Delivering the Vision for SuDS in Oxfordshire

CIRIA: Delivering SuDS not duds
Great Western Park, Didcot

- Introduction
- Brief overview of the Great Western Park site
- Planning Stages
- Development of the drainage strategy
- The Vision
- The Constraints / Opportunities
- The Reality
- Summary
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Chris Patmore

For the Great Western Park development I have been involved since the mid 1990's advising on drainage, flooding, infrastructure (utilities) and highways matters.

As a result I have been involved in developing the drainage design through the Local Plan process and EIA as well as providing the input into the outline and detail planning stages.
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A consortium development led by Taylor Wimpey and David Wilson Homes on 160 Ha of essentially Greenfield land to the Immediate west of the urban areas of Didcot.

Development features:
- 3,300 new homes
- Secondary School
- 2 No. Primary Schools
- 3 No. Mixed use centres incorporating - shops, community buildings and homes
- Informal Public Open Space
- Formal sports pitches

PLANNING STAGES

Outline Planning Application
- Covers whole site with reserved matters

Framework Areas
- Three areas (North, Central and South)

Local Area Briefs
- Covering design guidance for key areas

Detailed Planning Applications
- For each phase
- Key infrastructure
- Key landscaping areas
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CONSULTEES

- Oxfordshire County Council
- Thames Water
- South Oxfordshire District Council
- Vale of White Horse District Council
- Environment Agency

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Research and Data Gathering – Flood Risk

[Map and data visualization related to flood risk]
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Research and Data Gathering – Drainage Patterns

- Surface water ponding north of Wantage Road
- Predominantly Greenfield Site
- Composite plan showing historic areas of flooding within GWP boundaries based on EA, SOGC and residents records

Research and Data Gathering – Geology and Hydrogeology

- Ground Investigation and Groundwater Monitoring
- Watercourse Identification and Flow Monitoring
Research and Data Gathering – Guidance

- Prevention – the use of good site design and site housekeeping measures to prevent runoff and pollution (eg sweeping to remove surface dust and detritus from car parks), and rainwater reuse/harvesting. Permeable paving
- Source control – control of runoff at or very near its source (eg soakaways, other infiltration methods, green roofs, pervious pavements).
- Site control – management of water in a local area or site (eg routing water from building roofs and car parks to a large soakaway, infiltration or detention basin).
- Regional control – management of runoff from a site or several sites, typically in a balancing pond or wetland.

CIRIA C697 “The SuDS Manual”
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SuDS decision tree

SuDS decision tree

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The Vision

- Follow SuDS best practice (CIRIA C697)
- Incorporate Source Control
  - Permeable Paving
  - Grouped and individual soakaways
- Merge Highway and Domestic surface Water Drainage with no Thames Water SW sewers
- Use Green Infrastructure for conveyance and exceedance routing
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Infiltration/Detention Basin Example

Detention Pond Example

Permeable Paving (OCC) Example
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Constraints
• Ground conditions (clays, Upper Greensand)
• Topography
• Groundwater levels (8m to nil)
• Infiltration Rates (low to nil)
• Land Ownerships
• Changes of Client (Consortium Structure)
• The Recession
• Flood Risk (north of site)
• Flood Risk (perceived to the south)
• Communication between agencies
• Legal frameworks (Adoption limitations)
• Experience / Examples

Opportunities
• Early involvement of drainage in the masterplan
• Engagement of consultees
• Topography
• Green Infrastructure
• Open space provision
• Direct connection to watercourses
• Joined up thinking
• The Three Stage Planning Approach
• Flexibility of solutions
• Dual uses
• All surface water under one authority / agency

The Reality

Where are we now?
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Progress Early 2011

Progress Mid 2012
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Summary

VISION - PLANNING - DESIGN - CONSTRUCTION - REALITY
Lessons Learnt

- Communication
- Drainage as part of the masterplan not an afterthought
- Use the ground conditions
- Use the topography
- Establish the Adoption criteria and agencies at the on-set
- There are more than one way to achieve the same goals
- Workmanship and experience
- Maintain flexibility in layout and options
- Communication