Remus

Management of Sustainable Urban Drainage Systems

At

Nursery Fields, Denvilles

For

David Wilson Homes Southampton

HAVANT BOROUGH
COUNCIL
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First Issue

Introduction

Remus are professionals in Residential Block and Estate Management with national coverage of the majority of the UK and with responsibility for a portfolio of more than 16,000 homes.

This management document sets out how Remus will own and implement the long-term management responsibilities for the SUDS drainage arrangements at the Nursery Fields development in Denvilles, Havant.

The terms of the Section 106 agreement between the developer and the Local Authority (to run with the transfer of the open space land and the SUDS pond areas to the management company) bind the developer to ensuring that robust arrangements are secured from the outset to safeguard the adequate future maintenance and long term management of the SUDS system.

Barratt David Wilson Homes Southampton has appointed Remus to set up a Management Company on behalf of the owners of the new properties, the purpose of which is to provide such financial and practical measures as are necessary to secure the future repair and maintenance works of the SUDS.

Appendix B of this document sets out the basis on which the managing agent has secured their appointment in terms of projecting and assessing the reasonable future estate charges to be collected.

Management Plan for Sustainable Urban Drainage Systems

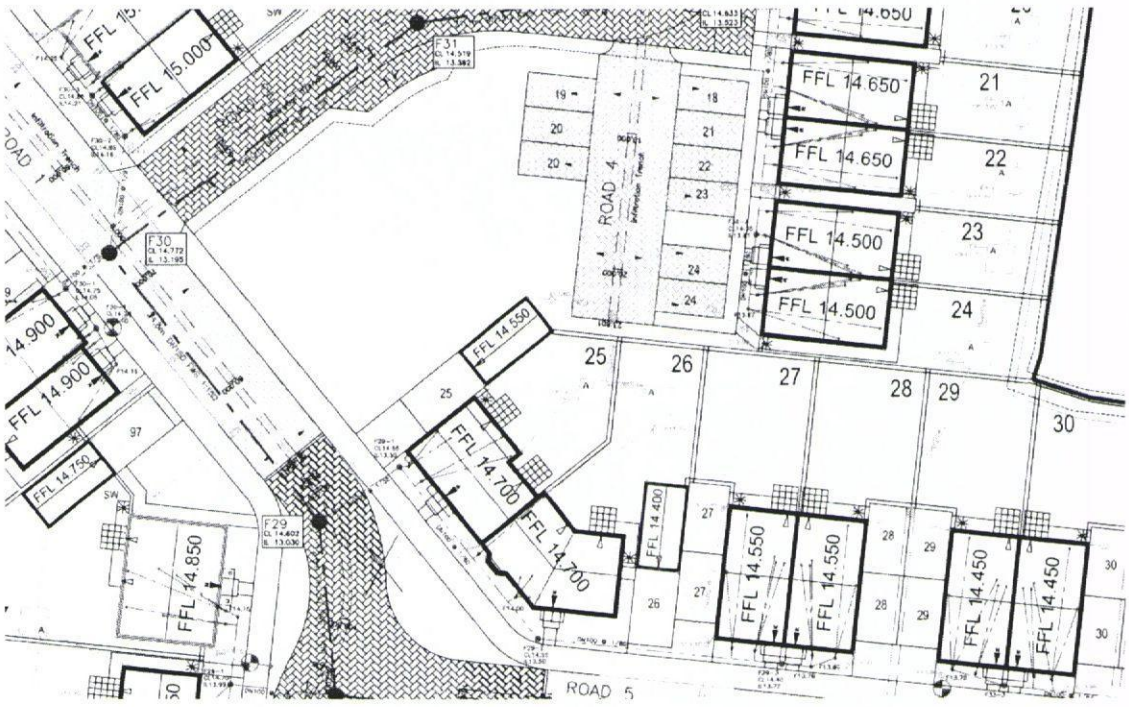
The costs to manage the SUDS will be funded through a financially sustainable income stream secured against all of the properties on the development. Each property will contribute an annual Estate Service Charge.

The development incorporates the principals of sustainable development and in that regard SUDS has been deployed as the key approach to the surface water drainage strategy.

There are 3 main components to the surface water SUDS strategy:

- Drainage of the main estate roads/highway through the use of porous paving which drains directly through to a stone sub-base and infiltrates the ground below.
- Drainage of the shared and individual private driveways through use of gully's connected into soakaways.
- Drainage of domestic roof water run-off through the use of conventional trench type soakaways with aquacell or similar crates combined with catch-pit manholes for silt management.

The following extract, taken from the drainage design drawings illustrates some of the key components:



The design specification for the private roads and driveways includes for areas of porous block paving across a significant portion of the site and thus the majority of the estate roads will remain private.

Regular sweeping of porous areas will help remove general detritus. A light power-hose of porous block paving systems can be used to keep voids clear, however designs tend

to assume that some silting and reduction in capability will take place over time. The design allows for some deterioration in system performance. A light power hose at medium pressure will help unclog blocked pores will help maintain system performance.

The required frequency of jet-washing will be determined by local conditions and the managing agent will determine the appropriate frequency when the development is fully operational and functioning. It has been shown that regular jetting can unclog around 80% of the original voids within the porous systems.

The managing agent is required to adhere to recommendations in 'Guide to the design, construction and maintenance of concrete block permeable pavements' by Interpave see: www.paving.org.uk.

A Useful Guide to Permeable Surfacing of front gardens has been published by government and contains some useful tips as follows:

Looking after a permeable driveway

Permeable paving, soakaways and rain gardens can provide durable and long lasting drainage systems. They are different to normal driveways and observing a few do's and don'ts will get the best out of them.

Do	Don't
• clean up leaves, mud and litter before they have a chance to clog the surface • brush the surface if any dirt collects on it and this will reduce the risk of it blocking and help stop weeds growing • remove weeds by hand or with a weed burner	• put soil, sand or similar material on the driveway that will block the surface and stop water soaking in • mix concrete on the driveway • pour liquids such as oil on the surface • allow the garden areas to drain onto permeable surfaces as this can allow soil to wash into the surface and block it • use weed killer

If the surface of any of the systems blocks then it can be cleaned. For porous asphalt and porous/permeable concrete blocks the surface can be unclogged using a small vacuum road sweeper or a jet washer.

Individual private trench type soakaways are in use as part of the SUDS system and these are a conventional SUDS approach albeit using a crate system, The soakaways are combined with catch pit type manholes which the individual homeowners can maintain directly.

The 'crate-type' aquacell soakaways have been designed with access/rodding/jetting chambers formed as catch-pit manholes. Where these serve a 'communal purpose' and are situated in areas beneath common areas or areas subject to reciprocal rights of way, The managing agent will provide for jetting/cleansing on a 5-year cycle.

MAINTENANCE RECORDS

The managing agent is required to include an offer to the homeowners for an annual inspection regime of all private catch pit chambers which will help safeguard against potential lack of maintenance to the rear garden soakaways.

Ultimately, as with all components of a private dwelling it will be the homeowners responsibility to determine how they maintain their individual private soakaway (serving their own property) however the managing agent will include for the issuing of annual reminders of the need to inspect and clean catch pits. Where appointed to undertake maintenance for individual soakaways, The managing agent will maintain a record of the maintenance.

In addition to any records to be maintained on behalf of individual property owners, a record of SUDS Maintenance will be held for each shared soakaway as follows:

Project Details
Project Name:
Location:
Designed by:
Contractor:
Date of Completion:

Date Inspected	Silt Level (below GL)	Action	Comments

Where maintenance is undertaken on the shared roads, drives or the ponds, the managing agent will record this and maintain an annual register of maintenance for the common parts of the SUDS system.

Foul Drainage Management Arrangements

The intention is to ensure that the foul sewers at this development become the responsibility of Southern water according to the terms of a Section 104 adoption agreement to be entered into. This will include the adoption of the new foul pump station located on the Manor Farm section of the overall development.

Engineer's Inspections:

During construction the SUDS will be routinely inspected by the Design Engineer (MJA Consulting – Civil and Structural Engineers) on a monthly basis initially to observe construction activity and the findings are to be reported directly to David Wilson Homes.

DWH will provide a copy of these records and any observations made to the managing agent at the point of handover. This regime will supplement the 'Record of Construction' process for additional comfort.

Short Term Establishment and Handover

The transfer of management responsibility to the managing agent may be staged during construction subject to certain contractual obligations being in place which includes the SUDS to be constructed and signed off using the process outlined above.

Handover of all design information relating to the entire SUDS network will be made in accordance with the Handover Checklist provided at (Appendix A).

A Risk Assessment will be undertaken on completion and the management arrangements will take account of any significant or unusual residual risks and hazards identified (if not previously identified during the design stage). If required, this will include prior liaison with the emergency services to provide details of site location, access routes and maximum depth of water.

Management Objectives

Short Term

The primary objectives are to ensure satisfactory establishment and stabilisation of the system including the adjoining landscaped areas and to ensure public safety is maintained.

Medium to Long Term

The transfer of management responsibilities are as follows:-

1. Public safety.
2. To maintain an efficient drainage system, in consultation with Havant Borough Council and/or Southern Water and/or the Environment Agency if appropriate.
3. To maintain regular liaison with the residents and explain the role of the SUDS to the development and the wider community and the role they can play in maintaining clean discharges into and out of the system.
4. To manage and develop the visual amenity of the attenuation wetland habitat by maintaining the soft landscaping in accordance with the approved Open Space Landscape Management and Maintenance Plan (by ACD) and the 'Biodiversity Mitigation and Management Plan' (by Aluco) this includes:

a) Grass cutting both amenity and filter grass.
b) Litter collection and disposal.
c) Shrub maintenance.
d) Periodic inspection and management of trees including coppicing where applicable.
e) Inspection and repair of perimeter fences, gates, paths and other features.
f) Regular inspection of all features associated with the function of the SUDS.
g) Recording the inspections and maintenance in an 'Annual SUDS Maintenance Record'

5. To encourage the development of ecological interest, in so far as this can be achieved subject to the incoming water quality (taking account of highway salt and other materials that may be discharged by the public).

Public Safety

It is well understood that bodies of water, whilst they can represent very attractive features which have ecological value and play an essential role in flood attenuation, represent a potential safety hazard, particularly to small children.

Whilst vegetation around the ponds is of benefit both ecologically, and visually, such planting will also be carried out and subsequently managed as part of the safety mechanisms for open water.

There will be occasions in the life of the system when children may enter areas of open water. To mitigate the potential hazard SUDS are designed with shallow side slopes so that it is possible to escape from the ponds by crawling up the banks. RoSPA recommends that slopes should be sufficiently shallow that any person wading into the water can proceed for at least twice their own height and remain standing with their head well above water. RoSPA also recommends the use of even grades and the avoidance of sudden shelving areas of deep water.

SUDS information leaflets will be distributed to the local residents as a part of the initial liaison. The Managing Agent contact phone number is printed on these leaflets in order to provide an easy point of contact. This allows direct access to the Managing Agents 24 hours emergency help.

Water Quality

The Managing Agent will be responsible for the removal of material deposited within the system as part of the periodic litter inspection. Any contamination entering the system will be reported to the appropriate body and action taken to contain the spillage until it can be safely removed.

In the event of severe pollution the managing agent will liaise with the Environment Agency and Havant Borough Council in prosecuting the polluter.

Ecology

As the wetland area becomes established it will start to develop ecological importance and support amphibians and invertebrates. To facilitate the colonisation, the public will be discouraged from introducing fish into the ponds.

The Managing Agent will ensure that the wetland is inspected by an Ecologist on a 5 yearly basis to advise on the condition of the habitat and review in accordance with the habitat Creation and Management Strategy.

Periodic Review

The system will be subject to a 5 yearly review to establish if the current management regime is meeting the management objectives. This may require liaison with Havant Borough Council, Southern Water, the Environment Agency and the Highways Authority. Any significant changes to the Management Arrangements will be first referred to the Planning Authority for approval.

SUDS Handover Checklist

Appendix A sets out the level of information to be provided to the Managing Agent by David Wilson Homes prior to the transfer of management responsibilities.

The criteria reflect the information required for the design and operation of SUDS in order to satisfy water quantity, water quality and amenity requirements.

The level and extent of information accords with latest UK SUDS guidance from design through to implementation, handover and aftercare.

Published guidance used for the checklist includes:

- Drainage Assessment: A Guide for Scotland, SUDSWP (2005),
- The SUDS Manual, CIRIA (2007),
- Site handbook for the construction of SUDS, CIRIA (2007),
- Sustainable Urban Drainage Systems. Design Manual for Scotland and Northern Ireland, CIRIA (2000), and
- Construction (Design and Management) Regulations, HSE.

Appendix A - SUDS Handover Checklist

The following information must be supplied prior to the adoption of Sustainable Urban Drainage Systems to the Remus	
1.A Drainage Assessment for the Development, as detailed by the Sustainable Urban Drainage Scottish Working Party (SUDSWP, 2005) including:	
1.1	**Method statement** detailing how surface water arising during construction will be dealt with and if temporary or sacrificial SUDS will be established for dealing with construction run-off.
1.2	An overview of the **historical and current drainage patterns** including water courses, ditches, culverts, sewers and general land drainage, both within and adjoining the site and confirmation that the SUDS design includes surface water, or groundwater entering the development from any adjacent land.
1.3	A **design of the SUDS to be incorporated with final discharge point(s)** where relevant, including **how the drainage design satisfies SUDS techniques**, both in terms of treatment of water quality and attenuation of water quantity, in accordance with best practice and design.
1.4	A proposed **drainage plan identifying the type(s) of SUDS to be incorporated and SUDS land take**. **Adequate land area must be designated for SUDS facilities**, which must also allow for access and maintenance.
1.5	Calculations showing the **drain down time** of the SUDS.
1.6	Indication of **overland flow routes** and safeguarding of properties from flooding.
1.7	**Confirmation of land ownership of all land required for drainage**, including SUDS measures and details of which body will be **responsible for vesting and maintaining individual aspects** of the surface water drainage.
1.8	**Appropriate design calculations are required for the entire surface water drainage system** including those where SUDS form part of a drainage network including piped surface water systems, irrespective of ownership or maintenance responsibility.
1.B Additional requirements.	
1.9	A description of safety measures to render SUDS acceptably safe including signage and ice strategy assessment (see point 3.3 below).
2. Design Information	
2.1	Site survey (based upon a topographical survey carried out on completion of the works) and as built drawings including drainage layout plans (as approved by the L.A. / Environmental Regulator), SUDS component details (pre-treatment, inlet/outlet, headwall, check dam details etc) and planting specification. This information should include: • Clearly defined boundaries of the land to be maintained. • Levels and contours of land, trees, soft and hard areas. • Location of all features i.e. manholes, banking, SUDS, inlet/outlet structures, fences, paths, roads etc. • Spot levels at significant locations in addition to the contours.
2.2	Specification of materials.
2.3	Summary of hydraulic analysis including: • Maximum and minimum water levels. • Peak flows to critical areas of the system. • Flow control features.
3. Construction Details	
3.1	Contractors' method statements for construction of the SUDS.
3.2	Record of Construction detailing: • Inspections of the SUDS system during construction by MJA • Details of the construction and any 'as-built' alterations udnertaken
3.3	**Health and safety file** information (as specified by the Construction [Design and Management] Regulations 1994) relevant to the surface water system to be adopted.

References

1. Sustainable Urban Drainage Scottish Working Party (2005). *Drainage Assessment. A guide for Scotland.* [online]. Available from: www.sepa.org.uk

2. Construction Industry Research and Information Association (2000). *Sustainable Urban Drainage Systems. Design Manual for Scotland and Northern Ireland. CIRIA Report C521.* London: CIRIA.

3. Construction Industry Research and Information Association (2007). *Site handbook for the construction of SUDS. CIRIA Report C698.* London: CIRIA

4. Construction Industry Research and Information Association (2007). *The SUDS Manual. CIRIA Report C697.* London: CIRIA

5. Scottish Water. *Sewers for Scotland. Draft SUDS Document.* [online]. Available from: http://www.scottishwater.co.uk/portal/page?_pageid=627,4259793&_dad=portal&_schema=PORTAL

6. Health and Safety Executive (2004). *Construction (Design and Management) Regulations 1994: The Health and Safety File. Construction Information Sheet No 44.* [online]. Available from: http://www.hse.gov.uk/pubns/conindex.htm

Appendix – B

Explanatory Notes re
Estate Charge Projections for
Nursery Fields

PLEASE NOTE THE BELOW ARE ALL ESTIMATED FIGURES

Landscape Maintenance:
8 hrs per visit at £20.00 per hour x 20 visits per annum = £4,000.00

Public Liability Insurance:
A public liability insurance policy will be put in place at a projected annual premium of £400.00 in respect of the Public Open Spaces, roads and paths.

Electricity:
Based on an annual charge of £1,000.00 per annum to cover the cost of electricity in respect of street lighting.

Provision for Minor Repairs:
A total sum of £1,500.00 per annum to cover the cost of any minor repairs as and when required.

Cleaning:
Based on an estimate of 4 hours per bi-monthly visit at an hourly rate of £25.00 per hour
£100.00 per bi-monthly visit x 6 visits = £600.00, to sweep and litter pick roads and paths, plus £400.00 to jet wash permeable paving areas = £1,000.00 per annum

SUDS Inspection and Maintenance Contract:
We have estimated that the maintenance contract should be approximately £1,000.00 per annum.

Company Costs:
To cover the costs incurred which includes – production and filing of Company Accounts, Annual Return, and Tax Return

Statutory Health & Safety Risk Assessment:
Statutory Heath & Safety Risk assessment will be carried out after management has commenced, at a cost of approximately £350.00 then as and when required in accordance with statutory regulations and guidelines.

Bank Charges:
Charges levied by the Bank for maintaining the Service Charge Client Account

Accountancy Fees:
These relate to the production and circulation of the annual service charge account.

Managing Agent Fees:
An amount of £40.00 + VAT per property, per annum. A summary of the services provided within our fees is enclosed.

Transfer to Reserve Fund :
Resurfacing of unadopted highway an amount of £2,500.00 per annum