

Technical Note

**HaskoningDHV UK Ltd.
Transport & Planning**

To: Suffolk County Council LLFA
From: Dean Johnson
Date: 24 March 2019
Copy:
Our reference: PB301-RHD-RM-DR-NT-Z-0001
Classification: Project related

Subject: Suds Maintenance and Management Plan

1 INTRODUCTION

- 1.1 The following SUD's Maintenance and Management plan has been produced to inform the end users how to maintain the SuDS areas in accordance with the Local Planning Policies and to ensure that through planned maintenance and regular inspection the SuDS management train will continue to function for the purpose it was intended.

2 MAINTENANCE

- 2.1 For the purposes of this document, maintenance refers to:

- Inspections required to identify performance issues and plan appropriate maintenance needs
- Operation and maintenance of the drainage system
- Landscape management
- Waste management associated with contaminated silt and other waste materials resulting from maintenance.

- 2.2 All maintenance will need to take the protection of habitats and associated ecology into account. Maintenance regimes should be regularly assessed (at least annually) to ensure the approach is still meeting drainage, landscape and any other objectives.

- 2.3 At this moment in time it is intended that the underground piped drainage system will be adopted by Anglian Water upto the external headwalls. The remaining SuDS component such as swales and detention basins and their control devices will be maintained by a joint development management company

A resident's management company will be set up by Redrow homes and the retained landowner. Following completion of the development the control of the management company will be handed back to the residents. Within the plot transfer there will be a positive obligation upon the management company to maintain the managed areas as defined within the plot transfer. There will also be a positive obligation upon the plot purchaser to pay the management company a reasonable contribution towards the cost of the management company undertaking their obligations which are set out in the transfer. Further, upon the plot purchaser disposing of their interest in the plot, any new purchaser will be required to enter into a Deed of Contract with the management company confirming that they will comply and continue to make payment to the management company.

The management company will need to be aware of the maintenance liability incumbent on them in order to prevent drainage failures and consequential flooding. Drawing PB8301-RHD-DE-H1-DR-D-0500, identifies the location of the SuDS features to be maintained by the future owners.

- 2.4 All SuDS features require regular monitoring and maintenance to ensure they continue to operate correctly and efficiently. Maintenance operations are categorised under three levels: Regular Maintenance, Occasional Maintenance and Remedial Maintenance.

- 2.5 Regular Maintenance: Consists of basic tasks to be carried out on a frequent and predictable schedule. Inspections and monitoring of the SuDS feature should be undertaken during these visits. During the first year of operation these visits should be undertaken monthly and after all major storm events to ensure SuDS feature is operating to design standard.
- 2.6 Occasional Maintenance: Consists of tasks which are required to be undertaken on a less frequent and predictable basis, such as sediment removal.
- 2.7 Remedial Maintenance: These are intermittent tasks required to rectify faults which occur within the SuDS feature. These are undertaken as required but anticipated to be infrequent (typically between 10 to 25 years) so long as the best practice guidance during design, construction and maintenance are followed.

2.8 Detention Basins, Wetlands and Swales

- 2.8.1 The detention basins wetland areas and swales will provide an important aesthetic, amenity and wildlife benefit to the development. These features are to be maintained using established maintenance plans and schedules based on the minimum recommended maintenance requirements provided in the CIRIA SuDS Manual C753, chapter 32, and outlined below.

2.9 Access

- 2.9.1 Access to the detention ponds, wetlands and swales will be provided via the future developments' internal road and track network
- 2.9.2 The maintenance/access routes are shown on PB8301-RHD-DE-H1-DR-D-0501 to 0503

2.10 Regular Maintenance

- 2.10.1 Visual inspection - The ponds, wetlands and swales structures should be inspected for deficiencies, such as: blockages, water quality, condition and signs of damage.
- 2.10.2 Removal of litter and debris - Litter and debris could block the drainage network and flow control devices leading to flooding. All litter and debris should be collected and removed from site regularly. All SuDS components to have Silt Trap Manholes upstream of the inlet which should be emptied regularly.
- 2.10.3 Grass Cutting - All grassed areas, including dry sections of detention basins should be mown as part of the general operations for the open spaces. Frequency of cutting will depend on surrounding land uses and public requirements.
- 2.10.4 Vegetation Management - Weeds and invasive species should be removed to prevent SuDS features becoming overgrown. Where permitted, the use of herbicides and pesticides should be limited, to prevent pollution of downstream watercourses.

2.11 Occasional Maintenance

- 2.11.1 Sediment removal - The sediment which builds up within the main body of the pond will require removal every 25 to 50 years or as required. This sediment should be disposed of in a suitable manner, in accordance with best practice.

2.12 Remedial Maintenance

- 2.12.1 Remedial maintenance may be required to be undertaken by a suitably qualified contractor.
- 2.12.2 Structural Rehabilitation or Repair. In the event there is a structural failure of the system, e.g. deformed / damaged sections will require rectifying to ensure the system continues to operate as designed.

2.13 Flow Control (Hydrobrake or Orifice Plates)

- 2.13.1 The flow control devices are to be maintained by a certified sewerage contractor. It is assumed that in the case of local authority adoption, the authority will have their own specialist contractor with their own established maintenance plans and schedules. The minimum maintenance requirements recommended in the CIRIA SuDS Manual C753, chapter 32, is given below.

2.14 Access

- 2.14.1 Access to the flow control chamber will be provided via the Redrow network and future development internal road network.

2.15 Regular Maintenance

- 2.15.1 Visual inspection - The flow control should be inspected for deficiencies, such as: blockages, condition of the structure and signs damage to mechanical devices such as penstocks.
- 2.15.2 Removal of litter and debris. Litter and debris could block the drainage network and flow control devices leading to flooding. All litter and debris should be collected and removed from site regularly.

2.16 Occasional Maintenance

- 2.16.1 Sediment removal - The sediment which builds up within the control chamber will require removal as required, to ensure efficient operation of the control device. This sediment should be disposed of in a suitable manner, in accordance with best practice.

2.17 Remedial Maintenance

- 2.17.1 Remedial maintenance may be required to be undertaken by a suitably qualified contractor.
- 2.17.2 Structural Rehabilitation or Repair. In the event there is a structural failure of the system, e.g. deformed / damaged sections will require rectifying to ensure the system continues to operate as designed.

3 SUMMARY

- 3.1.1 This note is not intended to replace or supersede Anglian Waters or any established maintenance programmes and regimes. The maintenance requirements provided in this technical design note reflects the minimum recommended requirements recommended in the CIRIA SuDS Manual, C753 and therefore complements Anglian Waters and other maintenance schemes.

The Minimum Recommended Maintenance Requirements for SuDS components are tabled below

*****Removal of invasive vegetation to all components to be carried out when required***

SuDS Structure	Location	Outlet Pipe	Inlet Pipe	Vegetated Batters	Vegetation Bed	Frequency	Comments
Detention Basin 1	Area1.1	clear debris	clear debris/Silt	mow (seasonal)	remove debris	6-12 mths	Clear Trash Screens water quality testing annually
Wetland	Area 2.1	clear debris	clear debris/Silt	Vegetation Control**	remove debris	6-12 mths	water quality testing annually
Swale 1	Area 2.1	clear debris	clear debris/Silt	mow (seasonal)	remove debris	6-12 mths	Vegetation in channel bed to be trimmed seasonally
Swale 2	Area 2.4	clear debris	clear debris/Silt	mow (seasonal)	remove debris	6-12 mths	Vegetation in channel bed to be trimmed seasonally
Watercourse	Area1.1 - 4	clear debris	clear debris	Vegetation Control**	remove debris	6-12 mths	Clear Trash Screens water quality testing annually
Detention Basin 2.1	Area 4	clear debris	clear debris/Silt	mow (seasonal)	remove debris	6-12 mths	Clear Trash Screens water quality testing annually
Detention Basin 2.2	Area 4	clear debris	clear debris/Silt	mow (seasonal)	remove debris	6-12 mths	Clear Trash Screens water quality testing annually
Detention Basin 2.3	Area 4	clear debris	clear debris/Silt	mow (seasonal)	remove debris	6-12 mths	Clear Trash Screens water quality testing annually
Detention Basin 2.4	Area 4	clear debris	clear debris/Silt	mow (seasonal)	remove debris	6-12 mths	Clear Trash Screens water quality testing annually
Swale 3	Area 4 / 5	clear debris	clear debris/Silt	mow (seasonal)	remove debris	6-12 mths	Vegetation in channel bed to be trimmed seasonally
Swale4	Area 6	clear debris	clear debris/Silt	mow (seasonal)	remove debris	6-12 mths	Vegetation in channel bed to be trimmed seasonally
Detention Basin 4.3	Area 4	clear debris	clear debris/Silt	mow (seasonal)	remove debris	6-12 mths	Clear Trash Screens water quality testing annually
Outfalls to main watercourse	Area 2.1 & 4	clear debris/Silt				6-12 mths	water quality testing every 12mth