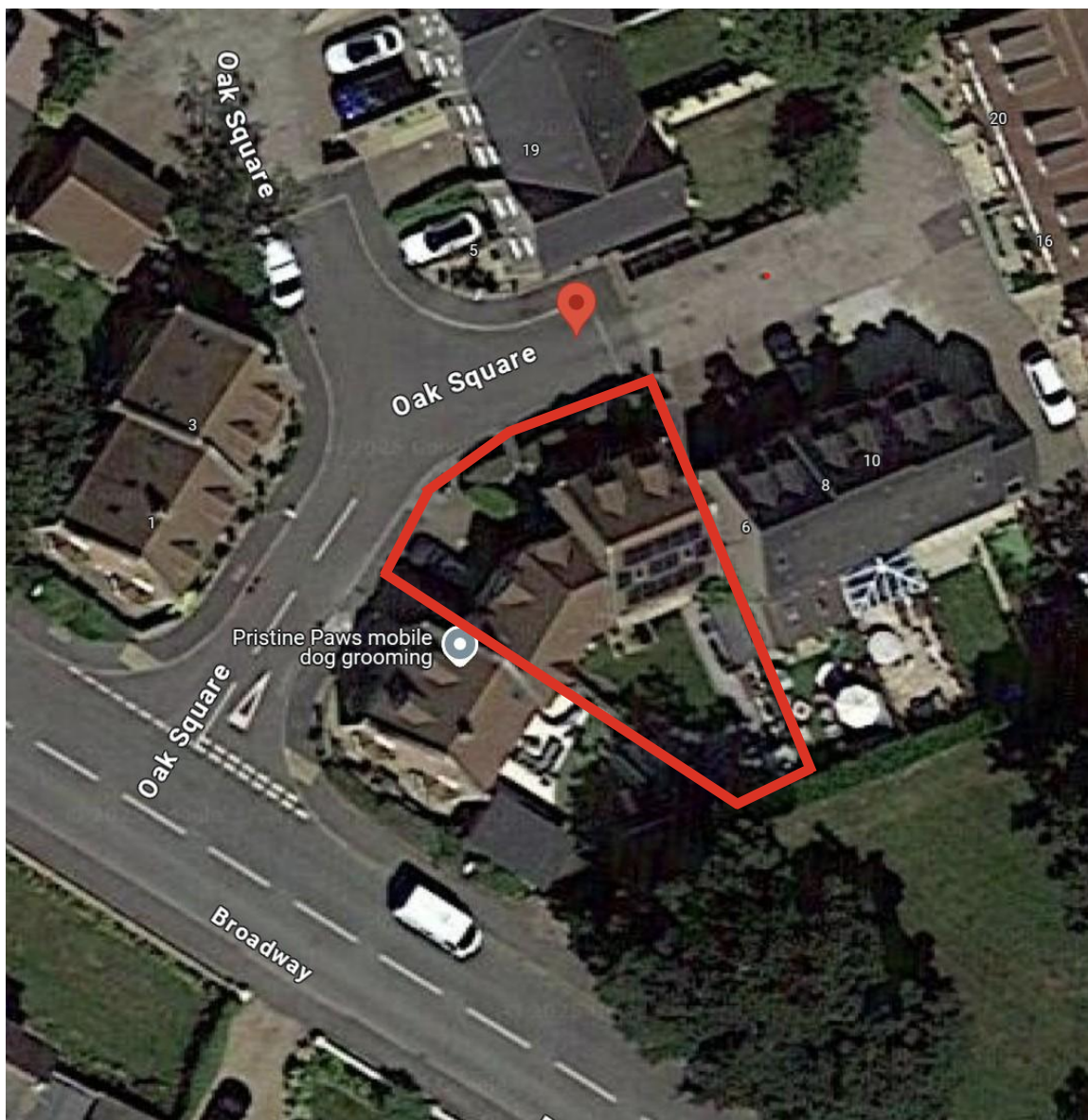


Flood Risk Assessment (FRA)

Site Address: 4 Oak Square, Crowland, Spalding, PE6 0DX

Planning Reference: H02-0311-25

Date: 09/04/2025

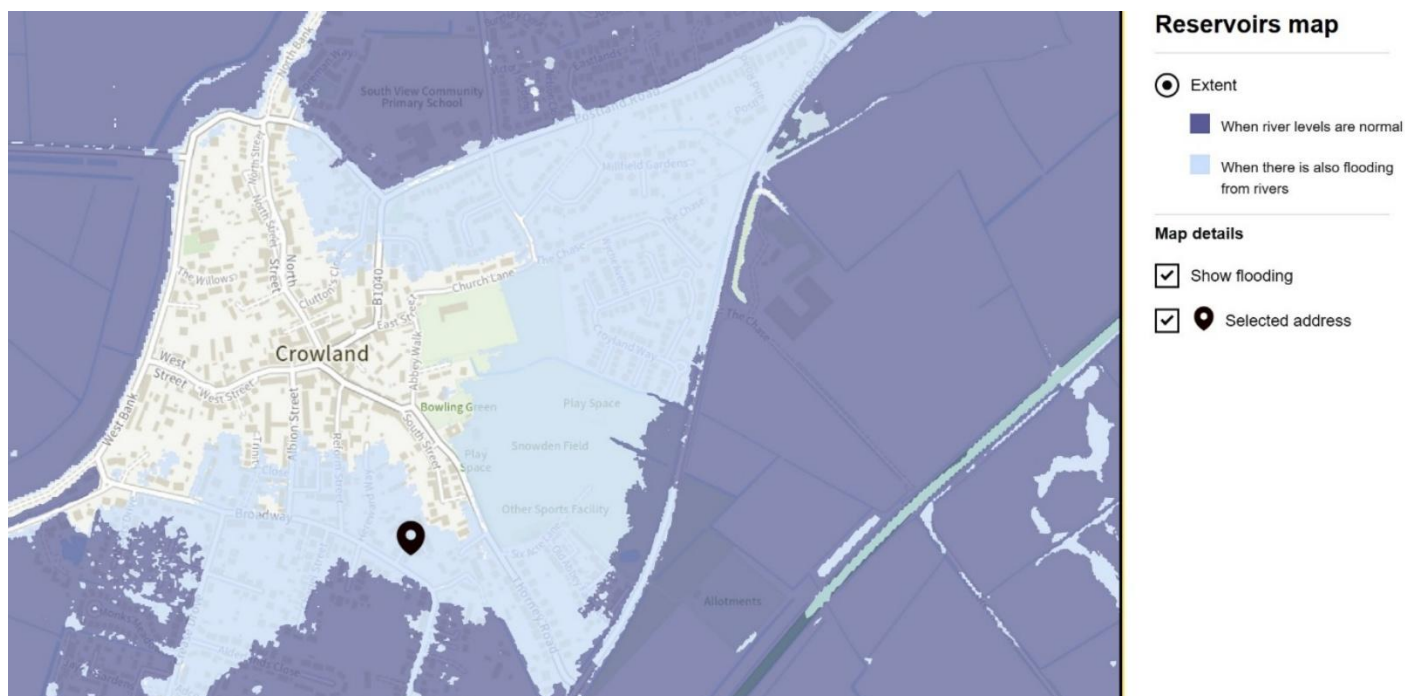


1. INTRODUCTION

This Flood Risk Assessment (FRA) has been prepared in response to the requirement from planning control for the proposed development at **4 Oak Square, Crowland, Spalding**. The purpose of this document is to address the potential flood risks associated with the site and to provide mitigation measures, if necessary, in line with the Lincolnshire Strategic Flood Risk Assessment Hazard maps.

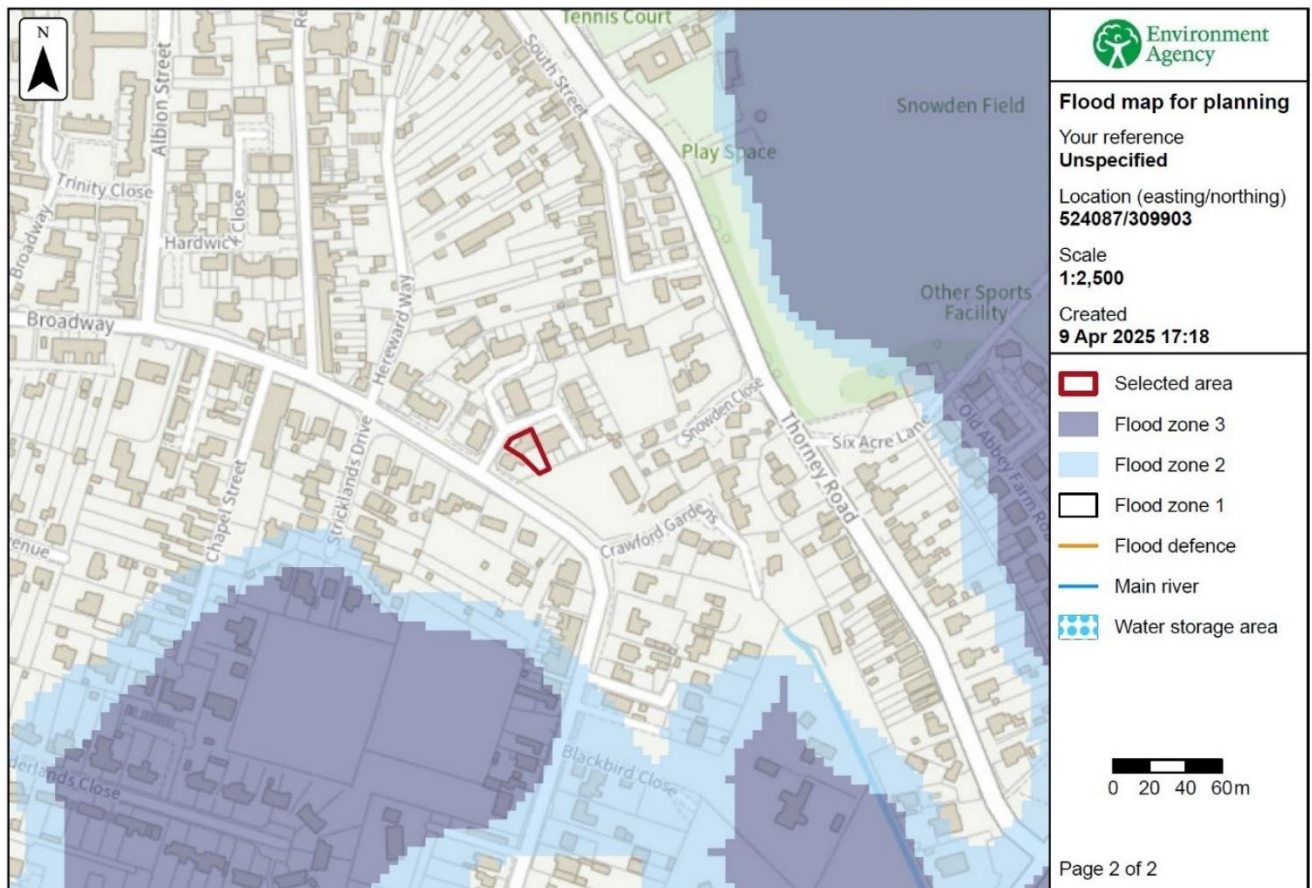
2. FLOOD ZONE CLASSIFICATION

The site falls within **Flood Zone 1**, which is classified as land with a **low probability of flooding** (less than 1 in 1,000 chance of flooding annually). However, the site is located within an area identified by the **Lincolnshire Strategic Flood Risk Assessment Hazard Maps** as being at risk from flooding in the future, meaning the flood risk may increase due to future changes in climate or water management systems.



3. ASSESSMENT OF FLOOD RISK

- **Current Flood Risk:** The site itself is not at high risk of flooding from rivers, lakes, or seas as it is within Flood Zone 1. However, localised flooding may occur due to surface water runoff, particularly during periods of heavy rainfall.

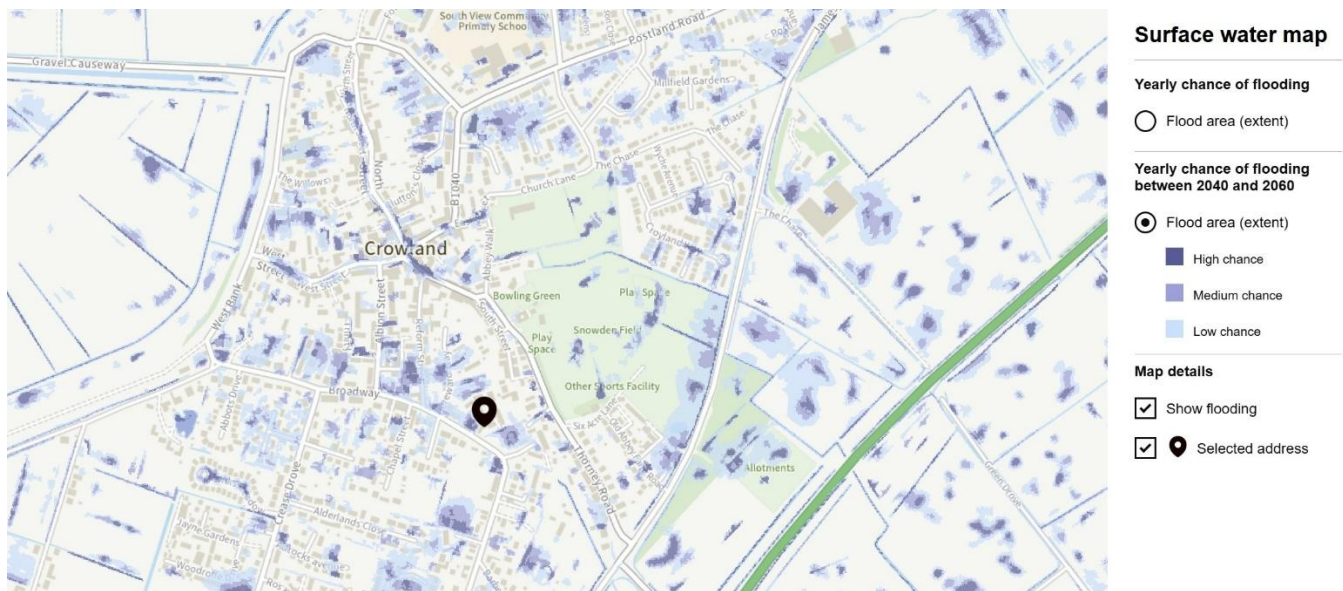


© Environment Agency copyright and/or database rights 2025. All rights reserved. © Crown copyright and database rights 2025 Ordnance Survey licence number AC0000807064.

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	✓*

From the above table it can be seen that “More Vulnerable” development is satisfactory within flood zones 1 and 2.

- **Potential Future Flood Risk:** According to the Lincolnshire Strategic Flood Risk Assessment Hazard maps, the site is considered to be at **increased risk in the future**, which could result from changing weather patterns, increased rainfall intensity, or development in surrounding areas that could affect local drainage systems.



4. MITIGATION MEASURES AND RECOMMENDATIONS TO MANAGE FLOOD RISK FOR EXTENSION

While the current flood risk is low, several mitigation measures are recommended to reduce the potential impact of future flooding and to ensure the proposed extension is resilient to flood risks:

- **Surface Water Drainage:** The development will include measures to manage surface water runoff, such as permeable paving, soakaways, and/or attenuation tanks to prevent exacerbating local flooding issues.
- **Raise Finished Floor Levels (FFL):** The finished floor level of the proposed extension will be raised above the existing ground level to prevent surface water flooding from impacting the interior. A general guideline is to raise the floor level by at least **300mm** above the highest recorded flood level in the area, or **150mm** above ground level where surface water flooding is a concern.
- **Flood-Resistant Materials:** Use flood-resistant materials for the construction of the extension, particularly in areas that could be exposed to floodwaters (e.g., ground floors, lower walls). Examples include water-resistant finishes, treated timber, and masonry that can withstand exposure to water without significant damage. Floors should feature sealed concrete, tiles, or materials that won't absorb water or weaken when wet.
- **Flood Risk Management:** The design will incorporate flood-resistant materials and construction techniques to minimize potential damage in the event of future flooding. Additional measures include the installation of flood barriers or flood-proof doors at vulnerable entry points to prevent floodwater from entering.
- **Sump Pumps and Drainage:** Install a sump pump system to remove water that may accumulate in the extension, and ensure proper drainage systems are in place to direct excess water away from the building.

- **Ventilation and Air Bricks:** Ensure that air bricks, vents, and other openings are placed at higher levels above the potential flood level. This will allow water to flow through the building without causing structural damage.
- **Flood Resilient Landscaping:** Adapt the surrounding landscaping to encourage water drainage away from the extension, using sloped surfaces or permeable paving that allow water to be absorbed rather than running into the building.
- **Use of Flood Warning Systems:** Consider installing a flood warning system to monitor water levels in the area, providing early alerts in case of potential flooding. This will enable time for preventative measures such as elevating furniture or shutting off utilities.
- **Incorporate Flood Resilient Design Features:** Design the extension with features such as removable or raised electrical outlets and appliances, ensuring that any potential flooding has minimal impact on essential areas.
- **Flood Risk Adaptation (Floodproofing):** If the site is in an area prone to frequent flooding, consider incorporating floodproofing measures such as raised platforms or flood-resistant barriers.
- **Emergency Access:** Keep pathways and doors clear and easily accessible for quick evacuation.

These measures will ensure the extension remains resilient to flooding, minimizing both short-term and long-term damage in the event of future flooding, while also ensuring safety and accessibility for residents.

5. CONCLUSION

This assessment has demonstrated that while the site is located in Flood Zone 1, it is within an area at increased risk of flooding in the future. Therefore, this Flood Risk Assessment addresses the potential future flood risk and proposes mitigation measures to minimize any impact. With the inclusion of surface water management and the elevation of the finished floor level, the risk to the proposed development will be adequately managed.