Design Assessment Checklists for Bioretention systems

**Table 1 Deemed to Comply Requirements: Bioretention System**

|  |  |
| --- | --- |
| **Parameter** | **Deemed to comply requirements** |
| Surface area | Sufficient to store design treatment event at a depth of 150mm on the surface |
| Flow through filter bed | Design treatment event should fully drain between 40 and 48 hours |
| Minimum depth of filter bed | 1.0m |
| Maximum longitudinal slope | 1 in 20 |
| Drop from adjacent surface onto bioretention system (for direct lateral inflows) | 50mm to 100mm |

**Table 2 Design Assessment Checklist: Bioretention System**

|  |  |  |  |
| --- | --- | --- | --- |
| **GENERAL INFORMATION** |  | | |
| Site ID |  | | |
| Asset ID(s) |  | | |
| Bioretention system location(s) and co-ordinates |  | Drawing Reference(s) |  |
| Date of assessment |  | Specification Reference(s) |  |
| Primary function of bioretention system | Treatment | | |

| **Check** | **DtCR** | **Summary details** (*See Note)* | **Acceptable (Y/N)** | **Comments/ Remedial actions** |
| --- | --- | --- | --- | --- |
| **DIMENSIONS (SuDS Manual Ref.)** |  |  |  |  |
| Length (m) |  |  |  |  |
| Width (m) |  |  |  |  |
| Top surface area (m2) |  |  |  |  |
| Side slopes (1 in ?) |  |  |  |  |
| Depth (m) |  |  |  |  |
| Freeboard (m) |  |  |  |  |
| Longitudinal slope (1 in ?) | **** |  |  |  |
| **INFLOWS (SuDS Manual Ref.)** |  |  |  |  |
| Provide a description of the contributing catchment land use and its size (m2). |  |  |  |  |
| Does the design include: |  |  |  |  |
| * A suitable flow spreading device? |  |  |  |  |
| * Appropriate drops from the runoff surface into the bioretention system? | **** |  |  |  |
| * Appropriate energy dissipation? |  |  |  |  |
| **OUTFALL ARRANGEMENTS (SuDS Manual Ref.)** |  |  |  |  |
| Provide details of any flow control systems, overflow arrangements (for events greater than the treatment capacity) and limiting discharge rate from bioretention system. |  |  |  |  |
| Is the bioretention system designed to allow infiltration? If yes, attach Infiltration Assessment. |  |  |  |  |
| Is a geomembrane required to prevent infiltration? If yes, give reason. |  |  |  |  |
| Depth to maximum likely groundwater level (m) |  |  |  |  |
| **WATER QUALITY TREATMENT (SuDS Manual Ref.)** |  |  |  |  |
| For the 1 year 30 minute event or water quality treatment volume confirm: |  |  |  |  |
| Maximum depth of surface ponding is 150mm | **** |  |  |  |
| Surface ponding is fully drained down between 40h and 48h | **** |  |  |  |
| Depth of filter bed (m) | **** |  |  |  |
| **STORAGE (SuDS Manual Ref.)** |  |  |  |  |
| Design return period(s) (years) |  |  |  |  |
| Maximum design water depth(s) and level(s) |  |  |  |  |
| Maximum design storage volume(s) (m3) |  |  |  |  |
| **LANDSCAPE/BIODIVERSITY (SuDS Manual Ref.)** |  |  |  |  |
| Does the proposed planting have potential to create bio diverse habitats? |  |  |  |  |
| Have native plant species been used? (Note if ornamental species are proposed, give reasons and describe measures that prevent their migration to natural water bodies) |  |  |  |  |
| Is the proposed planting appropriate to the location, visually, relative to gradient, water depths etc. and with respect to access and maintenance? |  |  |  |  |
| Where relevant, confirm planting design does not adversely impact highway visibility and safety requirements (check with highway authority). |  |  |  |  |
| Is the proposed top soil profile suitable to sustain the proposed plant species and as permeable as the filter bed? |  |  |  |  |
| **CRITICAL MATERIALS/ PRODUCT SPECIFICATIONS** |  |  |  |  |
| Geomembrane |  |  |  |  |
| Geotextile (non-woven) |  |  |  |  |
| Topsoil |  |  |  |  |
| Other (including proprietary systems): |  |  |  |  |
| **CONSTRUCTABILITY (SuDS Manual Ref.)** |  |  |  |  |
| Are there any identifiable construction risks? If yes, state and confirm acceptable risk management measures are proposed. |  |  |  |  |
| **MAINTAINABILITY (SuDS Manual Ref.)** |  |  |  |  |
| Confirm that access for maintenance is acceptable and summarise details. |  |  |  |  |
| Are there specific features that are likely to pose maintenance difficulties? If yes, identify mitigation measures required. |  |  |  |  |
| **BIORETENTION DESIGN ACCEPTABILITY (SuDS Manual Ref.)** | **Summary details including any changes required** | | **Acceptable (Y/N)** | **Date changes made** |
| Acceptable:  Minor changes required:  Major changes required / re-design: |  | |  |  |

Note: Input range if applied to > 1 system. If there is a DtCR (as indicated) confirm whether or not this is met and provide details of any variations.