

St Andrews Park, Uxbridge



SuDS used

- *Permeable Paving*
- *Swale*
- *Detention Basins*

Benefits

- *Source and Regional Controls*
- *Aesthetic for residents*

1. Location

St Andrews Park, Uxbridge UB10 0RY; 51°32'34.3"N 0°27'55.0"W

2. Description

The 44 hectare site is located to the west of Central London and has been redeveloped into a mixed use residential development (1500) with retail, business premises and leisure amenities in the form of an urban park (Dowding Park 40 acre, opened 2018). VSM Estates Limited (VSM) was the strategic developer of the site and provided the strategic drainage and highway infrastructure across the site.

3. Main SuDS components used

- Source control; various measures including rainwater recycling. This system is incorporated by plot developers through the use of water butts which are the most common means of harvesting rainwater for garden use.
- Swales; these are vegetated features that store or convey water. For this development, swales are broad and shallow channels covered by grass and/or other suitable vegetation. Located along the spine road through the site to primarily receive surface water run-off from roads and pavements. These swales are designed to maximise the water quality treatment benefits to surface water run-off by ensuring the conveyance of flows is over vegetated surfaces as long as can be achieved.
- Filter drains, strips and pervious pavements allow rainwater run-off to infiltrate below finished development surfaces and provide storage if needed. The water is temporarily stored before infiltration into the ground, or discharged to a watercourse or other drainage system. Pervious paving is combined with positive storage facilities (eg storm cell crates) to create additional surface water storage volume where required. These ‘storm cells’ sit below the pervious pavement construction.
- Pervious pavements frequently incorporate perforated carrier pipes within filter trenches running beneath the pavement. With this arrangement, when all design components are used together, the surface water will undergo at least three levels of filtration treatment: through the surfacing, the granular sub-base and through the granular material within the pipe trenches below the sub-base;
- Retention Basins hold excess water and allow controlled discharge to minimise flood risk; they are surface storage basins that provide flow control through attenuation of stormwater runoff. For this development the retention basins will normally be dry and only hold ‘open’ water for short periods during and following rainfall events but they will incorporate ephemeral wetland features to enhance appearance, encourage biodiversity and provide a level of final treatment before water is discharged to the River Pinn.

4. How it works

A combination of source control, site and regional SuDs components are implemented to satisfy the intent of this strategy and the overall agreed discharge rate from the strategic network to the River Pinn is not exceeded.

5. Specific project details

Atkins was commissioned by VSM to undertake the design of the strategic surface water and foul water drainage sewer networks. As the strategic developer for the whole site, VSM, will advise individual plot developers of the drainage discharge rate for each plot, who will then be required to demonstrate compliance.

Atkins provided technical support to this process and assist in the monitoring of compliance with the overall drainage strategy. Both VSM and their technical advisors have worked closely with the London Borough of Hillingdon (LBH) in this regard. This process was on-going until the development was fully ‘built-out’.

6. Maintenance & operation

Private Management Company to manage in accordance with the SuDS Management and Maintenance Plan development for the site.

7. Monitoring and evaluation

Through the planning process LBH were able to monitor and control both the foul and surface water sewer proposals for individual plots by requiring the full details of specific drainage arrangements. This strategic document served as the drainage masterplan to inform how LBH should assess these applications.

8. Benefits and achievements

An improved environment for residents alongside the main spine road. A reduction in run off rate from free discharge to greenfield run off rate of 12.27 l/s/Ha as detailed in the flood risk assessment.

9. Lessons learnt

Each feature in the chain is as important as the next. However it is important to work from the bottom up to ensure sufficient fall on SuDs elements and how it all interacts.

10. Interaction with local authority

London Borough of Hillingdon Vicky Boorman, Flood and Water Team Manager. Establishment of SuDs strategy for the site including sufficient land set aside for swales within the development, creation of a Maintenance and Management Plan and review of detailed design.

11. Project details

Construction completed: 2016 /2017 swales project ongoing, park opened in March 2018.

Cost: NA

Extent: NA

12. Project team

Clients	VSM Estates Ltd http://www.vsmestates.co.uk/ VSM Estates is a joint venture between VINCI PLC and St Modwen Properties PLC established to deliver Project MoDEL, the Ministry of Defence's programme to create a consolidated 21st century MOD Estate at RAF Northolt
Designers	Atkins Global Design Work ChengFung.Ngo@atkinsglobal.com +44 (0)1214 835000 +44 (0)1214 835252 The Axis, 10 Holliday Street, Birmingham
Contractors	Various depending on parcel See VSM
Other	Landscape Architects Vanessa Ross, Technical Director, Allen Pyke Associates; Landscape Architecture, Urban Design, Environmental Planning, The Factory, 2 Acre Road, Kingston upon Thames, Surrey KT2 6EF Tel 020 8549 3434 Mob 07736 920599 www.allenpyke.co.uk Laura Smith, Senior Planner, GVA then went to Turley Associates

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13. Project images and illustrations



Fig 1: Permeable Paving within Parcels. Waterbutts on each house to the rear.



Fig 2: Swales along main spine road.



Fig 3: Detention Basin within Dowding Park.