



**Mayflower Way
Angmering**

SuDS Operations & Maintenance Manual

Prepared by:

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KNC1539/SUDS

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Revision	Description	Date	Initials
O	Initial issue	February 2020	KN
A	Drainage plan added to Appendix A	April 2020	KN

1.0 INTRODUCTION

1.1 Regular inspection and maintenance is important for the effective operation of the SuDS drainage features across the development.

1.2 The following SuDS features have been designed into the development to control the surface water run-off created through the construction of areas such as roofs, drives and roads.

- Permeable Pavements (block paving and porous surfacing)
- Discharge Soakaways

1.3 In order to ensure the continued effective operation of the SuDS features maintenance regimes have been provided for each of the above features.

1.4. This document has been prepared at the design stage and should be considered as part of an evolving process. Following construction as built information and drawings should be included. The post construction information should include drawings detailing the extent and location of SuDS features together with relevant manufacturer's details.

1.5 The following maintenance regimes should be amended/updated to suit specific manufacturer's requirements for the various components installed.

1.6 The following appendices have been included to allow for additional information and records to be included post construction.

- **Appendix A** As Built Information
- **Appendix B** Manufacturer's Information
- **Appendix C** Inspection Records
- **Appendix D** Maintenance Regime Monitoring and Amendments

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- 1.7 It should also be recognised that for a maintenance regime to continue to be appropriate and fit for purpose a constant monitoring ethos should be adopted and any corrective measures implemented to ensure that the correct maintenance regimes going forward are in place. Inspection records should be kept and used as a basis for the determining the suitability of the maintenance regimes and the areas of the development requiring attention.
- 1.8 It should also be recognised that for a maintenance regime to continue to be appropriate and fit for purpose a constant monitoring ethos should be adopted and any corrective measures implemented to ensure that the correct maintenance regimes going forward are in place. Inspection records should be kept and used as a basis for the determining the suitability of the maintenance regimes and the areas of the development requiring attention.
- 1.9 As a reputable developer Crayfern Homes will set up a Maintenance Management Company for the site which will undertake the requirements and obligations to ensure that the SuDS facilities are adequately maintained. The obligations of the Management Company will be funded by an annual contribution from the residents of the development. This manual will form part of the brief provided to the Management Company, who will use it to calculate fees which will be paid by residents.
- 1.10 If the Management Company were to become insolvent or was dissolved then any former director or member of the company (which would in this case be the residents) can either apply to Companies House to get the Management Company restored or make a court application to do the same. Either option can be undertaken within 6 years from the date of dissolution of the company. The process would also involve applying to the Treasury Solicitor to give up their interest in the land (as assets of dissolved companies pass to the Crown).
Wording in the estate transfer will advise that if the management company was dissolved or struck off then the residents can join together in arranging for the estate

service to be carried out, subject to each resident making a contribution. At the same time as doing this the residents can agree what course of action they wish to take with the dissolved company i.e. apply to Companies House or Court to restore it.

- 1.11 At the end of the manufacturer's recommended design life for all SuDS components they shall be replaced at the Management Company expense to the satisfaction of the Planning Authority.

2.0 PERMEABLE PAVEMENTS

- 2.1 Permeable pavements have been provided around the development to infiltrate water down through the sub base and into the substrata.
- 2.2 Permeable pavements need to be regularly cleaned of silt and other sediments to preserve their infiltration capacity. Extensive experience suggests that sweeping once per year should be sufficient to maintain an acceptable infiltration rate on most sites.
- 2.3 A maintenance regime has been prepared for the development as indicated in Table 1 below.
- 2.4 Inspection reports should be kept and the maintenance regime for the permeable paving should be adjusted, if necessary, to suit ongoing site-specific circumstances as they arise.
- 2.5 A brush and suction cleaner (which can be a lorry-mounted device or a smaller precinct sweeper) should be used for regular sweeping. Care should be taken in adjusting vacuuming equipment to avoid removal of jointing material. Any lost material should be replaced. It is also possible to clean the surface using lightweight rotating brush cleaners combined with power spraying using hot water.
- 2.6 If the surface has clogged then a more specialist sweeper with water jetting and oscillating and rotating brushes may be required.
- 2.7 Proprietary permeable surfacing to be jet washed to remove sediment.

Table 1: Operation and Maintenance Requirements - Permeable Pavements

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance.	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto permeable surface from adjacent impermeable areas as this area is most likely to collect the most sediment.
	Permeable surfaces; power wash	Annually
	Empty silt traps	Once a year at the same time as the permeable paving is being cleaned.
Occasional maintenance.	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying.	As required – once per year on less frequently used pavements.
Remedial Actions.	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving.	As required.
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material.	As required.
	Rehabilitation of surface and upper substructure by remedial sweeping.	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging).
Monitoring	Initial inspection.	Monthly for three months after installation.
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action.	Three-monthly, 48hours after large storms in the first six months.
	Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually.
	Monitor silt taps.	At same frequency of pervious paving inspections.

3.0 SOAKAWAYS & CHANNEL DRAIN

- 3.1 The soakaways installed on site have been installed to assist in the reduction in the discharge rate of surface water discharge from the site and catch overland flows.
- 3.2 It is important that residents should be aware that no major planting, i.e. trees or bushes, should be planted adjacent to, or over the proposed soakaways. Residents should be issued with plans in their '*home welcome*' that accurately locates soakaways serving their property.

Table 2: Operation and Maintenance Requirements – Soakaways & Channel Drain.

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance.	Inspect for sediment and debris in pre-treatment components and floor of inspection tube.	Annually.
	Trimming any roots that may be causing blockages.	Annually (or as required).
Occasional maintenance.	Remove sediment and debris from pre-treatment components and floor of inspection tube.	As required, based on inspections.
Remedial actions.	Reconstruct soakaway and/or replace or clean void fill, if performance deteriorates.	As required.
	Replacement of clogged geotextile (will require reconstruction of soakaway).	As required.
Monitoring.	Inspect silt traps and note rate of sediment accumulation.	Monthly in the first year and then annually.
	Drainage channel to be inspected	Leaves to be removed from drainage cover during the Autumn period. Channel to be cleaned annually when silt traps and pervious paving cleaned.

Appendix A



Nichols:

Infiltration rates have been confirmed by both

[illegible]

FOR TENDER				
Project MAYFLOWER WAY ANGMERING				
Client Crayfern				
KARYN NARDOUTAS CONSULTING <i>For Engineering Services</i> 10/11-12/11-13/11-14/11-15/11-16/11-17/11-18/11-19/11-20/11-21/11-22/11-23/11-24/11-25/11-26/11-27/11-28/11-29/11-30/11-31/11-1/12-2/12-3/12-4/12-5/12-6/12-7/12-8/12-9/12-10/12-11/12-12/12-13/12-14/12-15/12-16/12-17/12-18/12-19/12-20/12-21/12-22/12-23/12-24/12-25/12-26/12-27/12-28/12-29/12-30/12-31/12-1/13-2/13-3/13-4/13-5/13-6/13-7/13-8/13-9/13-10/13-11/13-12/13-1/14-2/14-3/14-4/14-5/14-6/14-7/14-8/14-9/14-10/14-11/14-12/14-1/15-2/15-3/15-4/15-5/15-6/15-7/15-8/15-9/15-10/15-11/15-12/15-1/16-2/16-3/16-4/16-5/16-6/16-7/16-8/16-9/16-10/16-11/16-12/16-1/17-2/17-3/17-4/17-5/17-6/17-7/17-8/17-9/17-10/17-11/17-12/17-1/18-2/18-3/18-4/18-5/18-6/18-7/18-8/18-9/18-10/18-11/18-12/18-1/19-2/19-3/19-4/19-5/19-6/19-7/19-8/19-9/19-10/19-11/19-12/19-1/20-2/20-3/20-4/20-5/20-6/20-7/20-8/20-9/20-10/20-11/20-12/20-1/21-2/21-3/21-4/21-5/21-6/21-7/21-8/21-9/21-10/21-11/21-12/21-1/22-2/22-3/22-4/22-5/22-6/22-7/22-8/22-9/22-10/22-11/22-12/22-1/23-2/23-3/23-4/23-5/23-6/23-7/23-8/23-9/23-10/23-11/23-12/23-1/24-2/24-3/24-4/24-5/24-6/24-7/24-8/24-9/24-10/24-11/24-12/24-1/25-2/25-3/25-4/25-5/25-6/25-7/25-8/25-9/25-10/25-11/25-12/25-1/26-2/26-3/26-4/26-5/26-6/26-7/26-8/26-9/26-10/26-11/26-12/26-1/27-2/27-3/27-4/27-5/27-6/27-7/27-8/27-9/27-10/27-11/27-12/27-1/28-2/28-3/28-4/28-5/28-6/28-7/28-8/28-9/28-10/28-11/28-12/28-1/29-2/29-3/29-4/29-5/29-6/29-7/29-8/29-9/29-10/29-11/29-12/29-1/30-2/30-3/30-4/30-5/30-6/30-7/30-8/30-9/30-10/30-11/30-12/30-1/31-2/31-3/31-4/31-5/31-6/31-7/31-8/31-9/31-10/31-11/31-12/31-1/32-2/32-3/32-4/32-5/32-6/32-7/32-8/32-9/32-10/32-11/32-12/32-1/33-2/33-3/33-4/33-5/33-6/33-7/33-8/33-9/33-10/33-11/33-12/33-1/34-2/34-3/34-4/34-5/34-6/34-7/34-8/34-9/34-10/34-11/34-12/34-1/35-2/35-3/35-4/35-5/35-6/35-7/35-8/35-9/35-10/35-11/35-12/35-1/36-2/36-3/36-4/36-5/36-6/36-7/36-8/36-9/36-10/36-11/36-12/36-1/37-2/37-3/37-4/37-5/37-6/37-7/37-8/37-9/37-10/37-11/37-12/37-1/38-2/38-3/38-4/38-5/38-6/38-7/38-8/38-9/38-10/38-11/38-12/38-1/39-2/39-3/39-4/39-5/39-6/39-7/39-8/39-9/39-10/39-11/39-12/39-1/40-2/40-3/40-4/40-5/40-6/40-7/40-8/40-9/40-10/40-11/40-12/40-1/41-2/41-3/41-4/41-5/41-6/41-7/41-8/41-9/41-10/41-11/41-12/41-1/42-2/42-3/42-4/42-5/42-6/42-7/42-8/42-9/42-10/42-11/42-12/42-1/43-2/43-3/43-4/43-5/43-6/43-7/43-8/43-9/43-10/43-11/43-12/43-1/44-2/44-3/44-4/44-5/44-6/44-7/44-8/44-9/44-10/44-11/44-12/44-1/45-2/45-3/45-4/45-5/45-6/45-7/45-8/45-9/45-10/45-11/45-12/45-1/46-2/46-3/46-4/46-5/46-6/46-7/46-8/46-9/46-10/46-11/46-12/46-1/47-2/47-3/47-4/47-5/47-6/47-7/47-8/47-9/47-10/47-11/47-12/47-1/48-2/48-3/48-4/48-5/48-6/48-7/48-8/48-9/48-10/48-11/48-12/48-1/49-2/49-3/49-4/49-5/49-6/49-7/49-8/49-9/49-10/49-11/49-12/49-1/50-2/50-3/50-4/50-5/50-6/50-7/50-8/50-9/50-10/50-11/50-12/50-1/51-2/51-3/51-4/51-5/51-6/51-7/51-8/51-9/51-10/51-11/51-12/51-1/52-2/52-3/52-4/52-5/52-6/52-7/52-8/52-9/52-10/52-11/52-12/52-1/53-2/53-3/53-4/53-5/53-6/53-7/53-8/53-9/53-10/53-11/53-12/53-1/54-2/54-3/54-4/54-5/54-6/54-7/54-8/54-9/54-10/54-11/54-12/54-1/55-2/55-3/55-4/55-5/55-6/55-7/55-8/55-9/55-10/55-11/55-12/55-1/56-2/56-3/56-4/56-5/56-6/56-7/56-8/56-9/56-10/56-11/56-12/56-1/57-2/57-3/57-4/57-5/57-6/57-7/57-8/57-9/57-10/57-11/57-12/57-1/58-2/58-3/58-4/58-5/58-6/58-7/58-8/58-9/58-10/58-11/58-12/58-1/59-2/59-3/59-4/59-5/59-6/59-7/59-8/59-9/59-10/59-11/59-12/59-1/60-2/60-3/60-4/60-5/60-6/60-7/60-8/60-9/60-10/60-11/60-12/60-1/61-2/61-3/61-4/61-5/61-6/61-7/61-8/61-9/61-10/61-11/61-12/61-1/62-2/62-3/62-4/62-5/62-6/62-7/62-8/62-9/62-10/62-11/62-12/62-1/63-2/63-3/63-4/63-5/63-6/63-7/63-8/63-9/63-10/63-11/63-12/63-1/64-2/64-3/64-4/64-5/64-6/64-7/64-8/64-9/64-10/64-11/64-12/64-1/65-2/65-3/65-4/65-5/65-6/65-7/65-8/65-9/65-10/65-11/65-12/65-1/66-2/66-3/66-4/66-5/66-6/66-7/66-8/66-9/66-10/66-11/66-12/66-1/67-2/67-3/67-4/67-5/67-6/67-7/67-8/67-9/67-10/67-11/67-12/67-1/68-2/68-3/68-4/68-5/68-6/68-7/68-8/68-9/68-10/68-11/68-12/68-1/69-2/69-3/69-4/69				

Appendix B

Appendix C

Appendix D

Monitoring and Review Table

Revision	Revision Description	Date	Initials