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CONSULTING ENGINEERS

2092-Maple Avenue, Durham

Drainage Strategy & Maintenance Document

Rev: P01 Date:19.08.2021

1. Assessment of Drainage Options

The site has been assessed for the suitability of infiltration type surface water drainage systems in accordance with BRE Digest 365; however, due to the existing sewer networks it is assumed the subsoils are not permeable. A site Ground Investigation report may be required to prove conditions across site. In addition, soakaway tests may be carried out to demonstrate infiltration rates are poor. Points thus far would validate that an infiltration drainage solution is not viable.

The site has been assessed for the viability of a surface water connection to an existing local watercourse. The site has no nearby watercourse for utilisation therefore this option is not applicable.

The site is brownfield and therefore is surrounded with a positive sewer network. Copies of the Northumbrian water sewer records have been obtained and verified on site as generally accurate. Existing manholes are to be lifted to check pipe diameters, depths, and routes. According to the records the surrounding sewers are separate surface and foul water.

Although further investigations would normally be required to negate infiltration it has been noted within the pre-applciation report by Durham County council that the surface water drainage system should be linked for all the properties and attenuation provided for greenfield run off rate, please refer to: PRE42/20/03046.

It is therefore determined that drainage connections from the proposed development should be routed to the existing separate water public sewer networks within and around the development site boundary. A S106 application will be undertaken according to the Water Industry Act to Northumbrian water for sewer connections.

2. Drainage proposals

Details of the proposed drainage are shown on the following drawings:

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The main sewerage for the development will remain private with spate foul and surface water connections to the existing public sewers within the site. This therefore ensures that the main sewerage infrastructure shall be owned and maintained by the client or management company. Northumbrian water and the Lead Local Flood Authority are to be consulted to agree an assumed surface water discharge rate of 5.0l/s into the surface water sewer network.

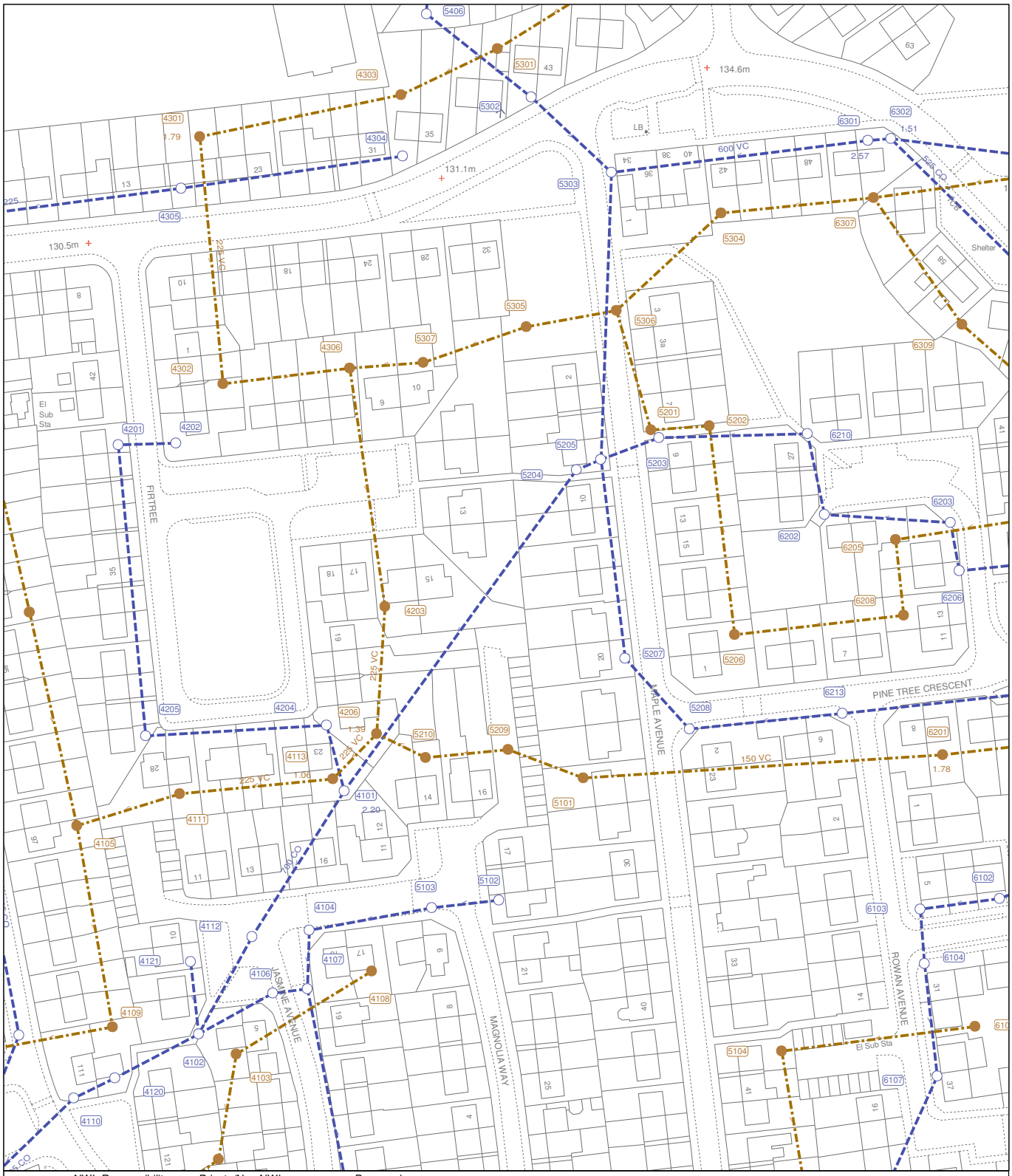
The sewer system has been designed in accordance with Sewers for Adoption 6th Edition and therefore includes the design for attenuation of flows for up to a 1 in 100 year + 40% climate change storm events without flooding. The outflow to the public sewer will be controlled by a hydrobrake flow control device manhole. Attenuation has been provided in the form of cellular storage. This attenuates up to and including the 1 in 100 year + 40% CC return period + 10% urban creep for a site impermeable area of 2723m2. The hydrobrake has been designed to restrict surface water flows to a discharge rate of 5.0l/s. details of the hydrobrake can be found in the Micro drainage calculations and hydro-international details.

It is to be agreed with Northumbrian water that the assumed foul drainage will discharge with a free discharge to an existing Foul sewer.

A proposed maintenance plan shown in Table 2 breaks down the maintenance responsibility and regimes of the other various assets.

Table 2: Proposed Maintenance (in accordance with best practice and CIRIA C753 – The SuDS Manual).

Drainage Asset	Responsible Organisation	Maintenance Work	Frequency
Pipework / Manholes	Private Ownership / Management Company	Inspect pipe work and clear blockages	Annually or after severe storms.
		Inspect manholes and clear blockages	
		Repair any defects in network	
Hydrobrake	Management Company	Inspect structure and remove any debris/litter on structure	Six monthly or after severe storms.
Catchpits prior to attenuation	Management Company	Inspect structure and remove any debris/litter on structure	Three monthly or after severe storms.
Cellular Storage	Management Company	Inspect structure and remove any debris/litter on structure	Annually or after severe storms.



NWL Responsibility

Combined	
Foul	
Surface	
Treated Eff	
Untreated Eff	
Overflow	

Private/Non NWL

Combined	
Foul	
Surface	
Treated Eff	
Trade Eff	
Watercourse	

Proposed

Combined	
Foul	
Surface	

Annotations

- Direction of flow
- Backdrop
- Abandoned
- Rising Main

Symbols

- Chambers
- Inlet/Outlet
- Treatment Works
- Pumping Station
- Capped End
- Balancing Pond
- Termination Node
- Rodding Eye
- Unknown End
- Attribute Change
- Air Valve
- Property Connection
- Lamp Hole
- Hatchbox
- Dual Usage Chamber

NORTHUMBRIAN WATER *living water*

User : DAWSJ1

Date : 02/10/2020

Title : 0000

Centre Point : 423526,526249

Map Sheet : NZ2326SE

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