



# P001-009 31 RECREATION ROAD, STOWMARKET

Flood Risk Assessment

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# Revisions and Additional Material

## Document History and Status

Revision	Date	Purpose/Status
-	02.11.2023	First Issue

## Document Details

Project Director	Mark Jones
Report Author	Mark Jones
Project Number	P002/004
Project Name	31 Recreation Road, Stowmarket

# 1 Introduction and Limitation

## 1.1 Introduction

1.1.1 MJ Engineering Group (MJEG) has been commissioned by Patrick Allen Architects on behalf of Mr. Wright to carry out a Flood Risk Assessment for an extension to the existing property at 31 Recreation Road, Stowmarket, Suffolk. The proposed development layout can be found in [Appendix A](#).

1.1.2 It is proposed to submit the Flood Risk Assessment to the Planning Authority as part of a planning application. Specifically, this assessment intends to provide the following:

- Flood Risk Zone,
- Flood Risk from Overland Surface Water,
- Flood Risk from Reservoir,
- Assessment of the impact of the proposed extension.

## 1.2 Limitation

1.2.1 This Report has been prepared by MJ Engineering Group Ltd (MJEG) for the sole use of the “client”. This Report is confidential and may not be disclosed by the client nor relied upon by any other party without the prior and express written agreement of MJEG.

1.2.2 The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by MJEG has not been independently verified unless otherwise stated in this Report.

1.2.3 MJEG disclaim any undertakings or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to MJEG attention after the date of the Report.

1.2.4 Any unauthorized reproduction, adaptation, or usage of this report and/or appended documents by any person is strictly prohibited without prior written consent.

1.2.5 The copyright of this Report is vested in MJEG and the client. MJEG Ltd accepts no responsibility whatsoever to other parties to whom this Report, or any part thereof, is made known. Any such other parties that rely upon the Report do so at their own risk.

## 2 Site Description

### 2.1 Site Location and Existing Condition

2.1.1 The site is located in the town of Stowmarket, Suffolk in the Mid-Suffolk District. It is located circa 650m northwest of the Stowmarket town centre, as shown in Figure 1 below.

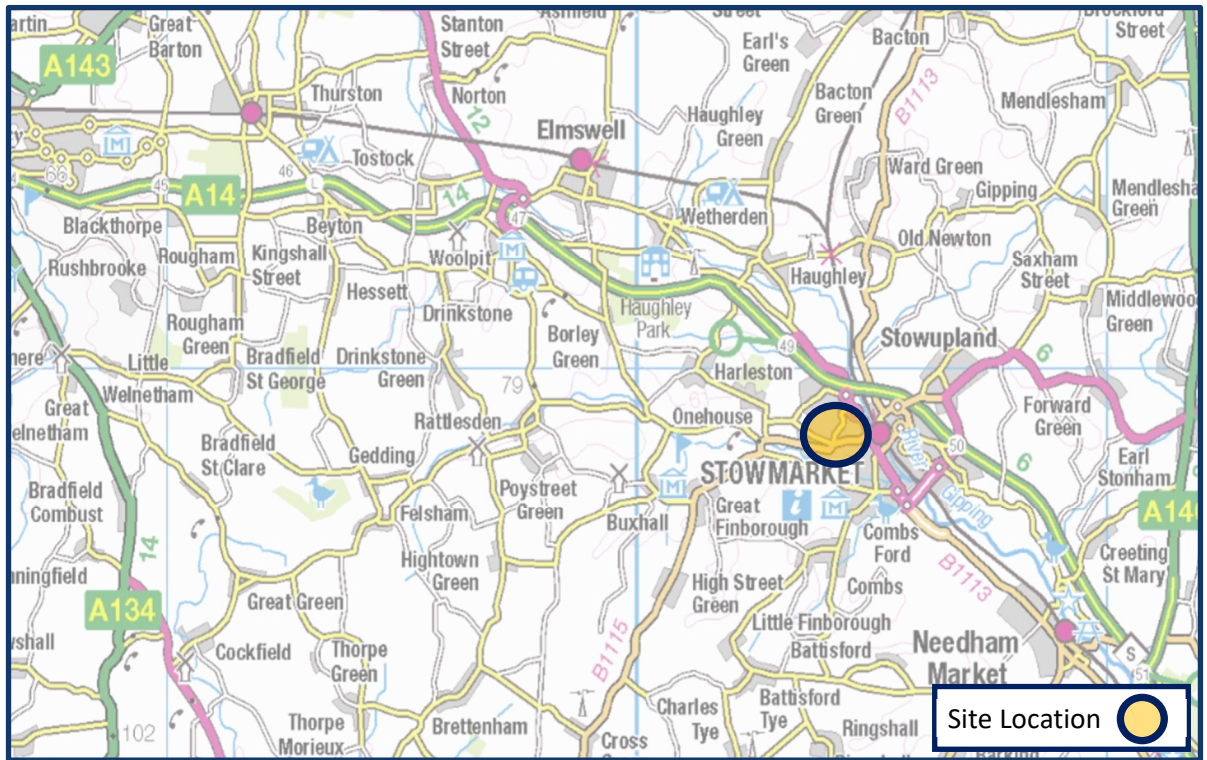


Figure 1: Wider Site Location

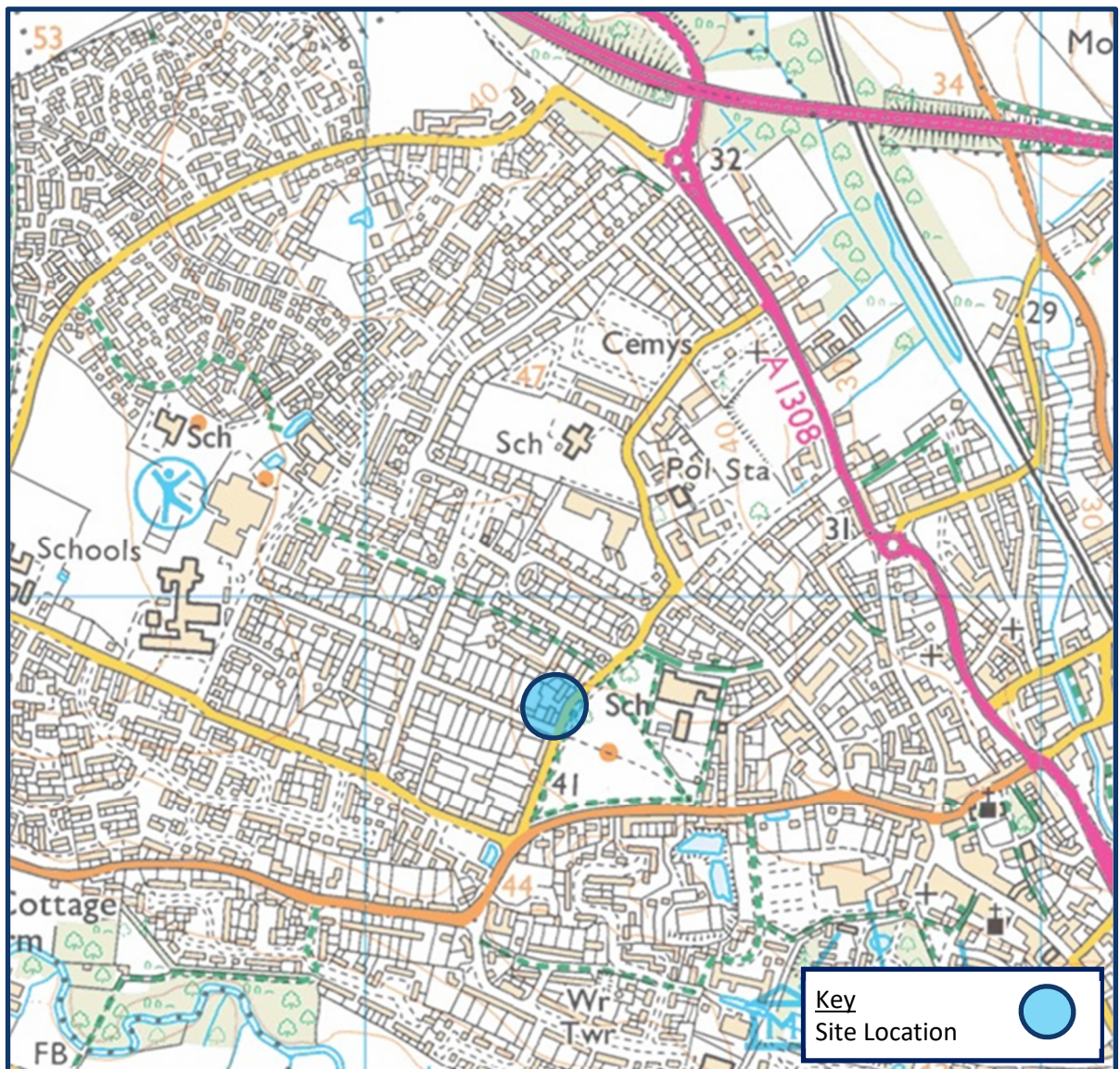


Figure 2: Site Location

2.1.2 The site is located at National grid reference TM042588.

## 2.2 Existing Property

2.2.1 The existing property is a two-storey semi detached dwelling with a single storey previous rear extension and a detached single garage which is connected to the main dwelling by an 800mm wide close boarded gate.

## 2.3 Ground Conditions

2.3.1 The British Geological Society (BGS) website has been reviewed to establish the ground conditions in the area and consider in more detail historical boreholes from the locality to ascertain the likely feasibility for using infiltration.

2.3.2 The BGS mapping identifies a large area of Lowestoft Formation, which consists of Clay and silt. The extent is shown to encompass the site and the surrounding area as Figure 3 below.

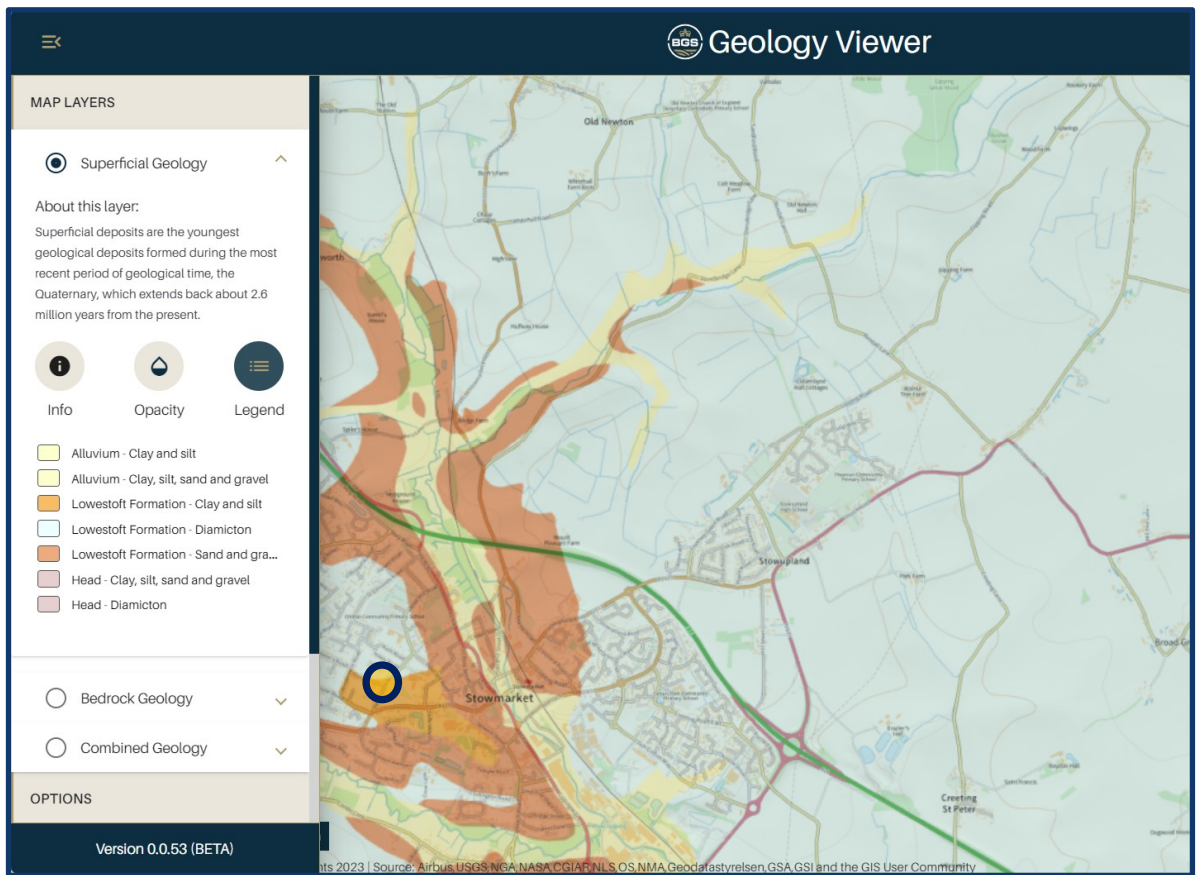


Figure 3: BGS mapping - Superficial plan

2.3.3 At depth the surrounding area is shown to consist of Crag Group-Sand. To understand the depth of the Crag Group and viability for infiltration local boreholes have been reviewed.

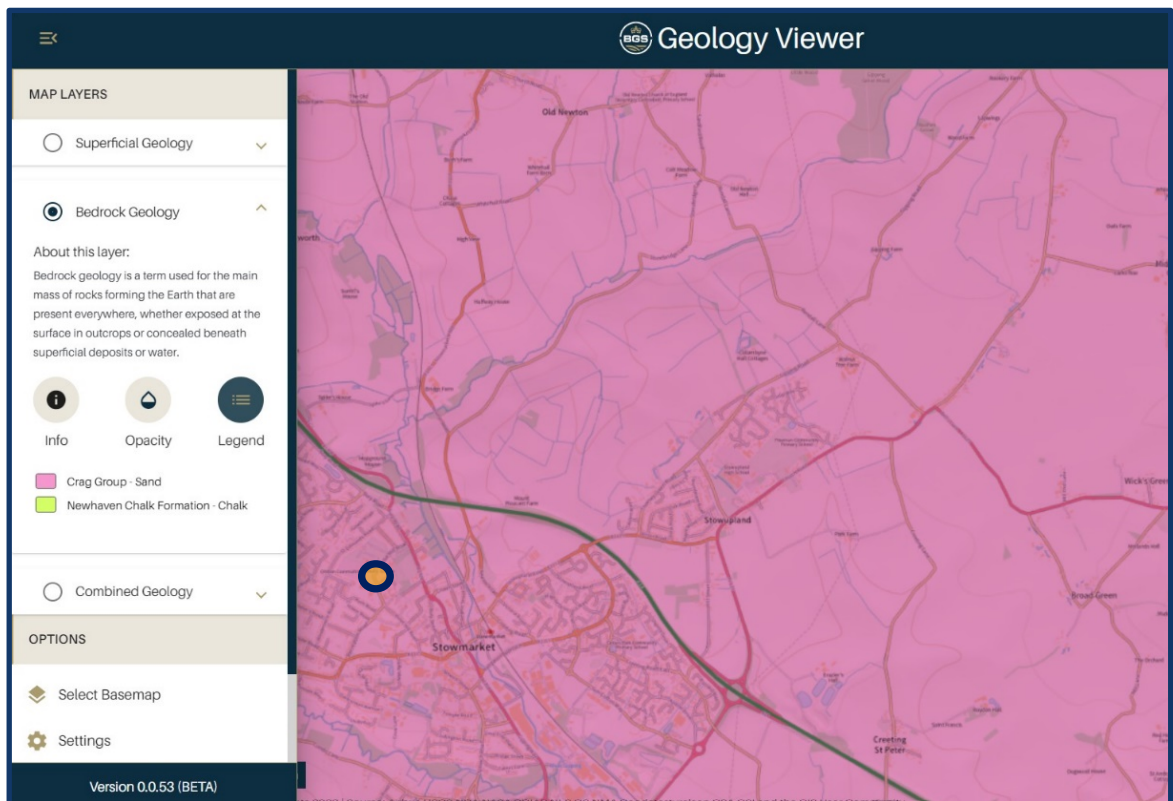


Figure 4: BGS mapping - Bedrock plan

2.3.4 A review of local boreholes in the surrounding area found historical logs located to the north of the site, as shown in [figure 5](#) below. The borehole recorded clays to a depth of approximately 36ft (11m). The borehole records can be found in [Appendix B](#).

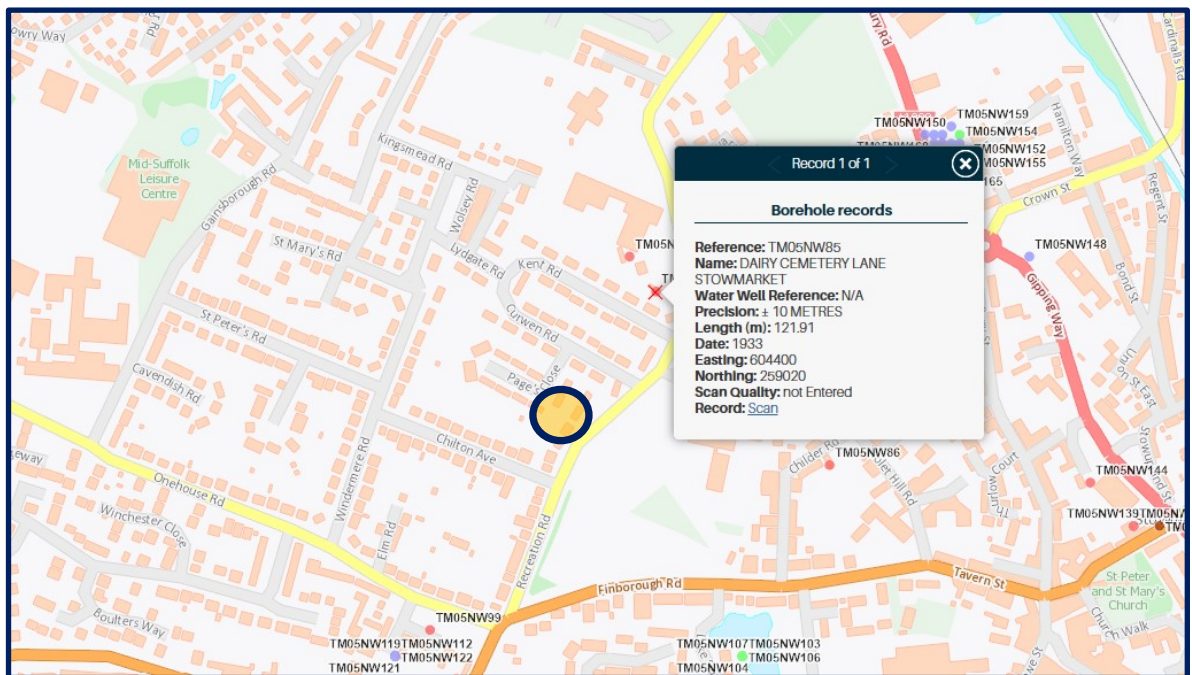


Figure 5: BGS Borehole locations plan



### **3 Proposed Site Use**

- 3.1.1 The proposal is to provide a rear extension that removes the single garage and connects a new side and rear extension comprising of a roof area of approximately 24sq.m.
- 3.1.2 The extension will maintain an access route along the boundary between the front drive and rear garden.

## 4 Planning Policy Context

### 4.1 National Planning Policy

- 4.1.1 The National Planning Policy Framework (NPPF, 2021) includes government policy for developments and meeting the challenges of climate change and flood risk. The policy requires “Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk...”.
- 4.1.2 The location of new developments should take into consideration the impact of climate change through planning to avoid increasing vulnerability as a result of climate change. Where locations are considered vulnerable, these risks should be managed and where possible mitigated to limit the risk.
- 4.1.3 Development in areas at risk of flooding should be made safe without detrimental impact to others elsewhere. Local Plans should be evidence based through the Sequential Test in selecting the appropriate location for new development within the plan period, and thus avoiding places that are at risk of flooding.
- 4.1.4 Development priorities are based on the specific flood risk zones outlined within Table 1 of the technical guidance, as [Figure 6](#) below.

<i>Flood Zones</i>	<i>Definition</i>
Zone 1 Low Probability	Land having a less than 1 in 1,000 annual probabilities of river or sea flooding (shown as 'clear' on the Flood Map – all land outside Zones 2 and 3)
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding, or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in Light Blue in Flood Map)
Zone 3a High Probability	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. (Land shown in Dark Blue on the Flood Map)
Zone 3b The Functional Floodplain	This zone comprises land where water must flow or be stored in times of flood. 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 designated from Zone 3a)

Figure 6: Flood Zone definitions

- 4.1.5 The Environment Agency (EA) website confirms the site to be within Flood Zone 1. The full Flood map for planning can be found in [Appendix C](#). The flood risk to the site is assessed and discussed further in [Section 5](#) of this report.
- 4.1.6 Further guidance in NPPF classifies commercial development schemes to be 'more vulnerable' land class use in terms of flood risk. As such, as defined in NPPF Table 2 (para 79), a 'more vulnerable' use is appropriate land use for sites in Flood Zone 1. The development therefore meets the requirements of the NPPF.

<i>Flood Risk Vulnerability Class</i>	<i>Land-use</i>
Essential infrastructure	<ul style="list-style-type: none"> <li>• Essential transport infrastructure which has to cross the area at risk,</li> <li>• Essential utility infrastructure,</li> <li>• Wind turbines,</li> <li>• Solar Farms.</li> </ul>
Highly Vulnerable	<ul style="list-style-type: none"> <li>• Police and ambulance stations,</li> <li>• Emergency dispersal points,</li> <li>• Basement dwellings,</li> <li>• Caravans, mobile homes and park homes,</li> <li>• Installations requiring hazardous substances consent.</li> </ul>
More Vulnerable	<ul style="list-style-type: none"> <li>• Hospitals,</li> <li>• Residential institutions,</li> <li>• Buildings used for dwelling houses,</li> <li>• Non-residential uses,</li> <li>• Landfill and sites used for waste management,</li> <li>• Sites used for holiday or short let</li> </ul>
Less Vulnerable	<ul style="list-style-type: none"> <li>• Police, ambulance stations not required during flooding,</li> <li>• Buildings used for shops, financial, professional, restaurants, cafes and hot food take-away, offices and general industry, storage and distribution.</li> <li>• Land and building used for agriculture and forestry,</li> <li>• Waste treatment,</li> <li>• Minerals working and processing,</li> <li>• Water treatment works,</li> <li>• Sewerage treatment works,</li> <li>• Car parks.</li> </ul>
Water-compatible development	<ul style="list-style-type: none"> <li>• Flood control infrastructure</li> <li>• Water transmission infrastructure &amp; pump station</li> <li>• Sewerage transmission &amp; pump station</li> <li>• Sand &amp; gravel working</li> <li>• Docks, marinas and wharves,</li> <li>• Navigation facilities,</li> <li>• Ministry of Defence installations,</li> <li>• Ship building, repairs, dismantling,</li> <li>• Water-based recreation,</li> <li>• Lifeguard and coastguard stations,</li> <li>• Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms,</li> <li>• Essential ancillary sleeping or residential accommodation for staff required by uses in this category.</li> </ul>

Figure 7: Land-Use Vulnerability Classification

# 5 Flood Risk Assessment

## 5.1 Introduction

5.1.1 The main sources of flooding have been assessed as part of this report, in line with NPPF Flood Risk from the following sources have been assessed:

- Tidal and Fluvial;
- Pluvial;
- Reservoirs and other artificial sources.

## 5.2 Tidal and Fluvial

5.2.1 Tidal flooding is a result of flooding from tidal waters to land along the coast, or inland usually caused by high tides or storm surge. Fluvial occurs when the water level in a river or stream rises and overflows onto land as a result of the capacity of rivers being exceeded by the river flow.

5.2.2 The Environment Agency (EA) flood map for planning shows the majority of the site access being located in Flood Zone 1, as [Figure 8](#). The EA Flood Report can be found in [Appendix C](#).

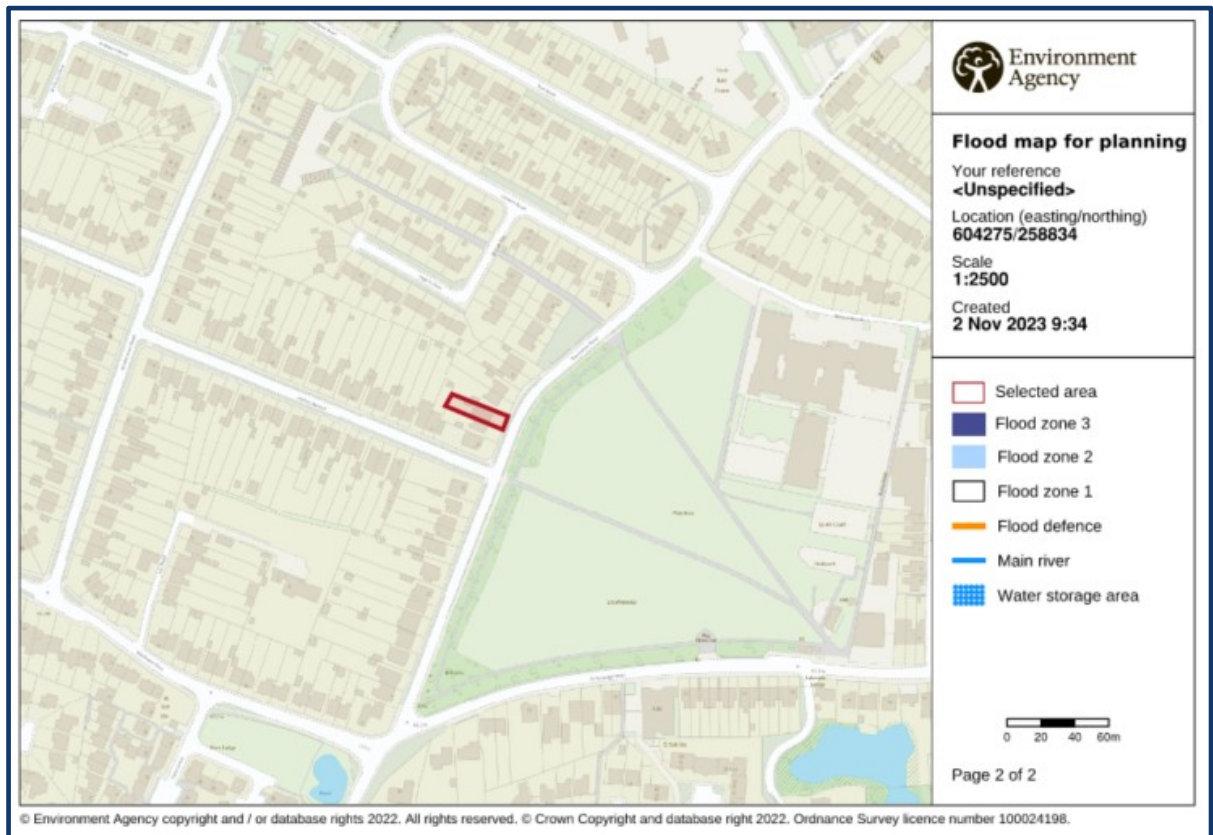


Figure 8: Extent Flood Risk from Rivers or Sea

### 5.3 Pluvial

- 5.3.1 Pluvial flooding occurs as a result of heavy rain creating flooding independent of a water body. Flooding occurs usually in low spots, and as a result of intense rainfall inundating the urban drainage system.
- 5.3.2 The extent of flooding from the Surface Water map from GOV.UK website shows areas of surface water flooding on the site as **Figure 9**. There is overland surface water routing from the Mid Suffolk Leisure Centre along St. Marys Road and across the rear gardens of the dwellings from Windermere Road to Recreation Road and away from the application across the Recreation Park area.
- 5.3.3 The flow of water across the rear gardens will be routed and restricted by the boundary fencing and outbuildings.

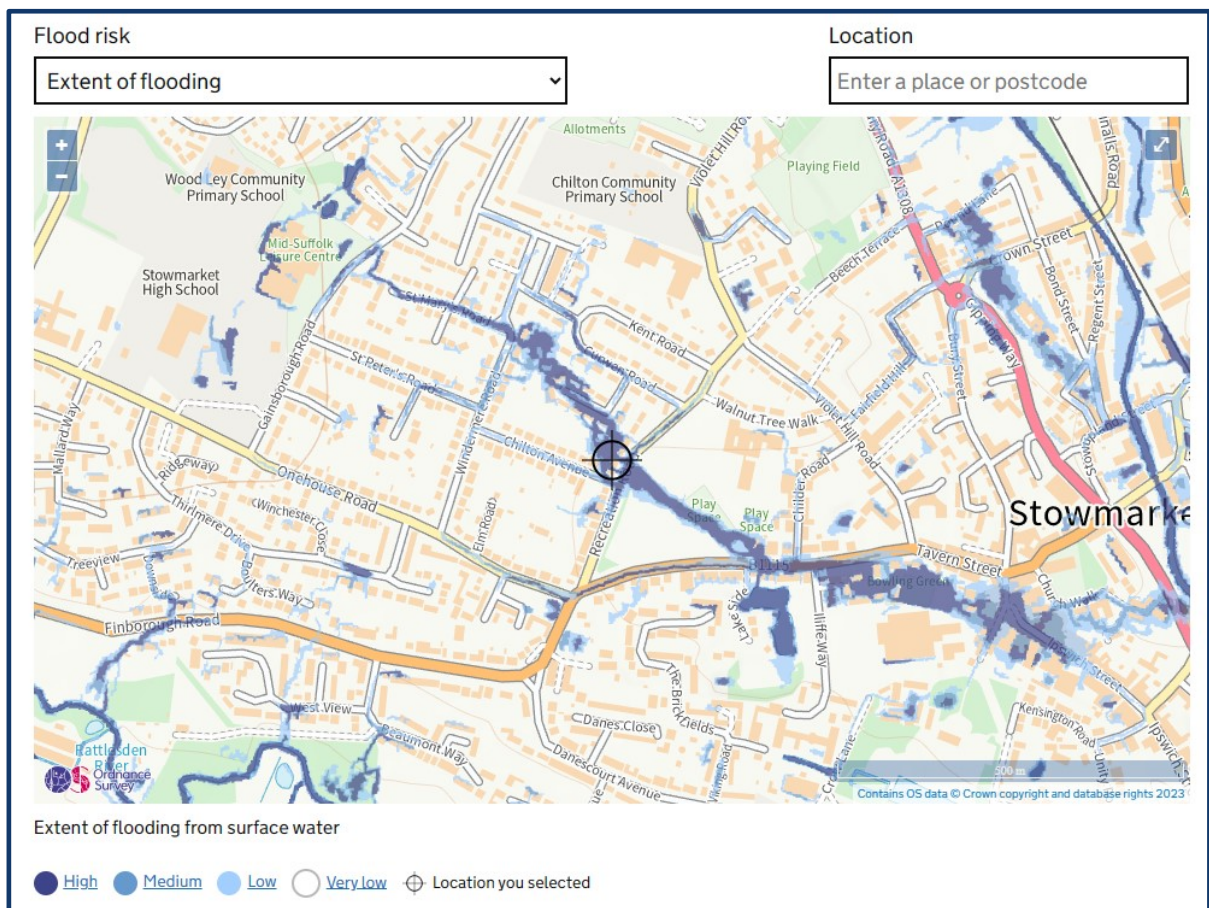


Figure 9: Extent of Surface Water Overland Map

- 5.3.4 The areas are categorized as high risk, which is defined as an area that has a chance of flooding greater than 3.3% each year. These flood areas are shown to be no greater than 300mm in depth, see **figure 10** below.

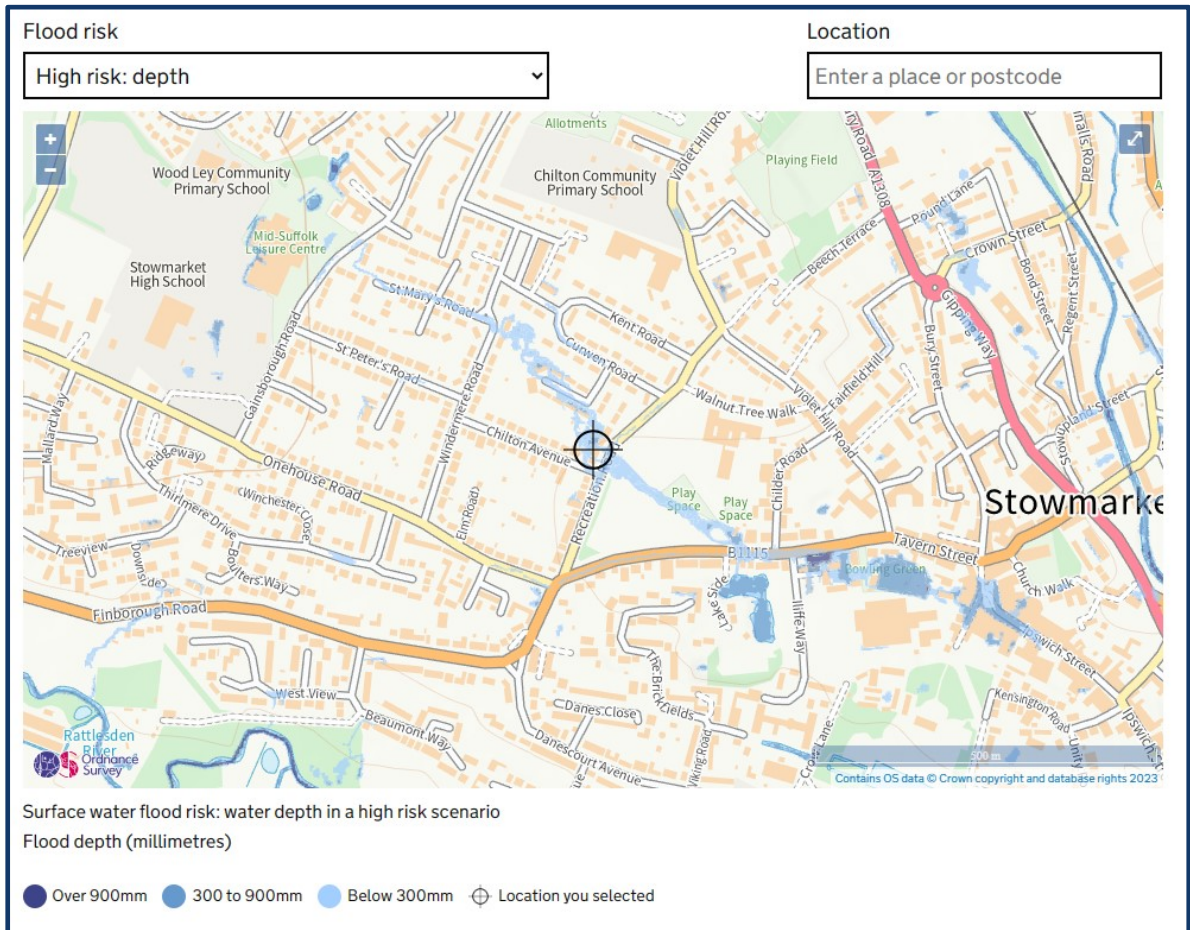


Figure 10: Extent of high-risk overland surface water flooding

5.3.5 For a medium risk event where there is a chance of flooding between 1% and 3.3% each year, the overland surface water routes across the gardens and between the buildings. The flood depth is estimated at about 300mm.

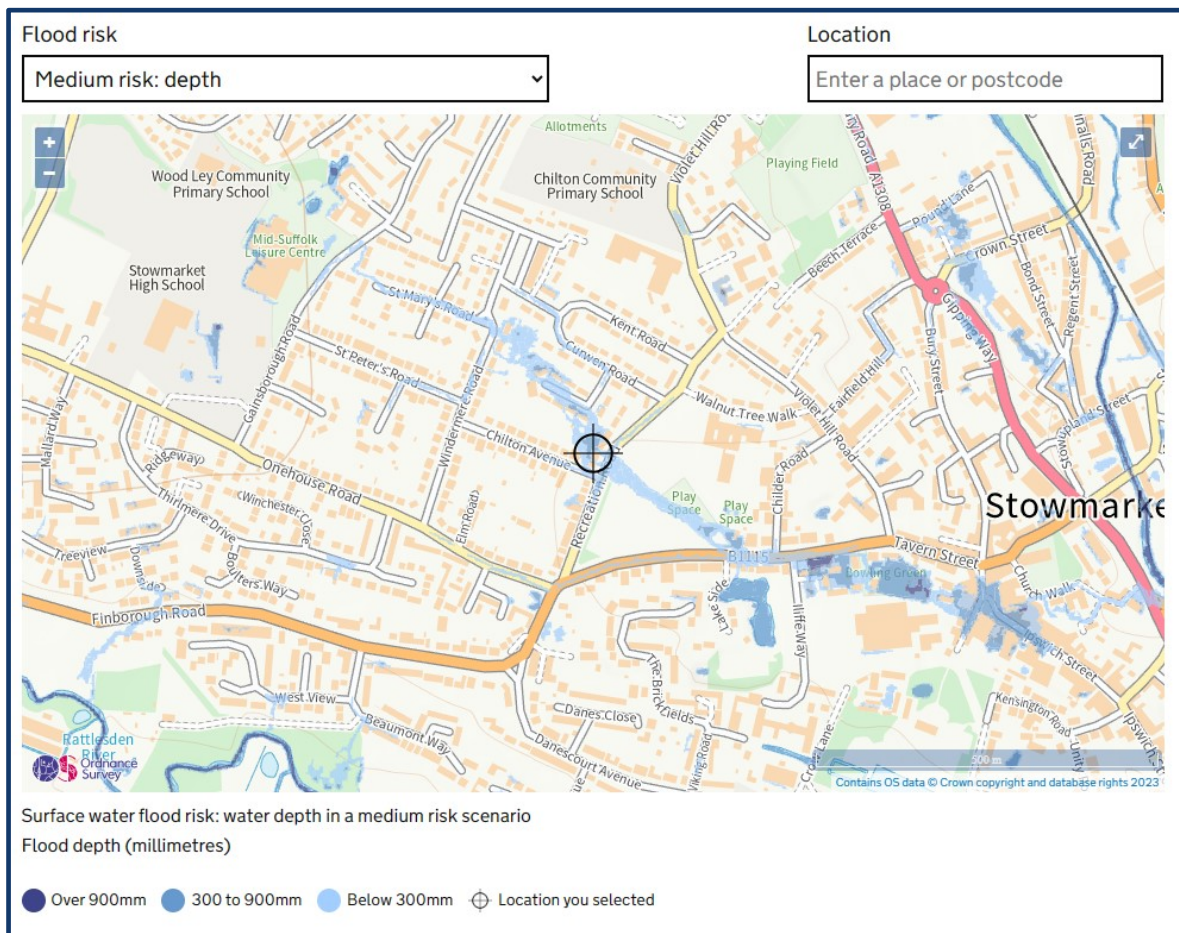


Figure 11: Extent of medium-risk overland surface water flooding

5.3.6 During an extreme storm event where there is a chance of flooding of between 0.1% and 1% each year, the surface water is shown to be between 300 to 900mm in depth. Given the small area which is surrounded by no greater than 300mm deep water it is most likely the depth will be between 300-400mm.



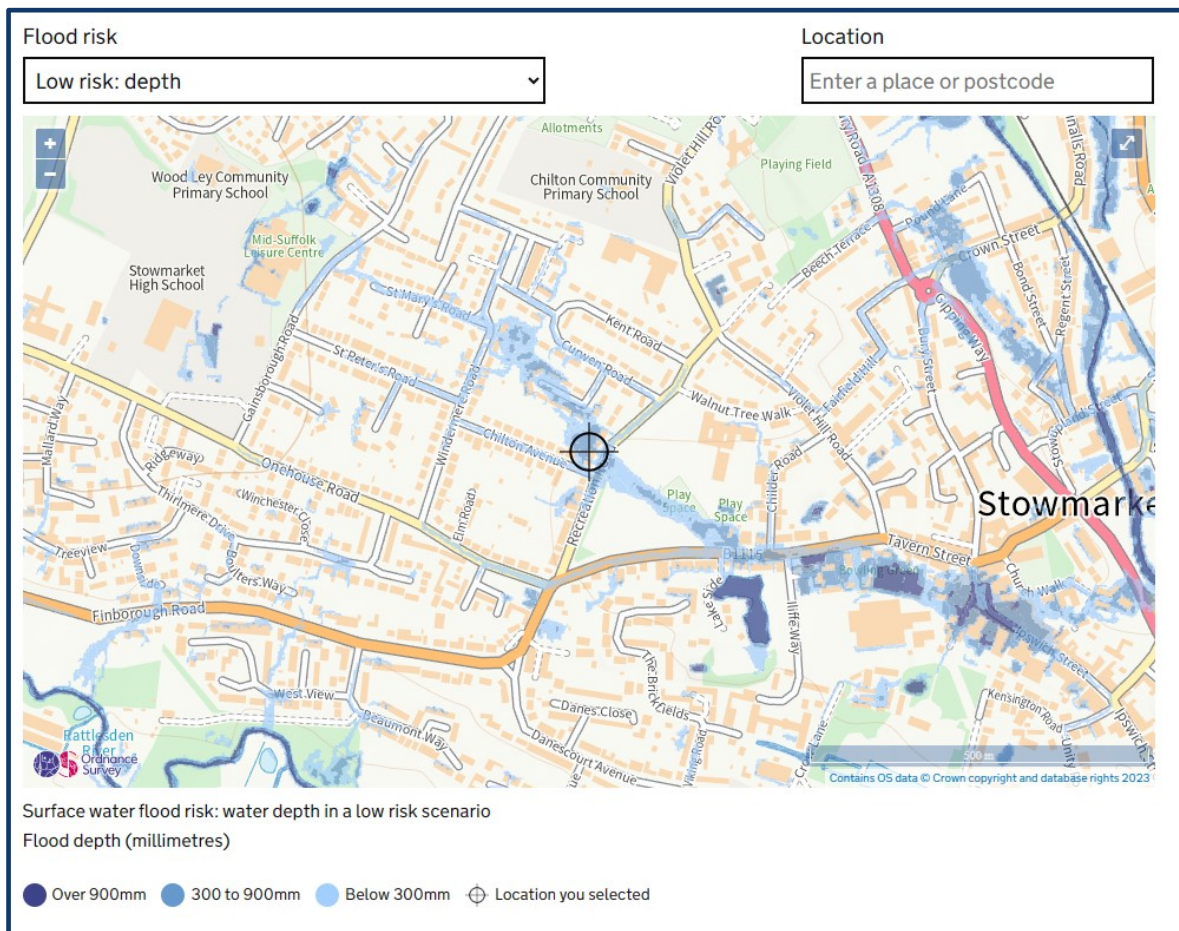


Figure 12: Extent of medium-risk overland surface water flooding

5.3.7 In all cases the overland surface water into the rear garden of 31 and through the 800mm gateway to the front drive.

## 5.4 Reservoirs & Other Artificial Sources

5.4.1 The risk of flooding from the failure of a reservoir has been reviewed and shown to confirm the site is not at risk.

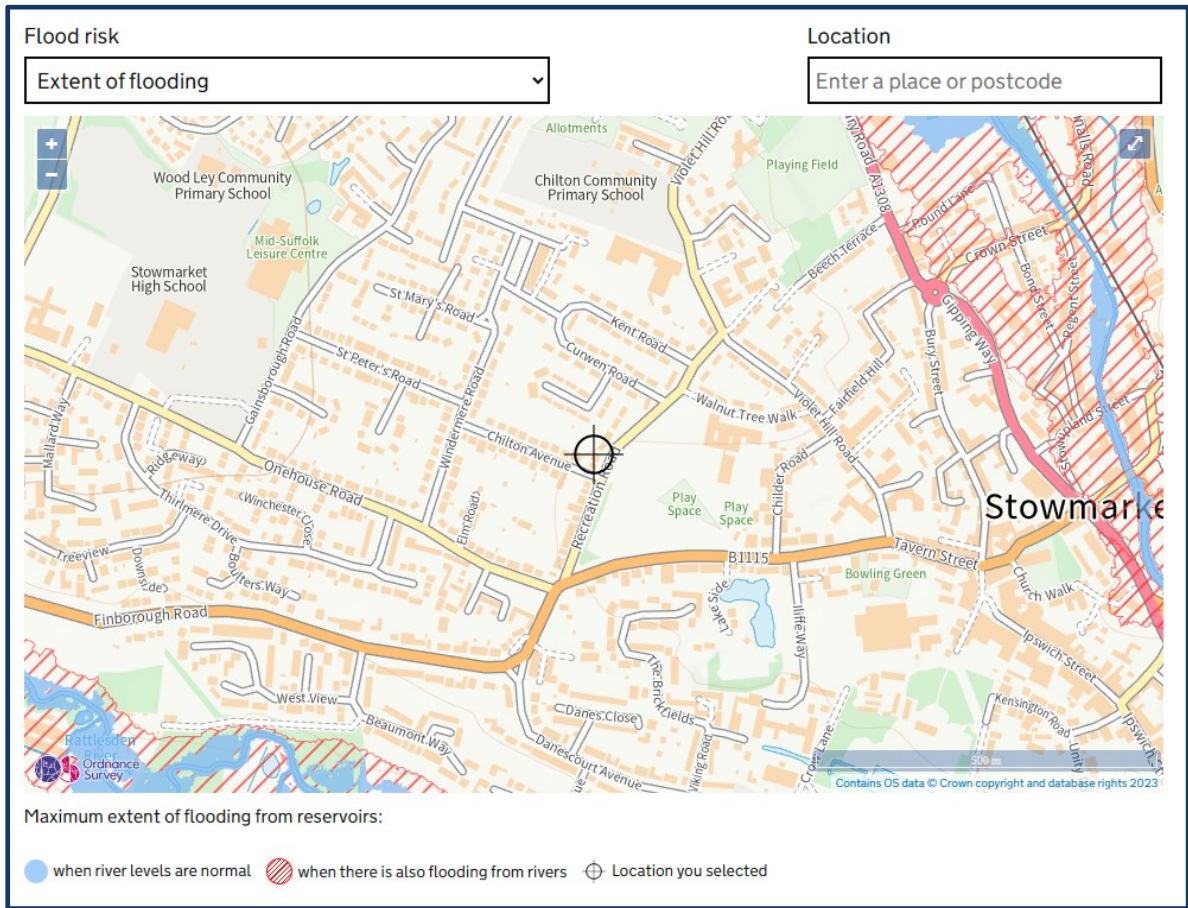


Figure 13: Extent of Reservoir Flooding

## 6 Flood Assessment

6.0.1 The area is located within Flood Zone 1 and not at risk from Fluvial flooding. It is shown the current site is at risk from overland flooding which flows into the rear garden and through to the front drive via an 800mm wide side gate.

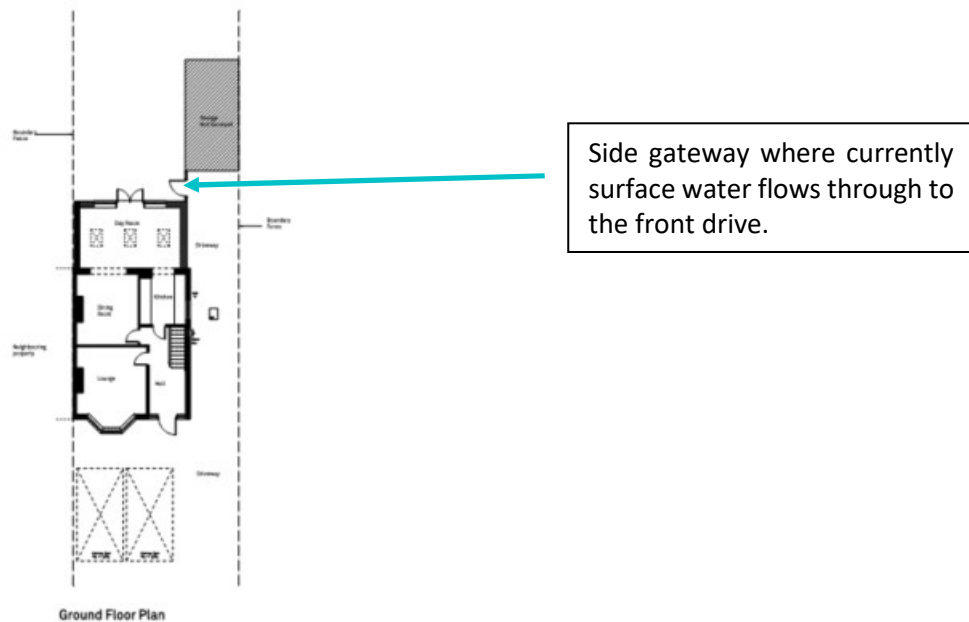


Figure 14: Existing Gound Floor Plan

6.0.2 The garage block equates to 18sq.m. in the rear garden. The proposed extension to the rear of the dwelling will be 16.75sq.m, making a reduction in building footprint in the rear garden and increasing flood storage area. Whilst the proposed extension will extend to the side of the main dwelling, it is considered it would not impact on the surface water flow path.

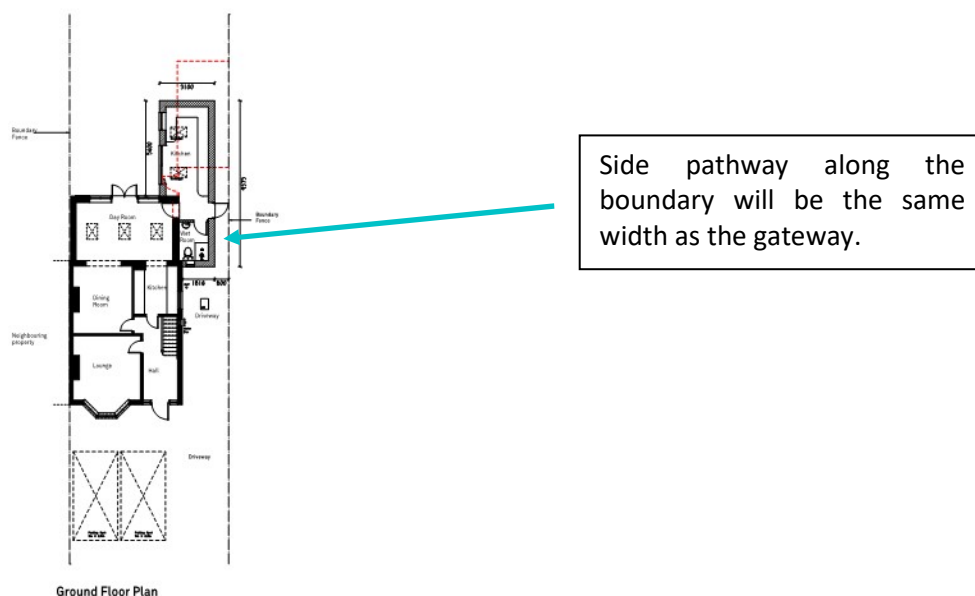


Figure 15: Proposed Gound Floor Plan

## 6.1 *Flood Exceedance*

- 6.1.1 The land topography will remain the same, and the flood exceedance routes will be allowed to flow along the boundary to the front as currently.

# 7 Summary and Conclusion

## 7.1 Summary

- 7.1.1 MJ Engineering Group (MJEG) has been commissioned by Patrick Allen Architects on behalf of Mr. Wright to carry out a Flood Risk Assessment for the proposed extension to 31 Recreation Road, Stowmarket, Suffolk.
- 7.1.2 The site is located in the town of Stowmarket, Suffolk in the Mid-Suffolk District, circa 650m northwest of the Stowmarket town centre.
- 7.1.3 The site is located within a Flood Zone 1 and as a More Vulnerable use is an acceptable use for this location. There is a risk from overland surface water flooding that routes across the local rear gardens to the front.
- 7.1.4 The existing property currently has an 800mm wide gateway that allows overland surface water to flow through to the front. The proposed extension will retain a flow route through from the rear garden to the front.
- 7.1.5 In considering the flood storage area of the rear garden, currently the garage takes 18sq.m. of garden area with the proposed extension taking 16.75sq.m. of the rear garden, increasing the area available.
- 7.1.6 It is concluded that there is no increase in risk from the proposed extension and is considered acceptable.

*Appendix A – Site Proposal*



*Appendix B – Borehole Log*





TM 05 NE/209  
0750. 5954

+

190/443 Park Farm, Stowupland

Surface <sup>50.90</sup> +167. Lining tubes: 146½ × 4 in from surface. R.W.L. +106. Rand,  
Mar. 1947.  
Electric pump. May 1960.

Boulder Clay	...	...	120	120
Sand and Gravel	...	...	10	130
Uc	...	...	120	250

Boulders Clay	Earth	1	1	0.30
	Sand	1	2	0.61
	Yellow Clay	13	15	4.57
	Blue Clay	105	120	36.58
Sand & Gravel	Sand & Gringle	10	130	29.62
U Clz	Challe	120	250	76.20

## *Appendix C – Flood Report*

# Flood map for planning

Your reference  
<Unspecified>

Location (easting/northing)  
604275/258834

Created  
2 Nov 2023 9:34

**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 2022 OS 100024198. <https://flood-map-for-planning.service.gov.uk/os-terms>




## Flood map for planning

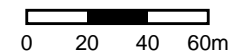
Your reference  
**<Unspecified>**

Location (easting/northing)  
**604275/258834**

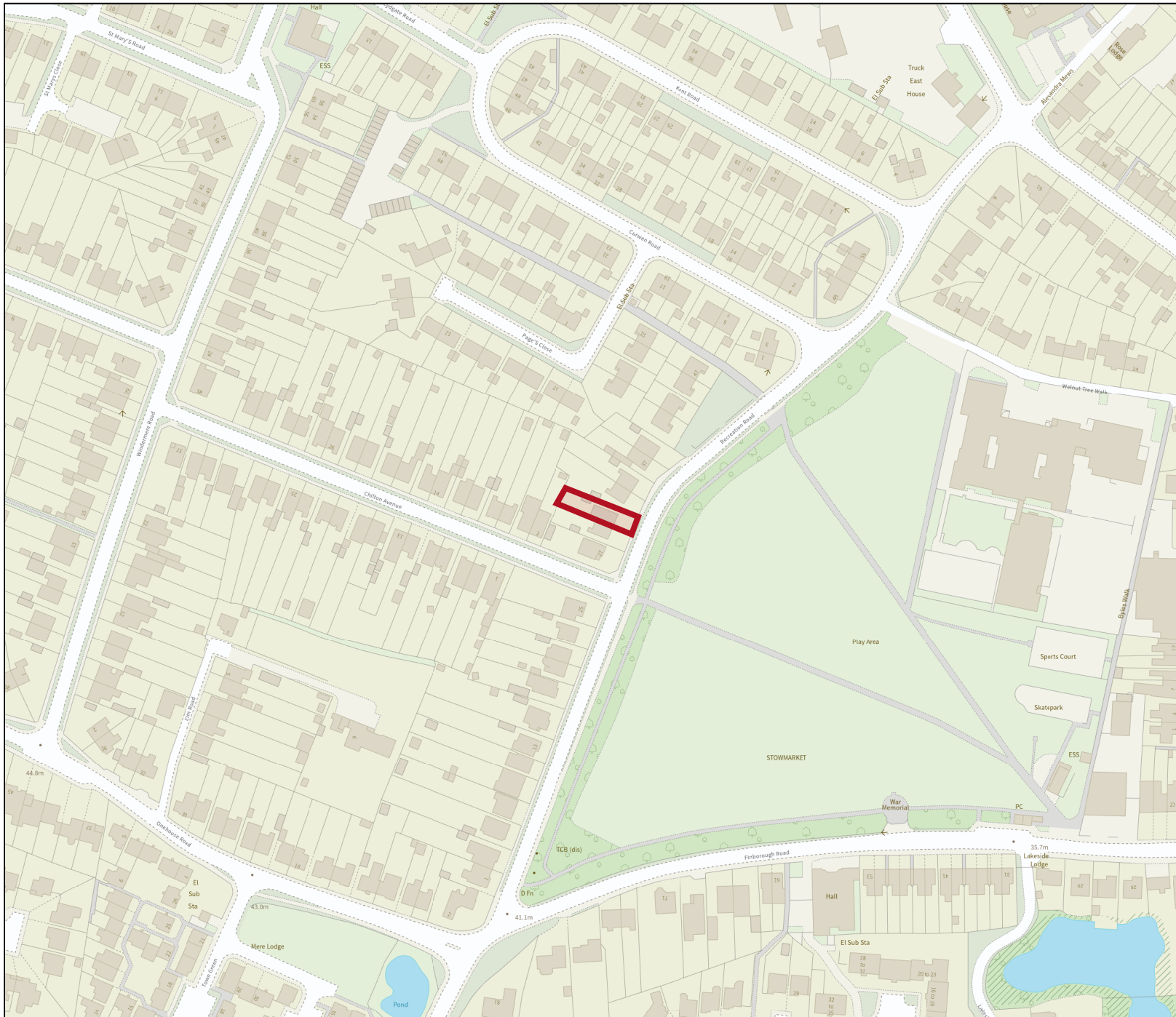
Scale  
**1:2500**

Created  
**2 Nov 2023 9:34**

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



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