

SuDS Maintenance Regime for Upton Steel, Stanton Lane (18953)

Introduction & Background Information

Woods Hardwick has been commissioned by CJ Upton & Sons Ltd to prepare a surface water management and maintenance report to cover the proposed features at the commercial development at Land off Stanton Lane.

The proposal is for a commercial development comprising of 1 commercial building and associated service yard. The Surface Water drainage strategy being proposed for the site will outfall to an existing ditch course, via gravity. The surface water drainage is proposed to remain private and maintained by CJ Upton & Sons Ltd.

Maintenance and Management

The onsite piped drainage networks will be private, it is to be maintained by CJ Upton & Sons Ltd.

The maintenance regime defines the scope of inspections and maintenance that is to be carried out on pipes, attenuation tanks, petrol interceptors and swales. During and following construction the stormwater drains, tanks and swales will need to be regularly inspected in order to access their performance and to schedule any required maintenance.

Scope of Stormwater Maintenance Regime

This Maintenance Regime defines the scope of inspections and maintenance that are to be carried out on pipes, manholes/catchpits, flow controls, attenuation tanks and petrol interceptors.

This plan provides a methodology for maintaining the above and includes:

- Guidance on the scope of inspection and maintenance requirements, including suitable personnel and frequency of inspections.
- Guidance on recommended actions that arise from the inspections.



Scope of Inspections and Maintenance

▪ Type of Inspections

During and following construction, the stormwater system will need to be regularly inspected in order to assess its performance and to schedule any required maintenance.

Inspections are divided into two categories:

- Routine Inspections for Maintenance - which are to be carried out by any responsible person (with no professional engineering knowledge).
- Engineering Inspections for Maintenance - which are to be carried out by professional/qualified civil engineering personnel.

Following an inspection, a recommendation will be made that specified the required suit of maintenance activities.

Routine Inspections for Maintenance

▪ Purpose and Scope

Routine inspections are to be carried out to assess the need for maintenance and are primarily concerned with checking the functionality of the stormwater drainage.

Items that are to be subject to Routine Inspections for Maintenance may comprise, but not be limited to those listed in the table below.

Item	Routine Inspections for Maintenance	Min. Frequency	Responsibility
Pipes / Manholes / Catchpits	Inspect surface access points to underground storage crates, manholes and catchpits as well as the surrounding area. Particular attention should be paid to damage or blockage. To be visually inspected after heavy rainfall events to ensure they are free of debris and litter.	6 monthly As required	Private management company
Flow Control Devices	Inspect flow control devices and grill for blockages, damage and general condition. To be visually inspected after heavy rainfall events to ensure they are free of debris and litter.	6 monthly As required	Private management company



Headwalls	Inspect headwalls & flap valves for signs of deterioration (scouring), blockage or damage. To be visually inspected after heavy rainfall events to ensure they are free of debris and litter.	6 monthly As required	Private management company
Cellular Storage Crates	Inspect storage crates via upstream / downstream manholes for silt/debris build up and general condition To be visually inspected after heavy rainfall events to ensure they are free of debris and litter	6 monthly As required	Private management company
Petrol Interceptors	Refer to Kingspan Klargestar Full retention separator maintenance guidelines.	6 Monthly	Private management company

In addition, personnel completing the routine inspections for maintenance should be generally observant of items such as equipment failures, leaking water, scouring and/or signs of blockages of water flow. If such items are observed, an immediate inspection for engineering maintenance may be necessary.

- Frequency

Routine Inspections for Maintenance shall be carried out over the life of the development.

The inspections shall occur on a monthly basis during the construction period and three months afterwards. Thereafter, inspections shall continue on a six-monthly basis.

Heavy rain inspections should be carried out as soon as practicable following an intense period of rainfall, (i.e. greater than 100mm over 48 hours).

- Records

Records detailing each of the routine inspections for maintenance should be completed during the inspection, and describe in detail any required maintenance.

Records of any maintenance carried out as a result of the inspection should be completed immediately after the works have been finalized.



- Personnel

Routine inspections for maintenance are required to establish the need for basic maintenance, as described above. On this basis, such inspections do not require professional engineering knowledge and may be carried out by any responsible person.

Alternatively, professional engineering staff may be employed to complete the routine inspections for maintenance concurrently with the engineering inspections.

Engineering Inspections for Maintenance

- Purpose and Scope

Engineering inspections will generally comprise a walk over survey of the site, along with additional investigation activities as considered necessary. These inspections are primarily concerned with checking engineering aspects of the drainage that are not likely to be picked up during a routine inspection such as manhole damage and concrete deterioration.

During the inspections for engineering maintenance, care is needed to look for signs of pipe blockages. This can only be checked at the inlet and outlet of manholes and at the base.

The purpose of the Engineering Inspections is to:

- Identify discrepancies between previous records and the current site conditions and assess if these have implications for drainage.
- Provide supplementary advice with regard to items requiring Routine Maintenance.
- Check that the routine inspections have been carried out thoroughly, documented accordingly and maintenance activities carried out.
- Re-assess the required frequency of routine and engineering inspections based on results of previous inspections and current drainage performance.
- Identify if any repairs are required where the integrity of the system is compromised, or if the element is likely to deteriorate without repair.

Items that are to be subject to Engineering Inspections for Maintenance may comprise, but not be limited to those listed in the table below.



Item	Routine Inspections for Maintenance
Manholes / Catchpits	All manholes/catchpits will require to be inspected externally and internally. External inspections will determine the overall condition of the access points, and should record deterioration of exposed concrete, access lids, restricted access due to overgrown vegetation/debris.
Flow Control Devices	Inspections will determine the overall condition of the flow control device to ensure it is working efficiently and effectively.
Headwalls	Inspections will determine the overall condition of the headwalls & flap valves and should record deterioration of exposed concrete, evidence of exposed reinforcement or concrete staining due to deteriorating reinforcement below the surface, damage to flap valves and restricted access/flow due to overgrown vegetation/debris.
Cellular Storage Crates	Inspections via inspection chambers/accesses and upstream/downstream manholes will determine the overall condition of the storage crates to ensure they are free from silt/debris build up and should record any defects deterioration.
Petrol Interceptors	Refer to Kingspan Klargestor Full retention separator maintenance guidelines.

Prior to undertaking an Engineering Inspection for Maintenance, the Engineer should make themselves familiar with the design of the drainage system, construction records and also review all previous inspection reports.

- Frequency

Engineering Inspections for Maintenance shall be carried out over the life of the development.
Engineering inspections for maintenance shall be divided into two categories:

- Periodic inspections (over life of development)

Shall commence during the construction period and continue on a yearly basis for the first two years. Should the first two years of inspections reveal limited or no significant issues; the Engineering Inspections for Maintenance can be spaced further apart as follows:

- Spaced up to three years for up to ten years following construction
- Then spaced up to five years thereafter

This will only be allowed on advice from the appointed Engineer.

- Heavy event inspections



Should be carried out as soon as practicable following an intense period of rainfall, or following a request for an Engineering Inspection for Maintenance made during a Routine Inspection.

Event heavy inspections shall occur within the following time periods:

- 48 hours following a Routine Inspection that has requested an Engineering Inspection subsequent to a relatively high rainfall event (i.e. >100mm over 48 hours).
 - 1 week following a Routine Inspection that has requested an Engineering Inspection.
- Records

Records detailing each of the Engineering Inspections for Maintenance should be completed during the inspection, and describe in detail any required maintenance.

Records of any maintenance carried out as a result of the inspection should be completed immediately after the works have been finalized.

- Personnel

Engineering Inspections for Maintenance are required to establish the need for engineering maintenance, as described above. On this basis, such inspections should be carried out by a professionally qualified civil engineer with greater than five years' experience.

Professional Civil staff employed to complete the engineering inspections for maintenance may also complete the Routine Inspections for Maintenance.

Actions Arising from Inspections

- **Routine Maintenance Works**

As a result of Routine Inspections for Maintenance, a schedule of maintenance activities shall be drawn up to address those issues identified during the inspection. Examples of possible maintenance activities may comprise, but not be limited to those listed in the table below:

Item	Routine Inspections for Maintenance	Min. Frequency
Manholes / Catchpits	Clear accumulated sedimentation Repair/replace damaged pit covers and grates	6 monthly As required
Pipes	Clear accumulated sediments and debris	6 monthly
Cellular Storage Crates	Clear accumulated sediments and debris	6 monthly
Headwalls	Repair/replace damaged flap valves Clear vegetation/debris from outlet pipe/flap valve	As required 6 monthly



Petrol Interceptor	Refer to Kingspan Klargestar Full retention separator maintenance guidelines.	6 monthly
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The majority of the Routine Maintenance Works should be able to be carried out by a building or civil engineering maintenance contractor.

- **Engineering Maintenance Works**

Based on the results of the Engineering Inspection for Maintenance, a schedule of preventative or reactive maintenance activities should be drawn up to address those issues identified during the inspection.

- Preventative works should be implemented to reduce the risk of global and local instability.
- Reactive works should be implemented to reduce the risk of immediate and local instability. The Inspection Engineer should notify the respective Party without delay, to identify an appropriate course of action.

