



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)







CT Plan S7.1: CONSULTATION COMMENTS



CYRIL THATCHER, ERIC MACDONALD & RICHARD KNIGHT HOUSES

SKETCH MASTERPLAN

Sketch proposals for implementing climate change adaptation measures into the estate's open spaces. Proposals have been short listed to (i) maximise climate change adaptation 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.



KEY:

	Existing tree		Existing planting
	Proposed tree		Proposed planting
	Green roof		Grass
	Naturally colonised roof		Raised beds for food growing

6. Food growing area
 New smaller raised beds with good quality soil will be introduced to allow residents to grow their own food. Edible climbers can be trained up the walls of the prism sheds.



5. Low maintenance plant beds
 Plant beds extended by removing additional paving areas planted with low growing, low maintenance planting (e.g. sedum blanket & spring bulbs).



1. Green roofs

Extensive green roofs are proposed for the roof of Richard Knight House and the prism sheds. Substrate and drainage systems are proposed in line with and compatible with planned waterproofing works.



2. Grass swale
 Rainwater which currently pools on the path will be redirected into a grassy swale. Water will infiltrate into the grass or at times of high rainfall, pass along the swale to a below ground storage area beneath the new food growing space.



3. Rain garden
 A new plant bed on the side of the car park will take rain water runoff, allowing water to infiltrate into the soil. At times of high rainfall, water will pass into a storage area beneath the new tree which can overflow back into the drainage system.



4. Tree planting
 New trees in the car parks. Tree pits (soil) to be situated in a rock filled trench which can store rain water runoff & benefit the trees.




Project No. R0196
 LIFE + Climate Proofing Social Housing Landscapes
 August 2014, v1.1





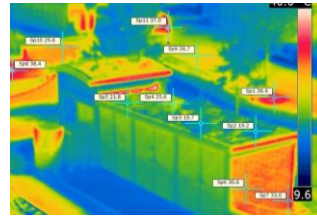
Achievements

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:

 <p>Approx. 1,220,900 Litres of rainfall diverted from sewers</p>	 <p>A total of 57 species of wildflower and grasses recorded on a single green roof</p>	 <p>Max. 39.4% reduction in temp. on green roof compared to surrounding grey infrastructure</p>
<p>A rain basin passed a test to hold a storm of the size expected once every 100 years</p> 	 <p>Honey bees, bumblebees and solitary bees were all recorded on the wildflowers</p>	<p>Average 82.8% of rainfall absorbed by green roofs</p> 
 <p>Time lapse cameras showed that all rain flowing into rain basins was absorbed into the soil</p>	 <p>1.6°C reduction in heat stress between a vertical rain garden and control brick wall</p>	 <p>459% increase in plant species on green roof compared to typical amenity grass lawn</p>

Highlighted results from monitoring period October 2016 to September 2017

 <p>8 sustainability champions trained</p>	 <p>472 RESIDENTS INVOLVED</p>	 <p>22 young people EMPLOYED as green team trainees</p>	 <p>46 council contractors & managers trained</p>	 <p>11 JOBS CREATED</p>	 <p>55 community activities DELIVERED</p>	 <p>81% of residents in green spaces have IMPROVED SIGNIFICANTLY</p>	 <p>2 AWARDS WON</p>
<p>SUPPORTED BY MAYOR OF LONDON</p>     							

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: Full infiltration achieved at 9 individual sub-catchment:

1 in 100yr+ 40%	5 no catchment
1 in 30 yr	2 no catchment
1 in 5 yr	2 no catchment

Peak flow performance: As built outflow at 1 in 30: 0.7 lps

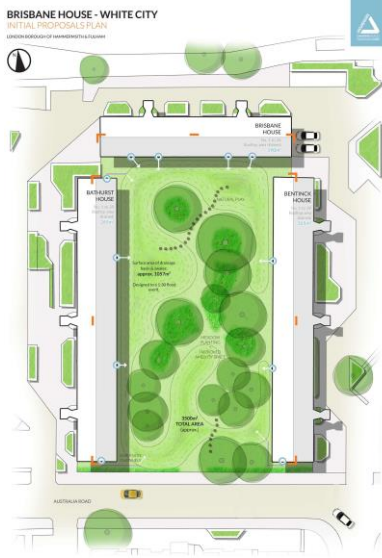
SUPPORTED BY MAYOR OF LONDON







Future opportunity



Thank you!

Dave Ifould

david.ifould@groundwork.org.uk

