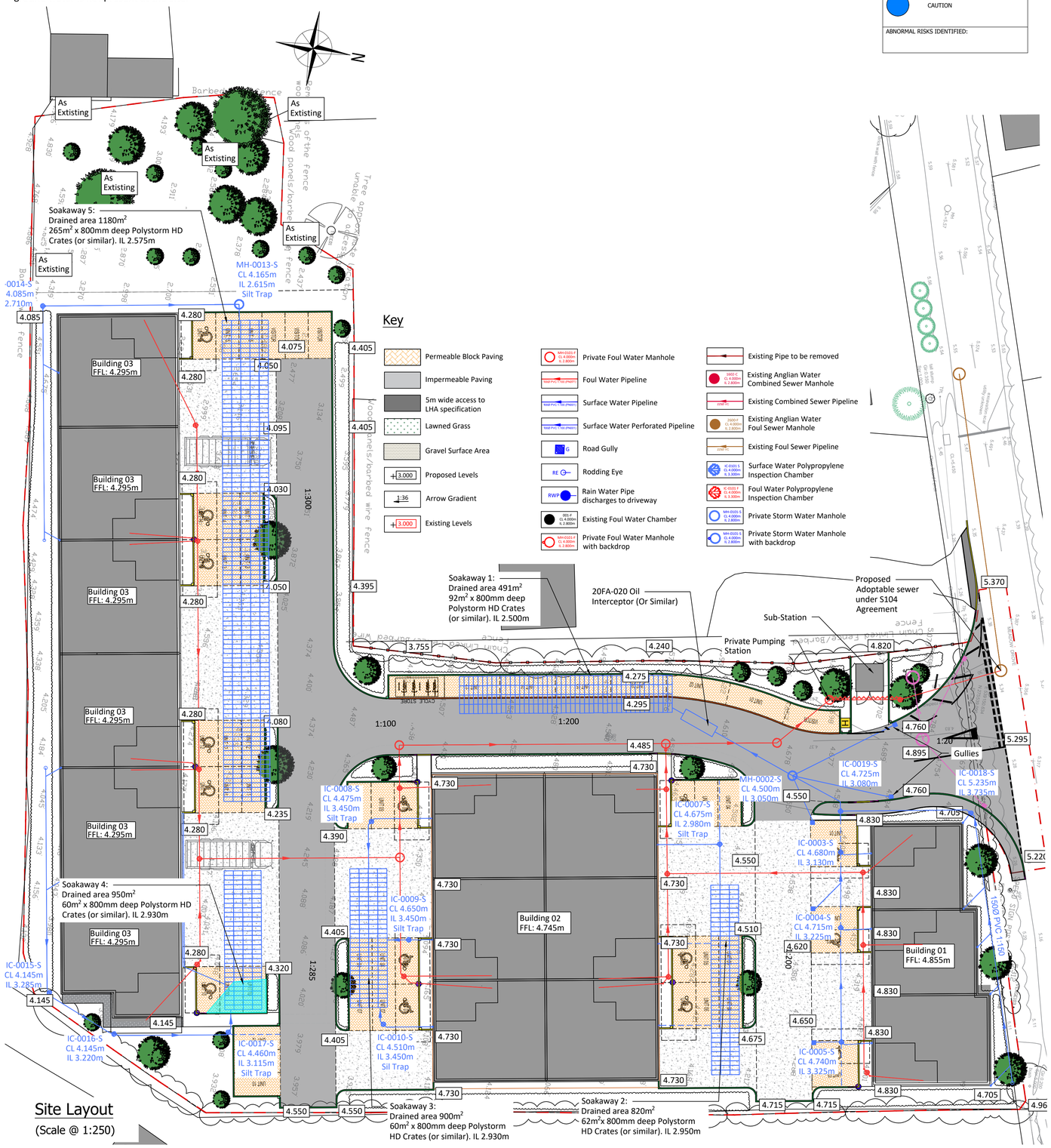
Project Details

The site is located on the southern side of Meadow Drove, Earith, Huntingdonshire, Cambridgeshire, Cambridgeshire and Peterborough, England, United Kingdom. The nearest postcode for the site is PE28 3QU, and the approximate centre of the site at National Grid Reference TL 39161 75452.
The site size 0.701ha and is located within Flood Zone 1. The site is currently Greenfield Vegetated Land.
The development includes a large area with gravel forecourt, a building and parking spaces.

- Building (Roofs) : 2279m^2
- Driveways and Parking : 3151m^2
- Total Impermeable area: 5430m^2 (Approx 77% of the Site)

Trial holes and percolation tests were undertaken on the Site in 2017, recording that the superficial deposits are Sands and Gravels, overlying a sandy Clay formation at a approx 2.0m AOD. Infiltration rates are good, lowest test result being 3.60x10^{-6} m/s. Ground water was not encountered in 2017 and records on British Geological website also record that ground water is not present at the Site.



CONSTRUCTION DESIGN AND MANAGEMENT REGULATIONS 2015

THE CONTRACTORS ATTENTION IS DRAWN TO THE ABNORMAL RISKS IDENTIFIED BELOW, ANNOTATED ON THE DRAWING AND EXPLAINED IN THE ASSOCIATED DESIGN RISK REGISTERS

LEGEND

- YOU MUST NOT DO
- HAZARD OR DANGER
- YOU MUST DO
- CAUTION

ABNORMAL RISKS IDENTIFIED:

Drainage and SUDS Strategy

As stated in CIRIA SuDS Manual 2015 the objective of sustainable drainage systems is to maximize the benefits and minimize the negative impacts of surface water runoff from developed areas. By applying SuDS methodology, storm runoff from the Site is controlled to ensure that flow rates in downstream watercourses are not increased and the water is appropriately treated to remove any contaminants, thus ensuring the quality of the water in the natural environment downstream.

Drainage Hierarchy

	Drainage Method	Y/N	Comment
1	Infiltration to maximum extent	Y	Infiltration rate taken at each point according to the infiltration test report
2	Discharge to Watercourse	N	None available
3	Discharge to Surface Water Sewer	N	None available
4	Discharge to Combined Sewer	N	None available

Summary of Drainage Strategy

Storm Water

- Storm water shall be discharged to the ground via soakaways.
- Storm water runoff from yards shall be filtered through permeable paving.
- Permeable paving shall be provided on all forecourts and parking areas. Type 3 subbase beneath the paving shall provide additional storm water attenuation.
- Site Access Roads shall be tarmac surfaced, draining to adjacent permeable paved areas.
- Below ground sub-base, attenuation crates be used to receive runoff for all storms up to 1 in 100-year + 40% CC.

Simple Pollution Indices:

Area	Pollution Indices			Proposed Treatment	Pollution Mitigation Indices			Residual Indices		
	TSS	Metals	Hydro-Carbons		TSS	Metals	Hydro-Carbons	TSS	Metals	Hydro-Carbons
Driveway & Parking	0.7	0.6	0.7	Permeable paving	0.7	0.6	0.7	0.0	0.0	0.0
Roof	0.3	0.2	0.05	Silt Traps	0.3	0.3	0.3	0.0	0.0	0.0
Access Road	0.7	0.6	0.7	Oil Interceptor	0.8	0.8	0.8	0.0	0.0	0.0

Storm system performance

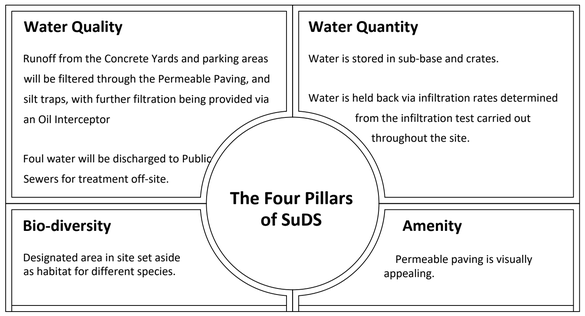
- Attenuation Volume Provided: 405.8m³
- Attenuation Volume used in 1 in 30 yrs storm event: (47%)
- Attenuation Volume used in 1 in 100 yrs storm event: (70%)
- Attenuation Volume used in 1 in 100 yrs storm event + 40% Climate Change : (100%)

Foul Water

Foul water is collected to a proposed Pump Station for discharge to the nearest public sewer along Meadow Drove. in a proposed foul water sewer connecting to an existing sewer near the site.

Exceedence Flows

Storm Water System is designed to receive and contain within the site boundary all rainfall up to & including 1:100 +40% CC AEP. Exceedence Flows in exceptional events or due to blockages will be routed away from all buildings as shown on drawing '22155-002 Exceedence Flows'



Half Drain Down Time

The below displays how the proposed soakaways can cope with a 1:100-yr storm event with an additional 1:10yr storm event occuring 24-hours later

Attenuation Features	Total Storage Volume	1:100yr storm event (storage required)	Infiltration / Outfall from attenuation in 24hrs (m3)	1:10 yr Storm event (Storage Required)	Total stored Water volume
Soakaway 5	197.6	139.9	10.39	64	193.51

Management & Maintenance

The private drainage systems shall be managed by either the plot owners or a management company for this development. 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
'On Plot'Hard-Surfacing & Drainage	Inspection of manholes/Chambers	Recommended every 5 years	Management Company
	CCTV/Jetting of Sewers	Recommended every 10 years	Management Company
	Inspection and cleaning of flow control	Annually	Management Company
Building Roof Drainage	Roof Gutters to be cleared debris	Recommended every 2 years	Management Company
Building Foul Drainage	CCTV/Jetting of Sewers	Recommended every 10 years	Management Company
	Cleaning of below ground pipe work	Recommended every 10 years	Management Company
Foul Drainage	Repair to Sewers	As Required	Management Company
	CCTV/Jetting of Sewers	Recommended every 10 years	Management Company
Hard-Surfacing & Drainage	Paved areas to be swept and deweeded	As required during Spring and Summer months	Management Company
	Cleaning of Gullies	Recommended every 2 years	Management Company
Driveway	Periodic sweeping to remove debris, leaves,etc	Every 2-4 weeks during autumn	Plot Owner
Pervious Pavements	Cleaning	Monthly	Plot Owner
	Brush and vacuum surface	Annually	Management Company
	Reinstatement of top layer	As required	Management Company

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NOTES

1. All dimensions are in millimetres unless stated otherwise.
2. This drawing to be read in conjunction with all other relevant drawings and specifications.
3. All proprietary items to be installed in strict compliance with manufacturers instructions and recommendations.

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 100mm Diameter.

STANDARD ROADS / FOOTPATH NOTES:

1. Existing structures to be broken out to minimum 450mm below top of finished surface level. Existing footpath to be broken out and rubble and existing subbase to be removed off-site.
2. Subgrade to be proof rolled with one pass of a smooth-wheeled roller having a mass per M-width of roll of not less than 2,100-kg or a Vibrating Roller having a mass per M-width of roll of not less than 700-kg or a Vibrating Plate Compactor having a mass per m2 of not less than 1400-kg. Any soft spots shall be removed and replaced with Type 1 compacted in layers not exceeding 150mm thickness.
3. All formations are to be treated with an approved herbicide before placing sib-base material on a geotextile separation membrane (Terram 1000 or similar approved)
4. All sub-base material is to be non-frost-susceptible. All concrete to be sulphate resisting

C5	Half drain time added and calc updated	KP	01/25
C4	General Amendments	EP	12/24
C3	Oil Interceptor Added	AJP	10-10-24
C2	Footpath & Road Marking added to entrance	AJP	30-08-24
C1	Revised for construction	AJP	22-08-24
P7	Attenuation Basins removed	AJP	07-06-24

Client

Barnack Estates UK Ltd.

Project

Meadow Drove, Earith

Title

Drainage Strategy

Job No 22155

Drawing No 22155 - 001

Status Preliminary Rev C5

Scale 1:250 @ A1 Date 17/11/2022

Project Engineer TBP

Drawn By PSP

Checked By TBP

Approved By

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