

Brook Street Catchment Flood Risk Survey – 23/05/24



DroneEnvironmental Ltd

Brook Street Topographical Base Map:
0.5m contours & 200m grid

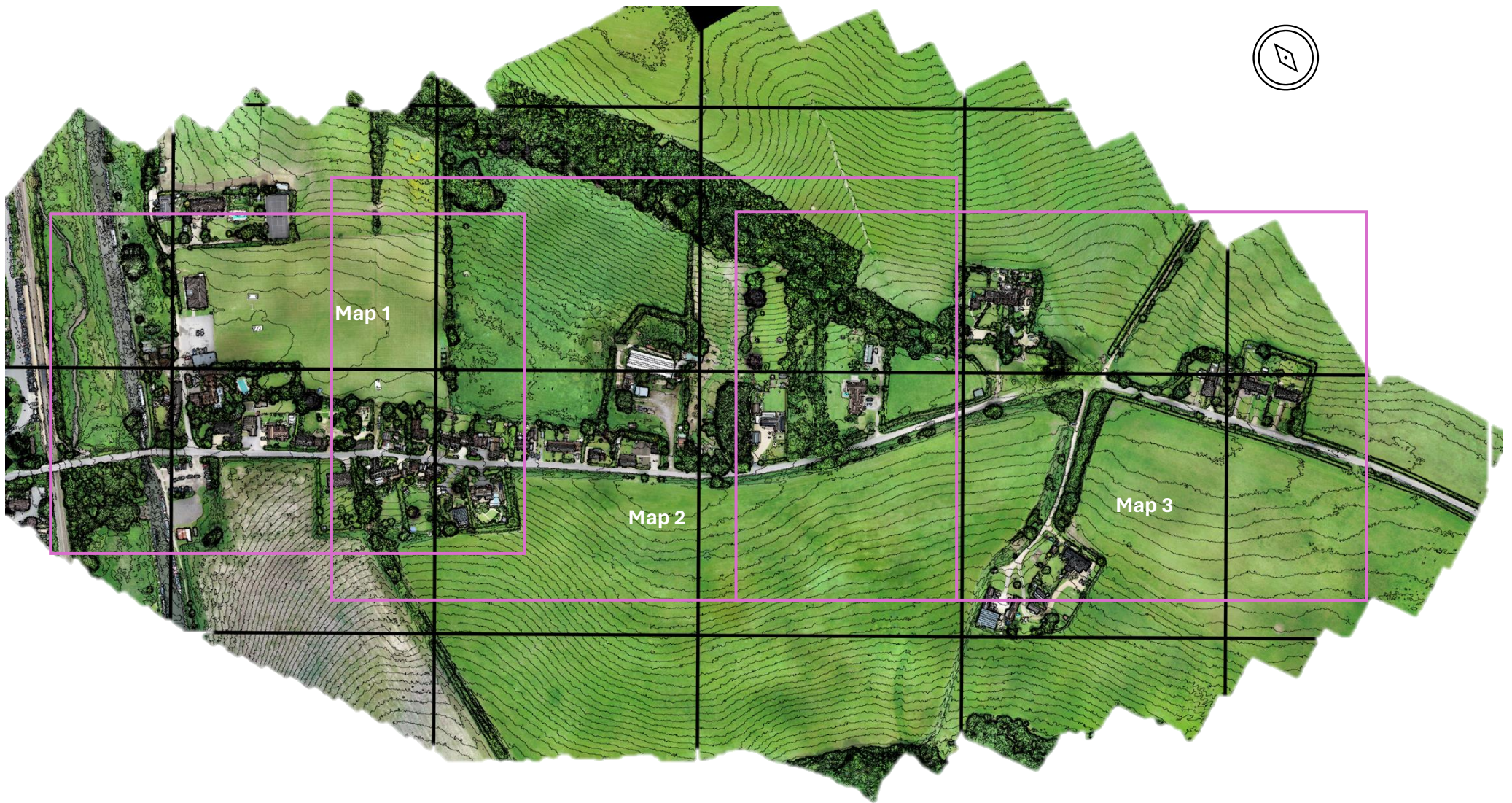




Figure 1: Frog Lane Flooding - 28th March 2024

1.0 Introduction

In the 12 months from 1st April 2023 to 1st April 2024, 9 surface water flood events have impacted the village of Great Bedwyn (source: <https://kuula.co/post/5v3Pg/collection/7JSxj>). In the Brook Street catchment, circa 5 properties have experienced significant and repeated internal flooding. Figure 1 highlights the impact storm water is causing and the need for urgent action.

2.0 Survey Methodology

This survey was completed using a DJI P4P Pro drone and a GS07 Smart Antenna. The work was carried out over three days from 23rd, 24th & 28th of May. The GS07 was used to survey ground control points (GCPs) and the spot heights of key drainage infrastructure. The P4P drone was used to collect a series of overlapping 20MP photographic images across the designated survey area. Circa 700 photographs were collected and processed together with the GS07 data using Virtual Surveyor software. The base maps used in this report are from Virtual Surveyor with 0.5m contour spacing. The survey area has been divided into three sections for reporting purposes. The maps have been annotated to show:

- Contour mapping at 0.5m intervals (thin black lines)
- Thames Water Sewer (**black line**) – the line is a best estimate based on sewer covers (**orange rectangles**) and secondary map sources
- Open surface water drainage ditches (**blue lines**) – the lines are based on visual observations from the map, augmented by site walkover surveys
- Surface water culverts / pipes (**red lines**) – the lines are best estimates based on site walkover surveys
- Spot heights (**white numbers**) - the decimal point identifies the measurement location
- The extent of historical flooding (**blue shading**) is drawn from a combination of visual observations and survey calculations
- **Dark blue arrows** are used to indicate the direction of flow of surface water runoff

The maps reproduced in this report are provided for information and discussion only. Please refer to the digital files used in the production of this report for detailed measurements. A map with a 200m grid overlay is provided, on page 2 of this report, for basic distance observations.

3.0 Map 1 of 3 - Notes & Observations

- A shallow drainage channel (circa 50m long) extends from the outlet of the Canal & Rivers Trust (CRT) siphon (orange line) to the River Dun (blue line)
- The channel is overgrown and silt laden - 15m from the outlet, a sleeper and concrete block slab create a raised ford across the channel
- The CRT siphon is a culvert that passes under the canal, it is the only surface water connection to the River Dun for the entire Brook Street catchment
- The siphon is 600mm in diameter, constructed of concrete and 17.1m long (see Figure 2 for details)
- A recent CRT investigation has identified that the siphon is currently (June 2024) substantially blocked by non-hazardous detritus
- To the south, the siphon is connected by a brick culvert – this is fed by surface drainage from a road drain on the south side of Brook Street
- To the north, the siphon is connected by 2 x 300mm PVC pipes which connect to a 4-chamber storm drain in Frog Lane (Figure 3)
- The 4-chamber drain is the main/only collection point for surface runoff from the cricket club, village hall car park and immediate vicinity

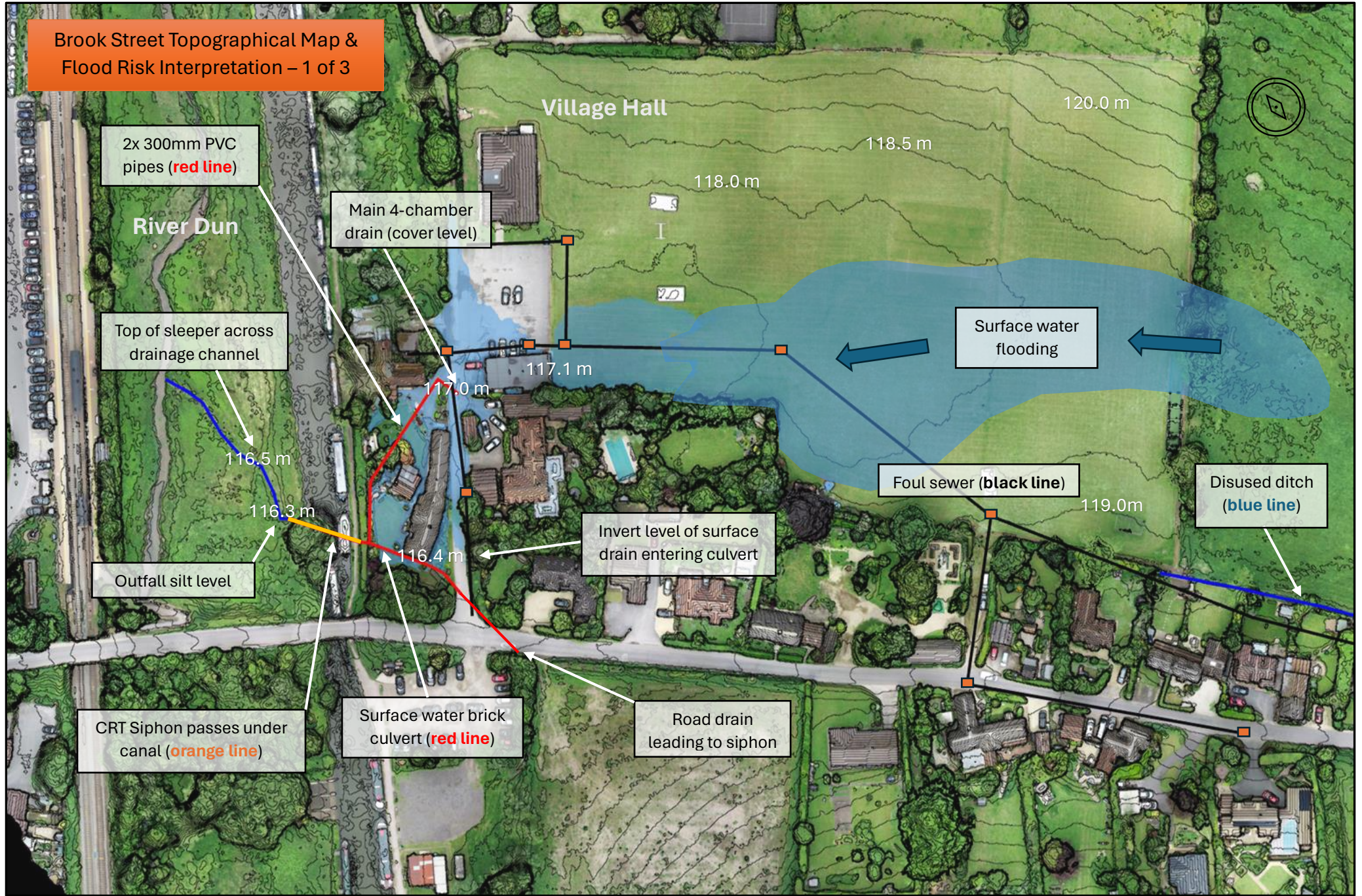


Figure 3: 4-Chamber Storm Drain

BRITISH WATERWAYS - TECHNICAL SERVICES	
SOUTHERN CULVERTS STRUCTURE REPORT	
Report on Inspection:-	
Chainage (metres)	Comments
Outlet	Concrete chamber in good condition with metal trash screen.
0.0	Outlet. 600mm dia. concrete pipe. All in reasonable to good condition Culvert cleaned throughout its length.
1.5	Open joint with slight displacement & very slight seepage on joint.
3.0	Medium encrustation across crown area with occasional dripping water from crown.
9.0	Slight displacement on joint.
11.0	Displacement on joint.
17.1	Inlet.
Inlet	Chamber.

Figure 2: Extract from British Waterways Report 02/03/97

Brook Street Topographical Map & Flood Risk Interpretation – 1 of 3



4.0 Map 2 of 3 - Notes & Observations

- The only surface drain (**blue & red line**) is almost completely unserviceable along its entire length
- Surface water flooding impacts the road, the entrance to Meadow farm and the properties in the immediate vicinity (**blue shading**)
- During flooding events, surface water runoff from the field to the south of Brook Street discharges through a redundant gateway directly onto the road
- Video evidence of the flooded road and field runoff can be viewed at <https://www.youtube.com/watch?v=XsftyEOU3-A>

5.0 Map 3 of 3 - Notes & Observations

- The topography at Jockey Green concentrates catchment runoff from the north, south and east
- The centre of surface water concentration is the green, the main road and the field to the southeast
- Runoff from the field to the north has gouged a visible drainage channel in the shallow soil surface
- The runoff from the north passes across Galley Lane (Bridleway) and into the adjacent meadow

6.0 Brook Street Catchment - Notes & Observations

- Except in times of extreme flooding, there is no permanent brook in Brook Street
- Most of the catchment is interpreted to be underlain by chalk
- The main mechanism, for the broader catchment drainage, is interpreted to be soakaway into the chalk
- Overtime, surface water drainage ditches & culverts have become blocked and poorly maintained
- Higher up the catchment, it is suspected that some roadside grips have become blocked or made redundant resulting in a greater proportion of road runoff arriving at Jockey Green. This is evidenced by the deep scouring of the road between Newtown and Great Bedwyn
- At times of surface water flooding, runoff enters the foul sewer by multiple routes. This leads to a backing up of the system and uncontrolled discharges in Frog Lane. It may also contribute to internal flooding within the cricket clubhouse
- Visual records of previous flooding events can be viewed at:
<https://kuula.co/share/collection/7JSxj?logo=1&info=0&fs=1&vr=1&sd=1&initload=0&thumbs=1>

Brook Street Topographical Map & Flood Risk Interpretation – 2 of 3

