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DEVON AREA
INTERNAL REPORT

ENVIRONMENT AGENCY

INVESTIGATION INTO STORM DISCHARGES AT IPPLEPEN SEWAGE TREATMENT WORKS.

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ENVIRONMENT AGENCY

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Investigation into Storm Discharges at Ipplepen Sewage Treatment Works

1.0 Introduction

A request was received from Environment Protection to investigate the frequency of storm sewage discharges to the stream (Appendix 1, plate 1) from Ipplepen Sewage Treatment Works (see figure 1).

A Stormlog event monitor was deployed at the works in order to determine the frequency and length of any discharges.

1.1 Project Team

Project Manager – Trevor Cronin
Project Leader & Author – Stuart Hunter
Project Officer – Kath Porter

2.0 Method

A Stormlog event monitor was installed at Ipplepen Sewage Treatment works on 28th November 1998. The sensor was positioned in the exit pipe of the storm discharge chamber (see figure 2 & plate 2).

The Stormlog was downloaded on 3 occasions:

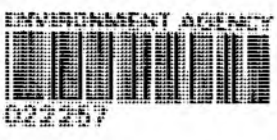
- 5th January 1999
- 27th January 1999
- 11th February 1999

It was downloaded and removed on 12th March 1999, but due to a laptop computer fault the dates and times of any events between 11th February and 12th March were lost. Rainfall data from two rainfall gauges was collected during the period of the investigation; Denbury ref. 364404 and Broadhempston Gables ref. 364380 (see figure 3).

3.0 Results

The results show the first discharge of storm overflow took place on 29th November 1998 one day after installation, the duration of this event was 22 minutes. There were intermittent discharges up until the 1st January 1999, the longest of these was on 28th December 1998 which discharged for over 15 hours.

From 2nd January 1999 until 21st January 1999 the Stormlog recorded a continuous discharge of storm effluent. The Stormlog was downloaded during this period (5th January 1999), it was noted that the storm was discharging. Large quantities of sewage derived debris including sanitary towels, condoms and paper was observed in the stream (plate 3) and the copa sac was full (plate 4).



From 22nd January to 10th February a storm discharge of shorter duration was recorded almost everyday. See appendix 2 for complete rainfall and Stormlog data, and figures 4 & 5 for graphical representations.

4.0 Conclusion

During the period from the 28th November 1998 to 3rd January 1999 storm discharge events appear to be rainfall dependant (see fig. 5).

However, from January 3rd to February 2nd 1999 figure 5 shows that the discharge from the storm overflow is of a continuous nature. Although there were periods of heavy rainfall (57.3mm at Denbury on 15th January 1999) during this time span it does not appear to be the influencing factor.

Figure 1

Map Showing Ipplepen Sewage Treatment Works

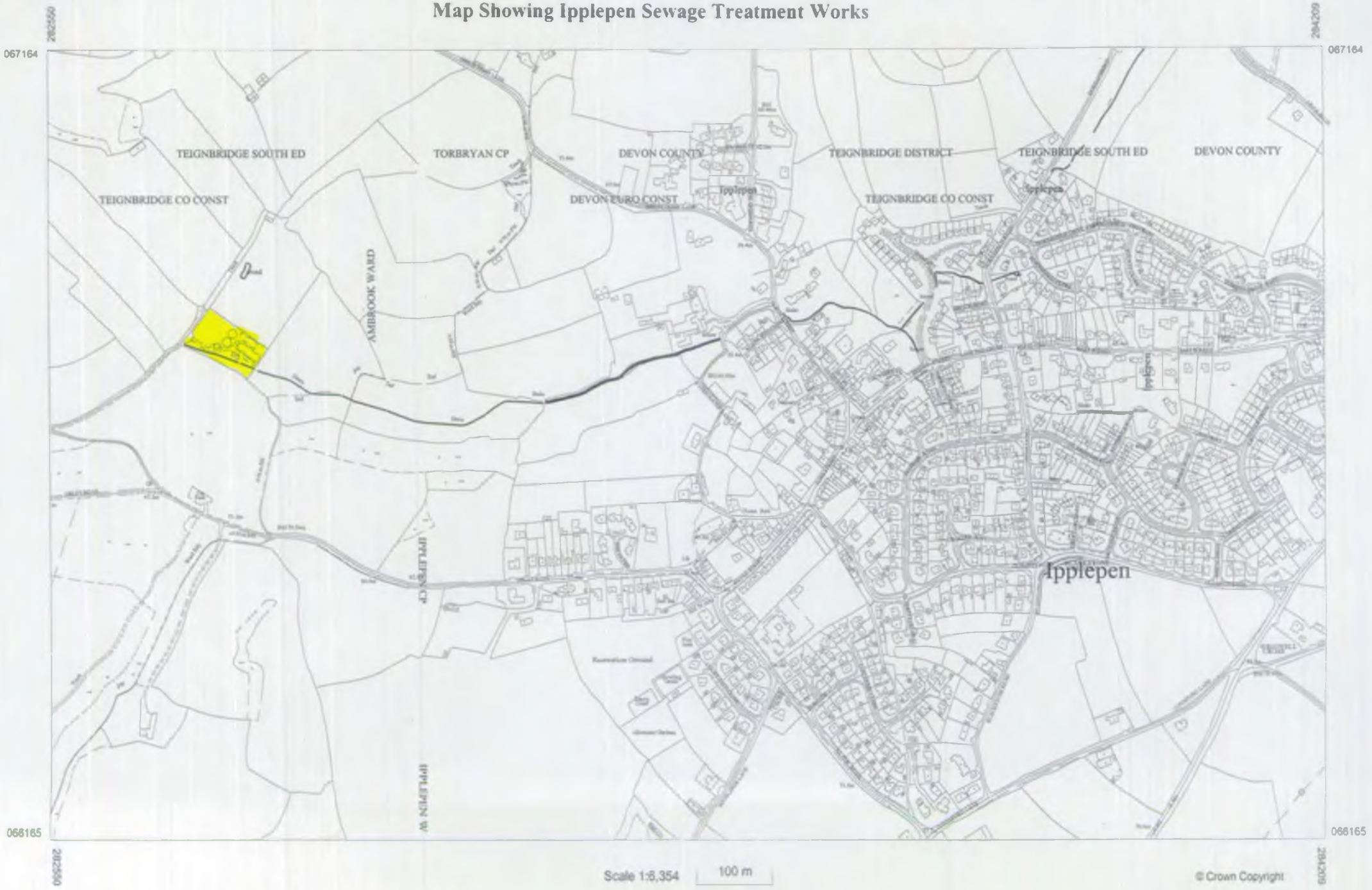


Figure 2

Map Showing Ipplepen Sewage Treatment Works and Location of Stormlog within Works

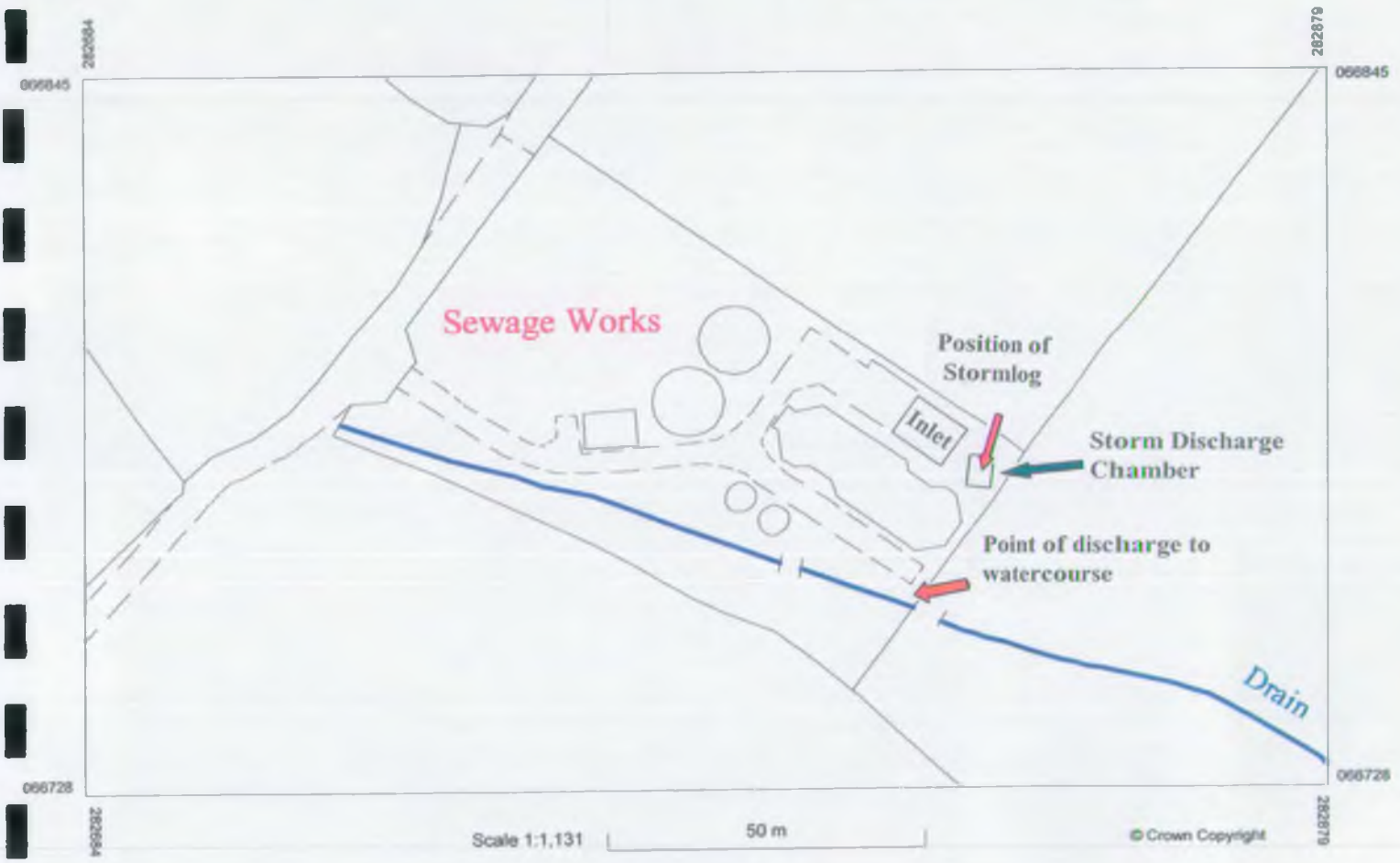


Figure 3

Map Showing Ipplepen STW and Rainfall Gauge Locations

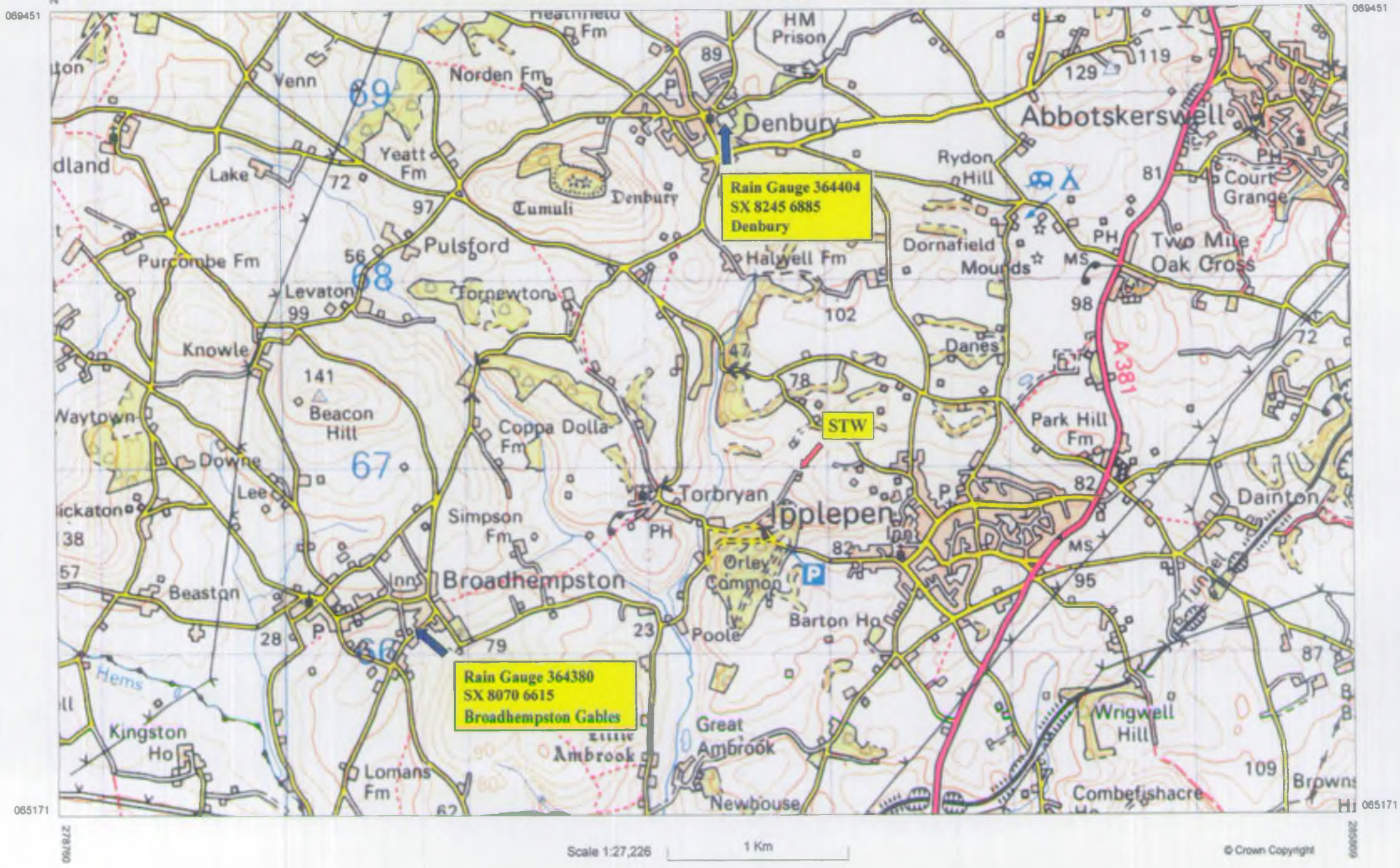


Figure 4

Rainfall at Denbury and Broadhempston Gables for November 1998 to February 1999

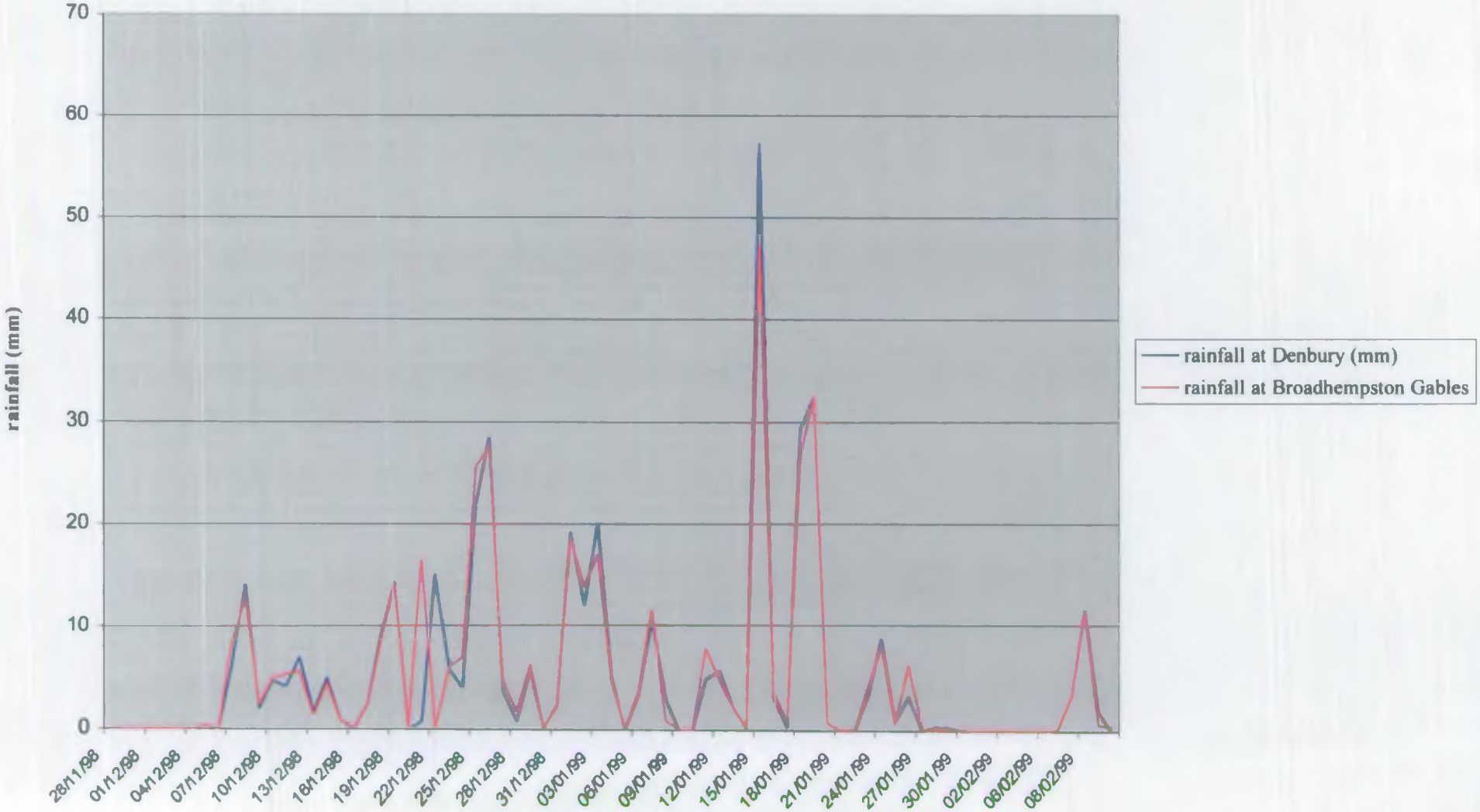
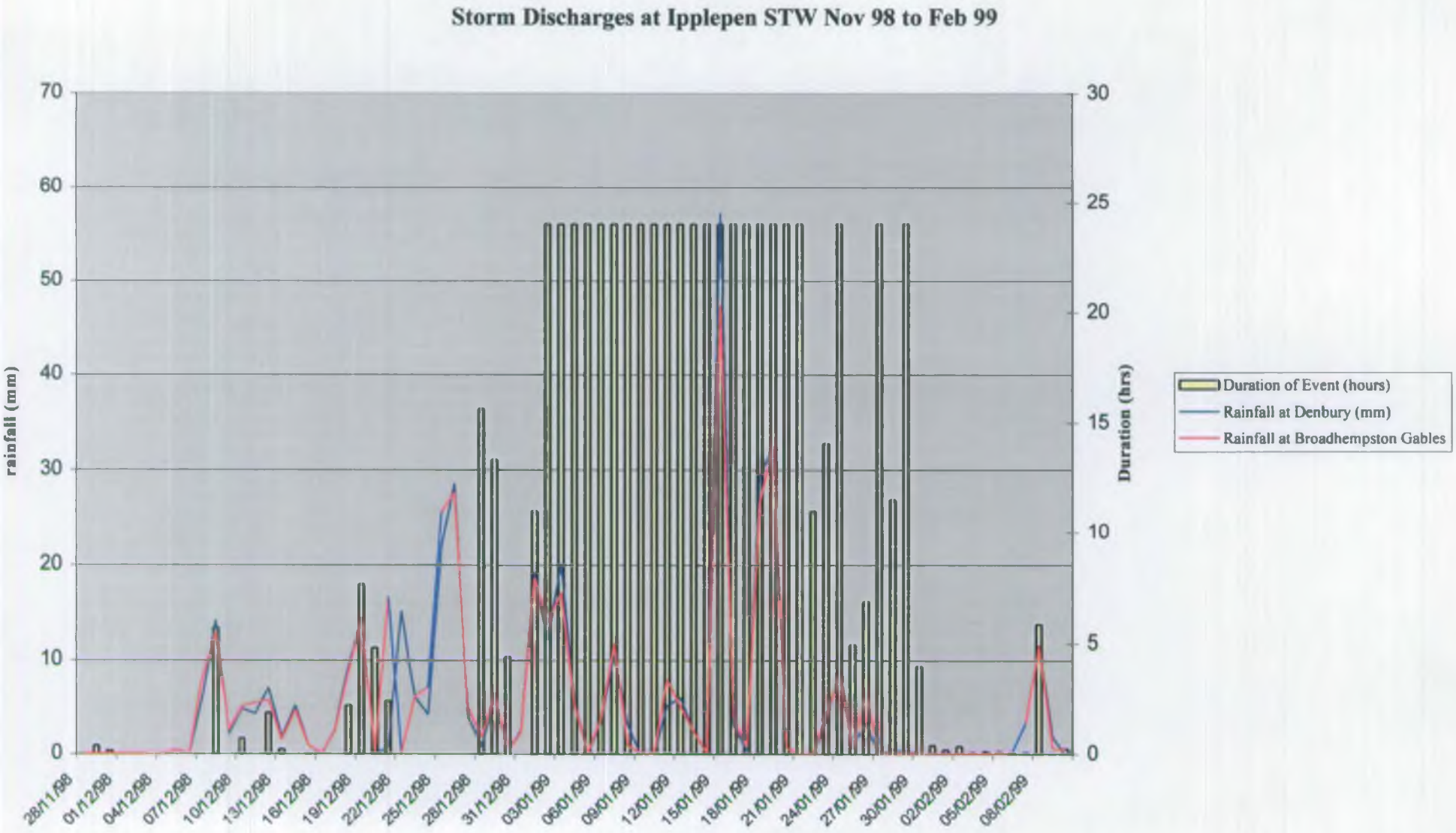


Figure 5


Storm Discharges at Ipplepen STW Nov 98 to Feb 99
rainfall (mm)
Duration (hrs)
70
60
50
40
30
20
10
0
30
25
20
15
10
5
0
Duration of Event (hours)
Rainfall at Denbury (mm)
Rainfall at Broadhempston Gables
28/11/98
01/12/98
04/12/98
07/12/98
10/12/98
13/12/98
16/12/98
19/12/98
22/12/98
25/12/98
28/12/98
31/12/98
03/01/99
06/01/99
09/01/99
12/01/99
15/01/99
18/01/99
21/01/99
24/01/99
27/01/99
30/01/99
02/02/99
05/02/99
08/02/99

APPENDICES

Appendix 1

Plate 1. Looking up the stream into which the storm discharges below Ipplepen STW.

Plate 2. Showing storm sewage chamber where Stormlog probe was positioned.

Plate 3. Sewage debris down stream of Ipplepen STW storm sewage discharge point.

Plate 4. Showing storm sewage discharge at Ipplepen Sewage Treatment Works