

Project Profile

Objective

To restrict runoff from a phased luxury housing development to 12 l/s.

Solution

Two storage systems were required on for adoption by Thames Water. Hydro International provided the adoptable system with an oversized pipe and manhole system with a Hydro-Brake® Flow Control and the non-adoptable site using modular Stormcell® storage systems with Hydro-Brake® Flow Controls.



Product Profile

- Modular and flexible.
- Lightweight.
- High structural integrity - suitable for installation below roads, car parks and amenity areas.
- Patented silt prevention system.
- Woven geotextile on the top and bottom of each block prevents intrusion of fines.
- Simple and quick to install.
- Shallow 120 mm deep blocks also available.

Cost-Effective Stormwater Storage Solution

At Goff's Oak in Hertfordshire, Baynham Developments constructed a development of 11 luxury houses. The total site area consists of approximately 1.1 ha.

Thames Water specified that the post-development runoff rate should not exceed that which originally occurred from the site during a 1 in 30 year storm event. Hydro International calculated this as 12 l/s.

The second design criterion for the site was that on-site storage volume provision be made for the 1 in 30 year event. This was calculated by Hydro International to be a total of approximately 127 cubic metres.

Although Thames Water were prepared to adopt the storage system serving the highway runoff, they would not adopt the stormwater runoff from the houses. A further complication was that the development of the 11 houses was to be staged.

Hydro International's solution was to design an oversized pipe and manhole system for the road section to provide the required storage volume of 12.4 m³ for the associated impermeable area. The discharge rate from this section is limited by a Hydro-Brake® Flow Control to the specified area. This was also adopted by Thames Water.

For the non-adoptable storage, an innovative system of providing each individual house with its own storage tank was decided upon.

The 11 houses were divided into 2 groups depending on their impermeable area and required storage volumes were calculated to meet the Thames Water criteria.

For the larger houses a volume of 13.9 m³ was required per dwelling and for the smaller houses, 8.4 m³ per dwelling.

The permissible discharge rate from each house equated to only 0.75 l/s. This meant that the size of the limited Hydro-Brake® Flow Control required for each household would be very small. Although twice the size of the equivalent orifice this still meant using an outlet diameter of only 34 mm.



It was decided that the individual house storage systems would comprise of a Stormcell® system. Each system comprises of an arrangement of 480 mm thick Stormcell® blocks of plan dimensions 2 m x 1 m. These are used in conjunction with perforated pipes, single size aggregate and geotextile and impermeable membranes.

To keep maintenance commitments to a minimum, catchpits have been used to take out grits and mesh drain covers were used to prevent leaves from entering the underground drainage system.

This method of providing site storage was first used in France in 1987. Hydro have been designing and selling such systems for over 9 years and now have over 1000 UK installations.

turning water around ...®

This information is for guidance only and not intended to form part of a contract. Hydro International pursues a policy of continual development and reserves the right to amend specifications without prior notice. Equipment is patented in countries throughout the world.



Hydro International • Stormwater
Shearwater House • Clevedon Hall Estate • Victoria Road
Clevedon • BS21 7RD
Tel: 01275 878371 • Fax: 01275 874979 • www.hydro-international.biz

