WATER SENSITIVE SA

In-house training

Detailed design of wetlands

Learning objective

- Learn how to design successful constructed stormwater wetlands that meet multiple design objectives, including:
  - Stormwater runoff pollution reduction
  - Long-term function
  - Ease of maintenance
  - Effective integration with public spaces and other infrastructure
  - High-amenity value

Audience

Design engineers and landscape architects (local government and consulting).

Modules

01 – Introduction

02 – Wetland overview
- Wetland types
- Functional elements
- How they work

03 – Design for multiple benefits
- Pollutant removal
- Harvesting and re-use
- Integration with public open space
- Habitat

04 – Wetland design process
- Concept
- Functional and detailed design

05 – Sizing and design flows
- Estimations using MUSIC
- Choosing rainfall period
- Catchment characteristics
- Soil parameters
- Input parameters for MUSIC

06 – Sediment basins
- Sediment capture efficiency
- Clean out frequency/sediment volume estimates

07 – Macrophyte zone
- Role of: Vegetation, open water zones
- Ratio open water: macrophytes, wetland bathymetry, hydraulic effectiveness, planting regimes, mosquito management

08 – Planting selection
- Botanic design
- Inundation tolerances
- Core species for each zone

09 – Activity 1
- Undertake concept design, select an appropriate location for and size a wetland

10 – Site visit
- First Creek Wetland, Adelaide Botanic Gardens or local wetland nominated by client

11 – Structures and flow control
- Inlet structures
- Inlet zone connections with macrophyte zone
- Macrophyte zone outlet
- Outlet details in MUSIC
- High flow bypass structures

12 – Wetland hydrology
- Inundation frequency analysis
- MUSIC Auditor wetland analysis tool

13 – Maintenance and monitoring
- Maintenance regimes
- Access design requirements
- Water level controls
- Sediment de-watering areas

14 – Activity 2
- Undertake calculations for sizing of wetland structures
- Select plants for various wetland zones

Contact us

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Water Sensitive SA
PO Box 351, Uraidla SA 5142

In-house training

Presenters/trainers

Peter Breen, E2Designlab

Dale Browne, E2Designlab

Core competencies attained

An understanding of:

- the different wetland zones and their function: deep pools; transitions between deep and shallow water; shallow water; temporary inundation areas; and the upper bank that ties the wetland into its surroundings
- vegetation for nutrient removal, bank stability and aesthetics suitable for each zone
- growing medium specifications
- inlet and outlet structures
- opportunities for wetlands to provide greater amenity/ landscape value.

Cost

Price on application

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