



Flood Risk Assessment

BAE Systems
Samlesbury Aerodrome
Blackburn
BB2 7LF

PN0270-PEL-FRA-01

17.10.25

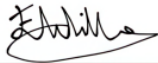
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Date: September 2025

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1.0	First Draft Issue.	02.09.25
2.0	Update following receipt of pre application response and Phase 1 SI report	17.10.25

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SUMMARY

Site Location	National Grid Reference (NGR) 362322, 431446 and postcode BB2 7LF
Proposed Development	3 storey modular office building
Vulnerability Classification	Less Vulnerable
Climate Change	Peak rainfall climate change allowances 50% (figure 4)
Flood Zone	Flood Zone 1
Tidal Flooding	Low and acceptable risk
Fluvial Flooding	Low and acceptable risk
Pluvial Flooding	Low and acceptable risk
Groundwater Flooding	Low and acceptable risk
Sewer Flooding	Low and acceptable risk
Reservoirs, Canal & Artificial Sources	Low and acceptable risk
Flooding from the Development	Low and acceptable risk
Ground Conditions	Loamy & clayey soils
Surface Water Drainage Proposals	To be completed by Sleater & Watson
Flood Risk Vulnerability and Flood Zone Compatibility	Site is within Flood Zone 1 therefore the development is identified as acceptable.
Sequential & Exception Test	N/A
Additional Mitigation Measures	N/A
Conclusions & Recommendations	The conclusion of the report is that the scheme should be approved with appropriate conditions to be addressed as part of a detailed design.

1. INTRODUCTION

Wilson Mason Architects has appointed Pluviam Environmental Ltd to provide a Flood Risk Assessment (FRA) for the construction of a 3 storey modular office building. The flood risk assessment is required as the site is located within Flood Zone 1 and the flood map for planning shows it is at risk of flooding from surface water.

1.1 Flood Risk Aims

The key aims of this flood risk assessment are to:

- Assess the flood risk to the development and to demonstrate the feasibility of designing the development so that the risk of flooding is acceptable.
- Assess the potential impact of the development on flood risk elsewhere and demonstrate that this can be mitigated by using sustainable drainage systems to drain the site.
- Satisfy the requirements of the National Planning Policy.

This assessment has been carried out in accordance with the National Planning Policy Framework (NPPF). The aim of the NPPF is to ensure that flood risk is taken into account at all stages in the planning process and to direct development run-off away from the areas at highest risk. Where new development is necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere and where possible to reduce flood risk overall.

Sources

- Ordnance Survey (OS) 1:25,000 and 1:50,000 series mapping
- British Geological Survey (BGS) Geology viewer (BGS website) and Webmap Service
- Cranfield Soil and Agrifood Institute (landis.org.uk website) Soils map
- Environment Agency (EA) Flood risk mapping: data.gov.uk open data sources accessed
- Local Flood Risk Management Strategy for Lancashire 2021-2027
- Ribble Valley Borough Council Strategic Flood Risk Assessment Level 1, April 2017
- Sustainable Design and Construction - Supplementary Planning Guidance, April 2014.

These documents have been referred to and their guidance incorporated into the development proposals where appropriate.

2. THE SITE AND DEVELOPMENT

2.1 Existing Site

The proposed development site is located within the existing BAE Systems complex at Samlesbury Aerodrome. The BAE Systems complex is situated approximately 8.3km northwest of Blackburn and 10.6km east of Preston.

The site is approximately 0.388ha and is relatively flat with a fall from northeast to southwest and localised low spots to the north of the existing building located on the southern boundary of the site. It is bound by an internal access road to the north and east, an existing car park to the west, and an existing warehouse to the south. The site previously accommodated a building which has now been demolished and the area left as hardstanding. A post demolition topographical survey has been completed, see Appendix B.

See figure 1 and Appendix A for the proposed planning boundary (outlined in red) and the wider BAE site for context.

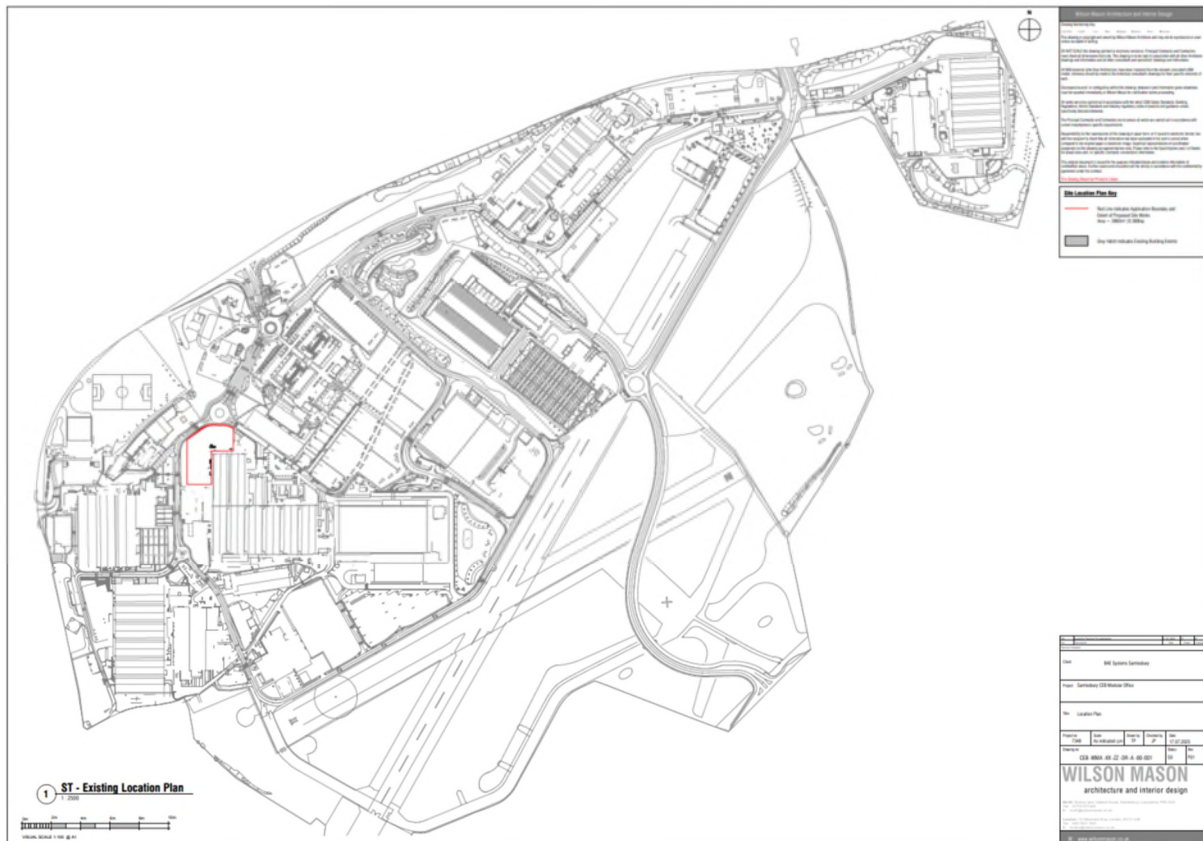


Figure 1. Site boundary and location relative to BAE Samlesbury.

2.2 Ground Conditions

According to the classifications given by the Cranfield National Soil Resources Institute, the predominant soil type across the site is 'Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils with impeded drainage', Appendix C.

A desk study with walkover survey report, report no. 8216, dated August 2025 has been completed for the site by Sub Surface. The report identifies the following geology at the site:

- Made Ground – none recorded on site but as the site has been developed some is likely to be present
- Superficial Geology – Devensian Till comprising of poorly sorted gravelly sandy silty clays
- Bedrock Geology – Silsden Formation consisting of mudstone

The BGS 1:50,000 Geology map for Garstang contained within Appendix D indicates that the site is directly underlain by bedrock of the Silsden Formation - mudstone comprising pebbly sandstone, interbedded with grey siltstone and mudstone; sedimentary bedrock formed approximately 324 to 328 million years ago in the Carboniferous Period.

The BGS Geology map indicates that the superficial deposits underlying the site consists of Devensian Till Deposits comprising clay formed up to 116 and 11.8 thousand years ago in the Quaternary Period.

A review of available borehole logs on the online interactive BGS mapping tool does not record depth to bedrock within 1km of the site, with boreholes terminated at 6m.

There are no BGS Recorded Mineral Sites within 1,000m of the site.

An intrusive ground investigation for the site has not been completed at this time. The desk study with walkover survey report states that an intrusive ground investigation is required. Once available, it will be used to inform this flood risk assessment.

2.3 Drainage Infrastructure

A post demolition utilities survey of the site has been completed. The drawing, shown in Appendix B, indicates that the site is served by separate foul and surface water drainage system. The existing hardstanding area is drained through a series of gullies and channel drains.

2.4 Proposals

The Development consists of the construction of a 3 storey modular office building. The proposed site layout is shown in Figure 2 and Appendix A.



Figure 2. Proposed Site Layout

3. FLOOD RISK ASSESSMENT

3.1 Flood Zones & Classification

For river and tidal flooding, the <https://www.gov.uk/guidance/flood-risk-and-coastal-change> website states four different Flood Zones to characterise flood risk (Paragraph: 077 Reference ID: 7-077-20220825). These Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences, and are detailed in Table 1.

Table 1 Flood Zones

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
Zone 2 Medium Probability	Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	<p>This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise:</p> <ul style="list-style-type: none"> • land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or • land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). <p>Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)</p>

The NPPF classifies the vulnerability of developments to flooding into five categories. These categories are detailed in Table 2. Based on the vulnerability of a development, NPPF states within what Flood Zone(s) a development is appropriate. Paragraph: 078 Reference ID: 7-078-20220825.

Table 2 Vulnerability Classification

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	X	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	X	X	X	✓ *

Key:

✓ Exception test is not required

X Development should not be permitted

The flood risk vulnerability and Flood Zone ‘compatibility’ of developments is summarised in Table 3.

Table 3 Development Compatibility (Annex 3: Flood risk vulnerability classification) Updated: 27 March 2012

Essential Infrastructure	<ul style="list-style-type: none"> • Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. • Wind turbines. • Solar Farms
Highly Vulnerable	<ul style="list-style-type: none"> • Police stations, Ambulance stations, Fire stations and command centres, telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes for permanent residential use. • Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as ‘Essential Infrastructure’.)
More Vulnerable	<ul style="list-style-type: none"> • Hospitals • Residential institutions such as residential care homes, children’s homes, social services homes, prisons and hostels. • Buildings used for: dwelling houses; halls of residence; drinking establishments: nightclubs; and hotels.

	<ul style="list-style-type: none"> • Non-residential health care facilities, nurseries and educational establishments. • Landfill and sites used waste management facilities for hazardous waste. • Holiday, short-let caravan and camping sites, subject to a specific warning and evacuation plan.
Less Vulnerable	<ul style="list-style-type: none"> • Police, ambulance and fire stations which are not required to be operational during a flooding event. • Buildings used for: shops; financial, professional and other services; restaurants and cafes; hot food takeaways; offices; general industry; storage and distribution; non-residential institutions not included in 'more vulnerable' and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment works which do not need to remain operational during a flooding event. • Sewage treatment works (if adequate measures to control pollution and manage sewage flooding events are in place).
Water Compatible Development	<ul style="list-style-type: none"> • Flood control infrastructure • Water transmission infrastructure and pumping stations. • Sewage transmission infrastructure and pumping stations. • Sand and gravel workings. • Docks, marinas and wharves. • Navigation facilities. • MOD defence installations. • Ship building, repairing, and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. • Water based recreation (excluding sleeping accommodation) • Lifeguard and coastguard installations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to specific warning and evacuation plan.

The Environment Agency (EA) Flood map for planning, shown in figure 3 and Appendix E, indicates that the proposed development site is entirely within in a Zone 1 flood risk area. In accordance with Table 3 of the flood risk vulnerability classification of the technical guidance to the NPPF, the development would be classed as Less Vulnerable.

The flood risk vulnerability table (Table 2) indicates that if the development is in Flood Zone 1 and is Less Vulnerable, therefore it can be considered as an appropriate site for development.

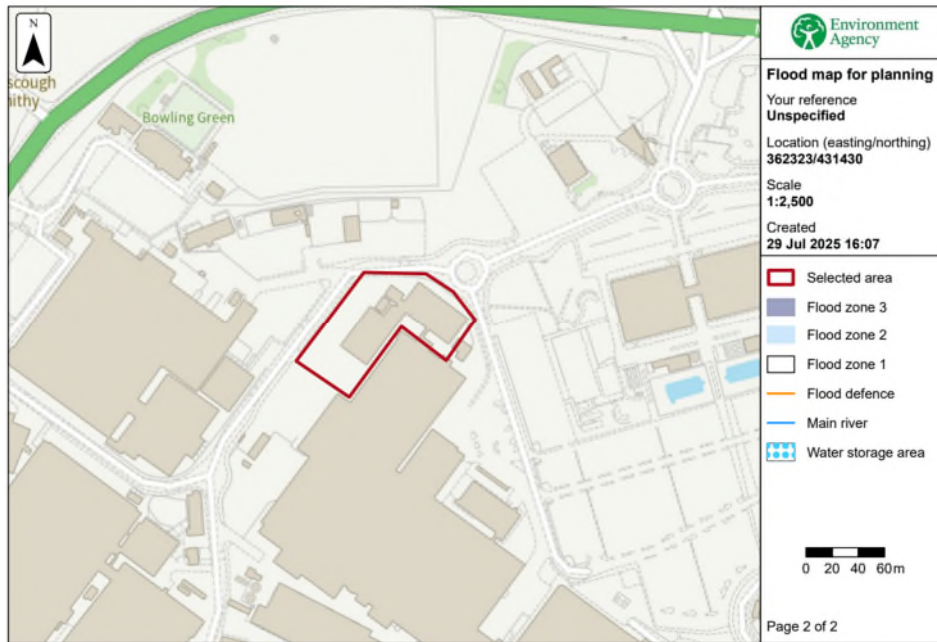


Figure 3. EA Flood zone map

3.2 The Sequential Test, Exception Test and Sequential Approach

The Sequential Test is a risk-based test that should be applied at all stages of development and aims to steer new development to areas with the lowest probability of flooding (Zone 1). This is applied by the Local Planning Authority by means of a Strategic Flood Risk Assessment (SFRA). The SFRA and the NPPF may require the Exception Test to be applied to certain forms of new development. The test considers the vulnerability of the new development to flood risk and, to be passed, must demonstrate that:

- There are sustainability benefits that outweigh the flood risk; and
- The new development is safe and does not increase flood risk elsewhere.

The Sequential Approach is also a risk-based approach to development. In a development site located in several Flood Zones or with other flood risks, the sequential approach directs the most vulnerable types of development towards the areas of least risk within the site.

Pre application advice received from Ribble Valley Borough Council suggests that sequential testing is required due to the Environment Agency’s ‘Risk of Flooding from Surface Water’ map showing surface water flooding on site. However, the flood mapping has not been updated since the demolition of the previous building on site and so is not reflective of the current situation. The site is currently drained through a series of gullies and channel drains. Currently the BAE maintenance team have indicated that they have not experienced any significant flooding issues.

Taking the above into account and the pluvial flood risk discussed further later in this report and the development being located within Flood Zone 1, it would suggest that the Sequential test is not required.

The development compatibility table shows that the development does not require the Exception test applying.

3.3 Climate Change

The NPPF makes it a planning requirement to account for climate change in the proposed design. The recommended allowances are summarised below, figures 4 and 5, for the Ribble catchment for Peak Rainfall Intensity and Peak River Flow Allowances respectively:

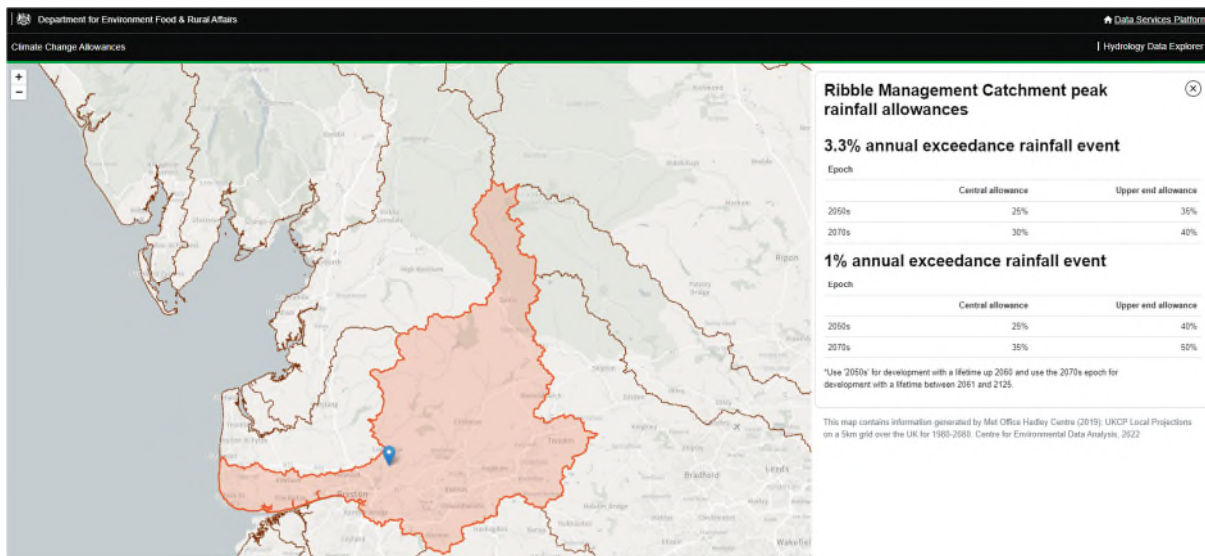


Figure 4. Peak rainfall climate change allowances

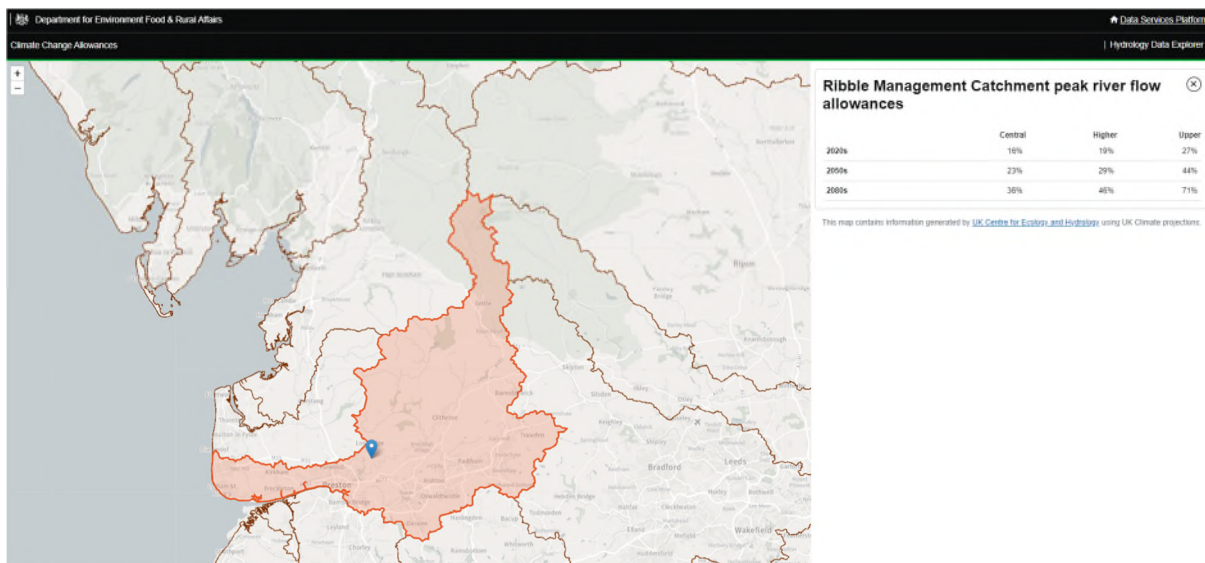


Figure 5. Peak river flow climate change allowances

3.4 Sources of Flooding

The NPPF requires an assessment of flood risk to consider all forms of flooding and lists six forms of flooding that should be considered as part of a flood risk assessment. These forms of flooding are listed below, along with an explanation of each form of flooding.

3.4.1 Flooding From Rivers (Fluvial Flooding)

Watercourses flood when the amount of water in them exceeds the flow capacity of the river channel. Flooding can either develop gradually or rapidly, depending on the characteristics of the catchment. Land use, topography and the development can have a strong influence on flooding from rivers.

The site is located entirely within Flood Zone 1 for fluvial flooding on the Environment Agency's indicative flood map, shown in figure 3 and Appendix E. Flood Zone 1 is classified as 'low' flood risk, with a 1 in 1000-year or less (<0.1%) annual probability of fluvial flooding. The overall risk of fluvial flooding is therefore 'very low' and mitigation measures are not required.

As the development site is in Flood Zone 1, the risk is considered **low and acceptable**.

3.4.2 Flooding From the Sea (Tidal Flooding)

Flooding to low-lying land from the sea and tidal estuaries is caused by storm surges and high tides. Where tidal defences exist, they can be overtopped or breached during a severe storm, which may be more likely with climate change.

The site is located entirely within Flood Zone 1 for tidal flooding on the Environment Agency's indicative flood map, shown in figure 3 and Appendix E. Flood Zone 1 is classified as 'low' flood risk, with a 1 in 1000-year or less (<0.1%) annual probability of tidal flooding. The overall risk of tidal flooding is therefore 'very low' and mitigation measures are not required.

As the development site is in Flood Zone 1, the risk is considered **low and acceptable**.

3.4.3 Flooding from Land (Pluvial Flooding)

Intense rainfall, often of short duration, which is unable to soak into the ground or enter drainage systems can run quickly off land and result in local flooding. In developed areas, this flood water can be polluted with domestic sewage where foul sewers surcharge and overflow. Local topography and built form can have a strong influence on the direction and depth of flow. The design of development

down to a micro-level can influence or exacerbate this. Overland flow paths should be taken into account in spatial planning for urban developments. Flooding can be exacerbated if development increases the percentage of impervious area.

The Environment Agency's 'Risk of Flooding from Surface Water' map, Appendix F Figure 1, shows that localised areas on the site have a 1 in 30 annual probability of surface water flooding. The flood mapping has not been updated since the demolition of the previous building on site and so is not reflective of the current situation. There is potential that the overland flow routes of the surface water in these areas may change as a result of the development.

The site is currently drained through a series of gullies and channel drains. Currently the BAE maintenance team have indicated that they have not experienced any significant flooding issues.

A full drainage strategy will be completed by Sleater & Watson. The proposed surface water drainage scheme should be designed to accommodate a 1 in 100 year event with 50% climate change allowance in accordance with the EA allowances and assumed design life of over 60 years. In addition, consideration should be given to overland flow routes where they are not intercepted by surface water proposals. In combination this will mitigate the risk associated with pluvial flooding on site.

Therefore, pluvial flooding is considered **low and acceptable** with the mitigation provided within the proposed drainage strategy.

3.4.4 Flooding from Groundwater

Groundwater flooding can occur from three main sources:

- raised water tables;
- seepage; and
- percolation and groundwater recovery or rebound.

Groundwater flooding occurs when groundwater levels rise above surface levels. Groundwater flooding is most likely to occur in low-lying areas underlain by permeable rocks (aquifers). Chalk is the most extensive source of groundwater flooding.

The Ribble Valley Borough Council Strategic Flood Risk Assessment Level 1 states that groundwater flooding is not considered by the EA as a significant flood risk factor in the Ribble Valley Borough Council area and that there has been no evidence of groundwater flooding.

Mapping shows that the site is underlain by loamy-clayey soils that are impeded. The BGS borehole in Appendix C shows that ground water was not present in the first 6m of penetration at a location approximately 1km from the site.

There are no known instances of groundwater flooding on-site. Whilst no mitigation is proposed it would be prudent to carry out groundwater monitoring prior to construction.

Therefore, the risk of groundwater flooding is considered **low and acceptable** based on historic events and records.

3.4.5 Flooding from Sewers and Drains

In urban areas, rainwater is frequently drained into sewers. Flooding can occur when sewers are overwhelmed by heavy rainfall or become blocked. Sewer flooding continues until the water drains away.

The sewers adjacent to the site are privately owned and currently the BAE maintenance team have indicated that they have not experienced any significant flooding issues. No further information on sewer and drain flooding within the area could be found during the desktop review, the risk is considered **low and acceptable**.

3.4.6 Flooding from Other Artificial Sources

Non-natural or artificial sources of flooding can include reservoirs, canals and lakes. Reservoir or canal flooding may occur as a result of the facility being overwhelmed and/or as a result of dam or bank failure.

The Environment Agency Reservoir flood map in Appendix F Figure 2 shows that the site is outside the zone of influence should a reservoir fail, and there is therefore a low risk to the site.

There are no canals in the area local to the site.

Flood risk from reservoirs, canals and other artificial sources is therefore deemed a **low and acceptable** with no mitigation required.

4. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT TO FLOOD RISK

In accordance with the NPPF guidance, the development will need to demonstrate that it will:

- Remain operational and safe for users in times of flood;
- Result in no net loss of floodplain storage; and
- Not impede water flows and not increase flood risk elsewhere.

4.1 Safe Access

The NPPF states that the development must provide safe access and egress during a flood event and is not impeded for emergency response vehicles, allowing safe access and egress from the site.

Should the area in which the development is sited be reclassified by the Environment Agency to be within Flood Zones 2 or 3 it is recommended that the facilities management team sign up to the Environment Agency's Flood Line Warnings Direct Service.

Safe access and egress can be gained from the access roads as shown in the flood mapping.

4.2 Loss of Floodplain Storage

As the site is located within Flood Zone 1 no loss of active floodplain will occur as a result of the development.

4.3 Impact on Flood Risk

4.3.1 Fluvial Flooding

There are no watercourses on site and no impact on fluvial flood risk

4.3.2 Pluvial Flooding

The surface water flood mapping for the site has not been updated since the demolition of the previous building on site and so is not reflective of the current situation. The mapping indicates that there was risk of surface water flooding around the previous development and therefore there is potential that the overland flow routes of the surface water in these areas have changed post demolition.

A post demolition topographical survey has been completed for the site, provided in Appendix B. The topographical survey shows current ground levels fall towards low spots in the vicinity of the existing building and channel drains.

A full drainage strategy will be completed by Sleater & Watson. The proposed surface water drainage scheme should be designed to accommodate a 1 in 100 year event with 50% climate change allowance in accordance with the EA allowances for an assumed design life of over 60 years. In addition, consideration should be given to overland flow routes where they are not intercepted by surface water proposals.

In combination this will mitigate the risk associated with pluvial flooding on site following completion of the proposed development.

4.3.3 Sewer and Drain Flooding

The new 3 storey office building proposed on site is located on a brownfield area which is completely hardstanding following the demolition of the previous building. There will be no increase in impermeable area as a result of the development. It can therefore be assumed that the existing drainage system is sized appropriately for the design parameters (e.g. planning policy, non-technical statutory standards).

5. CONCLUSION

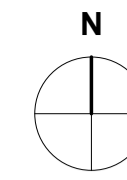
This report has considered all potential sources of flooding to the site, including sea, rivers, groundwater, land, existing sewers, artificial sources and the proposed development.

With reference to the NPPF and the Environment Agency (EA) standing advice on development and flood risk, the proposed site is located within Flood Zone 1 and is considered to be a 'less vulnerable' development. The sequential and exception test can be considered to be passed.

The site is not susceptible to groundwater flooding; however, groundwater levels should be monitored prior to construction.

Appendix A

Architectural Drawings



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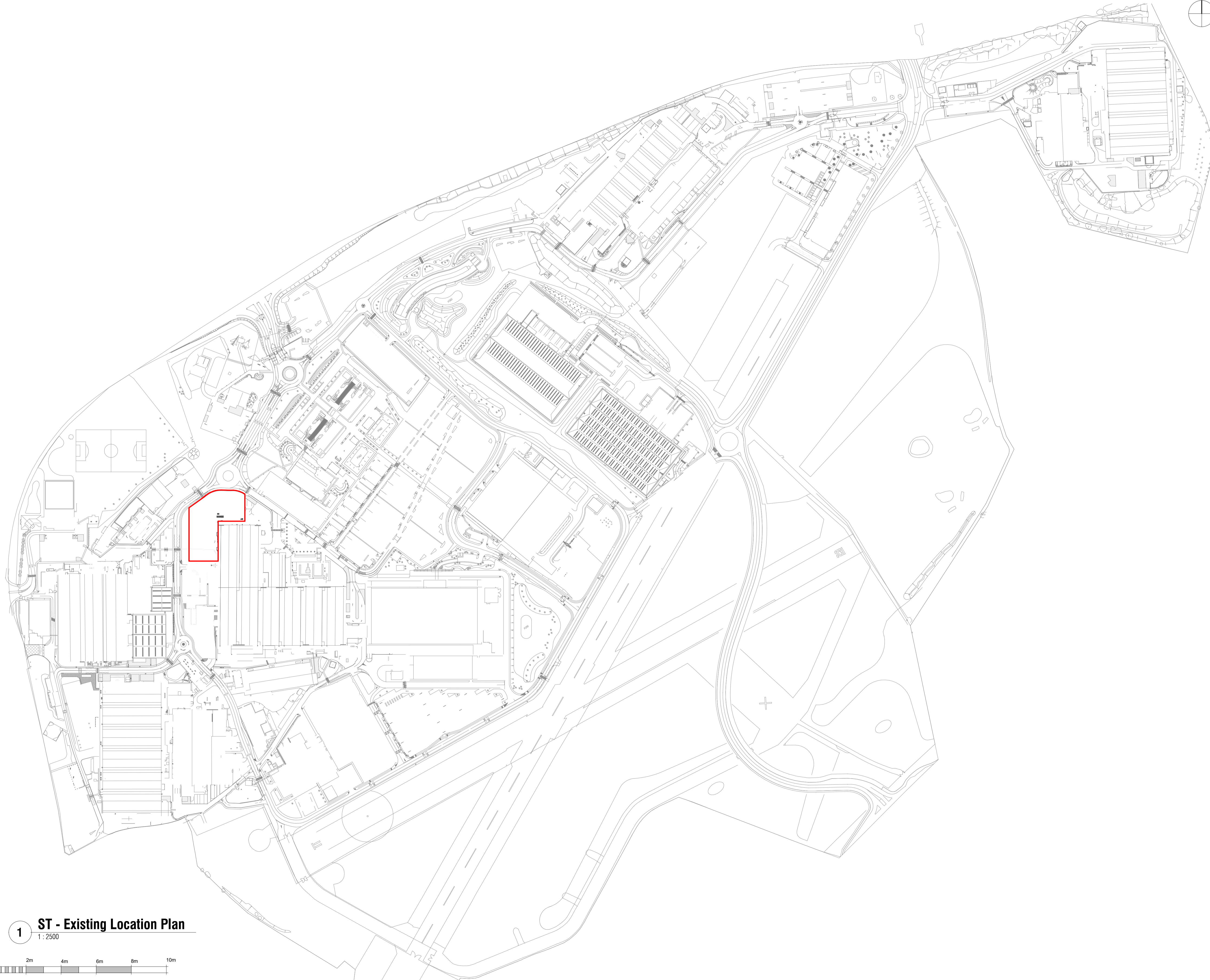
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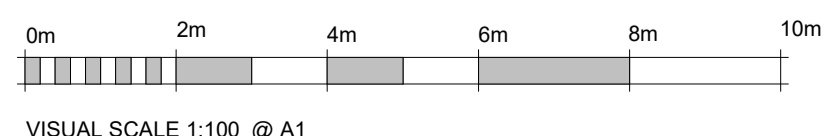
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Site Location Plan Key

- Red Line indicates Application Boundary and Extent of Proposed Site Works
Area = 3880m² (0.388ha)
- Grey Hatch Indicates Existing Building Extents



1 ST - Existing Location Plan
1 : 2500



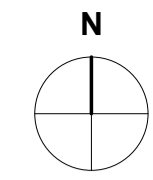
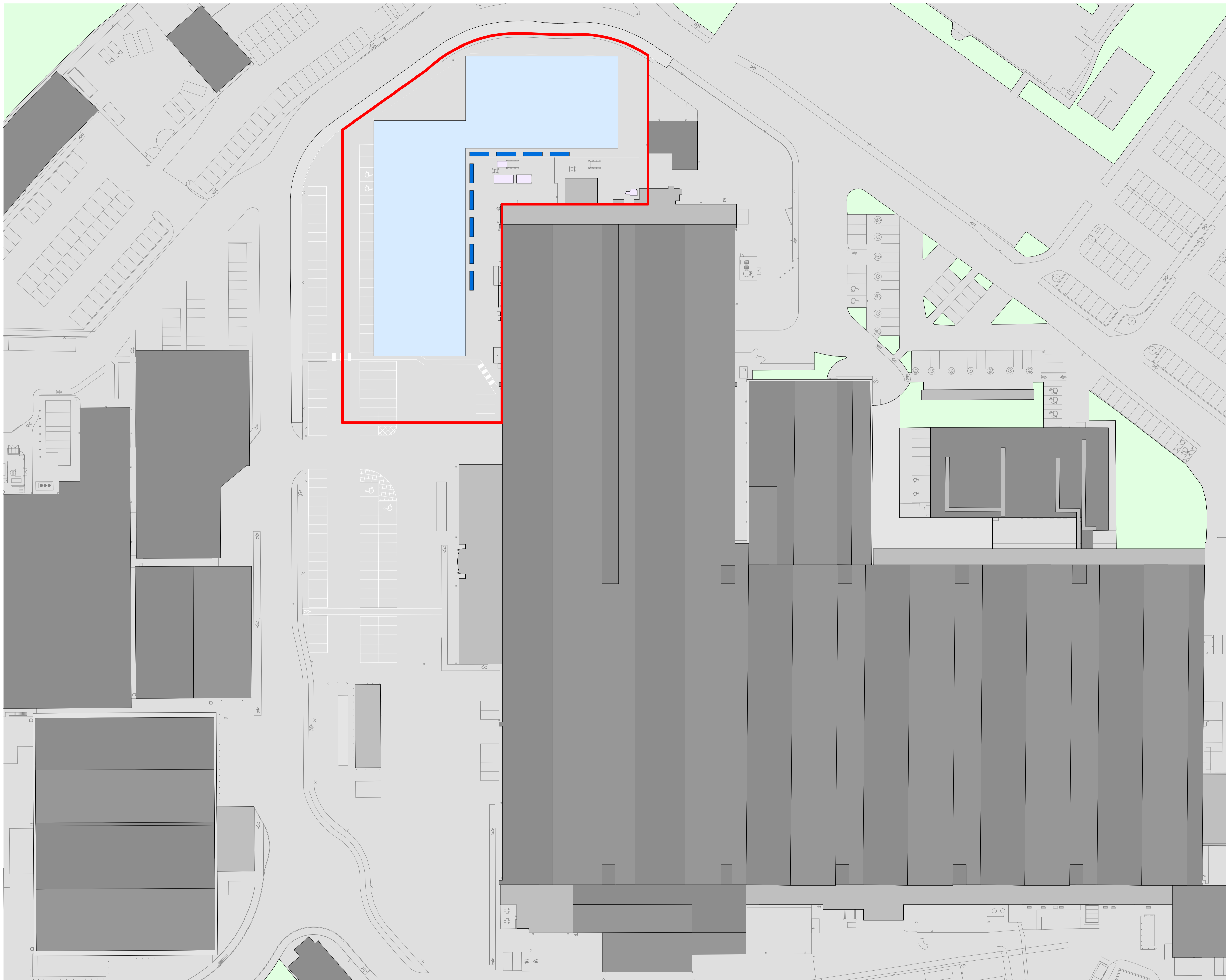
P01 Issued for Planning Pre-Application		17.07.2025	TP	JP
Rev	Description	Date	Drawn	Checked
Revision Schedule				
Client:		BAE Systems Samlesbury		
Project:		Samlesbury CEB Modular Office		
Title:		Location Plan		
Project no:	Scale:	Drawn by:	Checked by:	Date:
7348	As indicated @A1	TP	JP	17.07.2025
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Proposed Site Plan Key

- Red Line indicates Application Boundary and Extent of Proposed Site Works
Area = 3880m² (0.388ha)
- Grey Hatches Indicate Existing Buildings on Site
- Blue Hatch Indicates Proposed Building Extents
Total: 7200m²

PO2	Issued for Planning Pre-Application	17.07.2025	TP	JP
PO1	Issued for Preliminary Review	09.07.2025	TP	JP
Rev	Description	Date	Drawn	Checked
Revision Schedule				

Client:	BAE Systems Samlesbury								
Project:	Samlesbury CEB Modular Office								
Title:	Proposed Site Plan								
Project no:	7348	Scale:	As indicated @A1	Drawn by:	TP	Checked by:	JP	Date:	09.07.2025
Drawing no:	CEB-WMA-XX-ST-DR-A-00-003	Status:	SO	Rev:	P02				

WILSON MASON
architecture and interior design

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1 ST - Proposed Site Plan
1 : 500



Appendix B

Topographical and Utilities Survey



Note: Orientation to existing site grid. All levels relate to Existing Site Datum. Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd. Drainage information must be verified with local authority records before use. Area surveyed July 2025 and added to information taken from Survey Operations drawing '250079'.

Table with 4 columns: Station Name, Easting, Northing, Height. Lists stations S01 through S05 with their respective coordinates and elevations.

STANDARD REFERENCE & ABBREVIATIONS

Large table listing various symbols and abbreviations used in the drawing, such as 'A1' for 'Asphalt Road' and 'S1' for 'Storm Water Sewer'.

Legend table listing symbols for various utility services: Storm Water Sewers, Foul Water Sewers, Combined Water Sewers, Water Main, Gas Main, Electric Cables, Cable Ducting, BT (Underground) Cable, CCTV, Closed Circuit TV, Line of Possible Sub-Surface Feature, etc.

UNIDENTIFIED - A buried feature or utility that has been located, but we are unable to state what it is. UNPROVEN - The assumed location of a reported feature or utility, usually taken from records, but not found during the utility trace (due to various conditions). CAUTION - Electric and water cables, even when they are live, are unable to be detected or traced.

Table listing symbols for 'UNPROVEN' features: UNPROVEN ELEC, UNPROVEN BT, UNPROVEN GAS, UNPROVEN WATER, UNPROVEN SURFACE, UNPROVEN FOU.

UNDERGROUND UTILITIES SERVICES DISCLAIMER: Where indicated, no allowance has been made for sub-surface entry into manholes, other chambers or confined spaces below ground level. Therefore any details relating to depths, sizes, etc. are taken from the surface and as such will be approximate.

It is the responsibility of the user under Health & Safety (19547) Subsection to satisfy himself of the suspected location of any services prior to excavation of the services shown.

NOTE 1: This utility survey has been undertaken using a Robertson S0801 & S0801 T10 B Non Geosynchronous Positioning Receiver.

NOTE 2: Power carrying features shown on this drawing are shown as an individual service line. This does not necessarily represent the number of cables actually present and it is possible that there could be multiple numbers of cables including HV, LV and communication transmission cables following the same trace line.



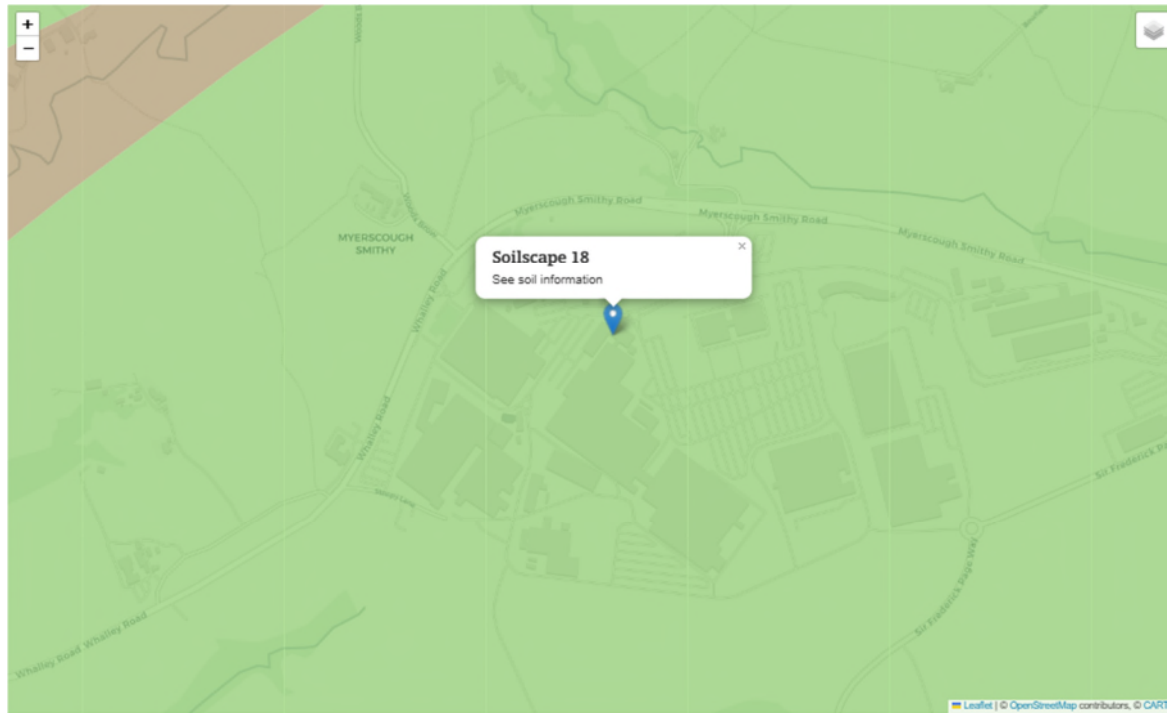
Client: Wilson Mason and Partners. Drawing Title: Utility Survey of Land at: BAE Sablesbury Modular Office Utilities Sablesbury.

Scale(s): 1:200. Date: JUL 25. Job Number: 25E309. Surveyor: SC. Drawn: JG. Checked: SO/MB.

Sheet Size & Org Number & Revision: A0 25E309/001

Appendix C

Llandis Soilsclapes Maps



© Leaflet | © OpenStreetMap contributors, © CARTO


© Developed by Cranfield University and Sponsored by DEFRA [Provide feedback](#)


Soil Information

Soilscape 18:
Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils

Texture:
Loamy and clayey

Coverage:
England: 19.9%, Wales: 2.4%, England & Wales: 17.5%

Drainage:
Impeded drainage


Fertility:
Moderate


Landcover:
Grassland and arable some woodland

Habitats:
Seasonally wet pastures and woodlands

Carbon:
Low

Drains to:
Stream network

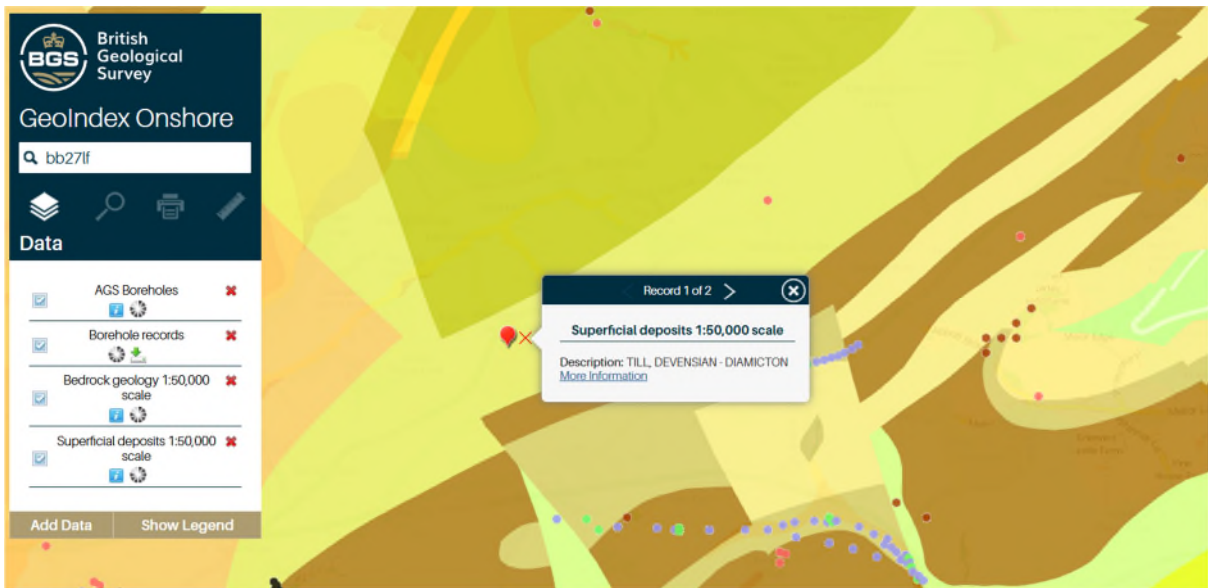
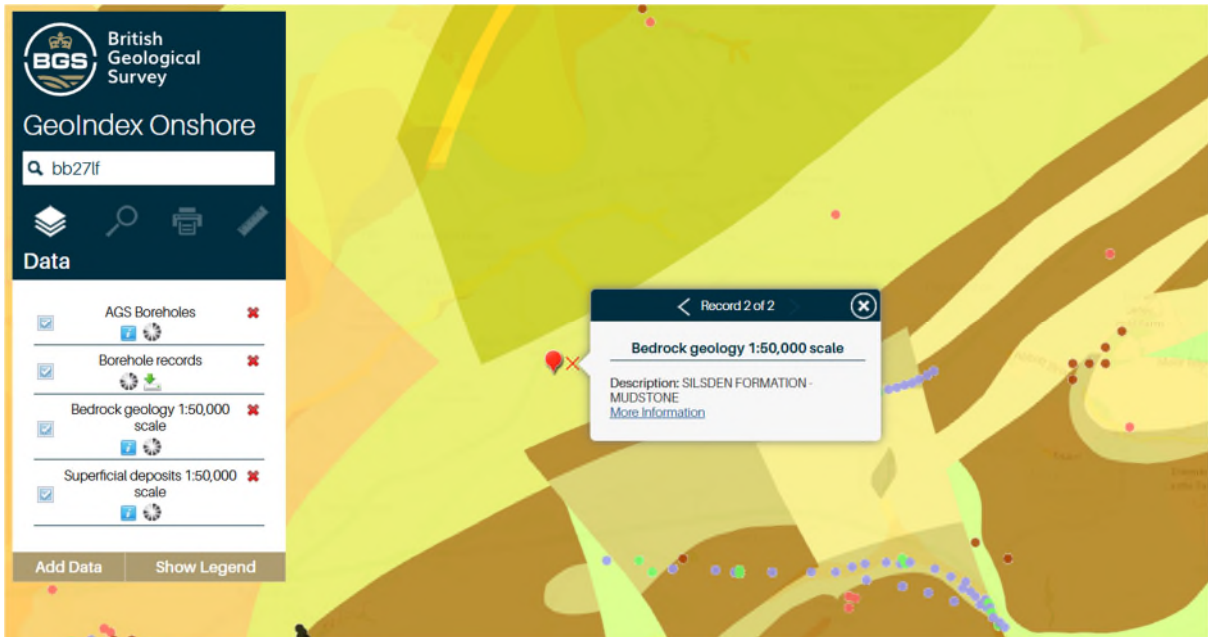
Water protection:
Main risks are associated with overland flow from compacted or poached fields. Organic slurry, dirty water, fertiliser, pathogens and fine sediment can all move in suspension or solution with overland flow or drain water

General cropping:
Mostly suited to grass production for dairying or beef; some cereal production often for feed. Timeliness of stocking and fieldwork is important, and wet ground conditions should be avoided at the beginning and end of the growing season to avoid damage to soil structure. Land is tile drained and periodic mowing or subsoiling will assist drainage

Accessed from Llandis Soilscape website 29.07.25

Appendix D

British Geological Society Map & Borehole



Accessed 29.07.25 from the BGS web viewer



SD 63 SW 3

LANCASHIRE COUNTY COUNCIL

BOREHOLE DATA SHEET No. 1 OF 1

SCHEME MELLOR BROOK BY-PASS - A59 SAMLESBURY SKIPTON TRUNK ROAD

LOCATION CH.266 OFFSET 23M LEFT

JOB No. 550

B.H. No. 1

DEPTH 6.0 m

GROUND LEVEL 66.312 m

etric

Description of Stratum	Depth	Sample		M.C.	LL/PL/PI Core Rec'y	Class'n	N Value	Water & Casing Details
		1	2					
TOPSOIL	0.15							
Rounded GRAVEL with some slightly clayey and silty sand.	0.90	KJ		9.3		(G)		Shell and Auger Borehole Saturated layer 0.7m
Firm becoming stiff, then very stiff, dark brown slightly sandy silty CLAY with some gravel. Faintly laminated.		KJ		21.4				
		U		21.1				
		KJ		15.0				
		U		18.1				
		KJ		18.8	40/18/22	CI		
		U		17.5				
		KJ		17.5				
		U		17.0				
		KJ		17.0				
		6.0	BD					

STRENGTH TEST RESULTS

Depth of Sample	Bulk Dens'y (kg/m ³)	Dry Dens'y (kg/m ³)	M.C. (%)	Comp. Stress (kN/m ²)	Cohesion (kN/m ²)	φ	Remarks
1.15 - 1.60	2100	1735	21.1	234	117		200 x 100 UCT
2.25 - 1.70	2160	1830	18.1	324	162		200 x 100 UCT
3.25 - 3.70	2175	1850	17.5	-	C' = 0	φ' = 24°	76 x 38 T x D
4.60 - 5.05	2155	1840	17.0	360	180		200 x 100 UCT

COMPACTION AND OTHER TEST RESULTS

Depth of Sample	Compaction	Dry Dens'y (kg/m ³)	M.C. (%)	S.G.	Air Voids	C.B.R.	SO ₃ gm/litre	pH	Remarks or other tests

GENERAL REMARKS

Appendix E

Environment Agency Flood Map for Planning

Flood map for planning

Your reference
Unspecified

Location (easting/northing)
362323/431430

Created
29 July 2025 16:07

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following**:

- bigger than 1 hectare (ha)
- in an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2025 AC0000807064. <https://flood-map-for-planning.service.gov.uk/os-terms>



scough
nithy

Bowling Green

Flood map for planning

Your reference

Unspecified

Location (easting/northing)








362323/431430


Scale

1:2,500

Created

29 Jul 2025 16:07

-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area



0 20 40 60m

Appendix F

Environment Agency Flood Maps



Figure 1. Surface water flood risk

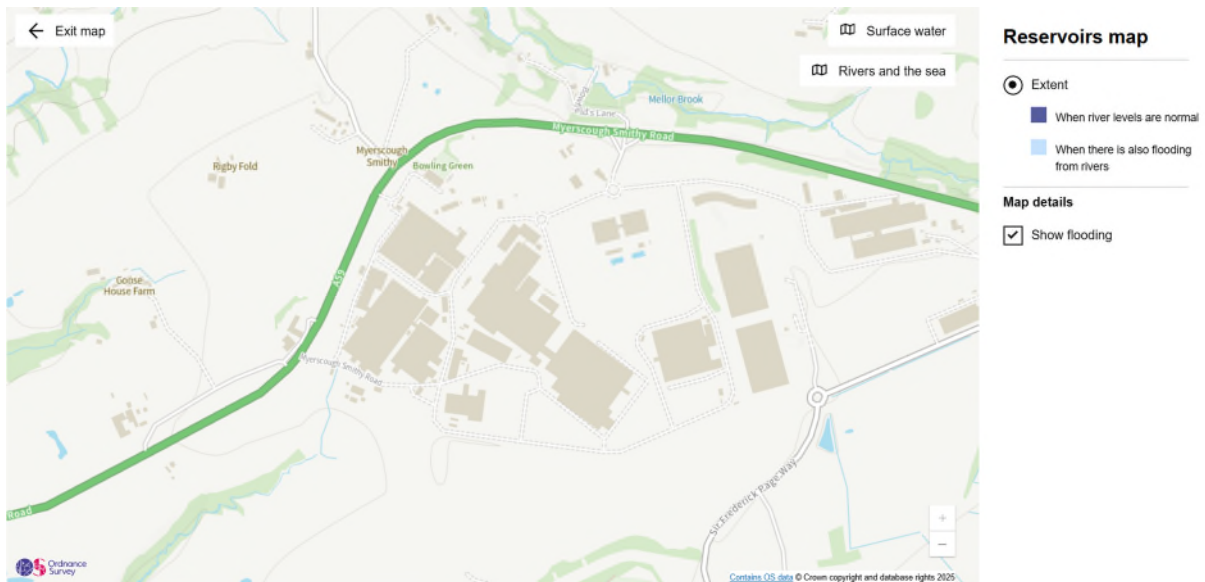


Figure 2. Maximum extent of flooding from reservoir