

ROYAL BOROUGH OF KINGSTON-UPON-THAMES

REDUCING FLOOD RISK WITH
NEW DEVELOPMENTS AND
REDEVELOPMENT PROJECTS

BEST PRACTICE CASE STUDIES



INTRODUCTION

New developments give rise to opportunities to reduce net flood risk in the borough. In fact, most planning permission applications are expected to include a flood risk assessment and reduce net flood risk under government policy, outlined in planning policy statement 25.

The best way to achieve a reduction in net flood risk is to consider flood risk management early on in planning and to seek advice whilst forming partnerships with relevant parties.

The following case studies have been compiled to show good practice in relation to flood risk and redevelopment. This should come in use for planning applicants and development officers alike. The case studies show successful implementation of flood risk management employed in redevelopment cases. Within these examples, flood risk has been considered at an appropriate level of priority. Additionally, the planning applicants have established and utilised partnerships with parties such as the Environment Agency, consultant engineers and the local authority to successfully incorporate flood risk into redevelopment.

BEST PRACTICE CASE STUDIES

- 1. Kingston Hospital- William Rous Unit**
- 2. Hogsmill Sewage Treatment Works**
- 3. Chessington Nurseries**
- 4. Reevethorpe Garage**
- 5. Guildhall Annex**
- 6. Bishops Palace House**



CASE STUDY 1

KINGSTON HOSPITAL- WILLIAM ROUS UNIT

-a good example of the use of a 'green roof'

Address:

Kingston Hospital, Galsworthy Road, Kingston-upon-Thames, KT2 7QB

Planning Application:

[07/14128/COND](#)

Flood Zone:

1- Low risk



<http://www.piercehill.co.uk/phmatters-issue1/hospital-1.gif>

Proposal:

The plan for the new William Rous unit included green roofs at first floor level and for the entrance of the building.

The William Rous Unit was proposed in September 2006. The unit provides specialist cancer treatment and care. Planning permission was granted with conditions, including one for the

development and maintenance on a 'green roof'. Consultations between the hospital, engineers and the council lead to detailed plans for the future of the green roof.

Short, low maintenance plants were chosen and the visibility of the feature ensures there is motivation for all year round maintenance.

As a result, the roof reduces rainfall runoff by increasing interception and storage. The feature also provides a visual amenity all year round and yields benefits for insects and birds.



<http://construction.morgansindall.com/assets/w/i/william-rous-2-web.jpg>

Flood risk measures summary:

- 75sqm green roof reduces rainwater runoff by retaining water.

CASE STUDY 2

HOGSMILL SEWAGE TREATMENT WORKS

-focussing on biodiversity when incorporating hard engineering techniques

Address:

Sewage Works, Lower Marsh Lane,
KT1

Planning Application:

[07/12357/FUL](#)

Flood Zone:

3- High risk

Proposal:

The proposal of development at the site focussed on environmental improvement. The plans included restoration of the Hogsmill and erections of a bird hide and viewing platforms on site lagoons. Extensive consultations with ecologists lead to detailed improvements for the attraction of wildlife, with a focus on public involvement to enjoy the results. Planning permission was granted in 2007 with work commencing in August 2009 and scheduled to take two years to complete.

The development is a good example of the practice of coupling ecological improvements with flood risk management. Such work is championed by the London Rivers Action Plan which seeks to aid

projects that restore rivers to their more natural, wildlife friendly states.



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Flood risk measures summary:

The redevelopment included various flood risk measures which were developed alongside the environmental improvements. These included:

- Realignment of the Hogsmill River to create greater biodiversity and alter fluvial processes to handle high water levels.
- Provision of groynes in the river channel to maintain low water velocities.
- Removal of berms at the river edge and reduction of river bank gradients to open the river corridor.



CASE STUDY 3

CHESSINGTON NURSERIES

-a best practice case study of water storage and reuse

Address:

Chessington Nurseries,
Leatherhead Road, KT9 2NF

Planning Application:

[09/10041/FUL](#)

Flood Zone

1- Low risk

Proposal:

The business was seeking the demolition of existing a glasshouse building (845sq m) and the erection of a replacement building (929sq m) with associated landscaping.

Chessington nurseries neighbours the Chessington World of Adventures theme park and is used as a garden centre. The original site was in an aged condition and the business was looking to expand.

The proposed development of the site was centred on the replacement of an 845sq m greenhouse building with a new building 929sq m. The replacement achieves both modernisation and a small increase in indoor retail space, replacing a small section of outdoor retail space. Consultations with the Environment Agency lead to a request for more detail on the proposed flood risk

measures. These were then promptly delivered, and planning permission was granted in July 2009. The redevelopment indentified methods to store and recycle rainwater, thus reducing net flood risk.



<http://localtradeads.co.uk/images/logos/190.jpg>

Flood risk measures summary:

- Surface water drainage via the drainage network and source control measures.
- Onsite storage in the form of a reed-bed to offset the increase in roof area.
- Water collected will be recycled for plant irrigation purposes.

CASE STUDY 4

REEVETHORPE GARAGE

-planning safe egress in times of flood

Address:

Reevethorpe Garage, Penrhyn Road, KT1 2BT

Planning Application:

[09/12073/FUL](#)

Flood Zone:

3a and partially located in functional flood plain Flood Zone 3b- High risk

Proposal:

Change of use to D1 (Non-residential institutions - for education)

Reevethorpe garage is located near the college roundabout in Kingston. The proposed development wished to change the vacant building into a new Power and Assessment training centre in collaboration with Carshalton College. The redevelopment included careful planning in the event of a flood.

Flood risk measures summary:

- Provision of a safe evacuation route in and out of the site.
- Provision of flood resilient construction techniques in proposed development – raised electricity points, air brick covers, demountable barriers for door thresholds.

CASE STUDY 5

GUILDHALL ANNEX

-detailed plans for a simple and effective green roof

Address:

Guildhall Annex & Holding Area, High Street, KT1 1EU

Planning Application:

[09/12033/FUL](#)

Flood Zone

3- High risk

Proposal:

Provision of green roof to annex building, cycle storage and changing rooms and demolition of rear store

The annex is in close proximity to the main Guildhall building in Kingston. Replacement of the concrete roof with a living roof was proposed and granted with extensive planting plans and details on replanting and maintenance.

Flood risk measures summary:

- Installation of living green roof will reduce rainwater runoff by retaining water.
- Planning condition added requesting detailed planting scheme to ensure potential is maximised.



CASE STUDY 6

BISHOPS PALACE HOUSE

-a good example of the use of sustainable urban drainage systems (SUDS)

Address:

Bishops Palace House, 29 Thames Street, KT1 1QN

Planning Application:

[10/12059/FUL](#)

Flood Zone:

3 and 2- High/Medium risk

Proposal:

The redevelopment proposed modifications and extension of Bishops Palace House in central Kingston. This included the change of use of the existing car park and offices to provide a flexible mix of A1 and A3 units with retail units fronting Clarence Street. New restaurants fronting the riverside, cycle storage facilities and public realm works around the site were proposed.

This proposal included specialised urban drainage systems. Incorporation of SUDS can yield a reduction in net flood risk despite an increased footprint which otherwise would reduce storage and increase water runoff.



<http://statics.192.com/estreet//fullsize/1104/10526482.jpg>

Flood risk measures summary:

- Use of SUDS.
- Green roofs and walls to assist with drainage.
- Installation of a flood vent grille to allow the floodwater to flow through the building.
- Proposes to connect as much surface water drainage to existing river outfall.