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**PROPOSED SWS OPERATIONS & MAINTENANCE ITINERARY
FOR THE DEVELOPMENT OFF PENISTONE ROAD, FENAY BRIDGE**

Introduction

This report has been initially prepared for the Client only and sets out the responsibilities for management and maintenance of the proposed drainage systems at the above development and outlines a recommended maintenance regime to be implemented by the responsible party.

The maintenance plan should be reviewed periodically to confirm it is meeting the objective of ensuring all effective drainage is maintained and should be reviewed if necessary to keep the system working effectively.

All underground drainage, attenuation & SuDS features (excluding the private networks serving the dwellings and highway drainage) have been designed to 'Codes for Adoptable Sewers' and, once the Section 104 agreement is complete, will be the responsibility of Yorkshire Water or a NAV as the sewerage undertaker. However, during the interim period before adoption, the responsibility will be deemed to Homes By Honey.

Homes By Honey can confirm that the streets and drainage for the lifetime of the development will be fully maintained by Homes By Honey until an agreement has been entered into under Section 38 & 278 of the Highways Act 1980, at which point those streets covered by the agreements will be the responsibility of the Local Highway Authority following the satisfactory completion of the maintenance period.

The responsibility for the future maintenance of any private drainage serving a single property, and within the curtilage of the property, will remain the responsibility of the relevant property owner.

Surface Water System

Surface water run off from roofs, roads and other hardstanding areas is drained via gullies and underground carrier pipes to an attenuation tank located beneath shared drives on the western boundary of the site.

On site attenuation will be sized to provide adequate storage to cater for extreme rainfall of up to 1 in 100yr storm events including the allowance for a 40% increase due to future impacts of climate change.

Any surface water leaving the site is restricted to a maximum rate of 3.5lit/sec, with the flow rate controlled by a Hydrabrake flow control device fitted to the manhole downstream of the tank on the northern boundary. It is anticipated that surface water flows from the

development will discharge to the existing public sewer in Rowley Lane, subject to the agreement of Yorkshire Water.

Foul Water System

All domestic foul wastewater is drained via underground carrier pipes to the existing public sewer in Rowley Lane to the North of the site.

Land Drainage / Land Drainage Diversions

During site investigation works a number of existing stone land drains were found to enter the site on the Eastern boundary. It is believed these drain to the Western boundary of the site where it is likely the water will drain through the boundary wall and into the road gullies along Pensitone Road.

As part of the proposed development the existing land drains should be picked up and diverted through the site.

Given the steep nature of the site, the proposed development will include numerous retaining walls across the site which will also require land drainage.

Further consultation will be required with Kirklees Land Drainage to establish a suitable outfall for the on-site land drainage. The existing sewer network should also be investigated to determine if there is a suitable surface water drain in Penistone Road which would be in keeping with the current land drainage arrangements for the site. In any case the land drainage run-off rate should be managed on site to ensure the existing downstream infrastructure is not negatively impacted.

Maintenance & Management Itinerary

It is recommended that the itinerary set out below is referred to for the inspection, upkeep, and maintenance of the full drainage system during the interim period before the adoption process is complete. Further advice on inspection and maintenance is set out in CIRIA C753 The SuDS Manual (2015).

Proposed SWS Operations & Maintenance Itinerary

<u>Activity</u>	<u>Risks Identified</u>	<u>Design Steps to Eliminate/Control Risk</u>	<u>Further Action Required</u>
1. Existing / New Adopted Drainage on Site	i) Silt build up within new highway / private gullies constructed on site. ii) Flow control device installed. iii) Prolonged final adoption and transfer to Yorkshire Water. iv) Maintenance during interim period before adoption.	i) Use terram with newly installed gullies to reduce silt run-off into new system. ii) Install flow control device at an early stage to control run-off flows into existing watercourse. iii) Inspections & maintenance of new system to be carried out by the developer / manage company annually and after major rainfall events for a minimum 5 year period or until adoption is completed by Yorkshire Water.	i) Weekly inspections recommended and /or following heavy rainfall during construction period then annually and after major rainfall events once development is complete. ii) Jet vac to be used to remove any silt build up and ensure the new drainage system is always silt free and operating correctly. iii) Flow control device to be inspected annually and accessed by 'confined space' trained personnel using winch access. iv) Release valves to be greased when necessary to ensure flow control device is operating correctly at all times. v) Neoprene seals fitted to flow control device to be checked and replaced when necessary.
2. New SWS Attenuation Tank Installed on Site.	i) Silt build up within attenuation tank installed on site. iii) Prolonged final adoption and transfer to Yorkshire Water. iv) Maintenance during interim period before adoption.	i) Install attenuation tank at an early stage to provide SWS storage for new development and prevent potential flood risk during and after the development is constructed. iii) Inspections & maintenance of new attenuation tank to be carried out by the developer / management company annually and after	i) Weekly inspections recommended and /or following heavy rainfall during construction period then annually and after major rainfall events once development is complete. ii) Inlets, outlets and overflows within tank to be inspected/checked to ensure all are operating as designed.

		major rainfall events for a minimum 5 year period or until adoption is completed by Yorkshire Water.	ii) Jet vac to be used to remove any silt build up and ensure the attenuation tank is always silt free and operating correctly. iii) Attenuation tank to be entered via access shafts as per manufactures design by 'confined space' trained personnel using winch access.
3. Land Drainage on Site	i) Poor maintenance following Plot sale. ii) Maintenance during and after construction on site.	i) Land drainage to be constructed within easy to access areas and kept as shallow as possible for maintenance purposes. ii) Silt traps / inverted soakaways included within land drainage design to intercept silt and provide location for regular maintenance.	i) Developer to highlight presence of any land drainage to new purchaser and notify of their responsibility in the future. ii) Developer to protect land drain once constructed on site to avoid construction damage prior to handover. iii) Developer to provide CCTV of completed land drainage system prior to handover to ensure operating effectively