

Summary of Drainage Strategy

- Storm Water
- The site is located off Stockwell Gate, Whaplole, Spalding. The postcode for the site is PE12 6UE and the approximate center of the site at National Grid Reference is TF 33157 24728.
 - The site size is 0.46 ha. The proposed buildings (including garages) cover an area of approximately 985m²
 - A number of private drainage systems is to be provided to collect storm runoff from roofs, parking spaces and the driveway for all storms up to 1 in 100-year event plus 40% climate change, discharging to Soakaways located at the back gardens. Due to limitation of space groups of properties need to discharge to shared Soakaways. Additional attenuation to Soakaway 4 will be provided via a tanked attenuation crated in the garden of Plot 8, as shown
 - Soakaways shall be designed in accordance with Building Regulations
 - Storm water from the private driveways shall be filter by a layer of grit provided below the permeable blockwork. Underdrains to discharge to the private Soakaways systems
 - The road shall be offered for adoption to the relevant authority. Storm water from the adoptable road will be collected via trapped gullies and Beany Blocks, discharging to the existing Surface Water Sewer at the entrance of the site
 - A Hydro-brake (MH-0102-S) will control discharge at a rate of 8.0 l/s for the adoptable drainage
 - Attenuation shall be provided in 375mm diameter pipes
 - Easement strips shall be provided for the adoptable drainage (foul water)

For the Highway System:
Total Attenuation Volume provided in pipes = 6.74m³
Attenuation volume used in 1:30 yrs storm event: 4.41m³ (65%)
Attenuation volume used in 1:100 yrs storm event: 6.50m³ (96%)
Attenuation volume used in 1:100 yrs storm event + 40% Climate Change: 6.74m³ (100%) - Flooding occurring

Foul Water
A positive Foul water system should be provided with discharging to the existing AW foul sewer located at the north boundary of the site. Foul water beneath the adopted Highway will be offered for adoption to Anglian Water

- Exceedence Flows
- Exceedence flows shall be routed as demonstrated in drawing 21101-002, without risk of flooding to any building

	Drainage Hierarchy	Y / N	Comment
1	Infiltration to the maximum extent that is practical	Y	Soakaways will be utilised for the private development. Infiltration rate stated 1.6 x 10-6 m/s
2	Discharge to surface waters	N	No Surface Waters within reach with an allowable discharge
3	Discharge to Surface Water Sewer	Y	An existing Surface Water Sewer located at the entrance of the site will be utilised
4	Discharge to combined sewer (last resort)	N	No Combined Sewer exists

Management & Maintenance

The private drainage systems shall be managed by the Plot Owners 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
Adoptable Road	Periodic sweeping to remove debris, leaves etc	Every 2-4 weeks during Autumn	Highways Authority
	Cleaning of Gullies	Recommended every 2-years	Highways Authority
Highways Drainage Infrastructure	CCTV / Jetting of Sewers	Every 10-years	Highways Authority
	Repairs to sewers	As required	Highways Authority
Adoptable Foul Drainage System	Cleaning and Inspection	As required	Anglian Water
'On-plot' Hard-surfacing & Drainage	Blockwork paved areas to be swept and de-weeded	As required during Spring and Summer months	Plot Owner
	CCTV / Jetting of Sewers	Recommended every 10-years	Plot Owner
	Inspection of Manholes / Chambers	Recommended every 5-years	Plot Owner
Building Roof Drainage	Gutters to be cleared of debris	Recommend every 2-years	Plot Owner
Building Foul Drainage	Cleaning of below ground pipework	Recommend every 10-years	Plot Owner

- Key
- HB HALF BATTERED KERB
 - BN BULLNOSE KERB
 - TN TRANSITION KERB
 - EF EDGING OF FOOTPATH
 - BB BEANY BLOCKS
 - Permeable Paving
 - Tarmac
 - Grass
 - Proposed Levels
 - Existing Levels
 - Surface Water Polypropylene Inspection Chamber
 - Foul Water Polypropylene Inspection Chamber
 - Private Storm Water Manhole
 - Foul Water Pipeline
 - Surface Water Pipeline
 - Surface Water Perforated Pipeline
 - Road Gully
 - Flooding Eye
 - Rain Water Pipe discharges to driveway
 - Rain Water Pipe discharges to Sewer
 - Backdrop
 - Proposed Adoptable Storm Water Manhole
 - Existing Adoptable Foul Water Manhole
 - Adoptable Foul Water Pipeline
 - Existing Adoptable Manhole
 - Existing Foul Water Pipe
 - AW Easement Strip
 - Soakaway
 - Eco Flex Membrane

The specification in all respects shall be in accordance with the current Development Road and Sustainable Drainage Specification and Construction publication in force in the country at the time of construction

The minimum longitudinal fall for highways without channel blocks shall be 1 in 150, and with channel blocks 1 in 250

General deterioration of the existing highway/footway/verges created through construction of the new Section 38 Development will be reinstated to the Development Road and Sustainable Drainage Specification and Construction at the developers' own cost at the agreement of the inspecting Highway and Flood Authority Officer

No private surface water shall discharge onto the adoptable highway

No private structural features shall overhang the adoptable highway

No private retaining walls exceeding 1.37 metres shall be within 3.66 metres of the highway boundary

1:200 0 4 8 12 16 20M



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NOTES

- Do not scale this drawing.
 - All dimensions are in millimetres unless stated otherwise.
 - This drawing to be read in conjunction with all other relevant drawings and specifications.
 - All proprietary items to be installed in strict compliance with manufacturers instructions and recommendations.
- STANDARD DRAINAGE NOTES:
- 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.
 - 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)
 - 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.
 - Except where specifically shown otherwise, pipes to be a minimum of 900mm below roads/driveways and 600mm below gardens/fields.
 - 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.
 - Step-irons shall not be fitted in any chambers unless specified otherwise.
 - Manhole/Gully covers shall be regulated to suit finished levels and crossfalls
 - All proprietary items to be installed in strict compliance with manufacturers instructions and recommendations
 - 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.
 - 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 intests to support wall construction above
 - Unless stated otherwise, pipes to be 100mm Diameter.

STANDARD ROADS / FOOTPATH NOTES:

- 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.
- 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.
- 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)
- All sub-base material is to be non-frost-susceptible. All concrete to be sulphate resisting

P15	Service Margins Amended accordingly	AJP	30-03-22
P14	Drainage updated and amendments made accordingly	AJP	17-01-22
P13	Dicharge flow rate increased to limit flood depth on highway to less than 100mm	TBP	19-12-21
P12	Beany Blocks Removed and replaced with gullies	AJP	06-12-21
P11	Pipe diameters revised	TBP	02-12-21

Client

Stinders Development Ltd

Project

Proposed Development
Stockwell Gate
Whaphole, Spalding

Title

S38 Application
Drainage Strategy

Job No 21101

Drawing No 21101-201

Rev P15

Status Preliminary

Scale

1:200

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05-05-21

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TBP

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