

KEY:

- EXISTING FOUL WATER - ANGLIAN WATER
- PROPOSED FOUL WATER - S104 ADOPTABLE
- PROPOSED FOUL WATER - MANAGEMENT CO.
- PROPOSED SURFACE WATER - MANAGEMENT CO.
- PROPOSED GULLY & LATERAL - MANAGEMENT CO.
- PROPOSED SURFACE WATER - PRIVATE
- PROPOSED SUB-BASE WATER COLLECTOR UNIT
- PROPOSED ATTENUATION TANK - MANAGEMENT CO.
- PROPOSED MANAGEMENT CO. EASEMENT
- EXISTING GROUND LEVELS
- PROPOSED GROUND LEVELS
- PROPOSED SURFACE FALLS
- PROPOSED TARMAC ROAD - PRIVATE
- PROPOSED TARMAC FOOTPATH - PRIVATE
- PROPOSED SHARED SURFACE ROAD - PRIVATE (IMPERMEABLE BLOCK PAVED SURFACE) TOTAL AREA = 760m²
- PROPOSED SERVICE MARGIN - PRIVATE
- PROPOSED BLOCK PAVED DRIVEWAYS - PRIVATE PERMEABLE BLOCK PAVING WITH LINED SUB-BASE (TYPE C SYSTEM) WATER DISCHARGED TO NEW ADOPTABLE SEWER TOTAL AREA = 660m²
- PROPOSED DWELLINGS TOTAL AREA = 1,300m²

TOTAL SITE IMPERMEABLE AREA = 2,740m²

FOR TYPICAL CONSTRUCTION DETAILS PLEASE REFER TO DRAWING 21-199-102

Project Details

The site is located on the western side of Watery Lane, Marham Le Fen. The postcode for the site is PE11 3UB and the approximate centre of the site at National Grid Reference TF 24221 25703.
The site size is less than a hectare (approximately 0.54 ha) and is located within Flood Zone 3. The site is currently a disused pub with undeveloped greenfield land.
The proposed development includes proposals for the construction of 9 dwellings with adoptable roads, driveways and parking area as follows:

- Dwellings (Roofs) : 1,300m²
- Driveways and Parking Area: 660m²
- Private Road and Footpath: 760m²
- Total Impermeable area: 2,720m² (Approx 50% of the Site)

Site investigations undertaken in September 2021 found the site to be underlain by Clay. Infiltration tests were attempted in accordance with BRE 365, however these were abandoned after 2 hours as the water had not decreased by a measurable amount. Infiltration was deemed an unsuitable technique for surface water disposal.

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 Hierarchy	Y/N	Comment
1	Infiltration to maximum extent	N	Infiltration unfeasible
2	Discharge to Watercourse	Y	Surface Water drainage shall be discharged into the riparian watercourse along the Eastern boundary
3	Discharge to Surface Water Sewer	N	Not required
4	Discharge to Combined Sewer	N	Not required

Summary of Drainage Strategy

Drainage and SuDS Strategy

Key aspects proposed:

- It is proposed to filter runoff from private driveways and the parking area through a filter media within permeable surfacing water will be collected from the sub-base/attenuation crates beneath and discharge into the main carrier sewer.
- The private access road shall drain via gullies into the carrier sewer under the road construction, which shall in turn discharge to the adjacent watercourse at a controlled rate of 5l/s.
- The use of a filter drains and swales was considered, however due to the high groundwater table and lack of infiltration together with the density of the development these were deemed unsuitable.
- Attenuated water shall be stored in the attenuation tanks and stone media within the private driveways / parking areas for all storm events upto 1 in 100-year event plus 40% allowance for Climate Change. A 10% allowance for urban creep has also been applied.
- The riparian watercourse is to be inspected and cleared of vegetation and the silt is to be removed to hard bed level, as required.

Surface Water Drainage

- Attenuation Volume Provided in the attenuation tanks and modelled stone media: 204.2m³
- Attenuation Volume used in 1 in 2 yrs storm event: 20.2m³
- Attenuation Volume used in 1 in 30 yrs storm event: 76.1m³
- Attenuation Volume used in 1 in 100 yrs storm event: 128.8m³
- Attenuation Volume used in 1 in 100 yrs storm event + 40% Climate Change : 200.7m³

Foul Water

- A private gravity foul water system is to be provided with effluent to a proposed Adoptable Manhole constructed on the existing Anglian Water sewer in Church Street.

Exceedence Flows

Storm Water System is designed to receive and contain within the site boundary all rainfall up to & including 1:100 +40% AEP. Larger flows are expected to discharge as overland flow into the adjacent watercourses to the Eastern and Southern boundaries. Exceedence Flows is exceptional events greater than 1 in 100-yr event plus 40% or due to blockage of storm sewer system.

Due to site levels being raised a French Drain detail is proposed to the Western boundary, to maintain a flood flow route to the existing dwellings to the West.

Rev	Revision	Drn	App	Date
P3	DRAWING UPDATED TO REFLECT UNADOPTED ROAD & DRAINAGE.	MP	APW	07/22
P2	PRELIMINARY – FOR APPROVAL	APW	APW	01/22
P1	PRELIMINARY – FOR APPROVAL	APW	APW	11/21

SHIELDS WILSON
e: info@shieldswilson.co.uk t: 01775 729252
STRUCTURAL AND CIVIL ENGINEERING

Status: FOR INFORMATION

Client: Remway Design

Project: Land To Rear of Bell Inn, Pinchbeck, Spalding

Title: Proposed Drainage Arrangement

Date	Scale @A1	Drawing No.	Rev
NOV. '21	1:250	21-199-100	P3
Appr APW			

COPYRIGHT SHIELDS WILSON LIMITED. ALL RIGHTS RESERVED.