

25 Rochdale Road

Below Ground Drainage Maintenance Specification

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PREPARED FOR
GMI Construction



Below Ground Drainage Maintenance Specification

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1. Maintenance

The following document outlines the maintenance requirements for the project site. The responsibility of the required maintenance falls to multiple authorities, the below schedules set out which organisations are responsible for the various maintenance regimes.

1.1. General

This section is intended to give an overview of the operation and maintenance for the drainage features included with the drainage strategy and in relation to typical details. Where propriety products are specified, the manufacturer's instructions and recommendations should be followed in priority to this document unless specifically noted otherwise due to project constraints.

The recommended operations and frequencies are typical only and should be more frequent initially to ensure that there are no unforeseen issues with the operation and then adjusted to suit the site requirements.

It may be that the exceedance flows above the 1 in 30-year storm rainfall event are stored within the site partially above ground, on non-habitable external landscaping, parking, or other space. As the flows are being attenuated on site there will be a period after storm events where the network is still partially or fully surcharged and is draining down. Where this surcharging is still present after 48 hours appropriate action should be taken as noted in this section.

1.2. Components

The following components have been included within the drainage design for the proposed development:

- Inspection and manhole chambers
- Catchpits
- Pipes
- Drainage channels and gullies
- Vortex Flow Control
- Cellular Attenuation Tank

The proposed locations of the components are indicated on Civic Engineers drawing:

- L017-CIV-15-EX.00-D-C-100000 (Drainage General Arrangement Drawing)

Table 1 below shows the maintenance responsibilities of the various components.

Table 1 - Maintenance Responsibility

Component	Maintenance responsibility
Private inspection chambers and manholes (internal)	Maintenance company
Private inspection chambers and manholes (external)	Maintenance company
Pipes (internal)	Maintenance company
Pipes (external)	Maintenance company
Public manholes and pipes (external)	Local Water Company (United Utilities)
Drainage channels and plot gullies	Maintenance company
Hydrodynamic Vortex Separator	Maintenance company
Vortex Flow Control	Maintenance company
Cellular Attenuation Tank	Maintenance company

A suitable maintenance strategy should be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime should be documented.

A copy of the final construction drainage layout should be provided in the final operations and maintenance manual.

It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event.

Significant sediment deposition is likely in areas used for storage, so a post clean-up operation may be required including the removal of litter, vegetation, sewerage debris and larger objects, and should be disposed of appropriately.

Long-term management practices include monthly sweeping of external paved areas. The sweeping program will remove sand and contaminants directly from paved surfaces before they become mobilised during storm events and transported to the drainage system. Sand and silt must not be disposed of into the drainage network.

During the winter months, drainage features such as channels should be cleared of ice, snow, debris, or litter.

Sediment/material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the upstream/downstream catchpits.

1.3. Inspection and Manhole Chambers

Access points have been located at the head of each run, at a change in direction and at a change of pipe size in accordance with Building Regulations Part H.

The appropriate health and safety equipment must be used when accessing manholes. Confined space certificates must be held by any personnel entering a manhole and the appropriate permits should be obtained from the maintenance manager prior to any access. Double locked and sealed manholes must be sealed and locked correctly post maintenance operation.

1.4. Pipes

Pipes are proprietary products, and the materials can vary across the site and as such where used the manufacture's recommendations should be followed. Regardless of the product used the pipes will be fully compliant with Civic Engineers drainage specification.

Pipes are intended to be the main conveyance across the development and where oversized they form the attenuation volume required by the limitation of the drainage rate. They are intended to be dry except for during rainfall events. Pipes which are proposed simply to convey water around the site

have been designed such that they are considered to be self-cleansing. Where the primary function of the pipe/tank is to provide attenuation and the pipes are oversized, the velocity of water in the pipe may drop below 0.75m/s, which is considered to be self-cleansing. For larger diameter pipes the risk is reduced due to the overall pipe size, however these pipes should be inspected for sediment build up.

Access for maintenance is provided through access chambers and manholes.

Regular inspection and maintenance are important to identify areas which may have been obstructed/clogged and may not drain correctly thus exposing the development to a greater level of flood risk.

Table 2 below shows the maintenance schedule for pipes, the actions required and the frequency of which these actions need to be undertaken.

Table 2 - Maintenance Schedule for Pipes

Maintenance schedule	Required action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial inspection should be provided as post construction CCTV survey.	N/A
Regular maintenance/inspection	Inspect for evidence of poor operation via water level in chambers. If required, take remedial action.	3-monthly, 48 hours after large storms.
	Check and remove large vegetation growth near pipe runs.	Monthly or as required.
Remedial action	Rod through poorly performing runs as initial remediation.	As required
	If continued poor performance jet and CCTV survey poorly performing runs.	As required
	Seek advice as to remediation techniques suitable for the type of performance issue and location.	As required if above does not improve performance.

1.5. Drainage Channels and Gullies

Channels and gullies should be inspected and cleaned in accordance with the manufacturer's details. Channel units can be cleaned using high-pressure hose; this can be fed into the channel system through access units strategically placed along the channel run. The throat section of channel units should be kept clear at all times to ensure uninterrupted flow of surface water into the drainage channel and any debris within the throat should be removed.

Locking bolts should be replaced and sufficiently tightened, taking care that the bolt heads do not stand above the top surface of the cover or grate. If covers can move within their frame, this may cause damage to the frame or seating.

Sediment/material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the car park channels.

Below, Table 3 shows the maintenance schedule for drainage channels and gullies, the actions required and the frequency of which these actions need to be undertaken.

Table 3 - Maintenance Schedule for Drainage Channels and Gullies

Maintenance schedule	Required action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial inspection including channel outlet boxes.	Half yearly and after large storms.
Regular maintenance/inspection	Litter and debris removal	Monthly or as required.
	Check and remove large vegetation growth near channel runs.	Monthly or as required.
	Inspect for evidence of poor operation and/or weed growth. If required, take remedial action. Inspect silt accumulation rates and establish appropriate brushing frequencies. Silt can also be caused by adjacent landscaping areas which should be reprofiled to provide a flat area or berm adjacent to the paving	3-monthly, 48 hours after large storms.
Remedial action	Inspect access/outlet boxes and rod through poorly performing channels and outlets as initial remediation.	As required.

1.6. Vortex Flow Control

The proposed proprietary Vortex Flow Control should be inspected and cleaned in accordance with the manufacturer's recommendations.

Locking bolts should be replaced and sufficiently tightened, taking care that the bolt heads do not stand above the top surface of the cover or grate. If covers can move within their frame, this may cause damage to the frame or seating.

Sediment/material removal should be undertaken in accordance with the manufacturers recommended protocols.

Below, Table 4 shows the maintenance schedule for the proprietary Vortex Flow Control device, the actions required and the frequency of which these actions need to be undertaken.

Table 4 - Maintenance Schedule for Vortex Flow Control

Maintenance schedule	Required action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial inspection of chamber.	Half yearly and after large storms.
Regular maintenance/inspection	Litter and debris removal	Monthly or as required.
Remedial action	Inspect chamber and rod through outlets as initial remediation. Manufacturers advice to be sought if blockage issues persist	As required.

1.7. Cellular Attenuation Tank

The proposed proprietary Cellular Attenuation Tank should be inspected and cleaned in accordance with the manufacturer's recommendations.

Maintenance requirements include regular inspection of silt traps, and air vents and connected chambers with removal of sediment and debris as required.

Below, Table 5 shows the maintenance schedule for the cellular attenuation tank, the actions required and the frequency of which these actions need to be undertaken.

Table 5 - Maintenance Schedule for Cellular Attenuation Tank

Maintenance schedule	Required action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial inspection of chambers connected to tank.	Half yearly and after large storms.
Regular maintenance/inspection	Litter and debris removal	Monthly or as required.
Remedial action	Inspect chamber and rod through as initial remediation. Manufacturers advice to be sought if blockage issues persist	As required.

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