

Drainage Strategy
(Scale 1:500)

Summary of Drainage Strategy

Existing Site

- The site is located off the Chapel Gate to the West of Sutton St James. The postcode of the site is PE12 0EJ. The site size is 1.73ha. The approximate centre of the site at National Grid Reference is TF389180.
- The ground comprises of sandy, silty clay. Infiltration tests have recorded infiltration rates of $1.7x10^{-6}$m/s, which is low but means that Soakaways to be utilised.
- Greenfield runoff for the Site has been calculated as Qbar = 2.49 l/s.

Storm Water

- Drainage systems have been proposed to receive and contain all storm runoff up to 1 in 100-year plus 40% storm events below ground. All flows up to 1 in 100-year plus 40% being contained within the boundary of the Site and no risk of flooding to either the proposed buildings or neighbouring properties.
- Private Driveways / Parking Spaces: The proposed privte driveways cover an area of approximately 1750m². Attenuation tank shall be provided in Type 3 material below the blockwork surfacing.
- Roof Drainage: The proposed buildings cover an area of approximately 3910m². Runoff shall be discharged to soakaways as demonstrated in the drawings.
- Road Drainage: The estate road is to be designed for adoption by the Highways Authority. Impermeable surfacing shall drain onto grass filter strips with gravel under-drains. The under-drains shall included perforated overflow pipes discharging to the ditch on the eastern boundary of the Site. A hydrobrake has been included to limit the discharge to Qbar (2.49 l/s). Gravel in the under-drains shall provide Attenuation Volume 44.60 m³, and the pond shall provide Attenuation Volume 54m³. Total Attenuation Volume 98.60m³ Attenuation Volume used in 1 in 2 yrs storm event: 7.9%. Attenuation Volume used in 1 in 30 yrs storm event: 35%. Attenuation Volume used in 1 in 100 yrs storm event: 56% Attenuation Volume used in 1 in 100 yrs +40% storm event: 89%.

Foul Water

- Anglian Water existing vacuum system would be extended and new vacuum pots will added as demonstrated in the drawings.
- Private drainage on each plot shall be designed in accordance with Building Regulations

Exceedence Flows

- Exceedence flows shall be routed at the east side of the site, without risk of flooding to any building.

Management & Maintenace

The maintenance activities listed below are considered to be the basic tasks necessary to keep the site drainage systems working at optimum efficiency, which is necessary to ensure that they have capacity to deal with extreme / unusual events. Other activities, such as litter removal / repairs etc. will also be required.

Area	Maintenance Activity	Frequency	Responsibility
Development Site Access Roads	Periodic sweeping to remove debris, leaves etc	Every 2-4 weeks during Autumn	Highways Authority
	Cleaning of Gullies	Recommended every 2-years	Highways Authority
Drainage Infrastructure	CCTV / Jetting of Sewers	Every 10-years	Highways Authority
	Repairs to sewers	As required	Highways Authority
Drainage System	Formal Inspection of entire system and removal of rubbish	Annual	Highways Authority
'On-plot' Hard-surfacing & Drainage	Blockwork paved areas to be swept and de-weeded	As required during Spring and Summer months	Plot owners
	CCTV / Jetting of Sewers	Recommended every 10-years	Plot owners
	Inspection of Manholes / Chambers	Recommended every 5-years	Plot owners
Building Roof Drainage	Gutters to be cleared of debris	Recommend every 2-years	Plot owners
Building Foul Drainage	Cleaning of below ground pipework	Recommend every 10-years	Plot owners
Vacumm System	Maintenance & inspection of Vacuum Pots	As required	Anglian Water

	Drainage Hierarchy	Y / N	Comment
1	Infiltration to the maximum extent that is practical	Y	Infiltration is possible. The ground comprises of sandy, silty clay which can allow Soakaways to be utilised. Infiltration rate is 1.74 10^{-6} and the depth of the water table is at 4.50m.
2	Discharge to surface waters	Y	The proposed Storm water system will discharge towards the ditch at the east side of the site.
3	Discharge to Surface Water Sewer	N	No storm water manhole exist within the boundary of the site.
4	Discharge to combined sewer (last resort)	N	No Combined Sewer exists

Key

- HB-HALF BATTERED KERB
- BN-BULLNOSE KERB
- TN-TRANSITION KERB
- PK - PIN KERB
- EF-EDGING OF FOOTPATH
- Permeable Paving
- Tarmac
- Footpath
- Vehicular Crossing
- Gravel
- Proposed Levels (+3.000)
- Existing Levels (+ 3.000)
- Easement
- Private Soakaways
- Vacuum pot
- Surface Water Polypropylene Inspection Chamber (IC-0101 S CL 4.000m IL 3.300m)
- Private Storm Water Manhole (MH-0101-S CL 4.000m IL 2.800m)
- Existing rising main (300D PVC CL700 (PN007))
- Proposed Foul Water rising main (300D PVC CL700 (PN007))
- Surface Water Pipeline (300D PVC CL700 (PN007))
- Surface Water Perforated Pipeline (300D PVC CL700 (PN007))

STANDARD DRAINAGE NOTES:

1. Except where specifically shown otherwise all below ground pipes / connections shall be 100mm dia PVC (to BS 4660) or VC (to BS 5481) with flexible joints and laid to minimum falls of 1 in 40, except where connected to WC when falls may be 1 in 80.
2. All gravity pipe runs to be tested to a standing head of 1500mm head of water above the invert at the head of the pipe run (but not exceeding 4000mm at the lower end)
3. For details of bed and surround requirements refer to long-sections and standard details. In all other situations provide 150mm of 10mm single-sized rounded gravel bedding and surround.
4. Except where specifically shown otherwise, pipes to be a minimum of 900mm below roads/driveways and 600mm below gardens/fields.
5. Ventilating pipes to be provided at the head of each drain and to any branch longer than 6m where a single appliance is connected, or 12m where a group of appliances is connected.
6. Step-irons shall not be fitted in any chambers unless specified otherwise.
7. Manhole/Gully covers shall be regulated to suit finished levels and crossfalls
8. All proprietary items to be installed in strict compliance with manufacturers instructions and recommendations
9. Drains passing beneath buildings to have minimum 100mm granular fill or flexible filling around pipe. Where the pipe crown is within 300mm of the underside of the slab, pipe shall be encased in concrete integral with the slab.
10. Drains passing through walls below ground level to have minimum 50mm clearance all round and opening in walls to be masked all round with rigid sheet material to prevent ingress of fill or vermin. Openings in walls for pipes shall have concrete lintels to support wall construction above
11. Unless stated otherwise, pipes to be 150mm Diameter.

Rev	Revision	Drn	App	Date
P5	FOR PLANNING	APW	APW	08/21
P4	FOR PLANNING	APW	APW	08/21
P3	FOR PLANNING	APW	APW	07/21
P2	PRELIMINARY – FOR APPROVAL	APW	APW	06/21

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STRUCTURAL AND CIVIL ENGINEERING

Status: FOR PLANNING

Client: Scenic Homes

Project: Chapelgate, Sutton St James

Title: Drainage Strategy

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Appr:

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