



**DEVON AREA  
INTERNAL REPORT**

**AN INVESTIGATION INTO  
THE SEWAGE SYSTEM AND  
STORM OVERFLOW AT  
BEER**

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DEV/WQ/9/97**

**Author: W. LOXTON.  
INVESTIGATIONS TECHNICIAN**

**G R Bateman  
Area Manager (Devon)**

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# AN INVESTIGATION INTO THE SEWAGE SYSTEM AND STORM OVERFLOW AT BEER

## 1. INTRODUCTION

Beer is a small seaside village situated in East Devon. It has a small stream passing through it that originates from above Beer, having a drainage area of approximately 2.38 square kilometres. It finally discharges onto the beach in front of Beer. Within the village the stream is culverted until it runs along Causeway Road and along Fore Street, eventually disappearing under ground just above the beach. (An O.S. copy of Beer and Beer Brook catchment is shown in Appendix 4)

The beach failed to comply with the bathing waters directive in 1994.

## 2. TERMS OF REFERENCE

### 2.1 OBJECTIVES

A request was received from J Hancock (Senior Water Quality Officer), for the Investigation Team to obtain information regarding the stream, sewage system and the storm overflow at Beer, prior to a meeting scheduled for the beginning of June 1997.

### 2.2 PROJECT TEAM

T. Cronin (Project Leader)  
W. Loxton (Project Manager, Author)

## 3. METHOD

1. Obtain detailed plans of the sewage system and storm overflows at Beer from South West Water Services Ltd (SWWSL).
2. Obtain information from East Devon District Council (EDDC) about the location and size of the "reception chamber" at the beach, together with any relevant stream details.
3. A site visit with EDDC and the local warden to discuss and view the area.
4. A site visit to view where Beer Brook discharges below the high water mark and take relevant photographs.
5. Analysis of historic monitoring data for Beer Brook and the beach.
6. Liaise with Devon area Hydrometric's section for any relevant information on Beer Brook.
7. Liaise with the local Water Quality Officer and Warden for any relevant information or

pollution incidents in the area.

## **4. RESULTS**

### **4.1 HISTORIC RESULTS**

Bathing water samples taken between 1986 and 1996 show that Beer beach failed on one occasion to comply with the bathing water directive, this failure occurred during 1994. The failure was based on one exceedance of Faecal Coliform (3100/100 ml. on 24/05/94) and one exceedance of both Total and Faecal Coliforms (On 26/07/94 Total Coliform 35200/100 ml, Faecal Coliform 3000/100ml). The mandatory levels being, Total Coliform 10000/100ml, and Faecal Coliform 2000/100ml.

There have been no exceedance in either Total or Faecal Coliform levels since 1994.

An investigation into non-compliance of the bathing water at Beer beach was undertaken by the Investigation Team in 1996. A report has been produced (DEV/WQ/15/96). The results from the two surveys carried out for this investigation showed that bacteriological levels can be high in the Brook above the storm overflow (Total Coliforms 41000/100ml, Faecal Coliforms 2200/100ml)

No pollution incidents for Beer Beach have been logged on the PILS System by Devon Area Water Quality Section.

### **4.2 INVESTIGATION RESULTS**

A map of the sewerage system at Beer has been obtained from SWWSL and it is shown in Appendix 1.

The information shown on the map makes no reference to a storm overflow pipe running into a "reception chamber" just above the beach.

The local warden (T. Davis) and I met with Alan Child and Robin Taylor (EDDC) at Beer on 13th May 1997. I was informed that there has been some dispute between EDDC and DCC concerning who held responsibility for the maintenance of drains and pipes at Beer.

I was also informed, that what is commonly called the "reception chamber," is not in fact a retaining tank, but a small manhole chamber where the storm overflow discharges into the stream (Appendix 2 photo 1).

## **5. DISCUSSION**

A Schematic plan of Beer (Appendix 3) gives an idea of the lay out of the towns stream and sewage system referred to in the discussion.

East Devon District Council and Devon County Council have no plans of Beer Brook where it is covered by footpaths or the road as it runs through Beer to the Beach. At the end of Fore Street the stream goes under the road and splits into two pipes ( Appendix 2 photograph 2).

These two branches then rejoin at the "reception chamber". This "reception chamber" consists of

a manhole chamber where the two branches of the brook, and storm overflow meet.

This manhole chamber is the site of the routine stream samples for the Bathing Waters Directive. From the reception chamber the brook runs through a pipe under the beach, issuing below the high water mark.

The site of the reception chamber is shown in photographs 4 and 5 and on the map in Appendix 2.

Local information indicates that the pipe on the beach frequently becomes blocked with beach shingle and debris. When this pipe becomes blocked or is unable to cope with high flows, water will back up the pipe, overflowing at the reception chamber and over the top of the beach. If the main sewer overflow is actively discharging while this backup is taking place, crude sewage will be discharged over the beach along with the brook water.

During the site visit, I was informed by Robin Taylor (EDDC) that the end of the discharge pipe on the beach has been located, and markers have been installed to indicate its position (approximately 75 metres out from the reception chamber).

The site of the discharge point on the beach is shown in photograph 6 and on a map in Appendix 2.

A JCB has been used to dig out around the end of the pipe and the area is now clear. Mr Taylor has stated that this was a simple operation that will be repeated again when required.

A grid has been fitted where the brook goes under the road opposite the fish shop. This was done because of rumours that fish offal was being dumped into the stream (photograph 3).

It was believed that this offal would be washed down the pipe and decay in the shingle on the beach. The shingle at the top of the beach by the reception chamber has recently been removed and replaced with clean. It is this area of beach that is of most concern to the beach users and where visible pollution is alleged to have gathered.

There are no logged reports of any pollution on Beer beach.

A SWWSL map of the Beer sewerage system is shown in Appendix 1. This map provides some details about the pipes and manholes in the area, but no information is given about the storm overflow running into the reception chamber.

Discussions with Trevor Nott (SWWSL) suggest that there is no storm tank at Beer, only an access chamber. This access chamber is situated just below the monument in Beer (photograph 1 and Appendix 2). This chamber is approximately thirty-five feet down and six feet square. There is an overflow from this access chamber that has a one inch metal screen. This screen has been recently refitted because it was out of alignment.

SWWSL have no immediate plans to improve the system.

There is a crude sewage outfall at Beer head (approximately 500 metres from the beach). It is possible that a south to southwest wind could blow effluent back onto the beach at Beer from this outfall.

## **6. CONCLUSION**

1. Investigation show that during certain storm conditions, the flow in the brook will increase. If during this period the storm overflow operates, crude sewage will be discharged into the brook at the reception chamber.
2. If, while these conditions are in operation, the pipe across the beach becomes blocked, or the flow is too great, then surface water along with any crude sewage will be discharged from the reception chamber and will flow across the top of the beach.
3. It is not yet certain what conditions would need to occur for this process to happen, and for what duration the problem would persist.
4. It is not possible to install a Water Rat flow monitor at the storm overflow due to the construction of the reception chamber.

## **7. RECOMMENDATIONS**

1. The Monitoring & Sampling Officer should be requested to make his staff aware of the storm overflow at the sampling point, and request that they report if the storm is operating at the time of sampling.
2. If the stream has backed up, Sampling Staff should inform the Devon Area Water Quality section, who should inform EDDC.
3. During periods of heavy rainfall a local Warden or Water Quality Officer could visit the beach to determine if the storm overflow has activated and is causing any problems.
4. Contact SWWSL as there is no record of consent to discharge. An application needs to be made with appropriate work to prevent discharge occurring when it can cause problems



**Photograph 1 Inspection chamber**



**Photograph 2 Stream splits and goes underground**



Photograph 3 Grid fitted to stream



Photograph 4 Reception chamber





Photograph 5 Reception chamber



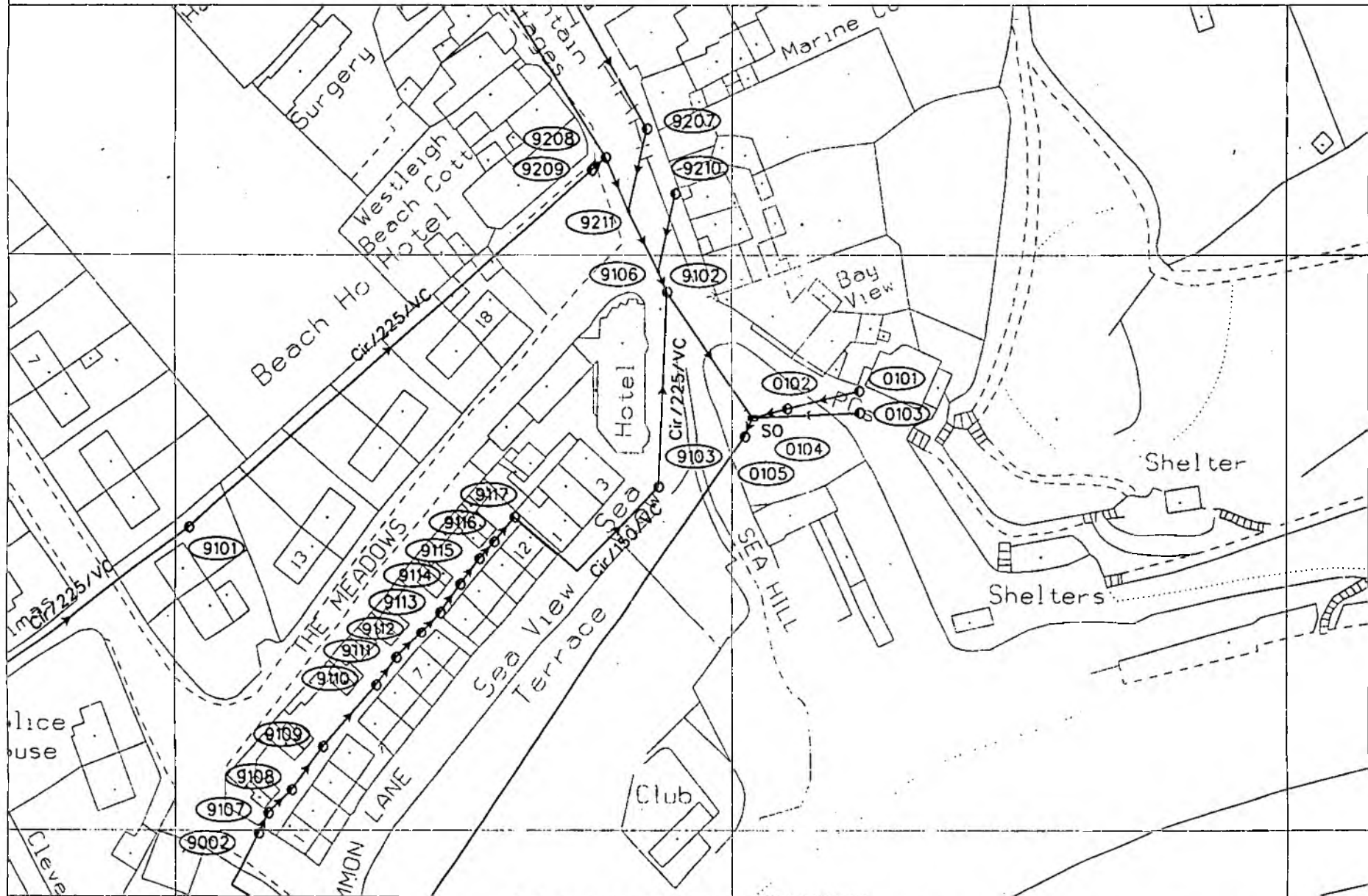
Photograph 6 Pipe discharge point

**APPENDIX 1**

BEER

Public Sewer		Private Sewer		Pumping Man	
Foul	→	Foul	→	Elevated Sewer	—○—
Surface	→	Highway	→	Inverted	—○—
Combined	→	Treatment Works	→	Syphon	—○—
Treated	→	Abandoned Sewer	→		

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322869 mE 89088 mN

The information indicated on this plan is provided only as a guide and no assurance as to the accuracy is given or implied. The Company accepts no liability whatsoever for any error or omission in the information.  
 It should be noted that all public sewer pipes and private sewer pipes in the area of the plan are shown.

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Scale: 1:1000

**APPENDIX 2**



Surge

Westleigh  
Beach Cott

Beach Ho  
Hotel

Cir/225/VC

Hotel

Cir/225/VC

9101

13

THE MEADOWS

9117

9116

9115

9114

9113

9112

9111

9110

9109

9108

9107

9002

ON LANE

Sea View  
Terrace

Cir/180/VC

3

Club

9208

9209

9211

9106

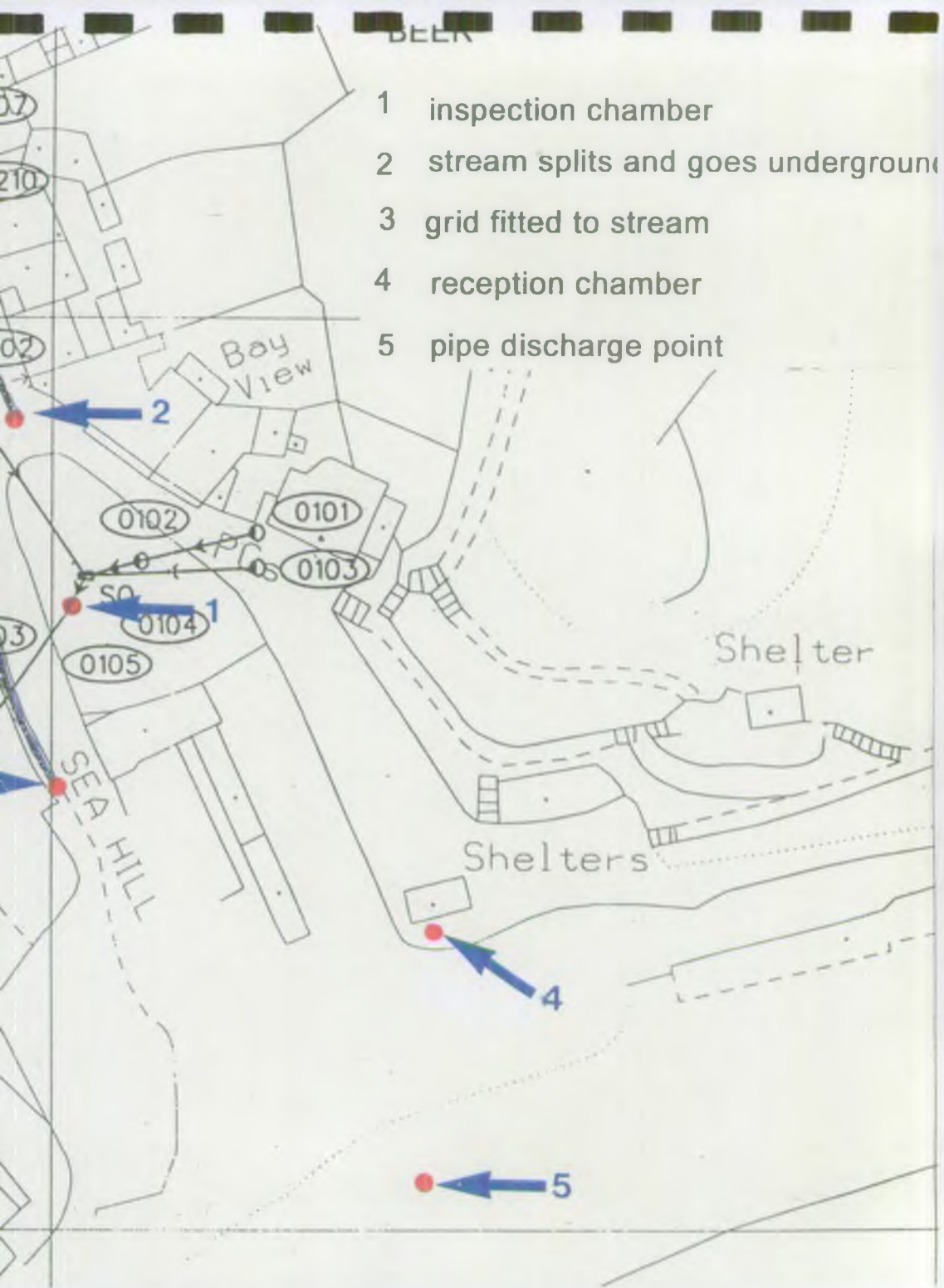
920

92

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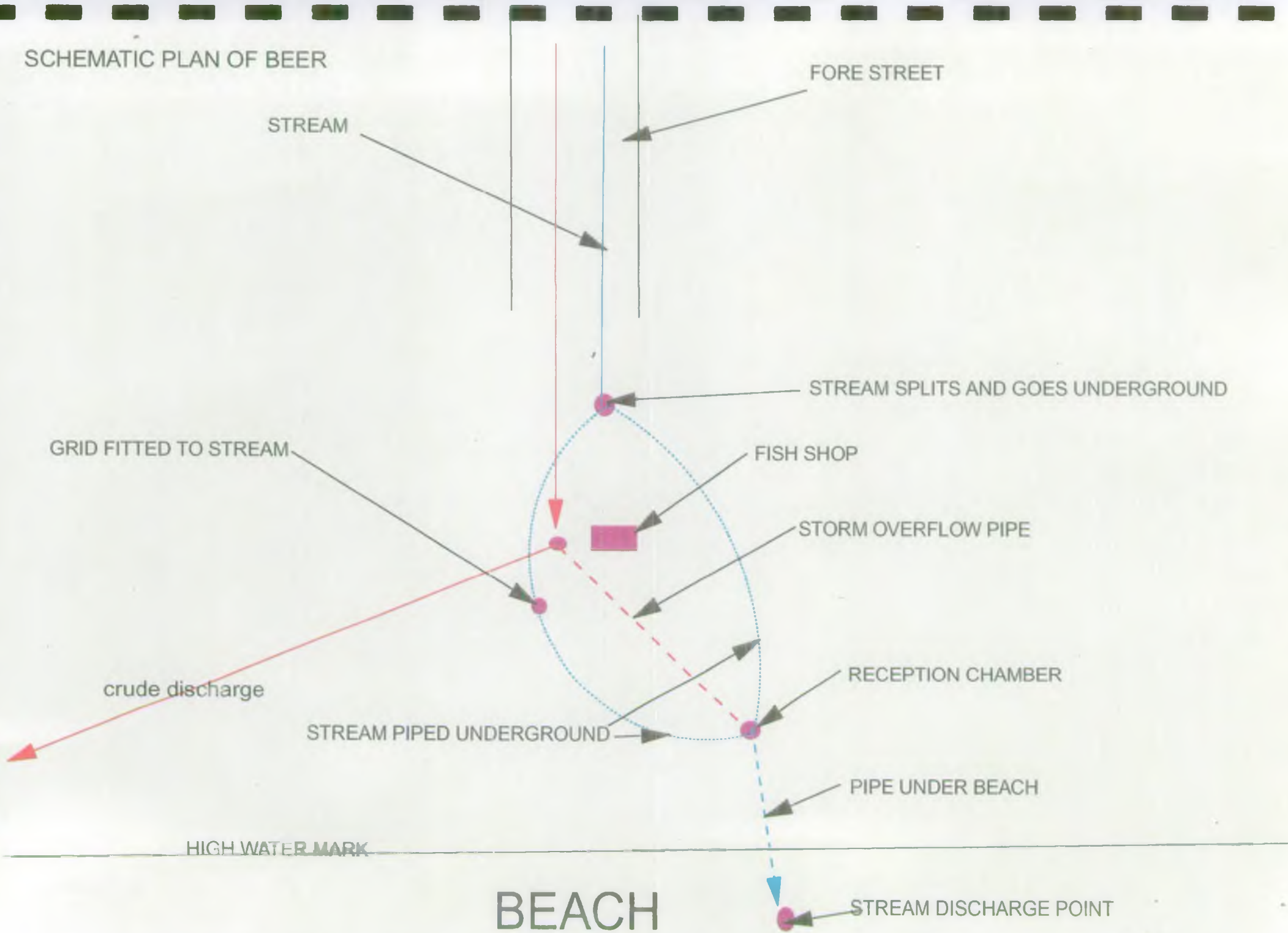
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- 1 inspection chamber
- 2 stream splits and goes underground
- 3 grid fitted to stream
- 4 reception chamber
- 5 pipe discharge point



**APPENDIX 3**

SCHEMATIC PLAN OF BEER



FORE STREET

STREAM

STREAM SPLITS AND GOES UNDERGROUND

GRID FITTED TO STREAM

FISH SHOP

STORM OVERFLOW PIPE

crude discharge

RECEPTION CHAMBER

STREAM PIPED UNDERGROUND

PIPE UNDER BEACH

HIGH WATER MARK

BEACH

STREAM DISCHARGE POINT



**APPENDIX 4**

