

Improving Green Infrastructure to Enable Tourism and Development: Identifying and Assessing Sites for SUDS Retrofit in Blackpool, UK

DSD International Conference

Sustainable Stormwater and Wastewater Management

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Background

- 140,000 residents
- 11,000 people directly employed in tourism
- 20% of the population employed in tourism
- 10 million visitors a year
- 4 million visitors between September and December 2013



Background

- Most visitors come in summer
- Poor bathing water quality
- Threat to reputation
- Water company invested in solutions
- Lack of capacity in existing pipe network



Background

Environment Agency

Governs water quality

Planning

Governs the source

Water Company

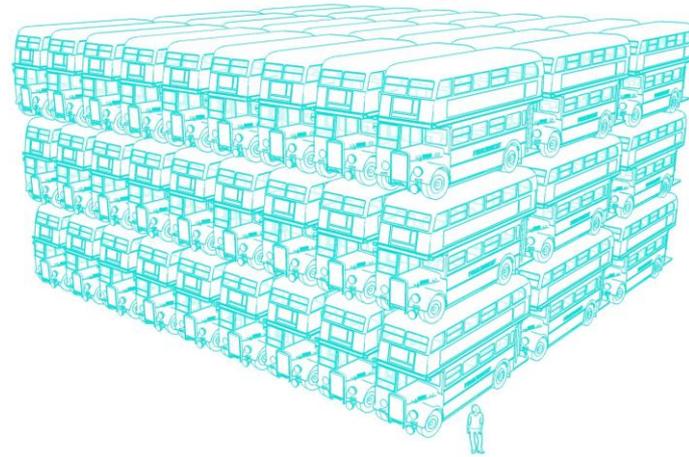
Treats the product



How do we work together?

Background

- Opportunity to reduce water passing into combined sewers
- Improve bathing water quality
- Enable network capacity for development
- Improve amenity value of transport and public area networks
- Existing green infrastructure
 - Small in area
 - Isolated locations
 - Climate challenges
 - Local resistance



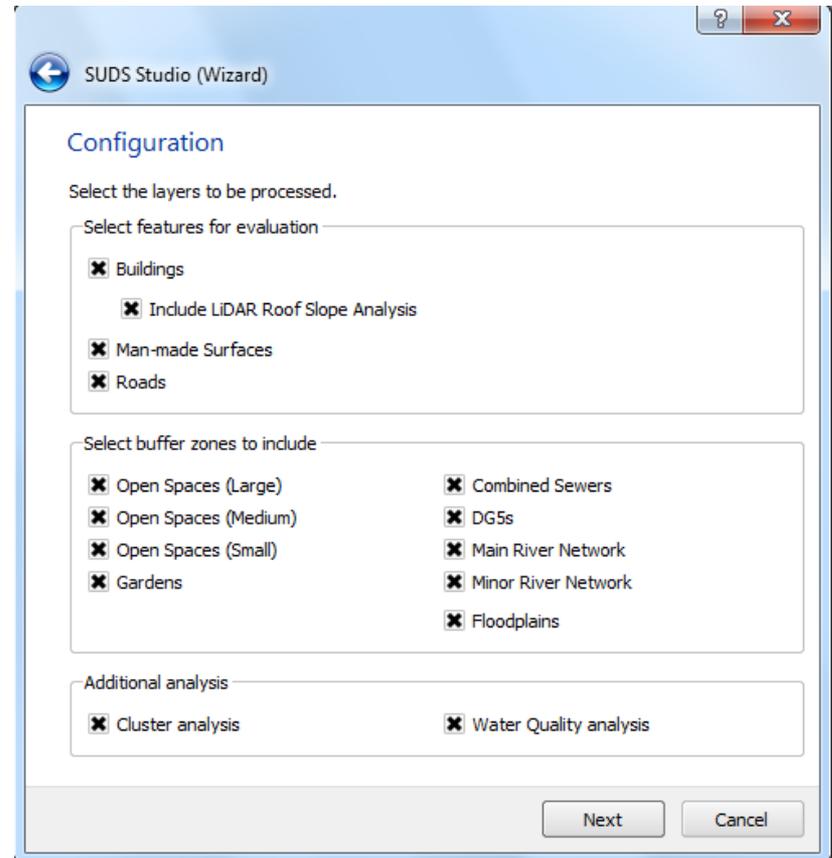
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Methodology

- Application of SuDS Studio™
 - Standard datasets used as inputs
 - Rapid shortlisting

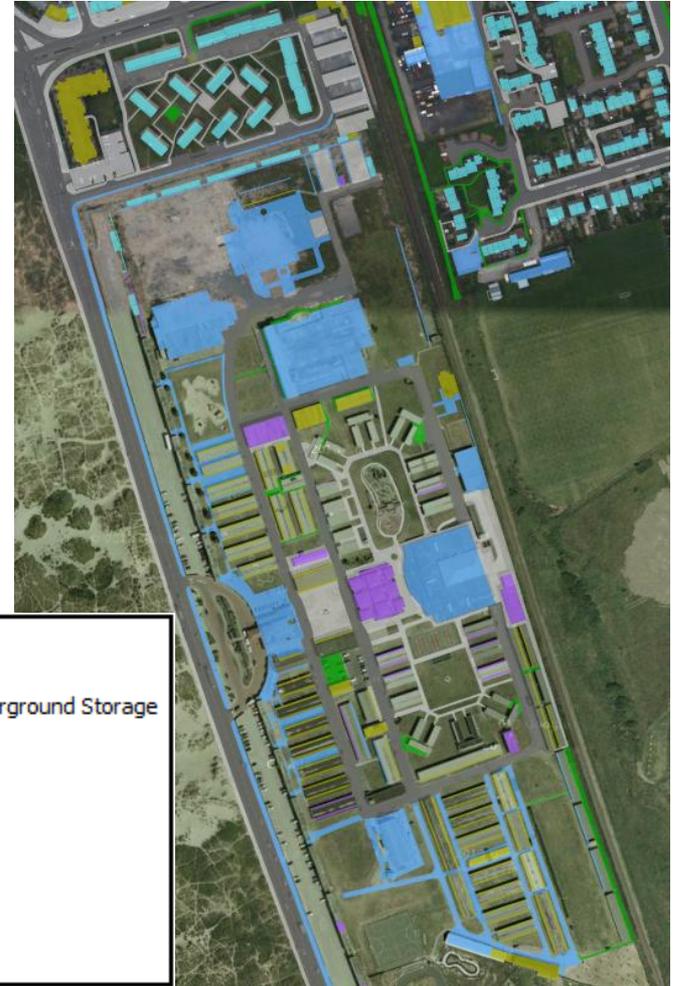
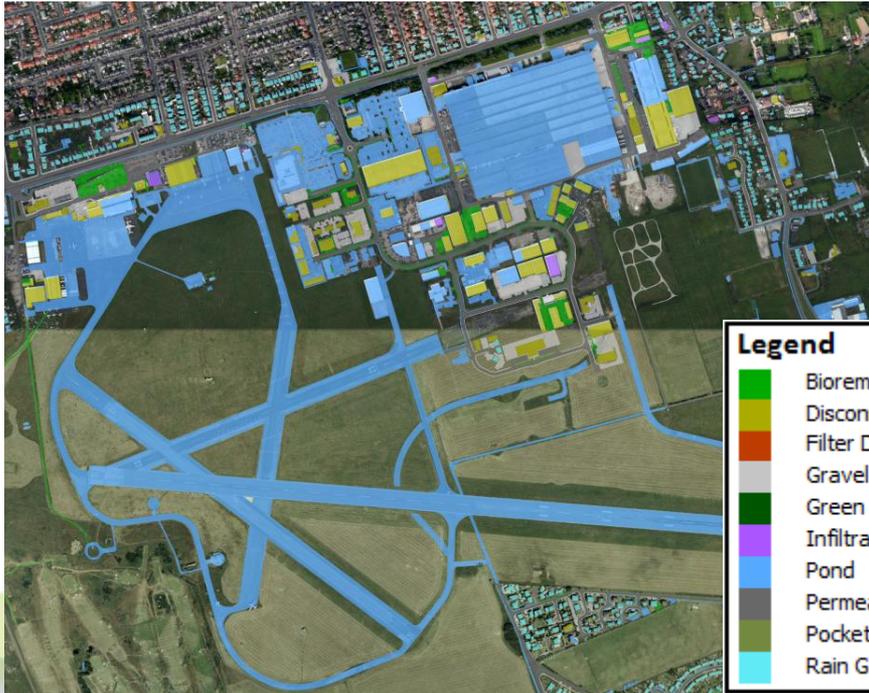


Methodology

- Stage 1: Input data
 - Stage 2: Apply constraints and undertake manual check
 - Stage 3: Shortlist from longlist of over 70 SuDS solutions
 - Stage 4: Automated costing
 - Stage 5: Optimisation of solutions
 - Stage 6: Reporting of outputs
-
- Customisable parameters for selection of “feasible options”
 - Customisable selection of “optimum solution”

Identified Sites

- Fylde Borough Town Hall
- Supermarket
- “Pontins” Holiday Centre
- Blackpool Airport



Legend	
Green	Bioremediation
Yellow	Disconnect Downpipe to Underground Storage
Orange	Filter Drain
Light Blue	Gravel Paving
Dark Green	Green Roof
Purple	Infiltration Trench
Light Blue	Pond
Dark Blue	Permeable Paving
Light Green	Pocket Street Infiltration
Light Blue	Rain Garden

Identified Sites

- Green Corridor funding opportunity
 - Dickson Road
 - Central Drive
 - Talbot Road
 - Park Road

Legend

	Bioremediation
	Disconnect Downpipe to Underground Storage
	Filter Drain
	Gravel Paving
	Green Roof
	Infiltration Trench
	Pond
	Permeable Paving
	Pocket Street Infiltration
	Rain Garden



Identified Sites

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Identified Sites

- Roads and streets
- Retail and supermarket sites
- Schools
- Large public, hospital and commercial buildings and grounds
- Large regeneration schemes
- Large Council Estates

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	Disconnect Downpipe to Underground Storage
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	Infiltration Trench
	Pond
	Permeable Paving
	Pocket Street Infiltration
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Conclusions

Significant retrofit opportunities identified

SuDS provide long term solutions

Critical to engage with town planners

Tourists and residents positively impacted by:

- Improving bathing water quality

- Enhancing first impression

- Increasing amount of Green Infrastructure



ATKINS

End

Plan Design Enable

SuDS considered

Type	Source	Sink	Attenuation	Connectivity
Green Roof	Building	Building	-	Infiltration
Disconnect Downpipe	Building	Manmade Surface	Underground Storage	Infiltration, Pipe
Rain Garden	Building	Natural Space	-	Infiltration
Water Butt	Building	Natural Space	-	-
Pocket Street Infiltration	Road	Road, Verge	-	Infiltration
Permeable Paving	Building, Roads, Paths, Manmade Surface	Manmade Surface	Underground Storage	Infiltration, Watercourse, Pipe
Gravel Paving	Building, Paths, Manmade Surface	Manmade Surface	-	Infiltration, Watercourse, Pipe
Ponds	Building, Manmade Surface	Natural Space	-	Infiltration, Watercourse, Pipe
Infiltration Trenches	Building, Roads, Paths, Manmade Surface	Natural Space	-	Infiltration
Bioretention	Roads, Paths, Manmade Surface	Natural Space	-	Infiltration
Wetlands	Building, Paths, Manmade Surface	Natural Space	-	Infiltration, Watercourse, Pipe
Swales	Roads, Paths, Manmade Surface	Natural Space, Verge	Pond	Infiltration, Watercourse, Pipe
Filter Drains	Roads, Paths, Manmade Surface	Natural Space, Verge	Pond	Infiltration, Watercourse, Pipe