

SUDS IN SUTTON'S SCHOOLS

THE AREA: The 2011 Surface Water Management Plan identified 12 Critical Drainage Areas (CDAs) within the London Borough of Sutton. CDA 33 - Hackbridge, is located in the north-east of the borough. The CDA was highlighted at having a high flood risk which was validated following the June 2016 flooding.

THE FLOOD RISK: Flooding in CDA33 occurs as a result of an interaction of fluvial, surface and ground water. There are surface water outfalls along the River Wandle and when the river is in flood, the outfalls back up causing flooding elsewhere. Flood risk modelling shows a risk of surface water flooding across the CDA due to the shallow topography and ponding. There are records of flooding along Nightingale Close, Goat Road, Mullards Close, Orchard Avenue, Wood Street, Corbet Close, Eindhoven Close, Philips Close, Reynolds Close and Strawberry Lane. Thames Water has recorded 21-50 sewer flooding incidents in the CDA's post code areas. Modelling carried out in 2015 estimates that there are 135 properties at risk of flooding in the CDA as a result of the 1 in 30-year event (10 commercial & industrial, 122 residential and 3 critical infrastructure).

THE PROJECT: The SuDS in Sutton's Schools project (SiSS) targets large sites upstream of the river. The aim is to retro-fit sustainable drainage systems (SuDS) to reduce the volume of water reaching the river. SuDS mimic nature by attenuating rainwater on site, allowing it to either infiltrate into the ground or be released slowly and safely into the drainage network. The 2015 modelling indicated that if we could disconnect 4.3ha of land currently feeding into the existing drainage network, we could reduce the number of properties at risk of flooding by 83% (135 → 23) as seen in *Figure 1*. This could reduce the cost of damage caused by the 1 in 30-year flood by approximately £2m.

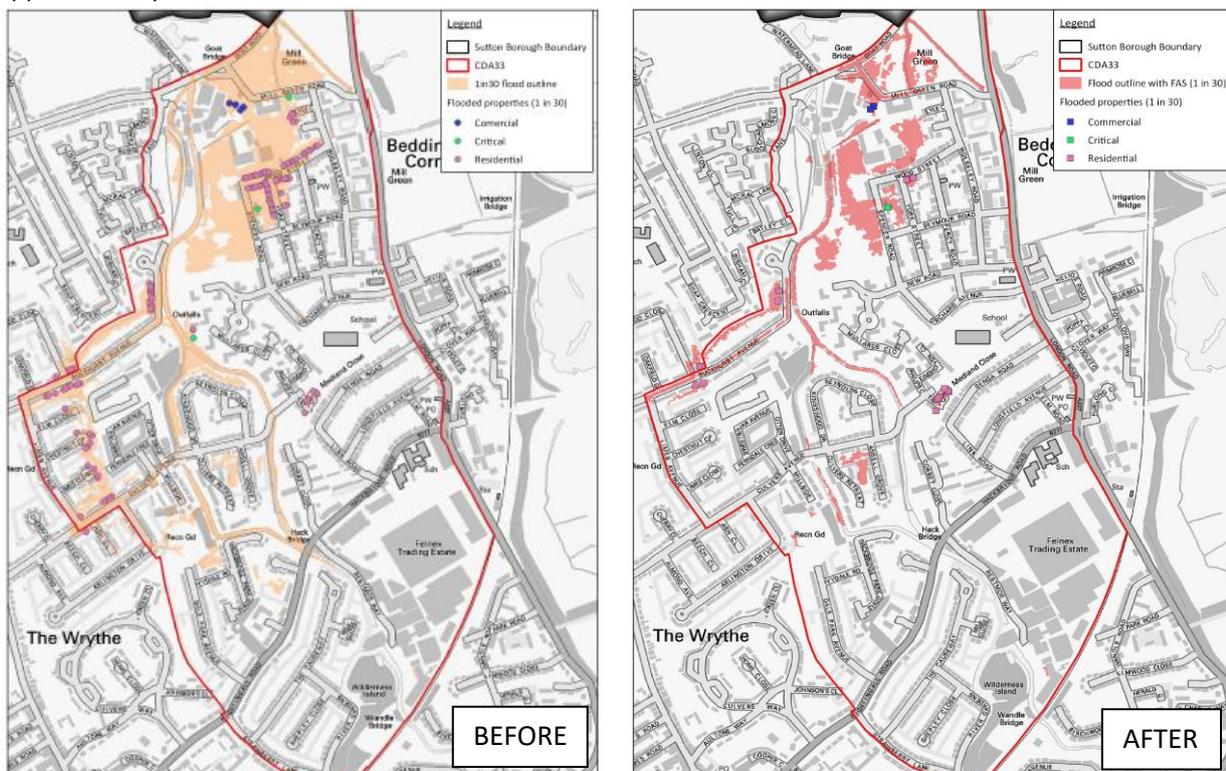


Figure 1. Reduction in flood risk achieved through the SiSS project

Schools have been targeted due to the size of the sites and because they can gain so many benefits from SuDS. Not only do SuDS help to reduce the risk of flooding, but they can be designed to transform an area aesthetically, provide recreational and educational features, help to reduce energy and water bills and improve air and water quality.

THE SITES: Eight sites have agreed to take part. These are as follows:

ID	Site	Description	ID	Site	Description
1	Culvers House	Primary School	5	Carshalton College	Vocational College
2	Harris Junior	Primary School (Academy)	6	Hackbridge	Primary School
3	Victor Seymour	Primary School (soon to be Academy)	7	Muschamp	Primary School
4	24 Denmark Road	LBS Council Office	8	Wandle Valley	School

TYPES OF SUDS: There are different types of SuDS which differ in technique and there can be restrictions due to geology, space, land use etc. The following SuDS have been initially identified as possibly suitable for SiSS:

SuDS Technique	SuDS Technique	SuDS Technique
Waterbutts	Permeable covered swales	Permeable paving
Planters	Wetlands	Tree pits
Rain gardens	Green roofs	French drains

PROGRESS: Metis Consultants have carried out site assessments of each of the 8 sites involved and have developed concept designs with cost estimations for each. These have received positive feedback from the sites. This information was combined with the flood risk investigation work to develop an Outline Business Case (OBC) which has been submitted to the Environment Agency to secure further funding for detailed design and construction. We have agreed financial contributions from Sutton and East Surrey Water and the Thames Restoration Fund. Conversations are also underway with Thames Water for further funding. This funding will make capital funding from external sources such as the Environment Agency (Grant in Aid) and the Thames Regional Flood and Coastal Committee (Local Levy) available to fund the rest through partnership funding. As present, the project is estimated to cost £1.6m, with benefits estimated to be in the region of £5.5m.

NEXT STEPS: Once the OBC is approved, the next allocation of Local Levy funding will be made available for detailed design. An Education Officer will be appointed who will help develop the scheme so that the schools get as much out of it as possible. It is the aim to construct the SuDS at the Denmark Road offices in 2017 and the remaining 7 sites in the summer of 2018.

