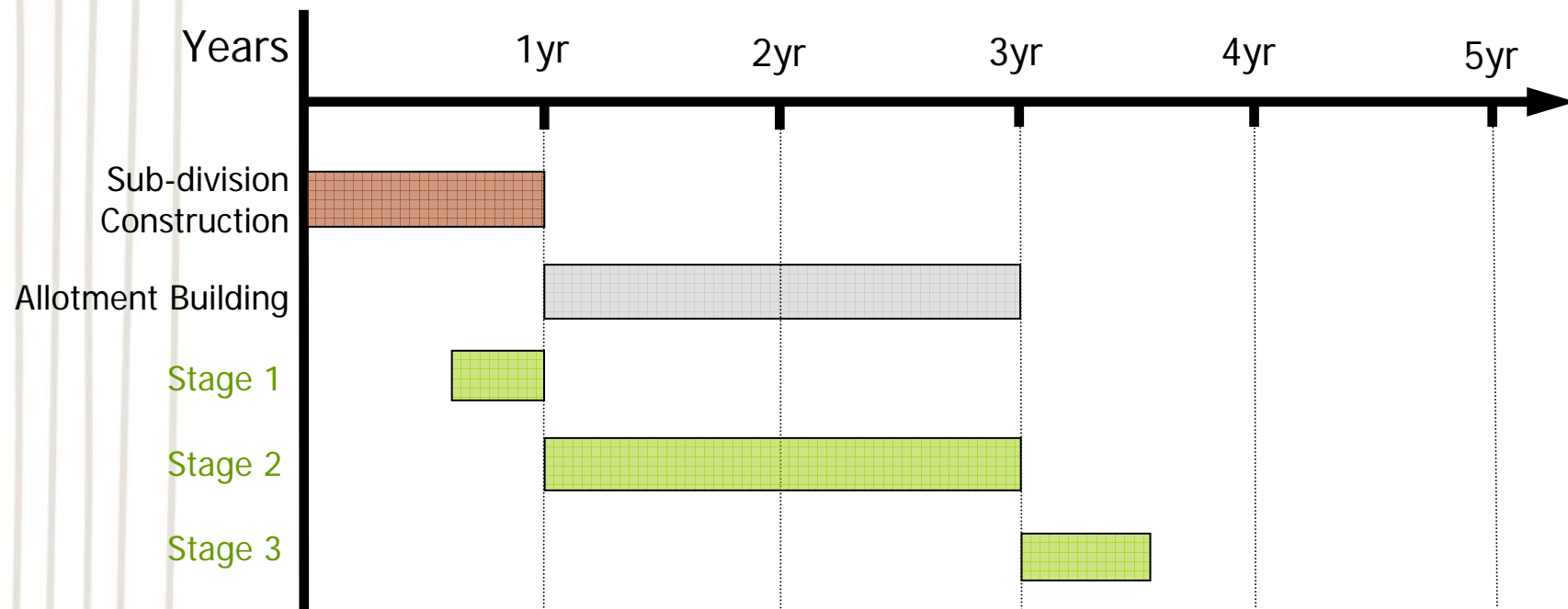




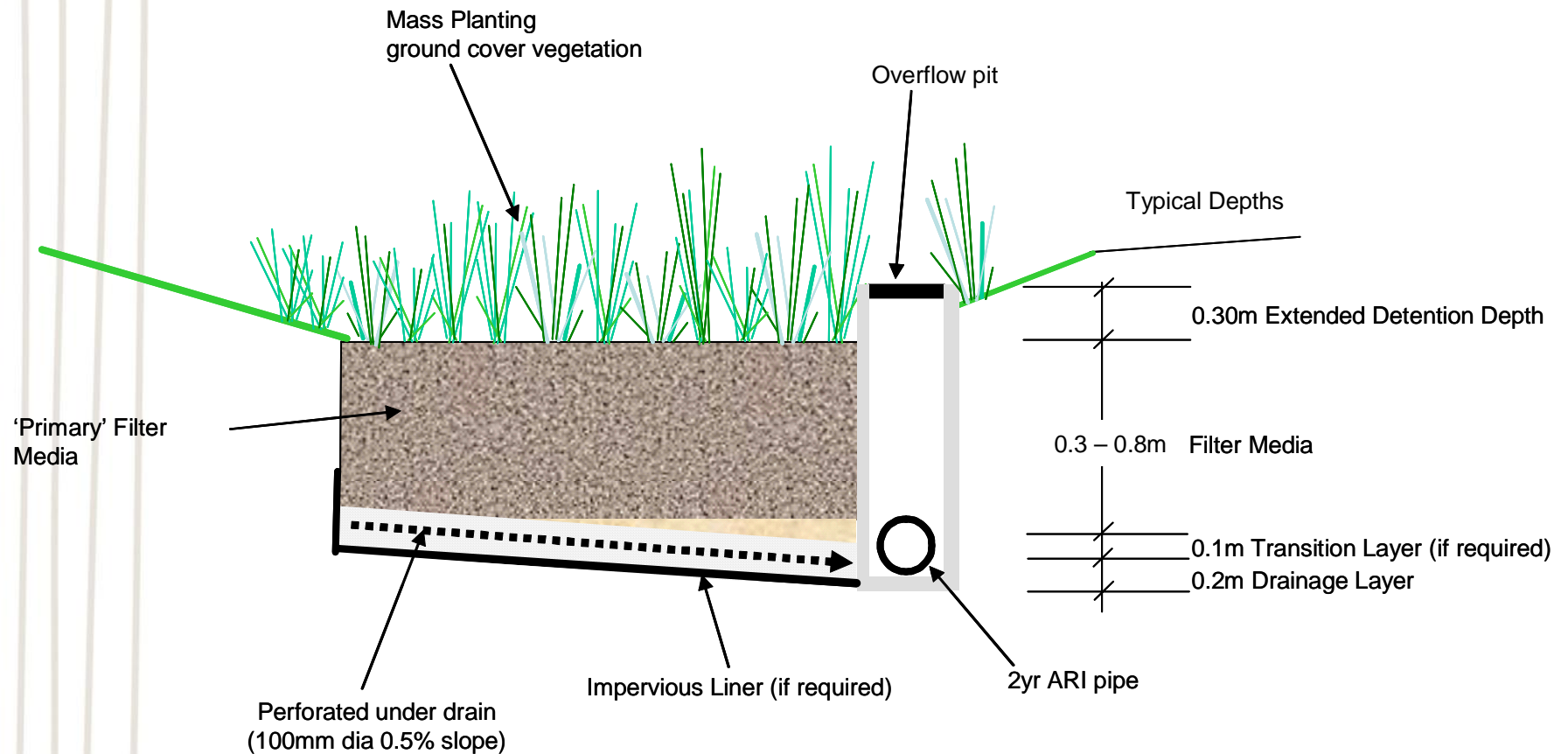
WSUD construction,
establishment, maintenance

The construction process

- Example below refers to a subdivision construction process; similar would apply to any large construction site
- Three (3) Stages of Implementation
 - Stage 1 - Functional Installation
 - Stage 2 - Sediment & Erosion Control Function
 - Stage 3 - Operational Establishment



Bioretention basin example



Stage 1 – bulk earthworks



Stage 1 – inlet/outlet pits



Stage 1 – liner



Stage 1 – drainage layer



Stage 1 – transition layer



Stage 1 – filter media



Temporary protection: geotextile



Temporary protection: topsoil



Temporary protection: turf



Stage 2 – Sediment & Erosion Control



Stage 2 – Sediment & Erosion Control



Stage 2 – Sediment & Erosion Control



Stage 3 – Establishment



Removing accumulated sediment





Planting

Establishment offline





Testing



Asset handover process

- **On Maintenance:**
 - Construction documents, fees and bonds are lodged with council.
- **Maintenance period** (defects liability period):
 - Establishment phase (1-2 wet seasons)
 - Developer responsible
 - Local council inspections
 - Defects rectified
- **Off Maintenance:**
 - Handover to council
 - Relevant maintenance and security bonds are returned once off maintenance is granted.

Construction activities can impact on maintenance requirements



Protect system during construction and establishment of landscaping features



Defects

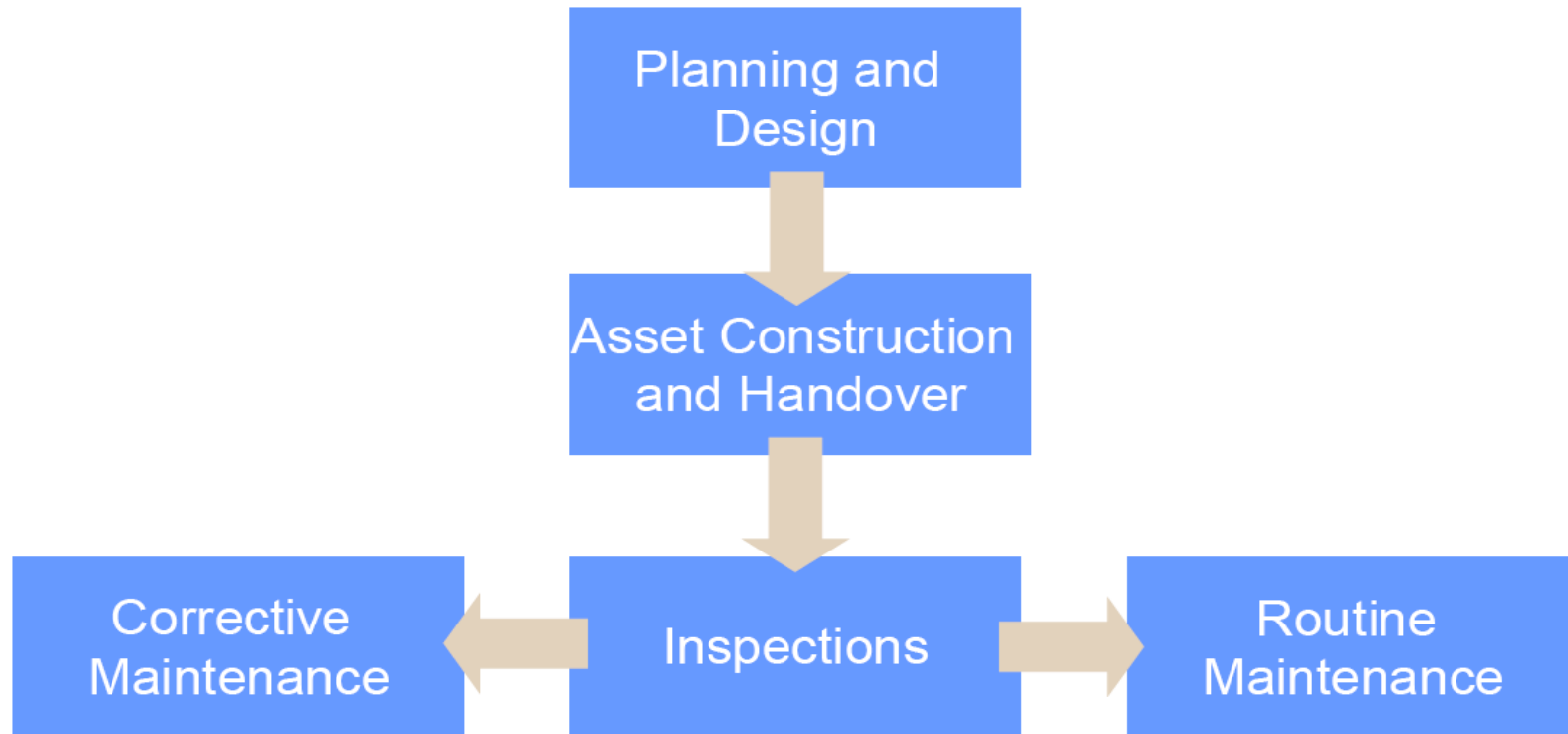


Defects





Ongoing maintenance tasks

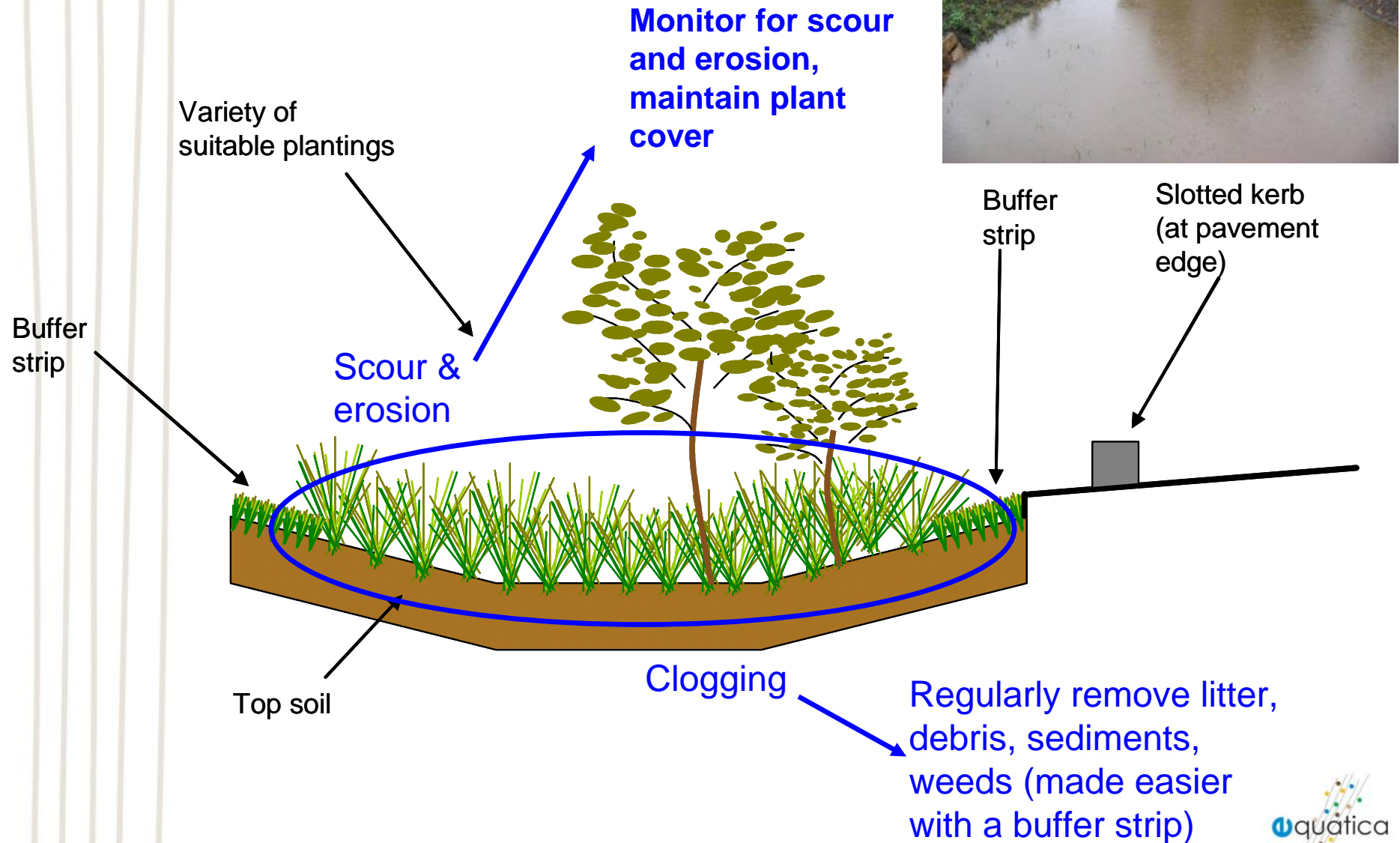


Routine maintenance activities

- Regular inspections to check for scour, erosion or deposition of sediment
- Removal of accumulated sediment, litter and debris from inlets and outlets as well as the treatment area
- Weed removal and replanting
- Monitor overflow pits for structural integrity and blockage

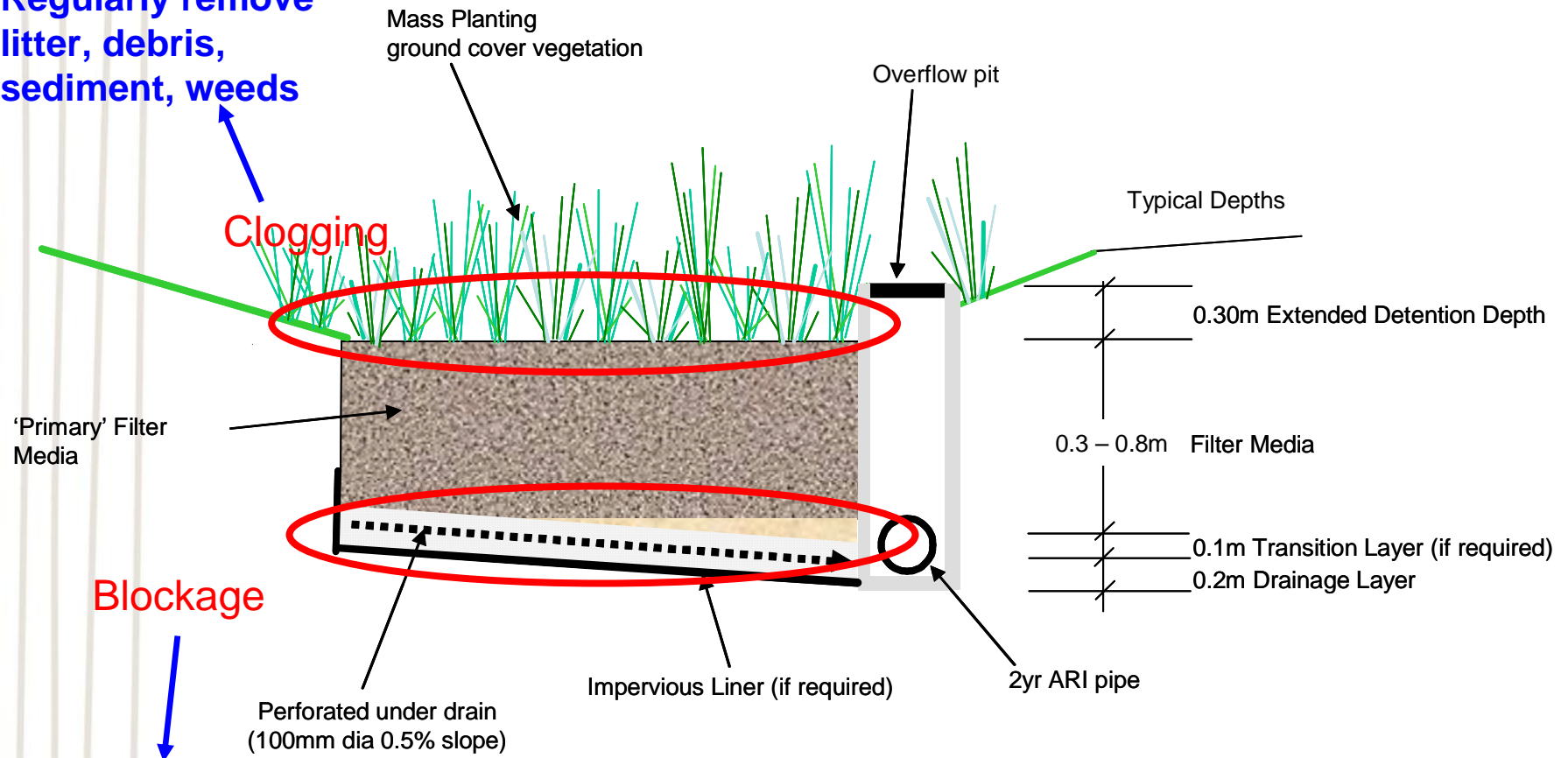


Swales



Bioretention systems

**Regularly remove
litter, debris,
sediment, weeds**



**include rodding points to allow
flushing of the perforated pipes**

Wetlands

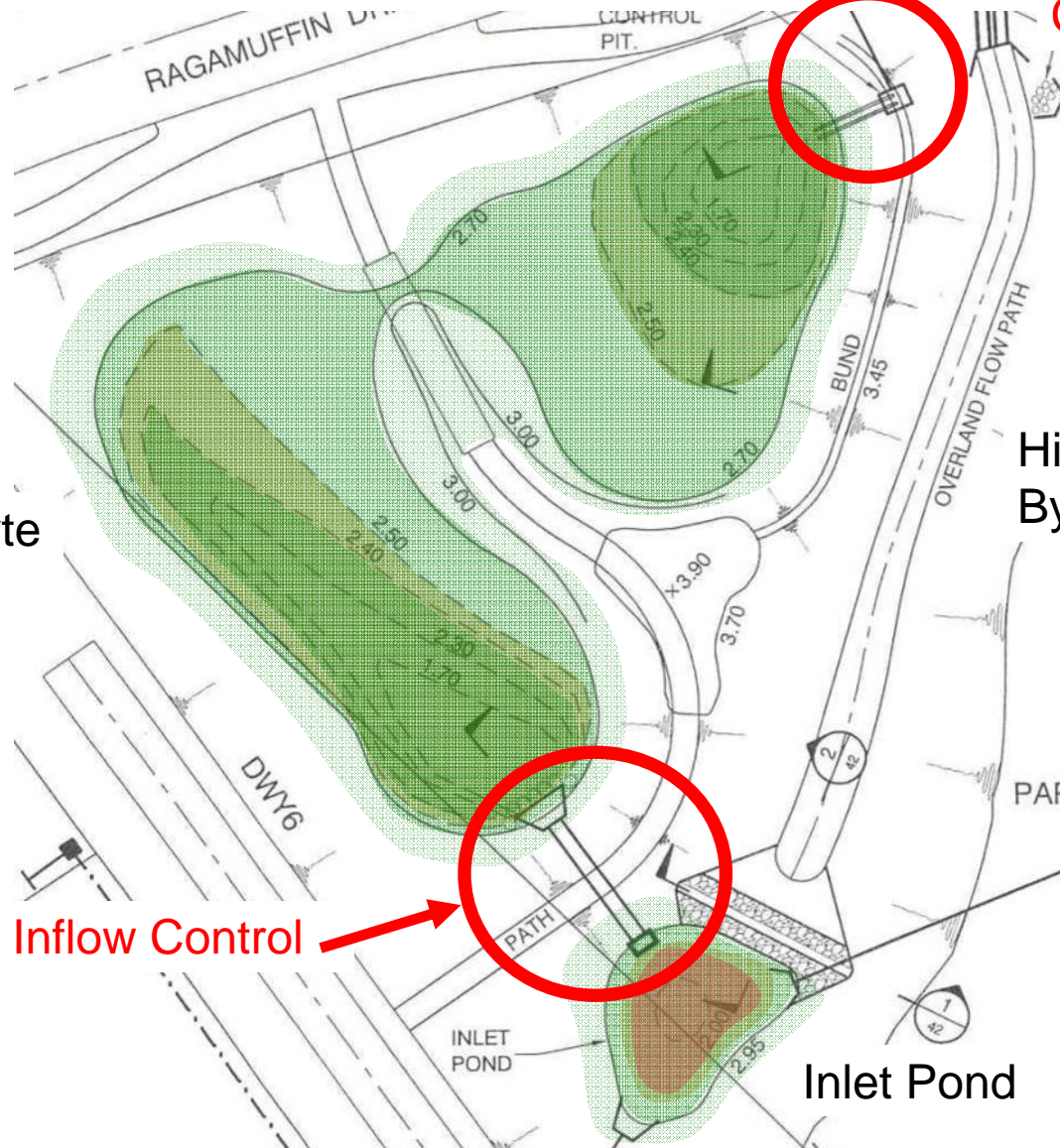
Macrophyte
Zone

Inflow Control

Outflow &
Water Level
Control

High Flow
Bypass

The inlet pond
and the high
flow bypass
protect the
macrophyte
zone from
sediments and
high flows



Intermittent and unusual requirements

- Check for signs of loss of permeability of the bottom of a system (eg ponding for long periods of time following an event) this will require soils to be replaced and re-establish plants
- Periodical clean out of any pre-treatment devices (inlets, pits and GPTs)
- Periodical flushing of perforated pipes



Testing



Corrective maintenance



Checklists

Bioretention Basin Maintenance Checklist			
Inspection Frequency: 3 monthly		Date of Visit:	
Location:			
Description:			
Site Visit by:			
Inspection Items	Y	N	Action Required (details)
Sediment accumulation at inflow points?			
Litter within basin?			
Erosion at inlet or other key structures (eg crossovers)?			
Traffic damage present?			
Evidence of dumping (eg building waste)?			
Vegetation condition satisfactory (density, weeds etc)?			
Replanting required?			
Mowing required?			
Clogging of drainage points (sediment or debris)?			
Evidence of ponding?			
Damage/vandalism to structures present?			
Surface clogging visible?			
Drainage system inspected?			
Resetting of system required?			
Comments:			









Check dams



A longer rock apron would have avoided scour below the check dam

Buffer strips



A setdown would have avoided sediment accumulation on the road