



## CASE STUDIES

### FLOOD RISK ASSESSMENTS & DRAINAGE

# Climate Change and Regulatory Compliance Lead to Increased Focus on Flood Risk Assessments and Drainage Design

**Call:** 0330 223 6475  
**Email:** [enquiries@rabconsultants.co.uk](mailto:enquiries@rabconsultants.co.uk)  
**Visit:** [rabconsultants.co.uk](http://rabconsultants.co.uk)



## THE CHALLENGE

While the causes of climate change are much debated, the data clearly shows that the UK is experiencing warmer and wetter conditions. This increase in both total rainfall and flooding events is having a direct impact on existing property and new developments.

The result is an increased focus from authorities on flood risk and sustainable drainage through the planning process. It is therefore critical for architects, planners, landowners, and developers to choose the right partner in relation to both flood risk assessment (FRA), flood risk mitigation solutions and sustainable drainage (SuDS). A thorough understanding of the National Planning Policy Framework and how this is interpreted through local planning policies and guidance documents is essential.

RAB are one of the leading flood risk consultancies in the UK. We focus on conducting the correct assessment, providing the correct advice, and delivering the correct solution. A significant proportion of business comes from repeat clients, all of whom realise that the experience and expertise within the team will deliver the most practical and cost-effective solution for their development.

The four examples summarised below give an overview of the type of project and solution that RAB have recently delivered for clients.



## CRAWLEY ROAD, CRANFIELD

A large development of 27 new properties on a greenfield site

The site was in Flood Zone 1 and therefore at low risk of fluvial flooding, however, there was a flood risk from surface water, primarily in an area to the north of the site.

A drainage strategy was developed utilising Sustainable Drainage Systems (SuDS) to manage water quantity, water quality, amenity, and biodiversity.

Infiltration was not a viable option due to the high groundwater levels and low infiltration rates, therefore an alternative method was required.

The optimum strategy involved discharging surface water into an existing open ditch to match the pre-development greenfield runoff rates by using a flow control system.

The scheme integrated permeable paving and a detention basin, in line with the SuDS Manual philosophy, taking into consideration site constraints. The challenge was to achieve gravity flow given the shallow depth of the downstream receptor which was achieved via the design of a bund around the basin.





**RESILIENCE  
& FLOOD RISK**

## ARBROATH, SCOTLAND

This project involved the hydraulic assessment of a swale adjacent to the proposed development of a commercial building.

The council required a hydraulic assessment of the swale under exceedance conditions, including the impact on flood risk to the proposed building and the associated engineering works such as car parking.

RAB modelled the existing drainage infrastructure arrangements and undertook a hydraulic assessment of the swale.

Recommendations of the minimum freeboard of the proposed building were made, taking into account elements of uncertainty, including climate change.

RAB also provided a maintenance schedule for the swale in accordance with the CIRIA SuDS Manual.



## WOOD BURCOTE HOUSE, TOWCESTER

Development of a residential block on a small brownfield site.

Surface water flood risk along the site boundary set a design constraint for a successful drainage strategy. The project came under scrutiny from the lead local flood authority who required a stringent flow rate restriction for the site, but with the site being small and located in an urban environment, such a request was quite challenging to satisfy.

RAB worked closely with the council and developer to come up with an integrated drainage solution to manage rainfall on the site whilst also managing the surface water flood risk issue.



## PLUMSTEAD GARDENS, ABBEY WOOD

Plumstead Gardens is a community park located in the London borough of Greenwich.

The park flooded frequently throughout the year and was unusable for days and even weeks at a time. However, the flooding mechanism had not been investigated and defined.

RAB undertook a Flood Risk Investigation to assess the flood mechanism at the site and to identify suitable sustainable drainage solutions that would not increase risk elsewhere.

The investigation revealed that the primary source of flooding resulted from a combination of factors which included:

Surface water combined with the influence from nearby watercourses.

Seasonal groundwater elevation.

A lack of suitable surface water drainage infrastructure.

The site being set in a naturally low-lying location.

RAB worked alongside the park owner to propose a spectrum of viable drainage options with an initial cost-benefit analysis. This provided the council with sound evidence on which to base future plans for the park.

## IN SUMMARY

The importance of building good working relationships with our clients and flood risk management authorities has become increasingly important due to climate change and regulatory compliance. RAB have a proven track record of providing the correct assessment, correct advice, and correct solution.

Please contact us directly for more information on any of these examples, or to explore how our team of experts can support your project and design the most cost-effective compliant solution.



## CASE STUDIES

**Call:** 0330 223 6475  
**Email:** [enquiries@rabconsultants.co.uk](mailto:enquiries@rabconsultants.co.uk)  
**Visit:** [rabconsultants.co.uk](http://rabconsultants.co.uk)