Promoting SuDS & Green Infrastructure
Engineering Nature’s Way

• Engineering Nature’s Way is about:

  – Using the most appropriate techniques to mimic the natural paths and processes of surface water, from source to sea.

  – It’s a best practice approach which favours ‘at source’ solutions and a catchment philosophy to controlling flow, volume and quality.
Welcome to Engineering Nature’s Way

Welcome to Engineering Nature’s Way, a brand new resource for people working with Sustainable Drainage and flood management in the UK.

Engineering Nature’s Way is using the most appropriate techniques to mimic the natural paths and processes of surface water, from source to sea. It’s a best practice approach which favours ‘at source’ solutions and a catchment philosophy to controlling flow, volume and quality.

This site provides an opportunity to share news, opinion, information and best practice for people working in local and central Government; developers, consulting engineers and contractors. Do you have something to share? We would be delighted to receive your contributions. Please contact us.

Latest blog articles

Ask an Expert

Q: What is bioretention? How is it relevant to the UK?

Answered by Bob Andoh

Bioretention and SuDS were first pioneered over a decade ago in the US as part of the Low Impact Development (LID) movement...

Best Practice

Holding Back Glasgow’s Floods

Take part in our quick poll

Lead Local Flood Authorities (LLFAs) will have the funds and capacity they need for their new roles.

www.engineeringnaturesway.co.uk
The Website

- Provides and opportunity to share:
  - News
  - Opinion
  - Information
  - Best Practice

Who is it for?

- Local and Central Government
- Developers
- Consulting Engineers
- Contractors
- Planners
- Landscape Architects

Do you have something to share?
Policy Briefings

- Flood and Water Management Act
- EU Water Framework Directive
- Planning Policy and Regulations
- SUDS – the Scottish Experience
- SUDS for Roads
- The Code for Sustainable Homes
Best Practice

- Attenuation
- Flood Plain Compensation
- Flood Prevention
- Infiltration
- Pond and Watercourse Protection
- Space Saving / Retrofit SUDS
Products / Techniques

- Flow Control
- Infiltration
- Storage
- Treatment
Resources

- Ask the Experts
- Design Guidance
- Videos
- White Papers
- Industry Links
- Free downloadable e-guide
SuDS in the Urban Landscape

- Introduction
- Drivers for change
- SuDS and Ecosystems Services
- Green Infrastructure
- Linking ‘Blue’ to ‘Green’
- Water Sensitive Urban Design
- Masterplanning
- Retrofitting (inc. roads and highways)
- Using the full SuDS Toolbox
- Conclusion – delivering multi-value
Introduction

- SuDS can provide great opportunities to improve our urban environment.
- Sustainable SWM measures can help create a more balanced and natural ecology in our towns and cities.
Drivers for Change

- Pitt Review
- F & WMA
- Flood Risk Management (Scotland) Act
- Water Environment and Water Services (Scotland) Act
- WFD
  - Associated RBMPs
  - Daughter Directives
- National Standards (soon?)
- Some LAs have developed SuDS guidance…..
Local Authority Guidance

- Cambridge City
- LB of Islington
- Cornwall County
- Shropshire County
- Ashford Borough
- Tonbridge and Malling Borough
- Southampton City
- West Berkshire District
- Wychavon District
- Borough of Telford and Wrekin
- Nottingham City
SuDS and Ecosystem Services

- Ecosystem services are the transformation of a set of natural assets (soil, plants and animals, air and water) into things that we value.
- **Provisioning services** – such as food, crops, water, minerals, pharmaceuticals, biochemicals and energy.
- **Regulating services** – such as carbon sequestration & climate regulation, waste decomposition, purification of water and air, and crop pollination.
- **Supporting services** – such as nutrient dispersal and cycling, seed dispersal, and Primary production.
- **Cultural services** – such as cultural, intellectual and spiritual inspiration, recreational experiences and scientific discovery.
SuDS and Ecosystems Services

- SuDS are identified as a ‘regulating service’ which help achieve an ecological balance (Natural Environment White Paper)
Green Infrastructure

GI is a strategically-planned and managed network of green spaces, water and other environmental features in both urban and rural areas.
Green Infrastructure

- SuDS can help meet the growing demands to deliver GI by creating green open spaces which encourage biodiversity and habitats.
Linking Blue to Green

- Using SuDS in the context of blue/green infrastructure offers opportunities to create attractive vegetated open space and blue corridors for water above ground.
Water Sensitive Urban Design

- WSUD goes further offering a more integrated approach to urban water cycle management including potable water and wastewater utilisation and treatment.
- CIRIA are currently fundraising a scoping study to explore its role in the UK.
- Melbourne Water have an excellent website.
  - Protect natural systems
  - Integrate stormwater treatment into the landscape
  - Protect water quality
  - Reduce runoff and peak flows
  - Add value while minimising development costs
Masterplanning

- Key to success is to integrate with the principles of good urban design.
- Understanding the geology and topography of a site must be a fundamental starting point.
- Entire design team must fully engage with and understand what blue/green infrastructure means.
- Design team may include – Hydrologist, Ecologist, Architect, Urban Designer, Civil Engineer, QS and Landscape Architect.
- Process must also include the end user.
Dealing with new development is just the tip of the iceberg. Retrofitting surface water management measures such as SuDS into our urban areas is going to be imperative. Generally much less awareness of the opportunities that SuDS can offer to boost urban regeneration. CIRIA’s new guidance on retrofitting surface water management measures – due to be published by end of 2011. Highways and roads provide an important opportunity to introduce green infrastructure measures and retrofit SuDS.
Portland
Portland – Filterra Retrofit
Seattle
Even in the most challenging locations good design solutions can be achieved with SuDS by using the full range of components in combination to mimic natural drainage pathways as closely as possible.
Lightmoor Urban Village

- 3 No. Infiltration / Attenuation ponds
- 2 No. Infiltration blankets
- 4 No. Infiltration trenches
- 8 No. Hydrodynamic Vortex Separators
- 3 No. Vortex Flow Controls
Lightmoor Urban Village
Calderglen High School

Porous Paving

Detention Basin

Total storage required = 765 cubic metres

600 cubic metres provided below ground with Stormbloc
Eden Park, Littlehampton
Elvetham Heath

- Soakaways
- 14 Detention Basins
- Pond
- Swales

- 15 Hydro-Brake Flow Controls
Pond Protection
New Innovations
Conclusion – delivering multi-value

- Well designed SW mgmt. measures provide a multiplicity of benefits to urban environments.
- SuDS should aim to improve quality of life by improving public spaces and providing better ecological outcomes.
- SuDS will also deliver flood protection, improve water quality and can help contribute to water efficiency.
- SuDS can be applied to every development – a range of techniques, natural, manufactured or a combination of both are available to recreate or improve on natural drainage paths.
Thank You