

# **Management of Surface Water from the Highway**

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## **How Oxfordshire is Drained at the Present**

- **Positive Systems:-**
- Gullies – manholes – stream outfalls
- Gullies – ditches – stream outfalls
- Gullies – manholes – Soak away /boreholes
- Grips – ditches – stream outfalls

## Problems we are experiencing

- Blocked Gullies
- Silted pipes
- Silted soak away's
- Blocked bore holes
- Overgrown and blocked ditches
- These are expensive
- So they don't get done

## Problems



## What is Making this Worse

- Lack of Maintenance due to cost
- New ways of saving money – making the Contractor take the risk and only cleansing 30% of the gullies
- The Contractor chooses the gullies to cleanse, from his records
- **Is this the best for our clients**

## All this will do is give us :-

- **More flooding**
- **More complaints**
- **Systems will break down in the long run**
- **10 – 20 years time we will need large injection of money to restore systems**
- **Where will it come from?**

## What can we do

- Think outside to box!!
- Change the type of drainage we are installing
- Design systems that are cheap to maintain
- Or require minimum maintenance
- Be creative

## Porous Pavements



## Porous Pavements

- All estate roads, but not on Bus Routes
- Stores water
- Install stand pipes into water storage, so residents can water gardens
- Have chambers built into water storage so Contractors can pump water up to maintain Developments Planting Scheme in drought conditions

## Retro-fit Porous Pavements

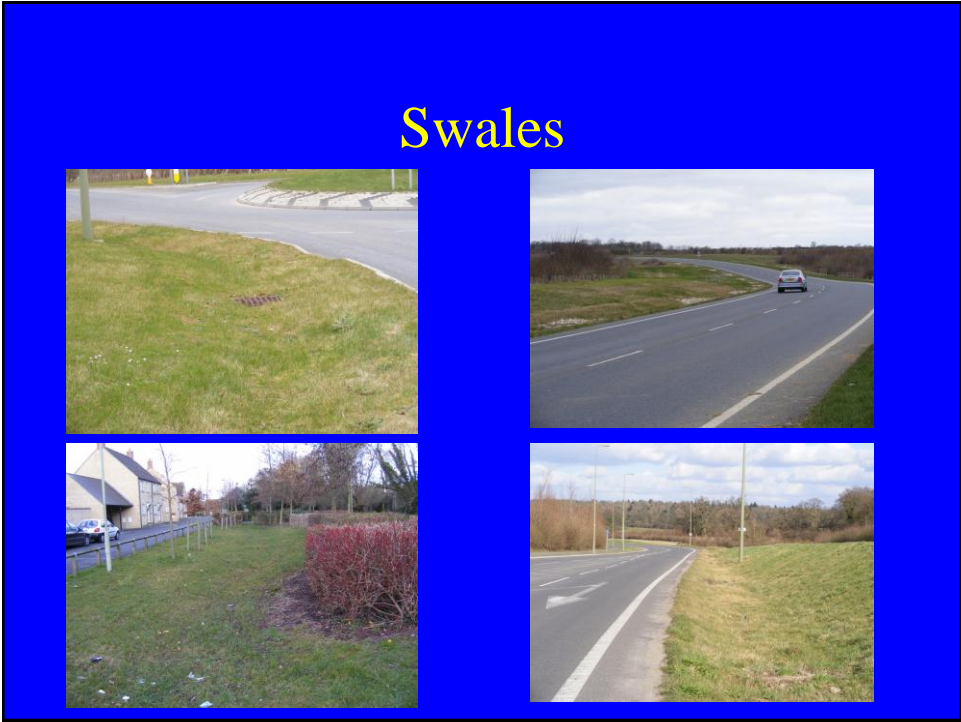
- Build out to include planters with trees etc. fed by water from porous pavement
- Make sure constructed man holes fit block patterns
- Do not use small pieces of blocks to infill

## Swales



## Swales and Grips

- Over the edge drainage – cheap to maintain
- Grips with kerb droppers – safe and cheap
- Wide swales – so cars can drive through them – safe
- Have filter drains under the grass – linking swales
- Construct check dams to slow the water flows down



## Ponds

- Good water storage
- Looks good on developments
- Flat side slopes – safe
- No fencing or hard concrete headwalls
- Use natural materials
- Vegetation grows quick – no need to plant

## Kerb line Drainage

- Keeping Surface Water high to drain to Swales / ponds.
- Connect roof drainage into back of units – reduces maintenance costs



## Kerb Line Drainage



## Cost of Standard Drainage Maintenance

- **Most Roads now require rolling Lane Closures**
- **Standard Road :-**
- *Gullies* – cleanse once a year – if we are lucky
- *Man holes* – check and clean, when there is flooding
- *Pipes* – only cleansed when there is flooding

## Maintenance of Porous Pavements

- Take commuted sums from Developers
- suction sweep twice a year
- Spray for weeds every 2 – 3 years

## Maintenance of Over the edge drainage to swales

- Mow – 1 to 3 time a year (depending on location)
- Make sure soil is at least 25mm below tar mac at construction

## Maintenance of Ponds

- Create wild life areas
- Remove a section of the Reeds every 3 to 4 years
- Use local area to compost
- Work with locals and schools– they can take over the maintenance
- They enhance the Areas

## What should we be doing:-

- Provide systems that are safe and cheap to maintain
- Protect our Natural Environment for future generations
- They should be teaching aids for the local residents
- Get Residents involved!!