Climate proofing and SuDs on London housing estates

**GROUNDWORK LONDON**

**Promote greener living and working**
by helping people learn more about their environmental impact and act responsibly to reduce natural resource use.

**Improve people’s prospects**
by increasing the confidence, skills, well-being and employability of those furthest removed from the labour market, in particular young people.

**Create better places**
by helping people work together to make their surroundings greener, safer and healthier and get involved in the way decisions are made about services in their area.
**LIFE+:** Climate proofing social housing landscapes

Deliver a package of retrofit climate change adaption measures across three social housing estates in the London Borough of Hammersmith & Fulham (LBHF).

**Thames Water:** Twenty 4 Twenty

A £20,000,000 fund for the implementation of Sustainable drainage systems, removing 20 hectares of impermeable surface by 2020.

**London Borough of Hammersmith Fulham:**

Section 106 and asset renewal

Strong Client with excellent technical and policy based support

And a great project team...

---

**CLIMATE CHANGE RESILIENCE**

- Urban density and population increase
- Increase in hard and impermeable surfaces
- Urban heat island effect
- Rising energy costs
- Water scarcity
- Air quality
- Pressures on urban biodiversity
- Increase in flood risk – severity and frequency
- Social change and patterns (vulnerable)
Cyril Thatcher, Eric Macdonald & Richard Knight Houses

Sketch proposals for implementing climate change adaptation measures into the estate's open spaces. Proposals have been shortlisted to: (i) maximise climate change adaption benefits, (ii) deliver additional benefits (e.g. play, wildlife enhancement, air quality etc.) (iii) to respond to identified community problems and opportunities, and (iv) to avoid impacting on existing uses of the spaces.

1. Green roofs
   - Exposed green roofs are proposed to the rear of Richard Knight House and rear of Macdonald House and of the existing area of Cyril House and the proposed extension.

2. Grass swales
   - Tapered swales on the southern sides of the car park and car park entrance areas will be channels for water to travel to green roofs.

3. Rain gardens
   - A rain garden will be created on the southern side of the car park, between the car park entrance and the Macdonald House.

4. Tree planting
   - Trees will be planted in the front garden areas. Trees will need to be situated in a soil profile where water can be retained and filtered into the soil.

5. Low maintenance plant banks
   - Plant banks will be constructed at the external access routes to provide low maintenance, visually appealing planting areas.

KEY

- Swimming pool
- Charing Cross
- Street trees
- Grass
- Raised beds for food planting

6. Food growing area
   - A raised bed area will be provided with good quality, sun-facing, raised beds for food planting. Table gardens can be blocked up and used as the work of the project progresses.
Achievements

LIFE+ Aim:

• Attenuation and storage of run-off
• Thermal performance
• Biodiversity

Monitoring methods:

• Weather stations to record rainfall and temperature
• Flow meters (at inlets) and pressure sensors (in basins)
• Simulated storm events
• Fixed point time-lapse photography and thermal imaging
• Vegetation surveys
LIFE+ results:

- Approx. 1,220,900 litres of rainfall diverted from sewers
- A total of 57 species of wildflower and grasses recorded on a single green roof
- Max. 39.4% reduction in temp. on green roof compared to surrounding grey infrastructure
- Average 82.8% of rainfall absorbed by green roofs
- 459% increase in plant species on green roof compared to typical amenity grass lawn

Highlighted results from monitoring period October 2016 to September 2017

- 8 Sustainability champions trained
- 472 residents involved
- 22 contractors managers trained
- 11 jobs created
- 55 community activities delivered
- 81% of green spaces improved significantly
- 2 awards won

SUPPORTED BY:

MAJOR OF LONDON

---

Twenty 4 Twenty performance

Combined catchment performance

Volume performance: Reduction against existing greenfield 1 in 30 yr rainfall event.

Full infiltration performance at modelled storm events:

<table>
<thead>
<tr>
<th>Event</th>
<th>Reduction</th>
<th>Catchment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 in 100yr+</td>
<td>40%</td>
<td>5 no catchment</td>
</tr>
<tr>
<td>1 in 30 yr</td>
<td></td>
<td>2 no catchment</td>
</tr>
<tr>
<td>1 in 5 yr</td>
<td></td>
<td>2 no catchment</td>
</tr>
</tbody>
</table>

Peak flow performance:

As built outflow at 1 in 30: 0.7 lps
Future opportunity

Thank you!

Dave Ifould
david.ifould@groundwork.org.uk