Lancaster Estate Rain Garden

Completed Lancaster Estate Rain Garden

"This project is an exemplar for how community-led design has created a practical solution to the climate crisis and is an inspiring example of how community groups can come together to make positive environmental initiatives happen. By working closely with residents, BOST and Petrow Harley landscape architects have designed a SUD which local people are proud of, and can help to look after – creating an effective solution with is well maintained, and providing a deeper understanding of climate change and resilience"

Dan Taylor Programme Manager Regeneration Division

Place and Wellbeing Department, London Borough of Southwark, 160 Tooley Street, London SE1P 5LX

SuDS used

- *Rain water run-off from adjacent roofs has been directed into a new rain garden via a retrofitted downpipe into a drainage channel and then into a planted swale.*
- *Water run-off is allowed to infiltrate into the ground and support a new mosaic of planted areas.*
- *A new dentation area which has been formed to create a new wetland.*
- *The creation of a new rain garden has positively use water run-off from adjacent roof to reduce water discharge into the foul water system and create new habitats as well as forming a naturally defendable space in front of ground level windows.*

Benefits

- *Diverting water run-off from adjacent roof and reducing water flow into the foul water system*
- *Creating a new attractive and feature within the urban environment*
- *Incorporates new planting to support and encourage local biodiversity.*
- *Helps to clean runoff.*
- *Reduces runoff for day-to-day rainfall.*
- *Connects local people to water run-off issues and is simple to maintain.*

1. Location

Open Space between Brookwood House and Albury Buildings, Lancaster Estate, London SE1

Location and Proposals

2. Description

Description details.

The Lancaster Estate rain garden is part of a series of environmental improvements implemented within an underused and unattractive open space within an area of social housing in southeast London not far from Waterloo Station.

The site lies within an area of open space flanked by Lancaster Street on one side and high-density housing along the others. The area contained a small play space and grass with areas sub-divided by bow top fencing. The lack of features and points have interest had led to a sense of abandonment and a lack of social cohesion.

The site was part of a feasibility study for Bankside Open Spaces Trust (BOST) charity to understand how best to deliver improvements to green spaces within the estates in and around Lancaster Street in SE1. The study incorporated community ideas from a local steering group and created a plan of interventions that could be delivered as a joint-client for the project.

The new rain garden was part of a suite of environmental improvements which has been funded by section 106 funding from the Blackfriars Circus development by Barratt's to deliver improvements to the public gardens within the estates along Lancaster Street and in the adjacent streets including Boyfield, Silex and King James Street.

3. Main SuDS components used

Details of SuDS components.

An existing downpipe that runs from the roof down the building was fitted with a new plastic elbow joint leading to divert water run-off. This leads to a new gabion header wall with an exit pipe. A small concrete cobbled area was constructed at the head of the garden and water entry point so that the initial flow from the pipe would not erode the soil away.

A swale was excavated (all spoil was retained on site) and limited to 1:6 slopes and lined with bio-soil and then planted with a range of plants that will thrive in differing areas of moisture. The plants selected used a zonation principle where planted areas and species selection were worked up on anticipated degrees of moisture.

The planted swale flows along the side of one building and ends in a planted wetland land area that will receive excess water run off at times of heavy rain fall. This forms a new wetland area.

4. How it works

Details of how it works.

The re-use of existing rainwater discharge formed the basis for the rain garden design and by disconnecting the downpipe from the adjacent roofs which then feeds the rainwater runoff into the garden as well as absorbing rain that falls directly on it.

The objective is to use the landscape to absorb and attenuate that rainwater runoff and to reduce the total amount of runoff that enters the drains which in times of heavy rainfall can contribute to overloading of that drainage system. In turn, this reduces the amount of surface water run-off and peak flow that can cause surface flash flooding.

In essence, the rain garden utilises the combined effects of soil and vegetation to replicate the processes that would happen during rainfall in a natural landscape, as opposed to what happens with the predominantly hard surfaced urban environment. The rain garden also offers the opportunity to grow a wide range of attractive plants that are beneficial to insects and birds.

It is a fun and beautiful feature in its own right and offers a bio-diverse setting within a denesly populated area of London.

5. Specific project details

Plant species used.

Shrubs			
Number	**Species**	**Specification**	**Density**
8 No.	Cornus stolonifera 'Flaviramea'	60-80cm: 3L: Branched: 4 brks: C	Counted
Herbaceous			
4 No.	Rudbeckia fulgida sullivantii 'Goldsturm'	2L: Full Pot: C	4/m²
13 No.	Hemerocallis 'Pink Damask'	2L: Full Pot: C	Counted
3 No.	Rudbeckia fulgida sullivantii 'Goldsturm'	2L: Full Pot: C	Counted
Bulbs			
15 No.	Crocosmia 'Lucifer'	1L: Full Pot: C	4/m²
Marginal / Aquatics			
8 No.	Iris pseudacorus	2L: Full Pot: C	4/m²
16 No.	Zantedeschia aethiopica 'Crowborough'	2L: Full Pot: C	5/m²
Grasses			
25 No.	Geranium psilostemon	2L: Full Pot: C	3/m²
19 No.	Miscanthus sinensis 'Morning Light'	2L: Full Pot: C	Counted
28 No.	Bergenia purpurascens	2L: Full Pot: C	5/m²
7 No.	Deschampsia cespitosa	2L: Full Pot: C	Counted
19 No.	Astilbe 'Sprite'	2L: Full Pot: C	Counted
20 No.	Ajuga reptans 'Catlin's Giant'	2L: Full Pot: C	6/m²
12 No.	Calamagrostis x acutiflora 'Overdam'	2L: Full Pot: C	3/m²
10 No.	Aster x frikartii 'Wonder of Stafa'	2L: Full Pot: C	Counted
16 No.	Juncus effusus	2L: Full Pot: C	3/m²
10 No.	Campanula lactiflora 'Prichard's Variety'	2L: Full Pot: C	3/m²

6. Maintenance & operation

A detailed Landscape Management Plan was produced to guide the future maintaince required to ensure the success of the scheme.

The day to day maintaince of the scheme is undertaken by Southwark's term maintenance contractors. A gardening club has been set up by BOST to encourage local residents to become involved in healthy outdoor activities and encourage ownership and stewardship of the local area.

The area has also been used for corporate planting days

An opening event took place in summer 2019 to celebrate the site and raise awareness about what has been achieved and to promote local social connections.

7. Monitoring and evaluation

Details of monitoring and evaluation

The Rain Garden has been designed as a natural drainage scheme within an urban area that manages the water close to a discharge source as possible. It has improved amenity and enhanced local biodiversity.

Regular site visits are undertaken to record the scheme as it matures with a programme of interventions should they be needed to ensure the success of the scheme both aesthetically and environmentally.

8. Benefits and achievements

Details of benefits.

The Rain Gardens has used water run-off to create new habitats and create a defensible space. Overall it has made a valuable contribution to the local environment that goes way beyond the engineering constraints of a traditional underground drainage system.

The scheme has the potential to support wetland habitats that has been largely lost in the development of London. These new biodiverse habitats provide a healthy and stimulating environment that can add value to urban living.

One of the key achievements is that the Lancaster Rain Garden demonstrates how a relatively small low cost scheme can deliver substantial benefits... It would even better if similar schemes were planned as part of a wider strategy throughout London.

9. Lessons learnt

Details of lessons learnt

The Lancaster Estate project is an excellent example of the value of landscape design twinned with public consultation to enable the retrofitting of a local Green Infrastructure. It also shows the benefits of an integrated landscape design that increases the social and environmental value of an existing degraded landscape. A landscape improved for people, nature and resilient to future climate change.

Ongoing maintenance and monitoring will be vital to ensure the success of the scheme. A few plant species have not performed as expected and future scheme will take this on board so that future plant mixes can be adapted to suit

10. Interaction with local authority

Details of interaction with local authority (or client)

The local authority (Southwark Council) and the client (BOST) were key stakeholders in the project with regular meetings to keep them informed.

11. Project details

Construction completed: The main works stated 19th February 2019 and were comp*leted on the 8th April 2019.*

The Lancaster Estate Rain Garden was part of a wider package of environmental improvements which included new paths, seating areas, natural play features and planting within Lancaster Estate.

Cost: The overall project costs were £71,000. The rain garden cost was £5,000

Extent: The entire site area is: 1,415m^2 the Rain garden is *50m^2*

Project team

Funders	• Southwark Council via Section 106 contributions	
Clients	• Bankside Open Spaces Trust (BOST) • Red Cross Garden, 50 Redcross Way, London SE1 1HA	
Designers	• Petrow Harley Landscape Architects Ltd • The Studio, 57 Lime Grove, New Malden, Surrey KT3 3TP	
Contractors	• Warwick Landscaping Ltd • 2 Warwick Lodge, 42 Linkfield Lane, Redhill, Surrey RH1 1DP	

Public Consultation as a key part of the design process

Rain Garden Progress – site excavation

Gabion Header Wall and discharge pipe at completion

Bio soil spread prior to planting

Rain Garden during construction

Water discharge into Rain Garden during construction

Completed scheme first year