



**Keystone**  
Design Associates Ltd.

Surface Water  
Management & Maintenance Plan

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**LAND OFF HILL HOUSE INDUSTRIAL ESTATE,  
THORNTON-CLEVELEYS**

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October 2023

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**LAND OFF HILL HOUSE INDUSTRIAL ESTATE,  
THORNTON-CLEVELEYS**

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For Keystone Design Associates

Signature.....

Date.....20<sup>th</sup> October 2023.....

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## **1.0 INTRODUCTION**

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- 1.01 This sustainable drainage management and maintenance plan for the lifetime of the development has been produced on behalf of Sid Hill Transport Ltd for the proposed commercial/industrial building development at land off Hill House Industrial Estate, Thornton-Cleveleys.
  
- 1.02 A Management Company will be commissioned to maintain the development in terms of the access, car parking / hardstanding areas, drainage, landscaping, open space, etc. An annual levy will be raised by the said company from the site occupants for the upkeep and future maintenance of the said infrastructure.

## 2.0 SITE DESCRIPTION

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### **Existing Site and Drainage**

- 2.01 The development site is located at land off Hill House Industrial Estate, Thornton-Cleveleys. The site is located off Bourne Street.
- 2.02 The development site is a brownfield site adjacent to Hill House Industrial Estate, Thornton-Cleveleys. The site is surrounded by land to the north and east, commercial/industrial buildings to the south and a residential development to the west. The site is situated in Thornton-Cleveleys. The site is accessed directly off Bourne Street.

### **Proposed drainage**

- 2.03 Surface water from the development will connect to the existing watercourse via new manholes that are to be installed. In order to make the discharge into the surface water watercourse, attenuation is provided within storm water crates. The surface water drainage system is to remain private.
- 2.04 Foul water from the developed site will discharge into a sewage treatment plant which will connect to the existing watercourse via new manholes that are to be installed. The foul water drainage system is to remain private.
- 2.05 The proposed access and car parking / hardstanding areas within the site development are to remain private. Surface water runoff from the access and car parking / hardstanding areas will drain through SuDS / treatment features comprising trapped gullies and manhole chambers.

### 3.0 MANAGEMENT & MAINTENANCE RESPONSIBILITIES AND SPECIFICATION

3.01 The table below identifies the maintenance responsibilities for the various drainage features of the scheme.

<b>Feature</b>	<b>Maintenance responsibility</b>
Building drainage	Management company
Surface water drainage within the access and hardstanding areas	Management company
Foul water drainage within the access and hardstanding areas	Management company
Access and car parking / hardstanding areas including drainage (gullies and connections)	Management company

2.05 3.02 The table below lists the various drainage features utilised within the proposed drainage design for the development at land off Hill House Industrial Estate, Thornton-Cleveleys, along with the maintenance regime that should be followed.

<b>BUILDING DRAINAGE</b>	
<b>Regular maintenance</b>	<b>Frequency</b>
Visually inspect gutters to ensure they are kept clear of leaves, debris etc. Lift covers of drainage to inspect chambers for debris and build-up of silts.	Annually. No triggers other than maintenance to be taken on regular schedule.
<b>Occasional tasks</b>	<b>Frequency</b>
Remove leaves and debris from gutters. Specialist operatives with current confined spaces training to remove debris from inspection chambers to ensure outlets are kept clear of debris to ensure adequate drainage.	As required from regular maintenance inspection. Indicator of problem / trigger for maintenance when surcharging or flooding of drains occurs or gutters and chambers full of debris and leaves etc.
<b>Remedial work</b>	<b>Frequency</b>
Should drains be heavily blocked or damaged contact drainage maintenance company for unblocking / repair works.	As required. Indicator of problem / trigger for maintenance when drainage not functioning and unblocking pipes and chambers etc. not effective.
<b>SURFACE WATER DRAINAGE WITHIN THE ACCESS AND HARDSTANDING AREAS</b>	
<b>Regular maintenance</b>	<b>Frequency</b>
Check manhole covers are securely in place. Specialist operatives with current confined spaces training to lift covers and visually inspect manholes to ensure they are kept clear of leaves, debris, silt, etc. Check drainage pipes are operating as expected.	Annually or when notified.
Specialist operatives to carry out maintenance of pumping equipment in accordance with the manufacturer's recommendations.	Annually or when notified.
<b>Occasional tasks</b>	<b>Frequency</b>
Specialist operatives with current confined spaces training to remove debris and silt from the manholes to ensure outlets are kept clear of debris to ensure adequate drainage.	As required from regular maintenance inspection to trigger works.
<b>Remedial work</b>	<b>Frequency</b>
The specialist operatives are to advise the	As required from regular maintenance inspection.

management company of any repair works necessary to the manholes and pumping chamber. Drains heavily blocked or damaged to be jetted / repaired.	Indicator of problem / trigger for maintenance when drainage not functioning and unblocking pipes and chambers etc. not effective.
The specialist operatives are to advise the management company of any repairs to pumping equipment.	As required from regular maintenance inspection to trigger works or when equipment fails to work.
<b>FOUL WATER DRAINAGE WITHIN THE ACCESS AND HARDSTANDING AREAS</b>	
<b>Regular maintenance</b>	<b>Frequency</b>
Check manhole covers are securely in place. Specialist operatives with current confined spaces training to lift covers and visually inspect manholes and pumping chamber to ensure they are kept clear of leaves, debris, silt, etc. to ensure adequate drainage. Check drainage pipes are operating as expected.	Annually or when notified. No triggers other than maintenance to be taken on regular schedule.
Specialist operatives to carry out maintenance of pumping equipment in accordance with the manufacturer's recommendations.	Annually or when notified.
<b>Occasional tasks</b>	<b>Frequency</b>
Specialist operatives with current confined spaces training to remove debris and silt from the manholes and pumping chamber to ensure outlets are kept clear of debris to ensure adequate drainage.	As required from regular maintenance inspection to trigger works.
<b>Remedial work</b>	<b>Frequency</b>
The specialist operatives are to advise the management company of any repair works necessary to the manholes and pumping chamber. Drains heavily blocked or damaged to be jetted / repaired.	As required from regular maintenance inspection. Indicator of problem / trigger for maintenance when drainage not functioning and unblocking pipes and chambers etc. not effective.
The specialist operatives are to advise the management company of any repairs to pumping equipment.	As required from regular maintenance inspection to trigger works or when equipment fails to work.
<b>ACCESS AND CAR PARKING / HARDSTANDING AREAS INCLUDING DRAINAGE (GULLIES AND CONNECTIONS)</b>	
<b>Regular maintenance</b>	<b>Frequency</b>
Brush regularly and remove all sweepings from hard surfaces and inspect gullies for debris and silt. Clean out gullies.	As required. Indicator of problem / trigger for remedial action when road gullies clogged or blocked and remaining full and overflowing.
<b>Occasional tasks</b>	<b>Frequency</b>
Check wearing course to access and car parking / hardstanding areas for condition.	As required. Indicator of problem / trigger for remedial action when road gullies clogged or blocked and remaining full and overflowing.
<b>Remedial work</b>	<b>Frequency</b>
Repair and reinstatement of tarmac construction where required. Kerbing to be replaced where damaged.	As required. Indicator of problem / trigger for remedial action when road gullies clogged or blocked and remaining full and overflowing.



<b>ATTENUATION STORAGE</b>	
<b>Regular maintenance</b>	<b>Frequency</b>
Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then annually
Remove debris from the catchment surface (where it may cause a risk to performance)	Monthly
For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter, remove and replace surface infiltration medium as necessary.	Annually
Remove sediment from pre-treatment structures and/or internal forebays.	Annually, or as required
<b>Remedial work</b>	<b>Frequency</b>
Repair/rehabilitate inlets, outlets, overflows and vents.	As required
<b>Monitoring</b>	<b>Frequency</b>
Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed.	Annually
Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required.
<b>PERVIOUS PAVEMENTS</b>	
<b>Regular maintenance</b>	<b>Frequency</b>
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 pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment.
<b>Occasional tasks</b>	<b>Frequency</b>
Stabilise and mow contributing and adjacent areas	As required
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
<b>Remedial work</b>	<b>Frequency</b>
Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of 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)

<b>Monitoring</b>	<b>Frequency</b>
Initial inspection	Monthly for 3 months after installation
Inspect for evidence of poor operation and/or weed growth – if requires, take remedial action	Three-monthly, 48 hours after large storms in first six months
Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
Monitor inspection chambers	Annually
<b>FLOW CONTROL DEVICES</b>	
<b>Regular maintenance</b>	<b>Frequency</b>
Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then annually
Remove debris and litter from the catchment surface (where it may cause a risk to performance)	Monthly
Inspect Hydrobrake and clear any material which may cause a blockage	Monthly
<b>Occasional tasks</b>	<b>Frequency</b>
Remove sediment	Annually, or as required
<b>Remedial work</b>	<b>Frequency</b>
Repair any damage or vandalism	As required
<b>INLETS, OUTLETS, CONTROLS AND INSPECTION CHAMBERS</b>	
<b>Regular maintenance</b>	<b>Frequency</b>
Inspect surface structures removing obstructions and silt as necessary. Check there is no physical damage.	Monthly
Strim vegetation 1m minimum surround to structures and keep hard aprons free from silt and debris.	Monthly
Remove cover and inspect ensuring water is flowing freely and that the exit route for water is unobstructed. Remove all debris and silt.	Annually
<b>Occasional tasks</b>	<b>Frequency</b>
Check topsoil levels are 20mm above edge of baskets and chambers to avoid mower damage	As required
<b>Remedial work</b>	<b>Frequency</b>
Unpack stone in basket features and unblock or repair and repack stone as necessary.	As required
Repair physical damage if necessary	As required