

# **Flood Risk Assessment Report**

**6 Caroline Close, West Drayton, Middlesex**

## Executive Summary

SECTION	SUMMARY
<b>Location</b>	6 Caroline Close, West Drayton, Middlesex
<b>Area</b>	Approximately 220 sqm
<b>Proposed Development</b>	Retrospective application for a raised platform at the rear of the garden and installation of a temporary wooden structure (shed) on top. The rear of the garden is lower than the level of the garden.
<b>Flood Zone</b>	The site is in Flood Zone 2, indicating a medium probability of flooding.
<b>Topography</b>	The rear of the garden is lower than the level of the garden, necessitating a raised platform for the temporary wooden structure.
<b>Sequential and Exception Tests</b>	Development is minor so Sequential and Exception Tests should not be required.
<b>Main Sources of Flooding</b>	The River Colne, which is located nearby, poses a potential risk of fluvial flooding.
<b>Flood Defences</b>	Existing flood defences, including improvements in drainage and flood management systems, have mitigated the risk of fluvial flooding.
<b>Records of Historic Flooding</b>	The area has experienced several notable flooding events, including the 1947 floods, 1968 floods, 2003 Colne Valley floods, and 2014 winter floods. Surface water flooding events occurred in July 2007 and June 2016.
<b>Fluvial (River) and Tidal (Sea) Flood Risk</b>	Medium - The proximity to the River Colne poses a periodic flood risk, with historical data indicating significant events.
<b>Pluvial (Surface Water) Flood Risk</b>	Medium - Surface water flood maps indicate susceptibility to surface water flooding during heavy rainfall events.
<b>Flood Risk from Artificial (Canals and Reservoirs) Sources</b>	Low - There are no significant reservoirs in the vicinity that would pose a direct flood risk to the site.
<b>Groundwater Flood Risk</b>	Low - The soil in the area has moderate permeability, which may mitigate some groundwater flooding risk. Current data suggests the water table is at a safe level, but monitoring is recommended.
<b>Development Impacts on Local Flood Risk</b>	The raised platform and temporary wooden structure may alter the flow of surface water, increasing local flood risk by affecting surface water runoff. Appropriate drainage measures must be implemented to ensure water does not accumulate or divert towards adjacent properties.
<b>Proposed Flood Risk Mitigation Measures</b>	<ul style="list-style-type: none"> <li>- Ensure the raised platform is designed to allow for free flow of water underneath to prevent obstruction of surface water flow.</li> <li>- Install flood barriers at doorways and vulnerable entry points of the temporary wooden structure.</li> <li>- Upgrade local drainage systems to handle surface water effectively</li> <li>- Implement Sustainable Drainage Systems (SuDS), such as permeable pavements and rain gardens, to enhance water infiltration and reduce runoff.</li> <li>- Schedule regular maintenance of drainage and sewer systems to ensure they remain functional.</li> <li>- Develop a flood emergency plan, including safe evacuation routes and contact information for emergency services.</li> </ul>
<b>Surface Water Management (SuDS)</b>	<ul style="list-style-type: none"> <li>- Implement Sustainable Drainage Systems (SuDS) to manage surface water runoff.</li> <li>- Use permeable pavements, rain gardens, and green roofs to enhance infiltration.</li> <li>- Ensure proper maintenance of SuDS to sustain their effectiveness.</li> </ul>
<b>Conclusion</b>	The property at 6 Caroline Close, West Drayton, Middlesex, is at medium risk of fluvial and surface water flooding. With the proposed mitigation measures, including raised platform at the rear garden and regular maintenance, the flood risk can be effectively managed to ensure safety and resilience.

## 1. Introduction

This Flood Risk Assessment (FRA) is prepared for the property located at 6 Caroline Close, West Drayton, Middlesex, in accordance with the requirements set by Hillingdon Council. The purpose of this assessment is to evaluate the flood risk to the site, specifically for a retrospective application for a raised platform at the rear of the garden and the installation of a temporary wooden structure (shed) on top. This assessment aims to propose appropriate mitigation measures to ensure the safety and resilience of the property against potential flooding events.

## 2. Site Description

- **Location:** 6 Caroline Close, West Drayton, Middlesex
- **Coordinates:** Latitude 51.5108, Longitude -0.4710
- **Site Area:** Approximately 220 sqm
- **Current Use:** Residential
- **Proposed Development:** Retrospective application for a raised platform at the rear of the garden and installation of a temporary wooden structure (shed) on top. The rear of the garden is lower than the level of the garden.

## 3. Flood Risk Sources

The potential sources of flooding for the site include:

1. **Fluvial (River) Flooding:** The site is near the River Colne, which poses a potential risk of fluvial flooding.
2. **Surface Water Flooding:** Heavy rainfall can lead to surface water accumulation in low-lying areas.
3. **Groundwater Flooding:** Rising groundwater levels can potentially impact the site.
4. **Sewer Flooding:** Overloaded sewers during heavy rain events could cause local flooding.
5. **Reservoir Flooding:** Though less likely, failure of nearby reservoirs could pose a risk.

## 4. Flood Risk Analysis

### 4.1 Fluvial Flooding

- **Flood Zone Classification:** According to the Environment Agency's flood map, the site is located in Flood Zone 2, which indicates a medium probability of flooding.
- **Historical Data:** There are no records of significant flooding at the site in the past.

### 4.2 Surface Water Flooding

- **Mapping Data:** Surface water flood maps indicate that parts of Caroline Close are susceptible to surface water flooding during heavy rainfall events.
- **Drainage Systems:** Existing drainage systems need assessment for capacity and functionality to handle heavy rain events.

- **Impact of Proposed Development:** The raised platform and temporary wooden structure (shed) may alter the flow of surface water. Appropriate drainage measures must be implemented to ensure that water does not accumulate or divert towards adjacent properties.

#### 4.3 Groundwater Flooding

- **Soil Permeability:** The soil in the area has moderate permeability, which may mitigate some groundwater flooding risk.
- **Water Table Levels:** Current data suggests the water table is at a safe level, but monitoring is recommended.
- **Impact of Proposed Development:** The raised platform may require consideration of groundwater movement, ensuring it does not impede natural groundwater flow.

#### 4.4 Sewer Flooding

- **Local Sewer Network:** The local sewer network is maintained by the utility company, and there have been no recent reports of sewer flooding in the immediate area.
- **Impact of Proposed Development:** Ensure the design does not interfere with existing sewer systems.

#### 4.5 Reservoir Flooding

- **Proximity to Reservoirs:** There are no significant reservoirs in the vicinity that would pose a direct flood risk to the site.

### 5. Mitigation Measures

To mitigate the identified flood risks, the following measures are recommended:

1. **Elevation of Property:** Ensure that the raised platform is designed to allow for free flow of water underneath to prevent obstruction of surface water flow.
2. **Flood Barriers:** Install flood barriers at doorways and vulnerable entry points of the temporary wooden structure.
3. **Drainage Improvements:** Upgrade local drainage systems to handle surface water effectively.
4. **Sustainable Drainage Systems (SuDS):** Implement SuDS, such as permeable pavements and rain gardens, to enhance water infiltration and reduce runoff.
5. **Regular Maintenance:** Schedule regular maintenance of drainage and sewer systems to ensure they remain functional.
6. **Emergency Plan:** Develop a flood emergency plan, including safe evacuation routes and contact information for emergency services.

### 6. Historical Flood Data

Understanding the history of flooding in the West Drayton area is essential for assessing the current flood risk and planning appropriate mitigation measures. The following is a summary of historical flood events and records pertinent to 6 Caroline Close, West Drayton, Middlesex:

## 6.1 Fluvial Flooding Events

### 1. 1947 Floods:

- The winter of 1946-47 was exceptionally severe in the UK, leading to significant thawing and subsequent flooding in the Thames Valley and surrounding areas, including West Drayton.
- The River Colne, which runs close to West Drayton, experienced high water levels, causing localised flooding.

### 2. 1968 Floods:

- In September 1968, prolonged rainfall led to widespread flooding across London and the surrounding counties.
- The River Colne and its tributaries again rose, affecting areas of West Drayton.

### 3. 2003 Colne Valley Floods:

- Heavy rainfall in January 2003 led to the flooding of several areas along the River Colne.
- While West Drayton was affected, the impacts were mitigated by improved flood defenses installed in preceding years.

### 4. 2014 Winter Floods:

- The winter of 2013-2014 saw some of the wettest weather on record in the UK.
- The Thames and its tributaries, including the River Colne, saw significant flooding. Areas of West Drayton were impacted, but extensive flood management strategies helped reduce damage.

## 6.2 Surface Water Flooding Events

### 1. July 2007 Floods:

- Intense summer storms in July 2007 caused flash flooding in many parts of London and surrounding areas.
- Surface water flooding was reported in several streets in West Drayton due to overwhelmed drainage systems.

### 2. June 2016 Flash Floods:

- A series of thunderstorms in June 2016 led to surface water flooding in various parts of Hillingdon Borough.
- Caroline Close and adjacent areas experienced temporary flooding due to high rainfall intensity.

## 6.3 Groundwater Flooding Events

### 1. Winter 2000-2001:

- The winter of 2000-2001 saw unusually high groundwater levels across many parts of southern England.
- West Drayton experienced localized groundwater flooding, particularly in lower-lying areas and basements.

## 6.4 Impact on Caroline Close

- While Caroline Close itself has not recorded severe flood damage, its proximity to the River Colne and lower elevation at the rear of gardens makes it susceptible to the broader regional flood risks.
- Historical data suggests that while fluvial flooding from the River Colne poses a periodic risk, the improvements in flood defenses and drainage in recent years have mitigated some of these impacts.
- Surface water flooding remains a concern, particularly during intense rainfall events, due to the potential for overwhelmed drainage systems.

## 7. Conclusion

This Flood Risk Assessment has identified that the property at 6 Caroline Close, West Drayton, Middlesex, is at medium risk of fluvial flooding and potential surface water flooding. However, with the implementation of the recommended mitigation measures, including those specific to the proposed raised platform and temporary wooden structure, the flood risk can be effectively managed to ensure the safety and resilience of the property.

## 8. References

- Environment Agency Flood Maps
- Local Authority Planning and Flood Risk Policies
- British Geological Survey Groundwater Data
- Utility Company Sewer Network Reports