

Gedney, Oliver

From: Grant, David
Sent: 15 December 2020 13:58
To: _planningadvice
Subject: FW: FW: 36-38 Holbeach Road H16-0900-20
Attachments: We sent you safe versions of your files; ES Holbeach Phase 1_Issue (1).pdf

Please add this email and attachment to the file under 6SUP – Phase 1 Report.

Many thanks,

David Grant | Senior Planning Officer | **South Holland District Council**

Direct Dial: 01775 764472

www.sholland.gov.uk

Please note that any informal officer opinion expressed by this email is without prejudice and is not binding on the Council during the consideration of any formal application.

From: Ryan & Steve Directors <scottparkdevelopmentsltd@gmail.com>
Sent: 14 December 2020 20:31
To: Grant, David <dgrant@sholland.gov.uk>
Cc: sapconstruct@yahoo.com
Subject: Re: FW: 36-38 Holbeach Road H16-0900-20

Mimecast Attachment Protection has deemed this file to be safe, but always exercise caution when opening files.

This message originated from outside your organization

Evening David,

Please see attached. As can be seen, the Phase 1 report calls for the need for further testing, which is in turn covered by our Phase 2 report and subsequent testing. All findings were to acceptable standards, however the site has still been capped some 500T additional clean soil to form correct levels.

With regards to the submissions for the condition sign off, can we still expect things to be confirmed this week? We are in deep conversation with LCC over the final condition, so we hope to have all this wrapped up quickly and not run on too long and into the new year, for everyone's interest.

Please don't hesitate to contact us should you need any further information or have any questions,

Kind regards,

Ryan Scott Bsc (Hons)

Director

07934 593431

01775 248150

For and on behalf of **Scott Park Developments Ltd**

On Mon, Dec 14, 2020 at 1:46 PM Grant, David <dgrant@sholland.gov.uk> wrote:

Dear Mr Scott,

Please see an email from the Environmental Protection Officer which requires your attention.

Yours sincerely,

David Grant | Senior Planning Officer | **South Holland District Council**
Direct Dial: 01775 764472
www.sholland.gov.uk

Please note that any informal officer opinion expressed by this email is without prejudice and is not binding on the Council during the consideration of any formal application.

From: Armour, Susan <Susan.Armour@breckland-sholland.gov.uk>
Sent: 14 December 2020 11:52
To: Grant, David <dgrant@sholland.gov.uk>
Subject: RE: 36-38 Holbeach Road H16-0900-20

Dear David,

Sorry, I had missed that you had replied. That consultation contains the site investigation, which in turn refers to the Phase 1 report, which we don't have. I need to see the phase 1 before I can review the site investigation.

Thanks,

Sue

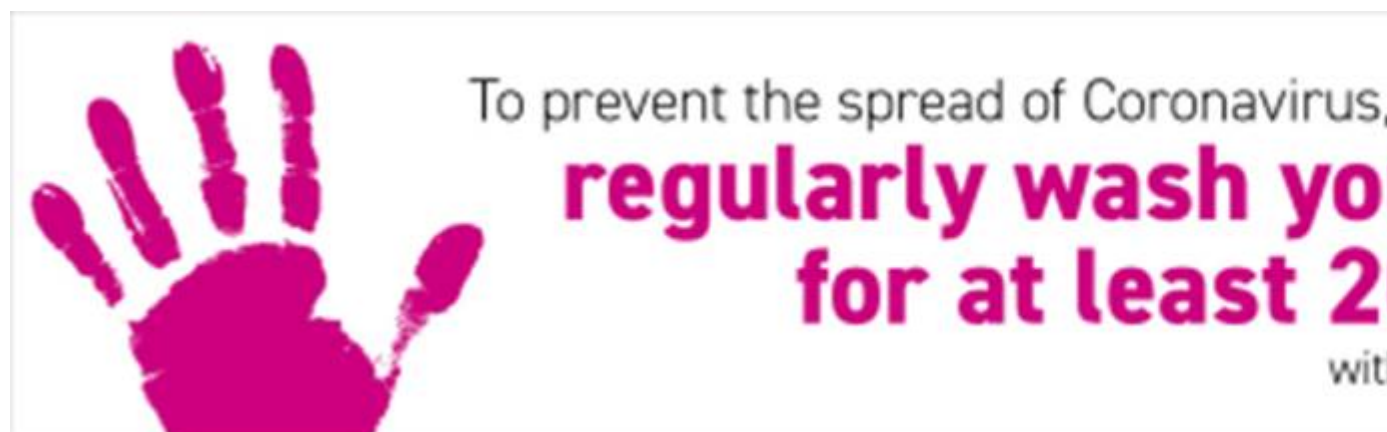
Sue Armour | Environmental Protection Officer | **South Holland District Council**

Telephone : 01775 764738

www.sholland.gov.uk

Please note my current working days are Monday to Thursday termtime, Monday and one other day in school holidays.

I will be on annual leave from Thursday 17th December until Monday 4th January.



From: Grant, David [<mailto:dgrant@sholland.gov.uk>]
Sent: 14 December 2020 11:20
To: Armour, Susan <Susan.Armour@breckland-sholland.gov.uk>
Subject: FW: 36-38 Holbeach Road H16-0900-20

Dear Sue,

Can you please send me your consultation response at your earliest convenience.

Many thanks,

David Grant | Senior Planning Officer | **South Holland District Council**

Direct Dial: 01775 764472

www.sholland.gov.uk

Please note that any informal officer opinion expressed by this email is without prejudice and is not binding on the Council during the consideration of any formal application.

From: Grant, David

Sent: 10 November 2020 10:35

To: Gedney, David <DGedney@sholland.gov.uk>; Armour, Susan (SHBK) <Susan.Armour@breckland-sholland.gov.uk>

Subject: RE: 36-38 Holbeach Road H16-0900-20

Dear Sue,

Wrong David! pollution@sholland.gov.uk was sent an email on 15 October for consultation. Many thanks.

Kind regards,

David Grant | Senior Planning Officer | **South Holland District Council**

Direct Dial: 01775 764472

www.sholland.gov.uk

Please note that any informal officer opinion expressed by this email is without prejudice and is not binding on the Council during the consideration of any formal application.

From: Gedney, David <DGedney@sholland.gov.uk>

Sent: 10 November 2020 10:21

To: Grant, David <dgrant@sholland.gov.uk>

Subject: FW: H16-0900-20

Morning Dave,

This appears to be one of yours (see below).

Regards

David Gedney | Senior Planning Officer | **South Holland District Council**

dgedney@sholland.gov.uk

DDI: 01775 764468 |

www.sholland.gov.uk

Please note that any informal officer opinion expressed by this email is without prejudice and is not binding on the Council during the consideration of any formal application.



From: Armour, Susan <Susan.Armour@breckland-sholland.gov.uk>

Sent: 09 November 2020 11:50

To: Gedney, David <DGedney@sholland.gov.uk>

Subject: H16-0900-20

Good morning David,

The report mentions a desk study/ phase 1 report, I cannot find any records that we have been consulted on it, please could you look your end and get back to me ?

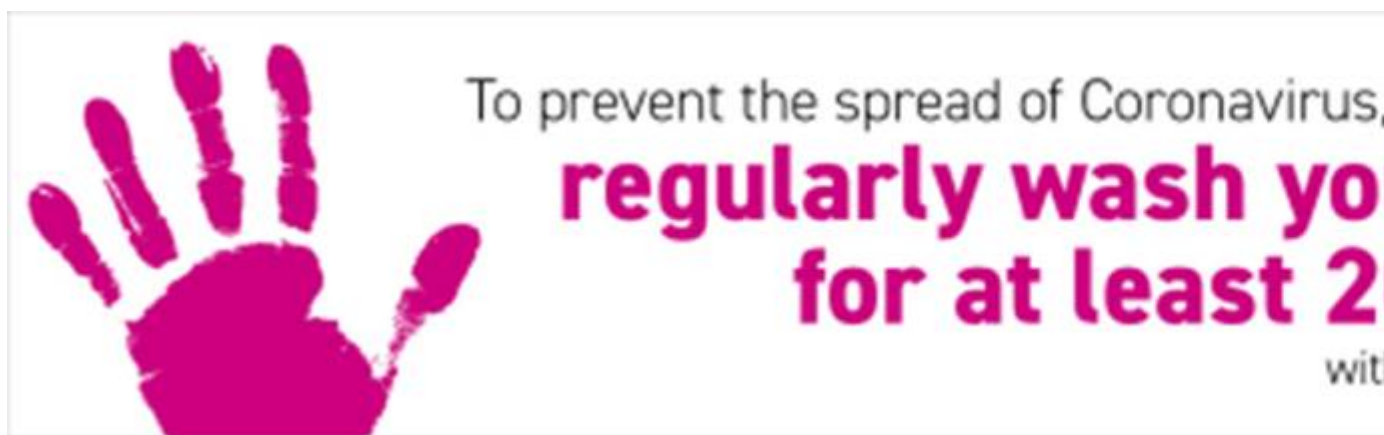
Many thanks,

Sue

Telephone : 01775 764738

www.sholland.gov.uk

Please note my current working days are Tuesday to Friday termtime, Monday and one other day in school holidays.



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**PHASE 1 ENVIRONMENTAL SITE
ASSESSMENT REPORT**

**36/38 HOLBEACH ROAD,
SPALDING,
PE11 2HQ**

Prepared for:

R Longstaff & Co

By:

ENVIROSOLUTION LTD

The Quay Suite 5

No. 12 Princess Docks

Liverpool Waters

Liverpool

L3 1DL

Date: 1st March 2019



EnviroSolution Ltd Document Verification

Site Address	36/38 Holbeach Road, Spalding, PE11 2HQ		
Report Title	Phase 1 Environmental Site Assessment Report		
Job Number	CL101	Document Ref.	CL101
Date Issued	1 st March 2019	Report Version	1
Prepared by	James McKinstry-West	Signature	J. Mc-West
Checked by	Tom Craig	Signature	



Executive Summary

The preliminary environmental site assessment indicates that the site can be classified as moderate risk in terms of contamination and the risks to the identified receptors (e.g. human health, controlled waters, buildings) following redevelopment is considered to be moderate.

This classification is predominantly due to the historical on-site engineering works and the presence of a historical smithy adjacent to the site. Therefore, there is the potential for contamination to be present in the ground beneath the site associated with these activities. If the contaminants are present within the shallow soils, they would be a risk to several sensitive receptors including future site users and the nearby River Welland.

It is recommended that a Phase 2 intrusive ground investigation is undertaken prior to site redevelopment to obtain additional information on the ground conditions and the contamination status. The investigation should be carried out by qualified and competent persons. The scope of works for the investigation will need to be submitted and approved by the local authority prior to the commencement of the Phase 2 intrusive works.

As the site is located within a Flood Zone 3 area, a flood risk assessment is required for development.

Disclaimer

This report has been prepared by EnviroSolution Ltd who has exercised such professional skill, care and diligence as may reasonably be expected of a properly qualified and competent consultant experienced in preparing reports of a similar scope.

However, to the extent that the report is based on or relies upon information contained in records, reports or other materials provided to EnviroSolution Ltd, which have not been independently produced or verified, EnviroSolution Ltd, gives no warranty, representation or assurance as to the accuracy or completeness of such information.

Table of Contents

1	Introduction	5
1.1	Background	5
1.2	Objectives	5
1.3	Scope of Work.....	5
1.4	Information Sources.....	5
2	The Site	7
2.1	Site Location.....	7
2.2	Site Description	7
2.3	Development Proposals	7
2.4	Site History.....	8
3	Environmental Setting	9
3.1	Geology.....	9
3.2	Radon.....	9
3.3	Coal Mining Activity	9
3.4	Hydrogeology.....	9
3.5	Hydrology.....	9
3.6	Flood Risk.....	10
3.7	Background Soil Chemistry.....	10
3.8	Waste Management Facilities	10
3.9	Environmental Permits, Incidents and Registers	10
3.10	Designated Environmentally Sensitive Sites.....	11
4	Preliminary Conceptual Site Model	12
4.1	Introduction	12
4.2	UK Assessment Framework.....	12
4.3	Potential Contamination Sources.....	13
4.4	Receptors	13
4.5	Pathways.....	13
4.6	Potential Pollution Linkages.....	14
4.6.1	Human Health	14
4.6.2	Controlled Waters	14
4.6.3	Building/ Construction Materials/ Buried Services	15
4.7	Preliminary Hazard Assessment	15
5	Conclusions and Recommendations	18

Appendices

- Appendix A – Site Plans
- Appendix B – Site Photographs
- Appendix C – Historical OS Maps
- Appendix D – Geological Maps
- Appendix E – Hydrogeology Maps
- Appendix F – Historic Landfill Map
- Appendix G – Environmental Designations

1 Introduction

1.1 Background

EnviroSolution Ltd was commissioned to undertake a Phase 1 Environmental Site Assessment at a site located at 36/28 Holbeach Road in Spalding, Lincolnshire. This report was completed to support the planning application for the construction of a new residential development.

1.2 Objectives

The objective of the preliminary environmental site assessment was:

1. To provide a summary of the environmental setting and historical land use of the site and immediate surrounding area.
2. To obtain information on the ground conditions present beneath the site.
3. To develop a preliminary conceptual site model and complete a generic quantitative risk assessment to identify any environmental risks and liabilities associated with ground conditions at the site.

1.3 Scope of Work

To achieve the objectives, the following scope of work was completed:

1. A desk-based study of the site comprising a review of available environmental information for the site such as geological and hydrogeological data and historical land use information.
2. A site walkover survey to assess on-site ground conditions, vegetation and signs of previous contamination.
3. Assessment of potential hazards and constraints during construction and longer term.

The scope of work was developed in accordance with the Environment Agency of England and Wales and Department for Environment Food and Rural Affairs (DEFRA) document 'Model Procedures for the Management of Land Contamination' Contaminated Land Report (CLR) 11, dated 2004 and BS10175:2011+A1:2013 'Investigation of Potentially Contaminated Sites – Code of Practice'.

1.4 Information Sources

Historical Ordnance Survey maps have been obtained from historical records, ranging from 1889 to 2019. These maps provide high quality information on historical site use.

The British Geological Survey Geoindex database has been used to provide information on geo-environmental aspects of the site and the immediate surrounding area such as geological, hydrogeological and hydrological data.

The Environment Agency website (www.gov.uk/government/organisations/environment-agency) and Magic website (www.magic.gov.uk) was also used to obtain environmental information.

Industry Profiles produced by the Department of the Environment were utilised to obtain information on processes, materials and wastes associated potential contaminative land uses near the site.

2 The Site

2.1 Site Location

The site is located 36/38 Holbeach Road, Spalding, PE11 2HQ. The British National Grid Reference for the approximate site centre is GR: 525632 323649.

The site location is shown on **Figure 1** in **Appendix A**.

2.2 Site Description

The site description is aided by the completion of a site walkover survey conducted by EnviroSolution on 27th February 2019. The site photographs are included in **Appendix B**.

The site is rectangular in shape and has an approximate area of 470 square meters. The site is currently occupied by two disused engineering workshop buildings towards the north and a derelict Workman's Institute building on the southern part of the plot.

A small concreted yard area is present to the west of the workshop buildings, behind the site gates located on Holbeach Road. The Workman's Institute building directly fronts Holbeach Road.

The site is bounded by residential properties to the northeast and southwest. Southeast, bounding the rear of the site are residential gardens beyond which lie further residential properties along Harveys Close. To the west of the site across Holbeach Road (A151) lies the River Welland. Further west again, across the river, is a large food manufacturing site approximately 100m from the site and is part of a wider industrial estate.

The immediate surrounding land use is predominantly residential. A motor repair garage with associated car wash is located 70m south of the site and a garden machinery warehouse 70m north.

There are no petrol filling stations located within a 250m radius of the site.

The existing site plan is shown on **Figure 2** which is included in **Appendix A**.

2.3 Development Proposals

It is understood that the development proposal comprises the construction of 6 no. two-storey residential properties.

The development proposal is shown in **Figure 3** in **Appendix A**.

2.4 Site History

The development site and surrounding area has been reviewed with reference to historical Ordnance Survey (OS) maps. The history of the site and immediate surrounding area is summarised in Table 1. Copies of the historical OS maps are included in **Appendix C**. A search buffer of 250m has been used.

Table 1 - Historic Mapping Review

Date	Scale	On Site	Off Site
1889	1:2,500	Workman's Institute present on southern part of site. Smaller buildings present towards the north.	Smithy 30m northeast of site. Fields located east of the site. Pigeon Inn located 40m north.
1904	1:2,500	Smaller buildings on site now no longer present.	Smithy now extends to north-eastern boundary of site. Allotment gardens present 40m south. Windmill located 210m north.
1932	1:2,500	No significant change.	Smithy no longer present.
1968	1:2,500	No significant change.	Significant residential development to north, east and south. Allotment gardens no longer present. Drain located 40m southeast of site. Large warehouse 'depot' developed to 100m north west, across River. Two Builders yards located approximately 230m north.
1980	1:2,500	Works are located on the site. Workman's Institute buildings remain present but unmarked.	Nursery present directly east of site with unknown tank 60m from the site boundary. Unknown tanks located 220m north.
2019	1:2,500	No significant change.	Residential properties have been developed in place of the nursery.

3 Environmental Setting

3.1 Geology

Geological maps of the area indicate the site is directly underlain by superficial tidal flat deposits which are of recent Holocene age. The tidal flat deposits in the area generally consists of normally consolidated, soft silty clays with variable layers of sand, gravel and peat.

The underlying bedrock consists of the Oxford Clay Formation which is of Jurassic age. The formation generally consists of grey silicate-mudstones, generally smooth to slightly silty, with sporadic beds of argillaceous limestone nodules.

A copy of the geological maps is included in **Appendix D**.

3.2 Radon

The site lies within the lowest band of radon potential where it is estimated that less than 1% of the properties are above the action level (low probability). Radon protective measures are not deemed necessary for the development.

3.3 Coal Mining Activity

The site does not fall within a coal mining area described as having minable coal deposits or in an area with an historic coal mining legacy. As such, this site is not considered to be at risk from coal mining related hazards.

3.4 Hydrogeology

The tidal flat superficial deposits and bedrock Oxford Clays are both designated as Unproductive strata. This is defined as: rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

The site is not located within a Groundwater Source Protection Zone and there are no groundwater abstraction licences located within a 500m radius of the site.

A copy of the hydrogeological maps is included in **Appendix G**.

3.5 Hydrology

The River Welland lies less than 20m west of the site, on the opposite side of Holbeach Road. The river flows northwards. Coronation Canal which connects to the river north and south of the site lies 600m east at its closest point.

There are no minor surface water features (ponds, drainage ditches etc.) located within a 250 radius of the site.

3.6 Flood Risk

The site lies within a Flood Zone 3, high probability area, defined as land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding.

A detailed Flood Risk Assessment (FRA) will be required for development in this area. The completion of a FRA is outside the scope of this Phase 1 report.

3.7 Background Soil Chemistry

Values of background soil chemistry have been taken from the National Soil Inventory (NSI) and are summarised in Table 2 below.

Table 2 - Background Soil Chemistry

Substance	Concentration (mg/kg)
Arsenic	20.31
Cadmium	0.24
Chromium	74.71
Lead	34.40
Nickel	23.02

3.8 Waste Management Facilities

There is one record of a historic landfill site located within a 1km radius of the development site. There are no records of currently authorised landfills nearby. The landfill site information is summarised in Table 3 below:

Table 3 – Landfill Summary

Landfill Site	Operation Dates	Waste Type	Distance from Site
Spalding Sugar Beet	Licensed from 1980	Household & Inert	510m N

A map of historic landfill sites is included in **Appendix F**.

There are no sites operating under an environmental permit for waste operations located within a 500m radius of the site.

3.9 Environmental Permits, Incidents and Registers

There are several records of sites operating under environmental permit for discharges to water and groundwater located within a 1km search radius of the site. The nearest is held by Salvesen Logistics Ltd 500m southeast of the site.

Tulip Ltd currently hold an environmental installation permit for The Meat Plant animal slaughter house located 800m east of the site.

There are two records of pollution incidents having occurred within a 1km radius of the site. The incidents occurred in 2002 approximately 560m northwest and 610m north of the site and had significant impacts to water and air respectively.

3.10 Designated Environmentally Sensitive Sites

Records of designated environmentally sensitive sites located within a 1km radius of the site are summarised in Table 4 and shown on plans included in **Appendix G**.

Table 4 – Environmental Designations Summary

Features	Distance	Comments
Local Nature Reserve	810m NW	Vernatts Local Nature Reserve is located 810m northwest of the site.

4 Preliminary Conceptual Site Model

4.1 Introduction

To assess the environmental risks present, a preliminary conceptual model has been developed for the site. This model has been developed using best practice guidelines in conjunction with the current assessment framework considering the development proposals. This preliminary conceptual model is based on desk-based information (e.g. historical OS data and data sourced from the EA, Geoindex and Magic databases).

4.2 UK Assessment Framework

Current UK legislation on contaminated land is governed by Part IIA of the Environmental Protection Act (EPA) 1990 which is retrospectively inserted by Section 57 of the Environmental Act 1995.

The legislation introduces the concept of a “suitable for use” approach to the re-use of contaminated sites, requiring remedial action where unacceptable risks to human health or the environment are identified, considering both the use of the land and its environmental setting, endorsing the principal of site-specific risk assessment.

The legislation provides a definition of “contaminated land” as:

“any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that –

- *significant harm is being caused or there is a significant possibility of such harm being caused; or*
- *significant pollution of controlled waters is being, or is likely to be caused”.*

Further guidance is included within the legislation as to the nature of harm to be classified as significant, and what constitutes the significant possibility of significant harm. To prove that significant harm is being caused, a significant pollutant linkage must be established, using a source-pathway-receptor model. This model comprises three elements:

Source – the key pollutant hazards associated with the site

Receptor – the key targets at risk from the sources

Pathway – the means by which the contaminant can cause harm to the receptor

If a significant pollutant linkage is to be established, all three elements must be present, with a contaminant capable of causing harm, a receptor sensitive to that contaminant and a pathway linking them.

4.3 Potential Contamination Sources

Historically, the southern aspect of the site has been occupied by a Workman's Institute building since 1878. The northern part of the site was occupied by several smaller buildings up until 1904 after which it remained undeveloped until the 1980 when the engineering works were constructed and have remained since. Due to previous on-site building works, it is possible for Made Ground to be present beneath the site. The Made Ground could contain heavy metals, PAHs and asbestos.

Due to the nature of the activities associated with the engineering works there is potential for this site use to have directly contaminated the soils beneath the site. Such contaminants include heavy metals, inorganic solvents and hydrocarbons.

Several potentially contaminative off-site land uses have been identified in the surrounding area. These include a smithy, nursery, storage tanks and motor repair garage. Potential contaminants include hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), pesticides and heavy metals.

A landfill site has been identified within the surrounding area, however, it is considered that this does not pose a risk to the development due to the distance from site (>500m). Furthermore, the presence of the River Welland is likely to have precluded any potential contaminants originating from the industrial estate across the river to the west from impacting the site.

4.4 Receptors

The potential receptors considered to be at risk from soil and groundwater contamination associated with the site are summarised in Table 5 below:

Table 5 - Receptor Description

Receptor	Details
Human (On Site)	- Construction workers - Future site users - Site visitors
Human (Off Site)	- Adjacent site users
Controlled Waters	- River Welland
Building/ construction materials	- Foundations and buried services

Due to the unproductive nature of the underlying superficial and bedrock deposits the potential for impacting groundwater is considered to be low.

4.5 Pathways

The potential exposure pathways linking contamination with the receptors identified above are summarised in Table 6 below:

Table 6 - Exposure Pathways Summary

Receptor	Details of Exposure Pathway
Human (on-site)	- Direct ingestion of contaminated soil/groundwater - Dermal contact with soil/groundwater - Inhalation of gases and vapours
Human (off-site)	- Inhalation of fibres and particulates - Inhalation of migrating gases and vapours
Controlled waters	- Lateral migration and surface water run-off to River Welland
Building/construction	- Buried materials/services - Contact with contaminated soil and/or groundwater

4.6 Potential Pollution Linkages

4.6.1 Human Health

The proposed development comprises the construction of a new residential development. This is considered to be a sensitive end use.

The presence of buildings and hardstanding would eliminate the risk of exposure, via the dermal contact and ingestion pathways to future site users to any ground contamination that may remain following development.

There could be a potential risk of exposure to any ground contamination that remains following redevelopment in the proposed areas of soft landscaping (i.e. gardens), to future site users, via all possible exposure pathways.

Any ground gases (i.e. methane and carbon dioxide) and vapours that are present within the soils beneath the site could potentially ingress into the buildings through preferential pathways (e.g. service entry points). Therefore, there would be a risk of exposure via inhalation to future site users.

There is the potential for construction workers and adjacent land users to be exposed to soil and groundwater contamination during site redevelopment. However, the use of appropriate PPE and the adoption of suitable Health and Safety methods will help to reduce the risks posed to human health during this work.

4.6.2 Controlled Waters

The superficial deposits in the area are considered to have low to medium permeability which may limit the off-site migration of any contaminants at the site via subsurface pathways.

However, due to the proximity of the site to the River Welland there is the potential for contaminants present at the site to impact the river via surface water run-off.

Due to the distance of the site to the Coronation Canal (>600m) it is not considered feasible that contaminants present at the site could impact the surface water feature.

4.6.3 Building/ Construction Materials/ Buried Services

The presence of any soil and groundwater contaminants beneath the site could potentially impact on construction materials for the new development, such as below ground structures and services. Concrete foundations are particularly sensitive to aggressive ground conditions, i.e. sulphate attack.

If ground gases and vapour are present in the soil beneath the site, then there would be the potential risk of ingress into the new properties which could present a risk of explosion.

4.7 Preliminary Hazard Assessment

A preliminary hazard assessment is presented in Table 7. The preliminary hazard assessment is a qualitative assessment of the risks posed by each potential pollutant linkage described above and is used to identify the requirement for additional work (e.g. intrusive ground investigation).

Table 7 – Preliminary Hazard Assessment

Source	Pathway	Receptor	Likelihood	Effect	Risk	Assessment
Contaminated soil	Ingestion (via soil dust), inhalation (via soil dust and vapours), ingestion through dirty hands, dermal contact with soil/water.	Future site users Adjacent site users Construction workers	3	3	Moderate	Source potential identified from on-site sources. Source potential identified from off-site sources (smithy, nursery and storage tanks)
Contaminated soil / groundwater	Direct contact	Buildings/ services	2	3	Moderate	Source potential identified. Building foundations in direct contact with potentially contaminated soil.
Contaminated groundwater	Downward or lateral migration	River Welland	2	3	Moderate	Source potential identified. River in close proximity to the site and within flood area.
Ground gas / vapours	Inhalation, ingress into buildings	Buildings / services Future site users Adjacent site users Construction workers	2	4	Moderate	Source potential identified (Vapours: e.g. PAHs, volatile organic compounds). Potential ground gases from peat deposits within the tidal flat deposits.

Using Risk Matrix (Table 8) Degree of Risk (R) = Likelihood (L) x Effect (E)

Table 8 - Risk Matrix, Degree of Risk (R) = Likelihood (L) x Effect (E)

Likelihood	Description	Probability	Effect (E)	Description
5	Almost certain	>70%		
4	Probable	50-70%	4	Severe
3	Likely	30-50%	3	Medium
2	Unlikely	10-30%	2	Mild
1	Negligible	<10%	1	Minor
Risk (R)	Risk Level	Action		
1-5	Low	None required		
6-10	Moderate	Further assessment via Phase 2 intrusive ground investigation.		
>10	High	Further assessment via Phase 2 intrusive ground investigation.		

5 Conclusions and Recommendations

The preliminary environmental site assessment indicates that the site can be classified as moderate risk in terms of contamination and the risks to the identified receptors (e.g. human health, controlled waters, buildings) following redevelopment is considered to be moderate.

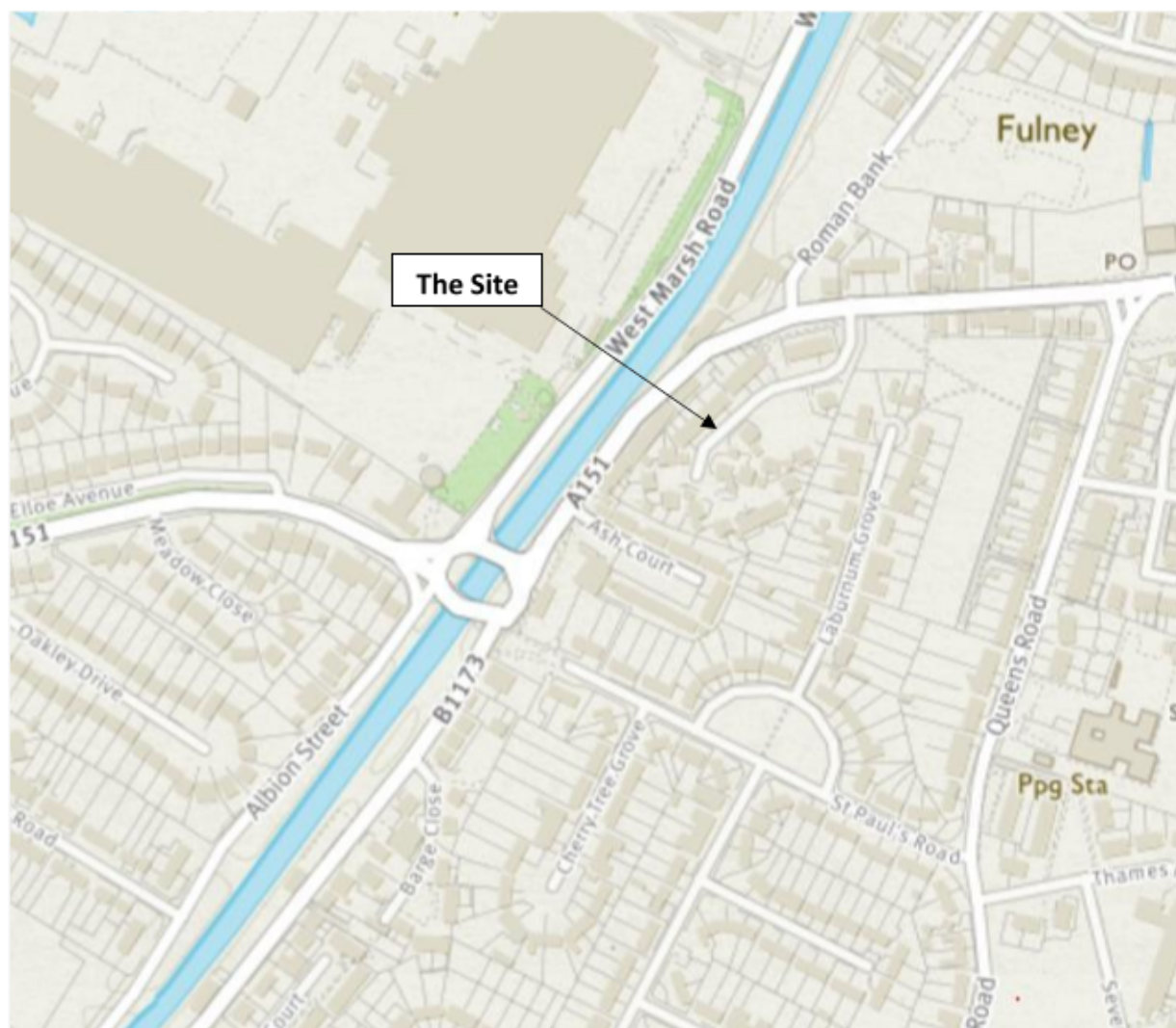
This classification is predominantly due to the historical on-site engineering works and the presence of a historical smithy adjacent to the site. Therefore, there is the potential for contamination to be present in the ground beneath the site associated with these activities. If the contaminants are present within the shallow soils, they would be a risk to several sensitive receptors including future site users and the nearby River Welland.

It is recommended that a Phase 2 intrusive ground investigation is undertaken prior to site redevelopment to obtain additional information on the ground conditions and the contamination status. The investigation should be carried out by qualified and competent persons. The scope of works for the investigation will need to be submitted and approved by the local authority prior to the commencement of the Phase 2 intrusive works.

As the site is located within a Flood Zone 3 area a flood risk assessment is required for development.

APPENDICES

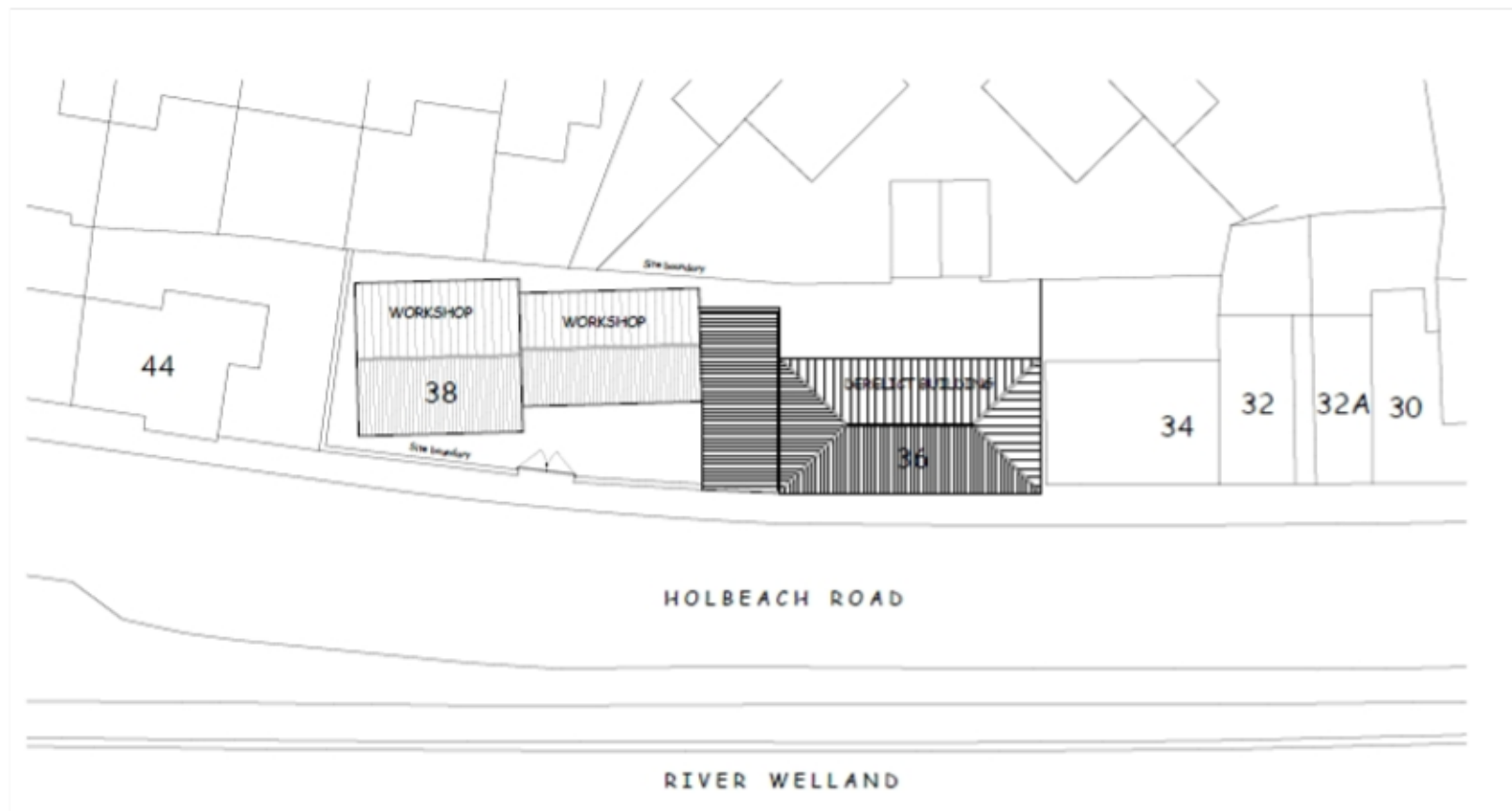
Appendix A – Site Location and Site Plan



enviro|solution

Site Location Map

Figure 1



enviro|solution

Existing Site Plan

Figure 2



Proposed Site Plan

Figure 3

Appendix B – Site Photographs



enviro|solution

View of front of the site, facing south



enviro|solution

View of site entrance facing north east



enviro | solution

Yard area to the west of the site buildings, facing south.



enviro | solution

Yard area and building entrance, facing east.



enviro | solution

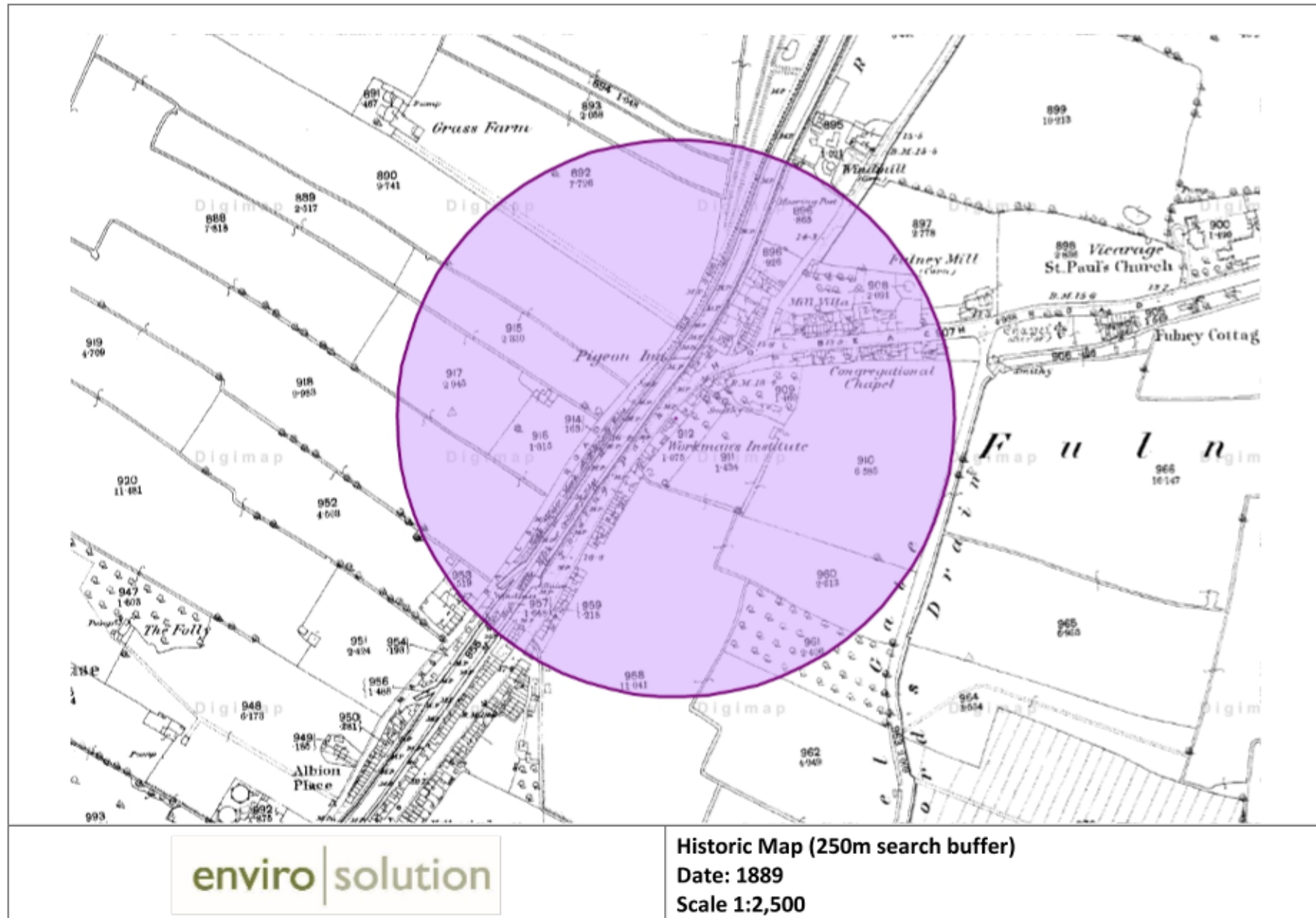
**River Wellend across Holbeach Road,
west of the site.**

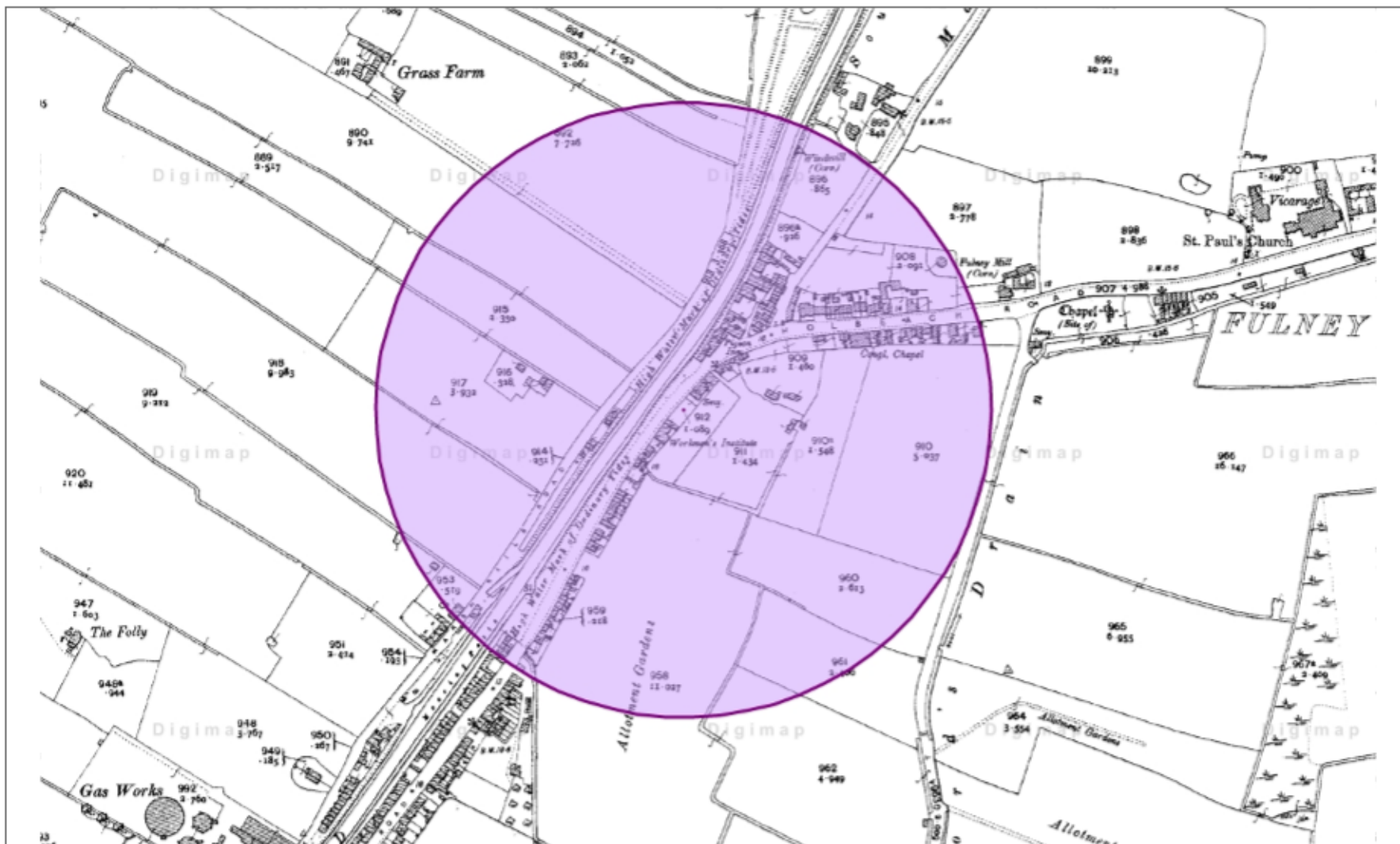


enviro | solution

**Front of southern site building. Facing
south east.**

Appendix C - Historical Maps





enviro | solution

Historic Map (250m search buffer)

Date: 1904

Scale 1:2,500



enviro | solution

Historic Map (250m search buffer)

Date: 1932

Scale 1:2,500



enviro | solution

Historic Map (250m search buffer)
Date: 1968
Scale 1:2,500

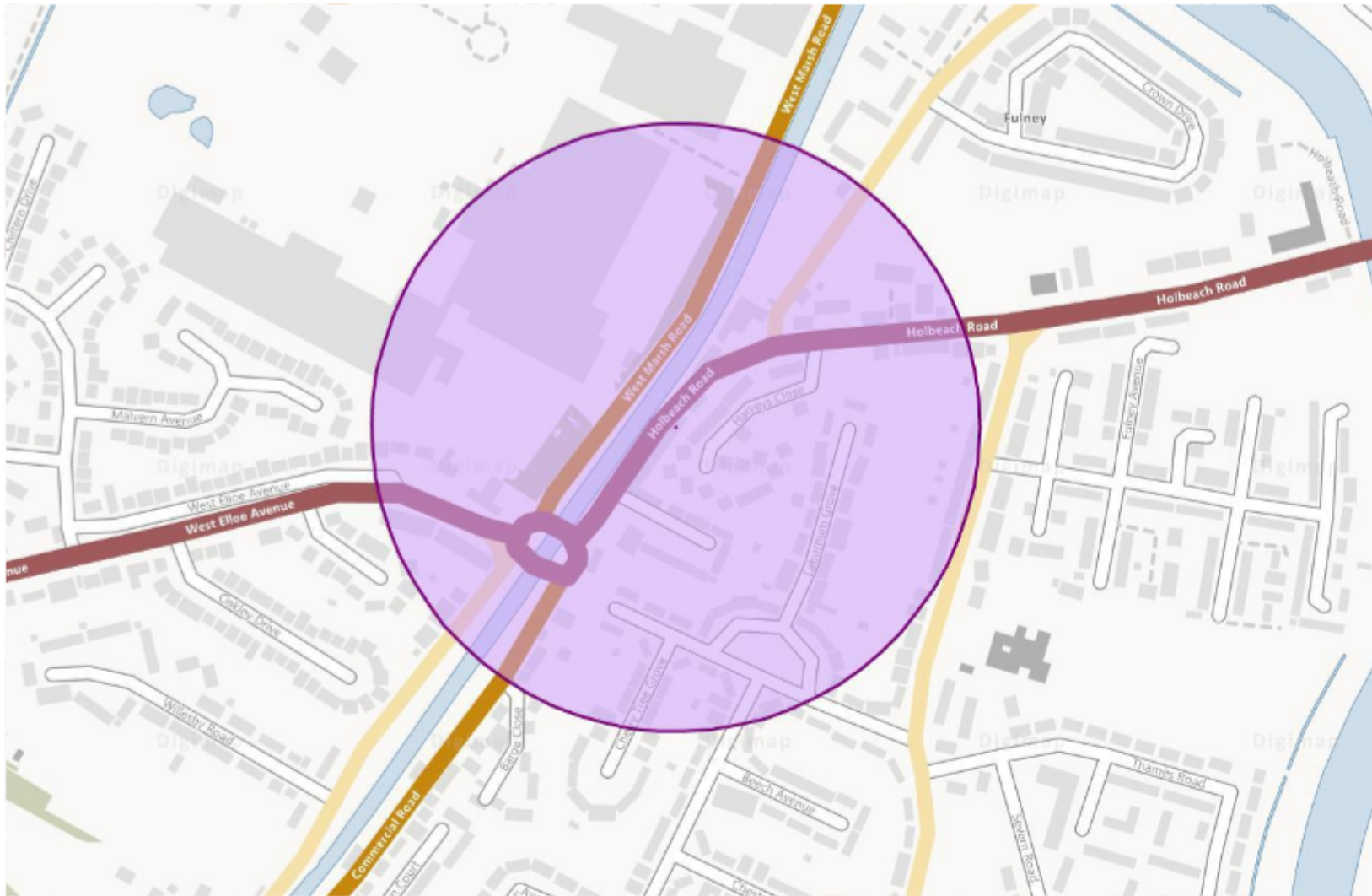


enviro | solution

Historic Map (250m search buffer)

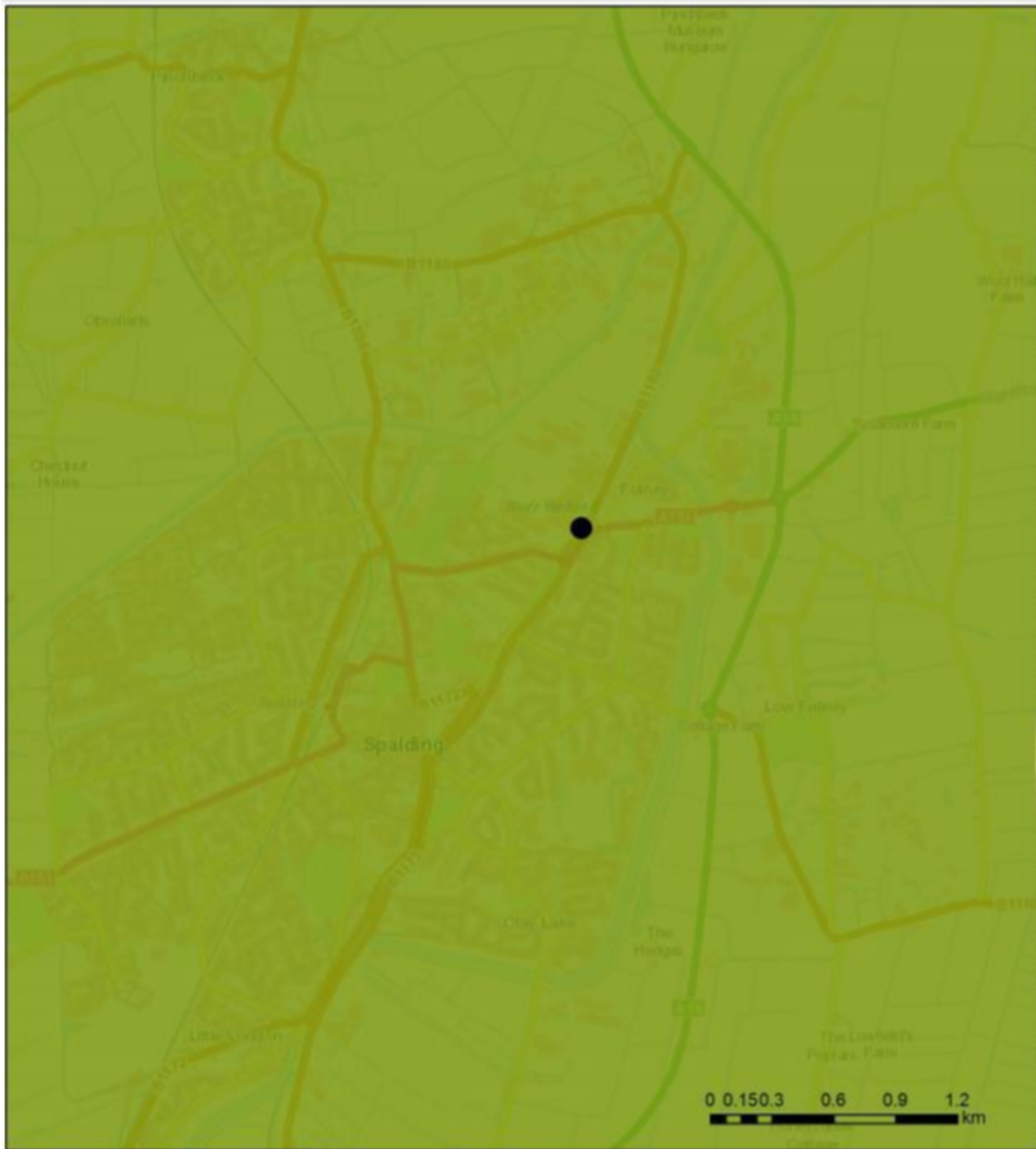
Date: 1980

Scale 1:2,500



Appendix D – Geological Maps

Bedrock Geology

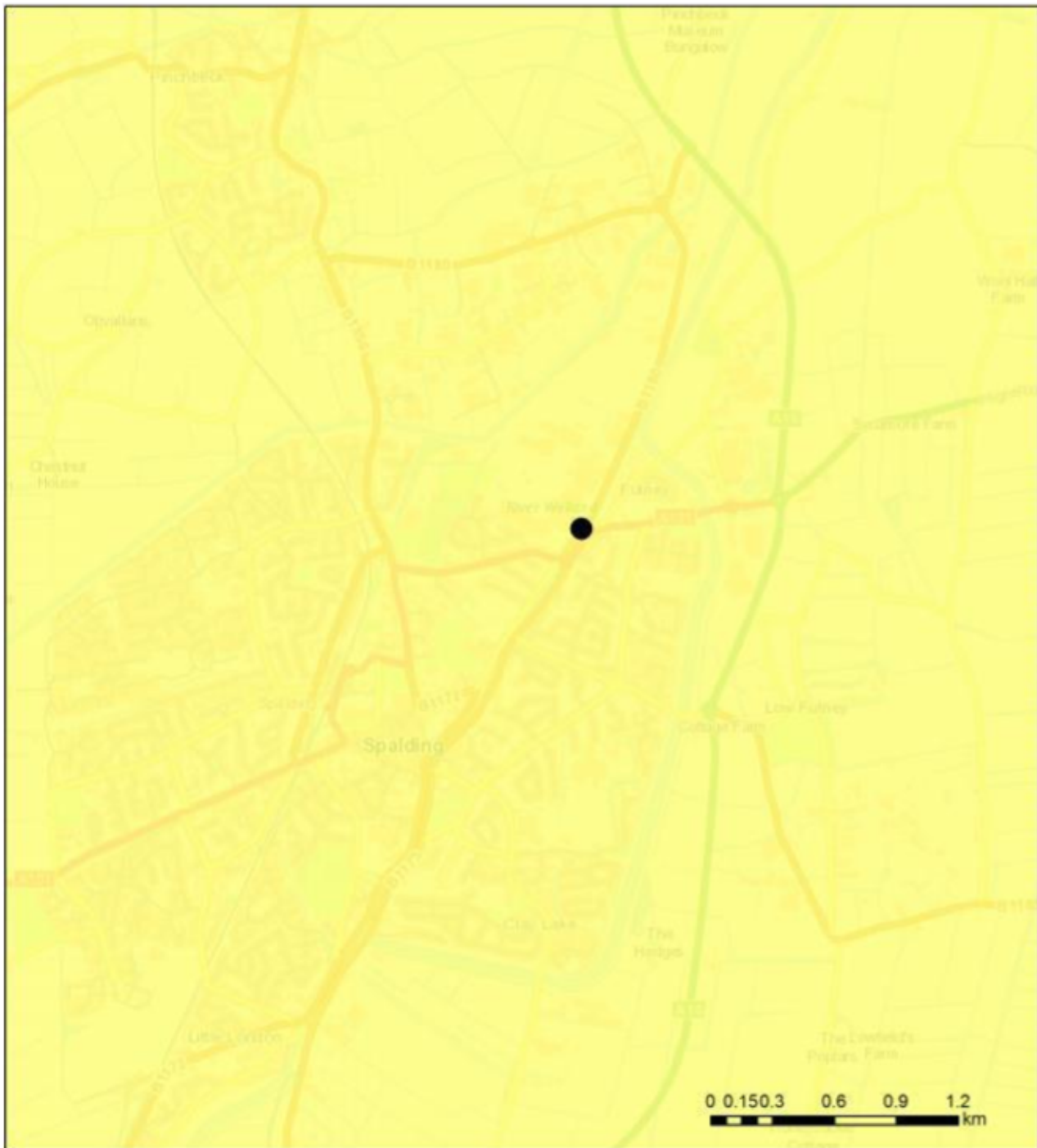


Map Key

Bedrock geology 1:50,000 scale

-  [WEST WALTON FORMATION - MUDSTONE AND SILTSTONE](#)
-  [OXFORD CLAY FORMATION - MUDSTONE](#)

Superficial Geology

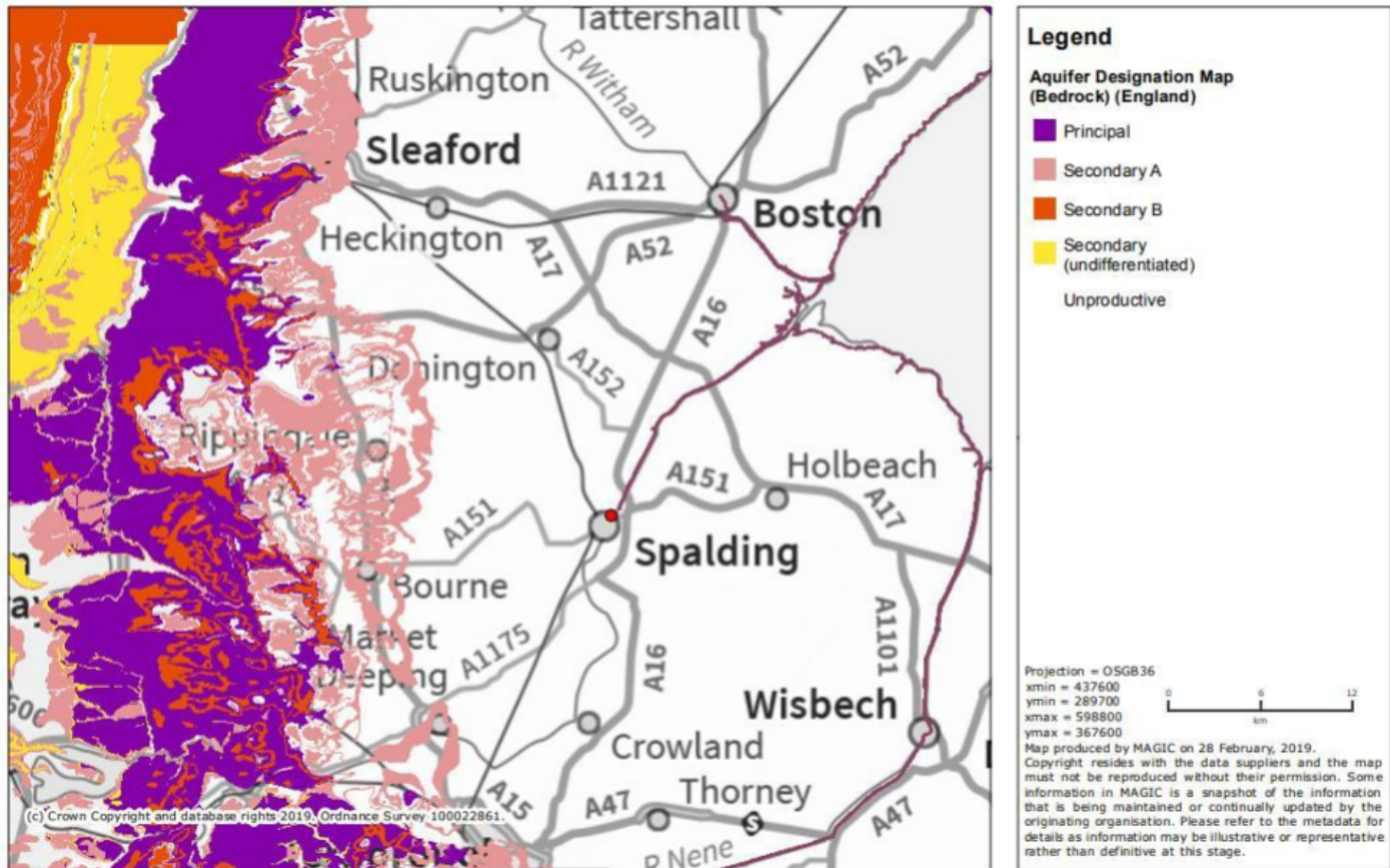


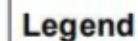
Map Key

Superficial deposits 1:50,000 scale

 TIDAL FLAT DEPOSITS - CLAY AND SILT

Bedrock Aquifer





**Aquifer Designation Map
(Superficial Drift) (England)**

-  Principal
-  Secondary A
-  Secondary B
-  Secondary (undifferentiated)
-  Unknown (lakes+landslip)
-  Unproductive

Projection = OSGB36

```
xmin = 437600
```

```

xmin = 437000
ymin = 289700

```

$$x_{\max} = 598800$$

УПДХ = 367600

Map produced by MAGIC on 28 February, 2019.

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Environment
Agency

Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
525612/323624

Scale
1:2500

Created
28 Feb 2019 3:59



Selected point



Flood zone 3



Flood zone 3: areas
benefitting from flood
defences



Flood zone 2



Flood zone 1



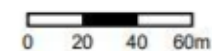
Flood defence



Main river



Flood storage area



Appendix F – Historic Landfill Map



Environmental Designations

