Moulsecoomb Primary SuDS in Schools

SuDS used

- Downpipe disconnection
- Rain planters
- Channels and rills
- Permeable paving
- Retention Ponds

Benefits

- Attenuation during rainfall reduces flood risk to school buildings and surrounding area
- Provision of an important educational and play resource for the school
- Creation of a peaceful sanctuary which is used by many pupils who need additional time out of class during the school day
- An inspirational experience for pupils who were involved in the development of the garden from feasibility stage to planting, as well as the creative elements
- Improved access for a range of abilities
- Reduced maintenance requirements for the school
- Improved welfare for school chickens
- Creation of an exemplar rain garden which is used to encourage SuDS take-up in other schools and across the city and region as part of the climate emergency response

1. Location

The Highway, Moulsecoomb, Brighton, BN2 4PA

2. Description

The courtyard garden at Moulsecoomb Primary School was well used by pupils but had become tired and a maintenance burden for the school. Access was restricted and the space had not been well planned out.

The Aquifer Partnership (TAP) partnered with Moulsecoomb Primary School to renovate the courtyard space to a beautiful water-friendly garden with emphasis on education and play opportunities.

TAP was established to protect and improve the quality of groundwater in the Brighton Chalk Block as a valuable natural resource. See wearetap.org.uk for more information.

Moulsecoomb Primary School was chosen to be part of TAP's SuDS in Schools programme as it is in a source protection zone, close to an extraction borehole, and in an area prone to flooding.

3. Main SuDS components used

- Two downpipes convey the water into rain planters with letterbox outlets which overspill into cobble channels leading to a central retention pond.
- A third downpipe was connected to an overhead channel with spout feature into an ornamental pond which also has a letterbox outlet and conveys via a cobble channel into the central retention pond through the gabion wall. Stone rip raps provide erosion protection for the dipping pond planting.
- A fourth downpipe was disconnected and conveys directly to the central pond via a cobble channel.
- The central retention pond is planted with wildlife-attracting perennials with habitat boulders and logs within the planting. A dipping platform allows the pupils to enjoy discovering the pond life.
- A fifth downpipe is directed into permeable paving. This paving will also receive any water overflow from the central pond.
- The final downpipe was converted to an overhead channel with sculpture chosen by the pupils. From here water flows smoothly down a metal pole into a resin bound gravel which also operates as the overall exceedance route connecting to a gulley.
- The garden also includes cold frames, herb planters, two water barrels and a chicken enclosure. A selection of benches allow for outdoor class activities. The ornamental pond was designed with coping stones around the edge for seating. These were engraved with a frog and dragonfly design created by the pupils and a quote from an inspirational fiction book they were reading about greening a city.
- Where possible materials were salvaged and re-used for this scheme. The ornamental pond acted as a wildlife refuge with common newts, frogs and other wildlife being collected and transferred from one pond to another during works.

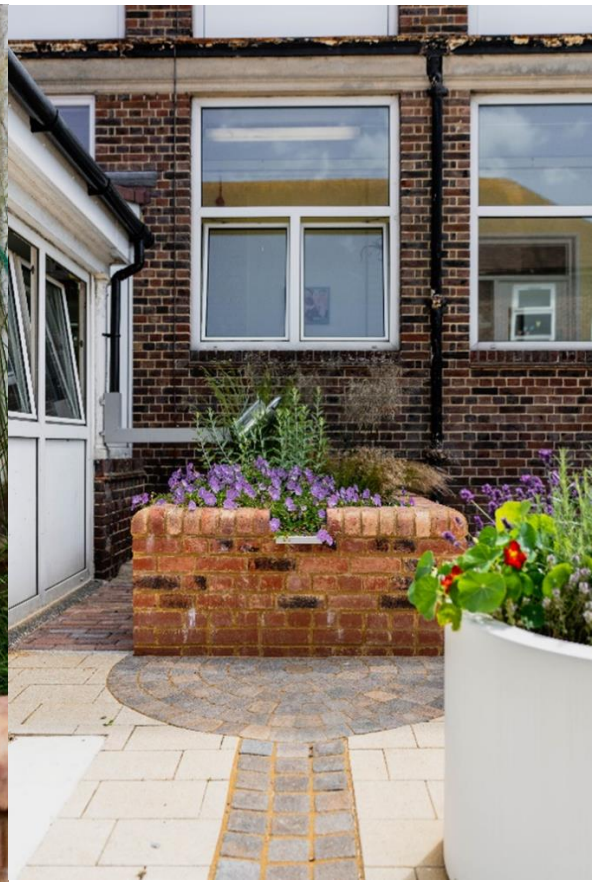

Figure 1: Left - Watering can downpipe spout feature
Figure 2: Right - Rain planter with letterbox outlet and cobble rainwater channel

Figure 3: Ornamental pond with overhead channel and spout feature

Figure 4: Dipping pond

Figure 5: The finished courtyard rain garden

4. How it works

Downpipes draining a large area of roof space were disconnected and directed into SuDS features. Playful and sculptural features were installed in their place to convey the water through watering cans, spouts and poles.

The total catchment of the rain garden is 637m2 and total attenuation is 22.72m3. Around the 1 in 100 rainfall event is managed in the system.

5. Maintenance and operation

Responsibility for operation and maintenance has passed to the school. The school were happy to accept this arrangement as the new rain garden requires less maintenance than the previous courtyard garden, which had become a drain on the schools resources.

Maintenance is carried out by a school gardening team comprised of pupils led by a governor, with some input from the Site Manager.

6. Benefits and achievements

- Attenuation during rainfall reduces flood risk to school buildings and surrounding area
- Provision of an important educational and play resource for the school
- Creation of a peaceful sanctuary which is used by many pupils who need additional time out of class during the school day
- An inspirational experience for pupils who were involved in the development of the garden from feasibility stage to planting, as well as the creative elements
- Improved access for a range of abilities
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7. Lessons learnt

- Delays in supply chains likely to impact on construction timescales - ordering of materials should take place early to reduce risk
- Additional care recommended with collars and bentonite seals when installing posts into geosynthetic clay pond liner – remediation was required as the pond leaked
- The original off–the-shelf rain chains and watering can rose heads rusted very quickly and did not convey the water as required. These were replaced with bespoke metalwork created by a local sculptor.
- Additional resource may be needed (staff, external providers etc.) to maximise pupils interaction with school SuDS

8. Project details

Construction completed: October 2021

Cost: Construction cost - £101,603

Total cost including contract management, sculptures, art and creative workshops, photography and filming etc. - £109, 609

Extent:

Total site area: 320m2

- Permeable paving: 58m2
- Rain planters: 7.5m2
- Central Retention Pond: (mean area) 26m2
- Collector Ornamental Pond: 8m2

9. Project team

Client – The Aquifer Partnership and Moulsecoomb Primary School

Designers – Robert Bray Associates

Contractors – Vu Garden and Landscaping

Funders – Brighton and Hove City Council (Section 106), Southern Water, Environment Agency, The Ouse and Adur Rivers Trust, The Aquifer Partnership

Photographs courtesy of Robert Bray Associates and Maple Photography