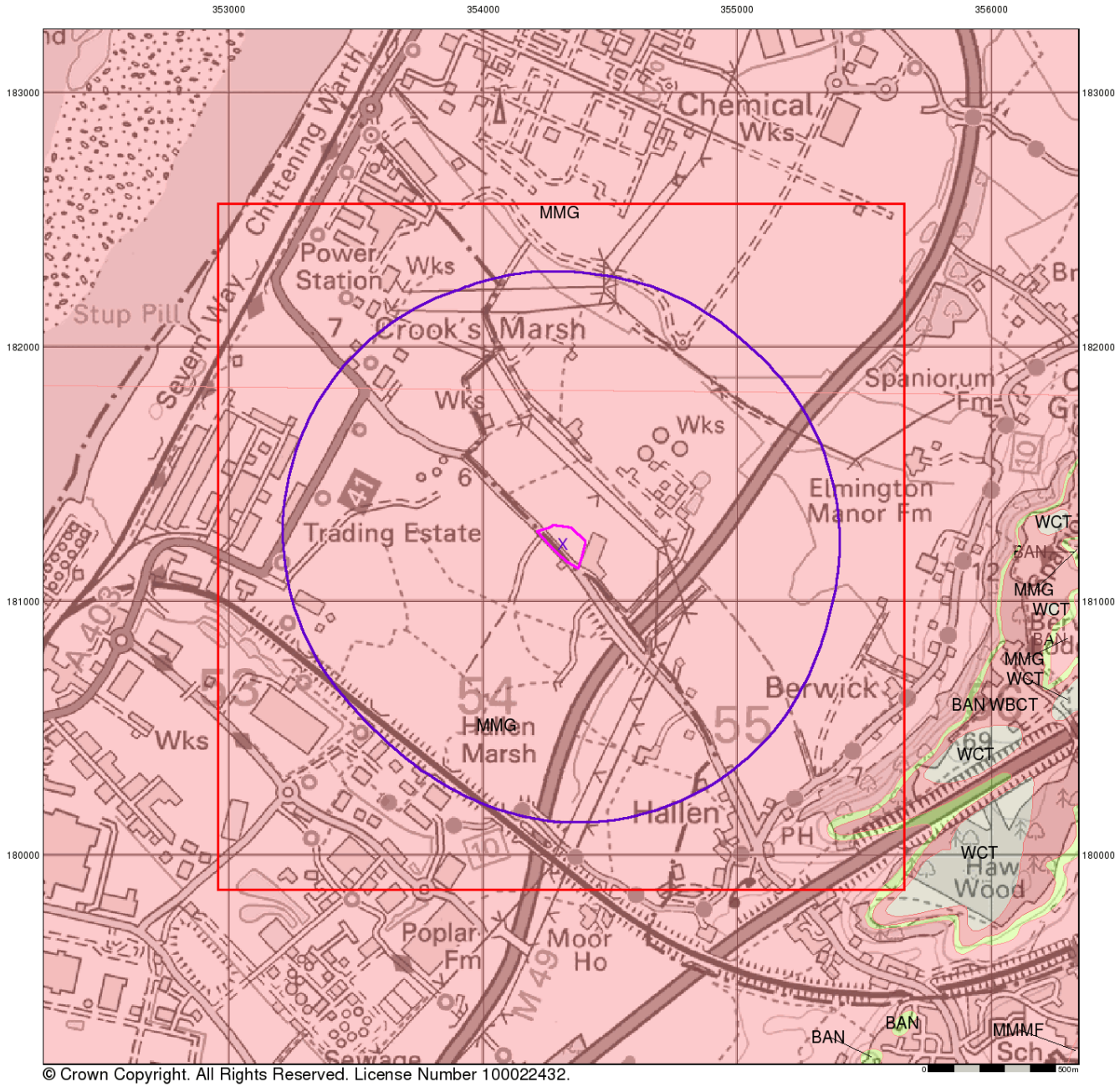


Bedrock and Faults

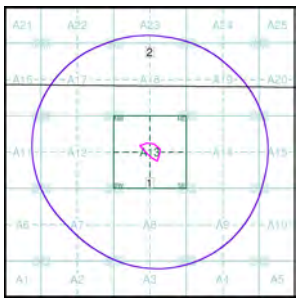
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



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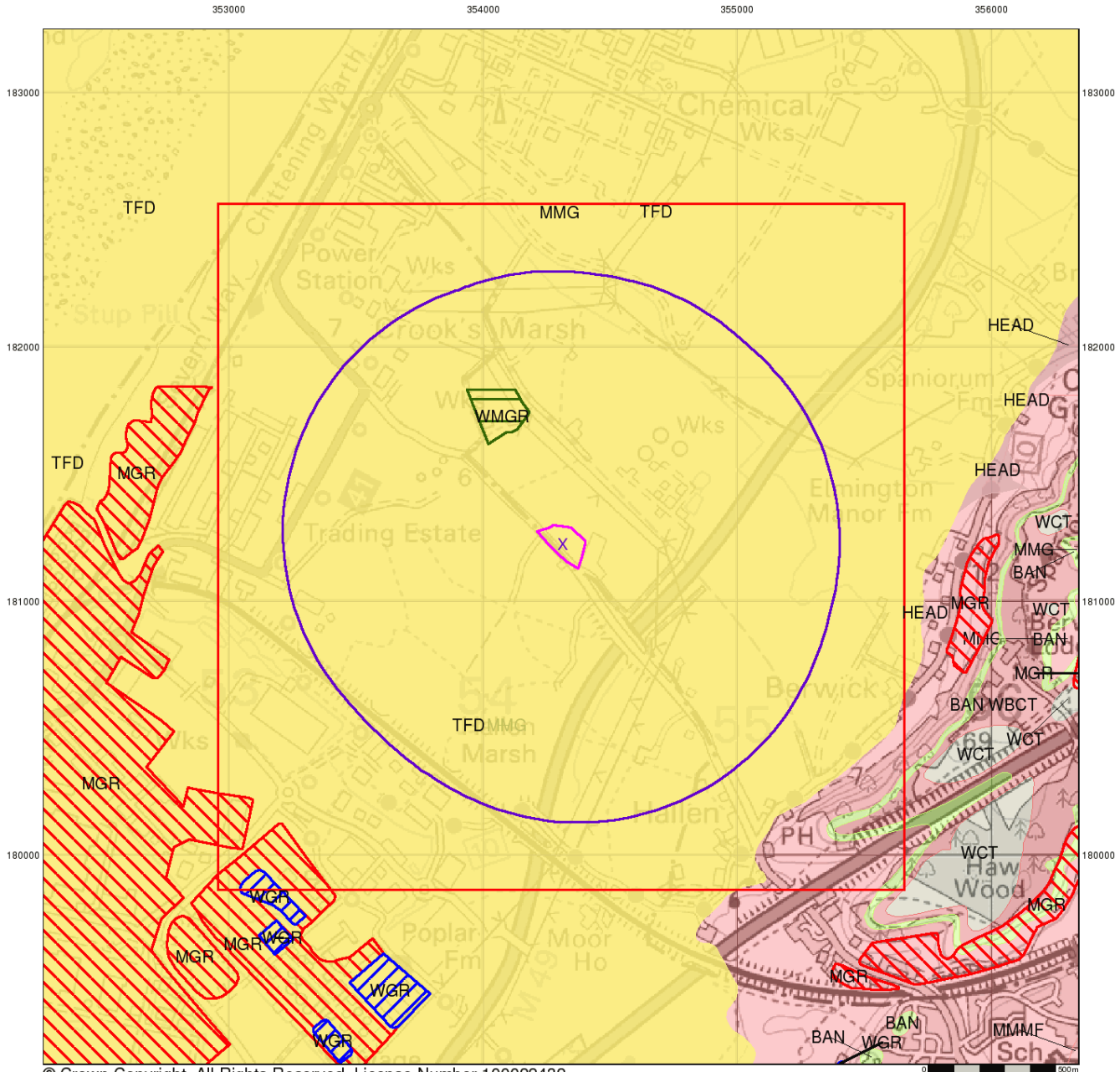

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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

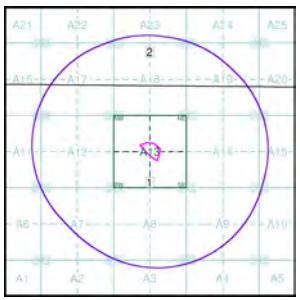
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



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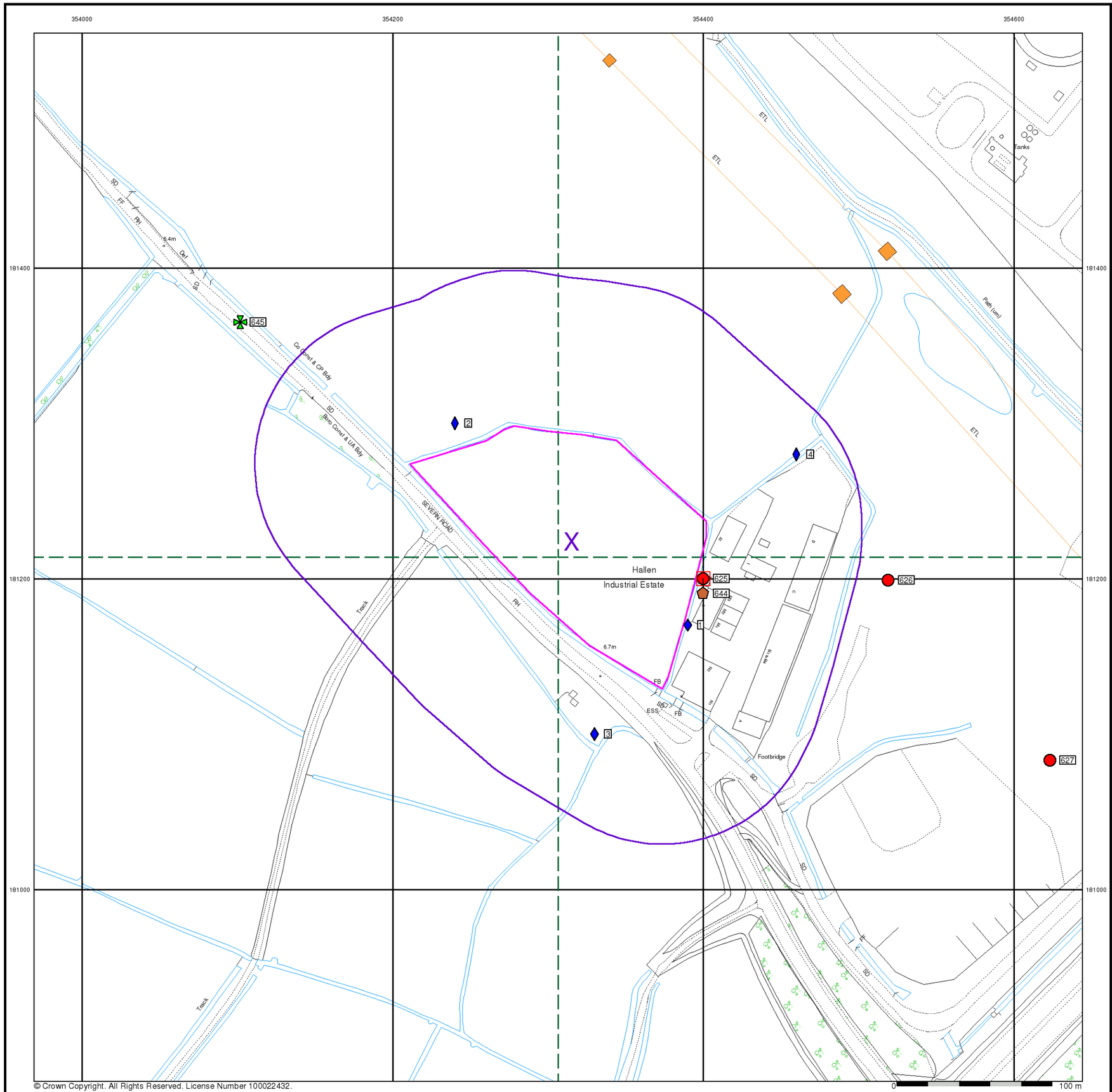
Site Area (Ha):	1.75
Search Buffer (m):	1000

Site Details:

Severn Road, Hallen, BRISTOL, BS10 7SE



GIP Ltd.
Ground Investigation & Piling Limited

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Map ID
Several of Type at Location | Pylon | Overhead Transmission Line

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

Hazardous Substances

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

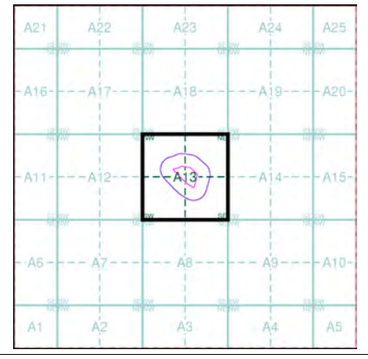
Geological

- BGS Recorded Mineral Site

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
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- 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

Site Sensitivity Map - Segment A13



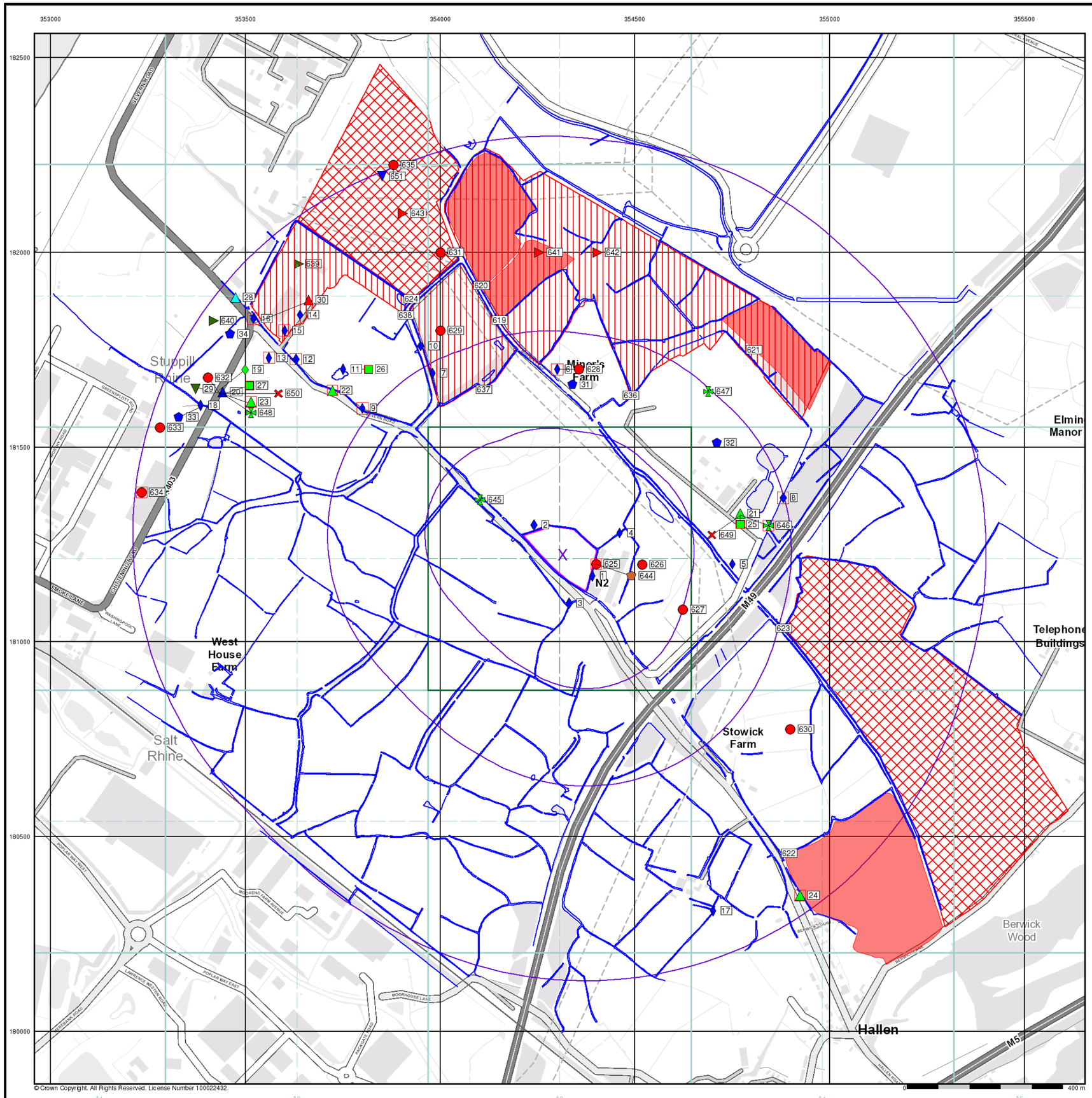
Order Details

Order Number:	177910072_1_1
Customer Ref:	DAP/27541
National Grid Reference:	354320, 181220
Slice:	A
Site Area (Ha):	1.75
Plot Buffer (m):	100

Site Details

Severn Road, Hallen, BRISTOL, BS10 7SE

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



0 400 m

GIP Ltd.
Ground Investigation & Piling Limited

General

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

Agency and Hydrological

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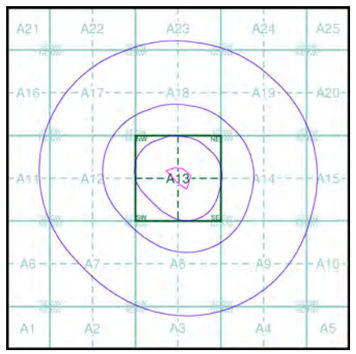
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Slice A



Order Details

Order Number:	177910072_1_1
Customer Ref:	DAP/27541
National Grid Reference:	354320, 181220
Slice:	A
Site Area (Ha):	1.75
Search Buffer (m):	1000

Site Details

Severn Road, Hallen, BRISTOL, BS10 7SE

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