



ENVIRONMENT
AGENCY

**DEVON AREA
INTERNAL REPORT**

**AN INVESTIGATION TO
DETERMINE POSSIBLE CAUSES
OF POOR WATER QUALITY
DOWNSTREAM OF CHAGFORD
STW (WSTW6046B).**

**SEPTEMBER 1996
DEV/WQ/6/96**

**Author: P. ROSE
INVESTIGATIONS TECHNICIAN**

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

H10



ENVIRONMENT AGENCY

Information Services Unit

Please return or renew this item by the due date

Due Date



AN INVESTIGATION TO DETERMINE POSSIBLE CAUSES OF POOR WATER QUALITY DOWNSTREAM OF CHAGFORD STW (WSTW6046B).

1. CATCHMENT DESCRIPTION

The River Teign rises at NGR SX 6144 8398 as the North Teign River and flows north-east where it is joined by the South Teign River 2 km west of Chagford (SX 6827 8766). The river then flows east for approximately 20 km where it is joined by the Sowton Brook 1 km north of Doddiscombsleigh, then flows south towards the estuary and is joined by both the Breadon Brook (SX 8439 8167) and the Bramble Brook (SX 8491 8124) 1.5 km north-east of Hennock. Below these tributaries the River Teign is joined by the River Bovey 1.5 km south of Chudleigh Knighton and flows for a further 4 km before discharging to the sea some 50.8 km from source.

Chagford is an historic market town situated in the Dartmoor National Park. The River Teign flows north of the town in a north east direction. Besides the tourism brought to the area by the National Park, the local industry is mainly of an agricultural nature.

The nearest routine monitoring site to Chagford is below Chagford Sewage Treatment Works (WSTW6046B at NGR SX 7013 8819 see Figure 1, descriptive consent APPENDIX I). This site is currently used for General Quality Assessment (GQA) in order to determine water quality of the river based over a three year period.

Although the site WSTW6046B is not EC designated it does lie within a reach from Bridford Bridge (R06C005 at NGR 8343 8723) to Leigh Bridge (R06C001 at NGR SX 6831 8763) on the South Teign and Gidleigh Park Hotel (R06C002 at NGR SX 6775 8791) on the North Teign which has EC Freshwater Fish (Salmonid) Directive status.

2. TERMS OF REFERENCE

2.1 OBJECTIVES

The GQA site WSTW6046B attained a grade B (water chemistry) for 1995. This did not comply with the Environmental Quality Standards (EQS's) for the previously assigned River Quality Objective (RQO) of 1A (National Water Council classification previously used by the National Rivers Authority).

The current RQO target for this site using the River Ecosystem Use (RE) Classification is class 2, with a long term target of RE class 1. The routine monitoring data for 1995 show the river water quality at WSTW6046B attained an optimistic class of RE1 and a face value class of RE2. This investigation will determine the probable cause of the marginal BOD and total ammonia failures.

2.2 PROJECT TEAM

T. Cronin (Project Leader)
P. Rose (Project Manager, author)



2.3 METHOD

1. Analysis of historic routine water quality data taken both up and downstream of Chagford STW in conjunction with data from the final effluent samples.
2. Establish any trends and / or relationships between water quality and other factors such as rainfall and drought.
3. Carry out an appraisal of the River Teign up and downstream of the Chagford STW visually, chemically and via biological collections to assess the impact of the works on the water quality of the River Teign.
4. Report back to the Customer Services Centre Manager (Devon), Regional water Quality and Area Water Quality (Devon).

3. RESULTS

3.3 HISTORIC DATA

WSTW6046B Downstream of Chagford STW.

The failure of the GQA site to attain RE class 1 status for 1995 was due to high BOD levels and total ammonia concentrations. (BOD = 2.84 mg/l as 90 %ile, Total ammonia = 0.33mg/l as 90 %ile. EQS's 2.5 mg/l and 0.25 mg/l respectively, both as 90 %iles).

The historic data collected from up / downstream of Chagford STW and from the final effluent are presented in APPENDIX II. Exceeded values of BOD and Total Ammonia at WSTW6046B in relation to upstream and final effluent concentrations are given in Table 1.

Table 1

Date	WSTW6046B D/S of final effluent		WSTW6046FE Final effluent		WSTW6046A U/S of final effluent		Associated rainfall
	BOD	T.NH3	BOD	T.NH3	BOD	T.NH3	
10/03/93	1.5	0.26	20.6	13.30	1.5	0.10	no
31/03/93	7.4	0.74	>31.4	10.40	1.3	0.04	yes
07/07/93	2.3	0.29	13.2	4.80	<1.0	0.16	no
09/06/95	1.6	0.44	NA	18.70	NA	NA	no
22/06/95	1.6	0.39	NA	12.80	NA	NA	no
01/09/95	1.5	0.46	NA	12.40	NA	NA	no
14/11/95	2.0	0.60	NA	11.30	NA	NA	yes

BOD= Biochemical Oxygen Demand mg/l T.NH3= Total ammonia mg/l
 NA = Not Available EQS's see APPENDIX III

3.4 INVESTIGATION RESULTS

Biological collections were taken from up and downstream of Chagford STW discharge point as part of the Biological Monitoring Programme for Descriptive Consents during July 1996. A separate biological collection was also made at the Rushford Bridge site approximately 0.5 km downstream from WSTW6046B (see Figure 1 and APPENDIX II).

The biological community both up and downstream of the works was indicative of good water quality. There was, however, a slight drop in water quality downstream in comparison to upstream. Sewage fungus whilst not present upstream was present in and downstream of the mixing zone (see APPENDIX II).

Water samples were taken from the upstream / downstream sites and also of the discharge from the works (see Figure 1 and Table 2). None of the water samples taken up and downstream of the discharge contained levels of BOD or concentrations of total ammonia above the EQS's for an RE class 1 river.

Table 2. Chemical results from samples taken on 01-October 1996

Site	BOD	DO%	T.NH3	Non_ion	pH	SSlds
1	1.1	95	0.03	<0.0001	7.2	<3.0
2	1.1	95	0.04	0.0001	7.2	<3.0
3	1.2	96	0.13	0.0005	7.3	<3.0
4	1.1	95	0.11	0.0004	7.3	<3.0
5	13.4	76	4.3	0.0024	6.35	24
6	1.2	96	0.09	0.0003	7.15	<3.0

BOD= Biochemical Oxygen Demand mg/l DO%= Dissolved Oxygen % Saturation
T.NH3= Total ammonia mg/l Non_ion= Non-ionised ammonia mg/l
SSlds= Suspended Solids mg/l at 105 °C EQS's see APPENDIX III

4. DISCUSSION

The historic routine monitoring data (where and when available) show that on the dates when the GQA site (WSTW6046B) samples exceeded the EQS's for an RE class 1 river, the quality of the final effluent from Chagford STW was also poor. When represented, the quality of the river water upstream of the discharge from the works reached standards for an RE class 1 river. There was no correlation between the exceeded values and rainfall. On the contrary, the exceeded values generally occurred after several days of no rainfall (see APPENDIX IV). Indeed data from the nearest river flow gauging station downstream at Preston (station SX87F051 approximately 30 Km downstream of Chagford at NGR SX 8556 7454) show that on the dates of the exceeded values, the daily mean flows in the river were relatively low (see APPENDIX IV).

The strong correlation between data sets and the fact that the Storm Sewer Overflow (SSO) is combined with the discharge (entering the sewerage after the final effluent chamber) indicates that the instances of low water quality recorded downstream of the STW at WSTW6046B (1993-95) was due to poor final effluent quality rather than operation of the SSO from the works.

In mitigation, the siting of the GQA site WSTW6046B at present is not ideal. Although the samples taken during this investigation show no exceeded values of the standards and indicated good water quality up and downstream of the effluent, this site is only approximately 60 meters downstream of the discharge in a stretch where the river width is approximately 14 meters.

The standard measurement of 10 X the river width for sampling well mixed waters downstream of a discharge suggest that the GQA site WSTW6046B is less than half the distance downstream of the discharge than it would ideally be located (ie at some 140 meters downstream). Under times of low flow and poor effluent quality, the discharge may not be sufficiently mixed / diluted with the river water at the present GQA site which may result in samples being taken that are not truly representative.

The GQA site WSTW6046B should be re-sited further downstream taking the above into consideration. There is an historic routine water quality monitoring site approximately 0.5 km downstream of the discharge from Chagford STW at Rushford Bridge (URN R06C003 at SX 7048 8823, see site 1 Figure 1). Parking and access to the river via the bridge are good. No routine chemical samples have been collected from this site since December 1992.

If the site is moved downstream, the exceeded values still persist and it can be demonstrated the final effluent quality from Chagford STW is to blame, then investigations into re-instatement of a numerical consent for the final effluent (including a standard for total ammonia) would probably be appropriate.

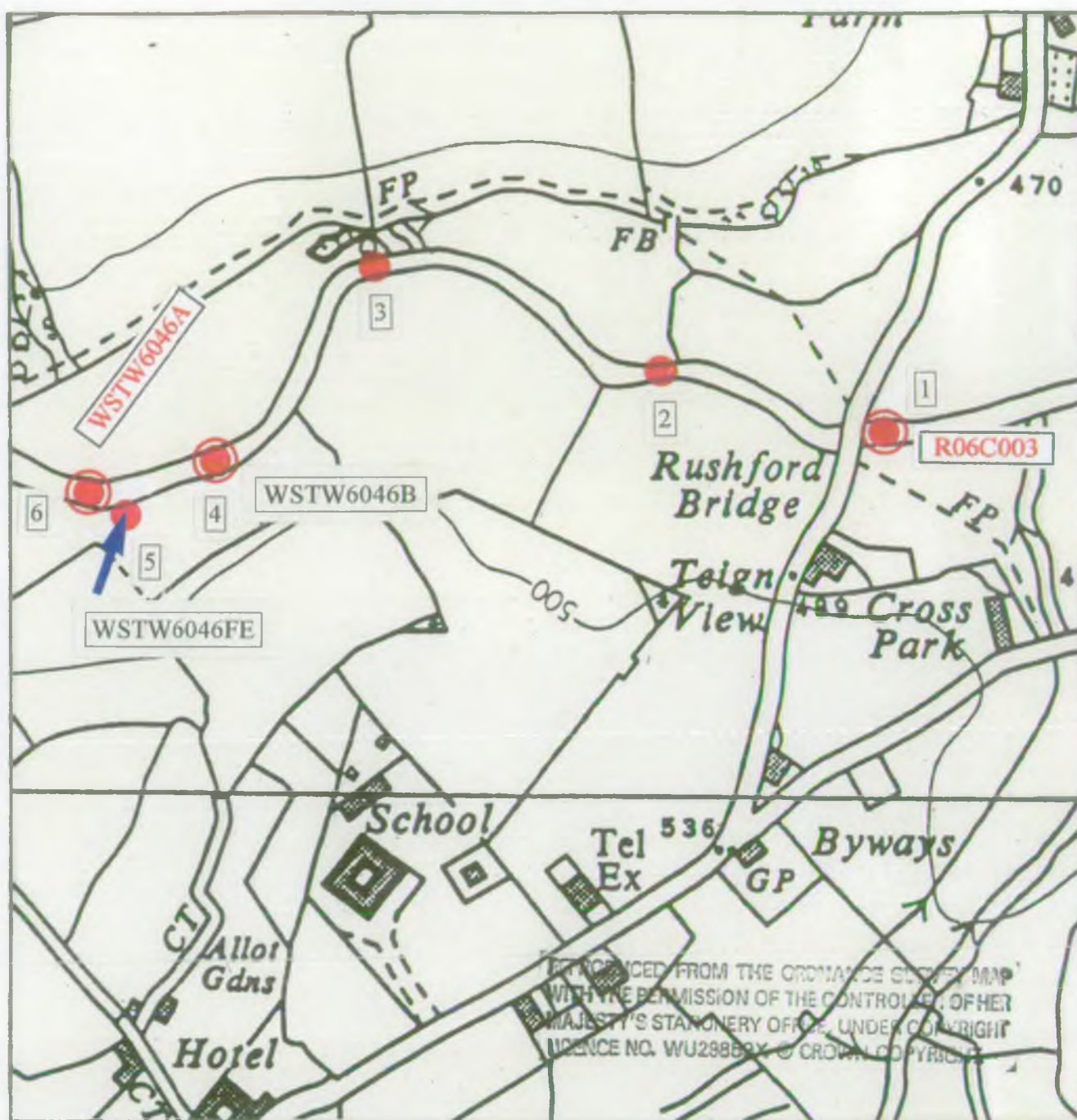
5. CONCLUSIONS

1. The exceeded values of BOD and total ammonia recorded at WSTW6046B for the 1995 GQA assessment were due to the discharge from Chagford STW.
2. It is very probable that the poor water quality D/S of the works was due to the final effluent rather than operation of the SSO.
3. The site WSTW6046B is situated too close to the discharge point and as such needs relocating further downstream to ensure that future samples taken are representative of the river water quality.

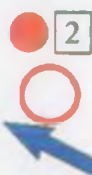
6. RECOMMENDATIONS

1. Relocate the site WSTW6046B further downstream and continue to monitor for GQA compliance. Action Regional Scientific Officer Monitoring.

Figure 1. Map showing the location of Chagford STW and the sample sites



Key



Chemical sample site

Biological collection site

Input discharge from Chagford STW

WSTW6046B

Routine chemical sampling site

WSTW6046A

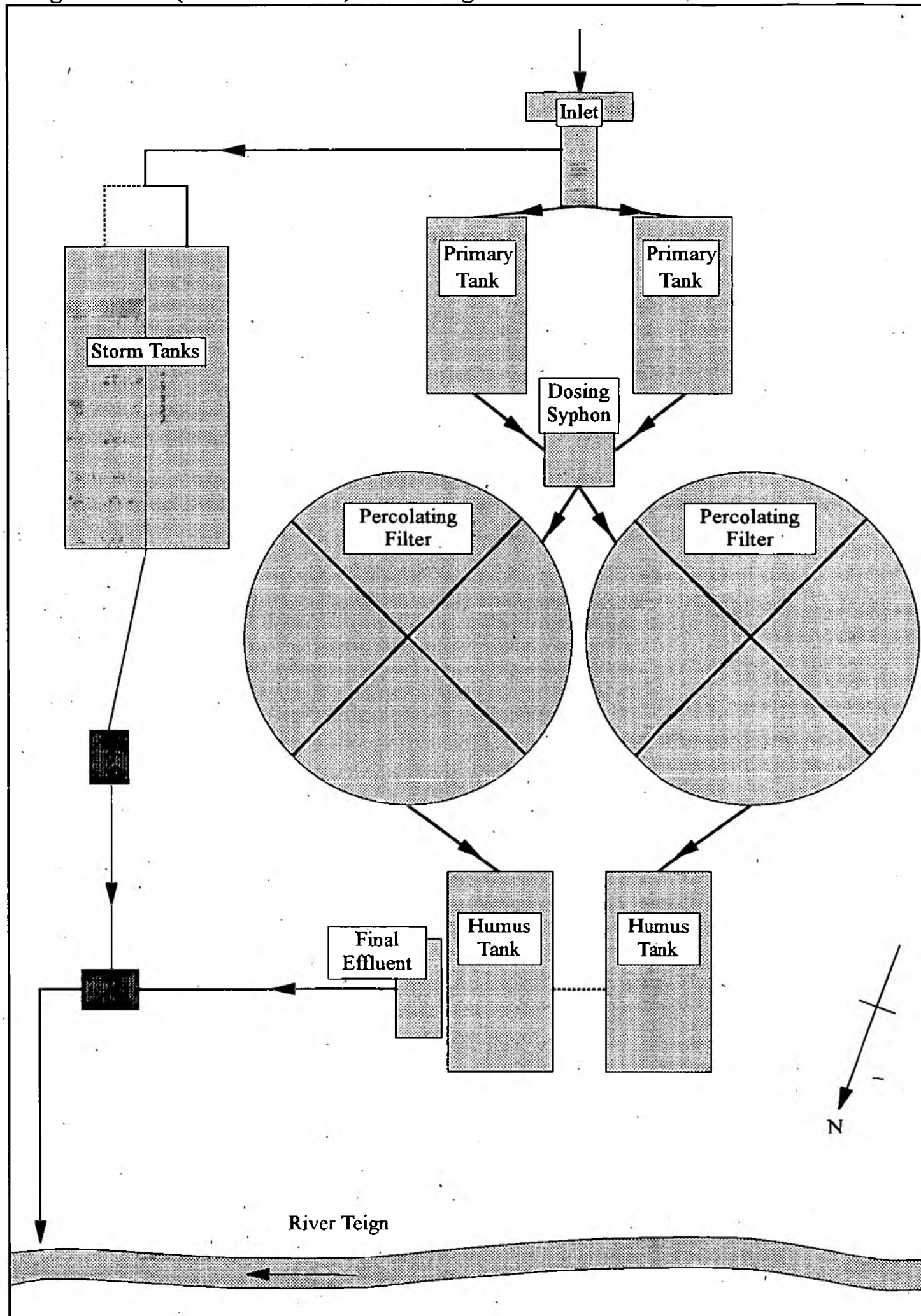
Historic routine chemical sampling site

0 scale m 100



APPENDIX I

Chagford STW (WSTW6046FE) Flow Diagram





HM
NRA - SW 64

4-6/cbc/r/67

DEPARTMENT OF THE ENVIRONMENT

WATER ACT 1989

DIRECTION TO THE NATIONAL RIVERS AUTHORITY ("THE AUTHORITY") TO GRANT A CONSENT TO SOUTH WEST WATER SERVICES LIMITED (THE COMPANY")

WHEREAS:-

(a) the South West Water Authority submitted an application to the Secretary of State dated 31 July 1989, (as supplemented on 18 August 1989,) in accordance with section 34 of the Control of Pollution Act 1974, as modified by the Control of Pollution (Discharges by Authorities) Regulations 1984, to discharge sewage effluent into the River Teign from Chagford Sewage Treatment Works ("the proposed discharge");

(b) that application is deemed by virtue of paragraph 25(2) (a) of Schedule 26 to the Water Act 1989 to have been made by the Company to the Authority, and the Secretary of State has determined that paragraph 25(3) of that Schedule is to apply to that application;

NOW THEREFORE the Secretary of State, in exercise of his power under paragraph 4(7) and 6(4) of Schedule 12 to the Water Act 1989, hereby directs the Authority:-

- 1) to grant a consent to the Company for the proposed discharge on the terms set out in the documents annexed hereto; and
- 2) to revoke any previous consents in respect of the proposed discharge.

A.S. Pears

Signed on behalf of
the Secretary of State
for the Environment

16 October

1989

WATER ACT 1989
CONSENT TO DISCHARGE SEWAGE EFFLUENT INTO THE RIVER TEIGN

WHEREAS:-

(a) the South West Water Authority submitted an application to the Secretary of State dated 31 July 1989, (as supplemented on 18 August 1989,) in accordance with section 34 of the Control of Pollution Act 1974, as modified by the Control of Pollution (Discharges by Authorities) Regulations 1984, to discharge sewage effluent into the River Teign from Chagford Sewage Treatment Works ("the proposed discharge");

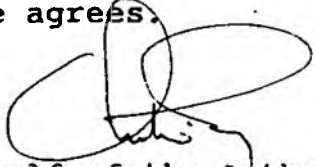
(b) that application is deemed by virtue of paragraph 25(2) (a) of Schedule 26 to the Water Act 1989 to have been made by South West Water Services Limited ("the Company") to the National Rivers Authority ("the Authority"), and the Secretary of State has determined that paragraph 25(3) of that Schedule is to apply to that application;

(c) the Secretary of State, in exercise of his powers under paragraph 4(7) and 6(4) of Schedule 12 to the Water Act 1989, has directed the Authority to issue the following consent for the proposed discharge and to revoke all previous consents relating to that discharge.

NOW THEREFORE the Authority, in exercise of its powers under paragraphs 2 and 6 of Schedule 12 to the Water Act 1989:-

- (a) grants a consent to the proposed discharge subject to the discharge conforming at all times to the terms of the Schedule attached hereto; and
- (b) revokes all existing consents relating to the proposed discharge.

The period during which no notice by virtue of paragraph 6(2) or (4)(c) of Schedule 12 to the Water Act 1989 shall be served in respect of the consent shall be the period ending on the date two years from the date of this consent, or the date specified in paragraph C.1.i of the Schedule hereto, whichever shall be later, or such other date as the person who proposes to make or makes the discharge agrees.


Signed on behalf of the Authority

....! 7.10.1989

SCHEDULE

CONDITIONS PRESCRIBED FOR THE DISCHARGE OF SEWAGE EFFLUENT FROM CHAGFORD SEWAGE TREATMENT WORKS TO THE RIVER TEIGN.

1. The discharge shall consist of treated sewage effluent from an outlet at National Grid Reference SX 7072 8819.

2. The effluent shall derive from domestic sewage from a population of 250 or less and contain no authorised trade waste.

3. There shall be no potable water supply intakes downstream which are likely to be adversely affected.

4. (a) for the period up to and including 31 March 1992:

The works shall be operated such that its performance or effect on the receiving waters does not demonstrably deteriorate by comparison with that during the the year ending 31 August 1989.

(b) for the period from 1 April 1992:

As far as is reasonably practicable, the works shall be operated so as to prevent:

(i) any matter being present in the effluent which will cause the receiving water to be poisonous or injurious to fish or to their spawn, or spawning grounds or food, or otherwise cause damage to the ecology of the receiving waters; and

(ii) the treated effluent from having any other adverse environmental impact.

5. The Company will operate the works having regard, so far as is relevant, to the guidance set out in the National Water Council's Occasional Technical Paper Number 4, "The Operation and Maintenance of Small Sewage Works" dated January 1980. In particular, the works shall be maintained properly such that:

(a) it remains fully operational except at times of mechanical or electrical breakdown;

(b) any such breakdowns shall be attended to promptly and the equipment returned to normal operation as soon as possible; and

(c) tanks shall be desludged at sufficient frequency and in such a manner as to prevent problems with septic tanks, rising sludge or excessive carryover of suspended solids.

6. Facilities shall be provided to the Authority's authorised representatives so as to enable samples of the effluent to be conveniently obtained.

APPENDIX II

ANALYTICAL SUMMARY OF:-

RIVER TEIGN ABOVE CHAGFORD STW
DIS FEATURE NOT AVAILABLE

Date	Time	Purp	Mat	BOD ATU MG/L	OXYGEN DISS %	PH SATN	AMMON- IA MG/L	AMM NO EDMG/L	SOLIDS SUSP MG/L
090193	1240	SQMR	2F	1.0<	94	7.5	0.05	0.0100<	3
110293	1033	SQMR	2F	1.0<	93	7.3	0.02<	0.0100<	2<
100393	1223	SQMR	2F	1.5	97	7.3	0.10	0.0100<	2<
310293	1120	SQMR	2F	1.3	99	7.6	0.04	0.0002	15
200493	1315	SQMR	2F	1.1	99	7.6	0.02<	0.0002	2<
080893	0905	SQMR	2F	1.3	104	7.6	0.04	0.0004	2<
070793	1125	SQMR	2F	1.0<	99	7.4	0.16	0.0011	2<
060893	0915	SQMR	2F	1.0<	101	7.3	0.02<	0.0001<	2<
021093	1120	SQMR	2F	1.4	100	7.1	0.02<	0.0001<	2
261093	1300	SQMR	2F	1.1	94	7.4	0.02<	0.0001<	2<
041193	1050	SQMR	2F	1.0<	100	7.3	0.02<	0.0001<	2<

Type "C" to Continue, "P" for previous screen, "Q" to Quit ()

TYPE. ONLINE READY

ANALYTICAL SUMMARY OF:-

RIVER TEIGN ABOVE CHAGFORD STW
DIS FEATURE NOT AVAILABLE

Date	Time	Type	Purp	Mat	BOD ATU MG/L	OXYGEN DISS %	PH SATN	AMMON- IA MG/L	AMM NO EDMG/L	SOLIDS SUSP MG/L
231193	1325	SQMR	2F		1.1	95	7.1	0.02<	0.0001<	2<
120194	1015	SQMR	2F		1.4	99	7.2	0.03	0.0001<	15
080294	1150	SQMR	2F		1.2	100	7.6	0.02<	0.0001	2
010394	1200	SQMR	2F		1.0<	103	7.2	0.02<	0.0000	2<
300394	1130	SQMR	2F		1.0<	102	7.4	0.02<	0.0001	3
210494	1020	SQMR	2F		1.4	101	7.4	0.02	0.0001	2<
120594	1200	SQMR	2F		1.0<	104	7.5	0.04	0.0003	2<
300694	1240	SQMR	2F		1.0	95	7.4	0.07	0.0004	2<
230794	1325	SQMR	2F		1.1	92	7.1	0.03	0.0001	2<
160994	1030	SQMR	2F		1.2	101	6.9	0.02<	0.0001<	3
241094	1155	SQMR	2F		1.0<	91	7.1	0.02<	0.0001<	2<

Type "C" to Continue, "P" for previous screen, "Q" to Quit ()

TYPE. ONLINE READY

ANALYTICAL SUMMARY OF:-

RIVER TEIGN BELOW CHAGFORD STW
DIS. FEATURE NOT AVAILABLE

Date	Time	Type	Purp	Mat	BOD ATU MG/L	OXYGEN DISS % SATN	PH	AMMON- IA MG/L	AMM NO NIONIS MG/L	SOLIDS SUSP MG/L
171194	1135	SQMR	2F		1.1	96	7.1	0.03	0.0002	2
251194	1050	SQMR	2F		1.0	94	7.1	0.02	0.0001	2
120195	1125	SQMR	2F		1.2	99	7.4	0.07	0.0002	
010295	1200	SQMR	2F		2.0	100	7.0	0.03	0.0001	
140395	0945	SQMR	2F		1.2	103	7.4	0.03	0.0001	
210395	1010	SQMR	2F		1.1	102	7.2	0.07	0.0002	
010595	1255	SQMR	2F		2.0	103	7.4	0.24	0.0012	
090695	1215	SQMR	2F		1.6	101	7.3	0.44	0.0018	
220695	1210	SQMR	2F		1.6	98	7.3	0.39	0.0019	
150895	0900	SQMR	2F		1.2	98	7.1	0.18	0.0006	
010995	1300	SAUD	2F		1.5	98	7.1	0.46	0.0017	

Type "C" to Continue, "P" for previous screen, "Q" to Quit (.)

TYPE ONLINE READY

ANALYTICAL SUMMARY OF:-

RIVER TEIGN BELOW CHAGFORD STW
DIS. FEATURE NOT AVAILABLE

Date	Time	Type	Purp	Mat	BOD ATU MG/L	OXYGEN DISS % SATN	PH	AMMON- IA MG/L	AMM NO NIONIS MG/L	SOLIDS SUSP MG/L
181095	1255	SQMR	2F		1.1	98	7.1	0.23	0.0006	
271095	1135	SQMR	2F		1.0	92	6.8	0.11	0.0001	
141195	1220	SQMR	2F		2.0	98	7.0	0.60	0.0010	

Type "C" to Continue, "P" for previous screen, "Q" to Quit (.)

TYPE ONLINE READY

ANALYTICAL SUMMARY OF:-

RIVER TEIGN BELOW CHAGFORD STW
DIS FEATURE NOT AVAILABLE

Date	Time	Type	Purp	Mat	BOD ATU MG/L	OXYGEN PH DISS %	PH	AMMON- IA MG/L	AMM NO NIDONIS EDMG/L	SOLIDS SUSP MG/L
040193	1230	SQMR	2F		1.3	95	7.5	0.24	0.0100	2
110293	1050	SQMR	2F		1.0	97	7.5	0.04	0.0100	2
100393	1220	SQMR	2F		1.5	95	7.3	0.26	0.0100	2
210393	1115	SQMR	2F		7.4	95	7.2	0.74	0.0023	2
200493	1310	SQMR	2F		1.5	98	7.5	0.19	0.0012	2
080693	0900	SQMR	2F		1.4	102	7.4	0.06	0.0003	2
070793	1115	SQMR	2F		2.3	98	7.3	0.29	0.0015	2
060893	0910	SQMR	2F		1.1	99	7.2	0.17	0.0006	2
021093	1115	SQMR	2F		1.0	100	7.1	0.03	0.0001	4
251093	1250	SQMR	2F		1.6	94	7.3	0.17	0.0005	2
041193	1035	SQMR	2F		1.5	100	7.2	0.14	0.0004	2

Type "C" to Continue, "P" for previous screen, "Q" to Quit ()

TYPE ONLINE READY

ANALYTICAL SUMMARY OF:-

RIVER TEIGN BELOW CHAGFORD STW
DIS FEATURE NOT AVAILABLE

Date	Time	Type	Purp	Mat	BOD ATU MG/L	OXYGEN PH DISS %	PH	AMMON- IA MG/L	AMM NO NIDONIS EDMG/L	SOLIDS SUSP MG/L
231193	1315	SQMR	2F		1.4	95	7.1	0.06	0.0001	2
120194	1010	SQMR	2F		1.5	99	7.3	0.04	0.0001	15
030294	1145	SQMR	2F		1.4	99	7.5	0.03	0.0003	2
010394	1155	SQMR	2F		1.3	104	7.4	0.03	0.0001	2
300394	1120	SQMR	2F		1.1	102	7.4	0.02	0.0001	2
210494	1015	SQMR	2F		1.6	101	7.3	0.06	0.0002	2
120594	1155	SQMR	2F		1.5	103	7.4	0.10	0.0005	2
300694	1230	SQMR	2F		1.5	94	7.3	0.19	0.0003	2
230794	1320	SQMR	2F		1.1	92	7.2	0.21	0.0003	2
180994	1025	SQMR	2F		1.3	105	6.8	0.02	0.0001	3
241094	1150	SQMR	2F		1.2	91	7.1	0.04	0.0001	2

Type "C" to Continue, "P" for previous screen, "Q" to Quit ()

TYPE ONLINE READY

ANALYTICAL SUMMARY OF:-

CHAGFORD S T W - EFFLUENT

25/04/88:- BOD 35 MG/L, SS 45 MG/L, AMM MG/L N, FLOW 273.00

Date	Time	Type	Purp	Mat	BOD ATU MG/L	OXYGEN DISS %	PH SATN	AMMON- IA MG/L N	AMM NO NITRIS EDMG/L	SOLIDS SUSP MG/L
221194	1100	SAUD	4S					6.7	2.00	14
180195	1145	SAUD	4S					7.1	3.90	10
010295	1150	SAUD	4S					7.0	0.80	11
140295	0955	SAUD	4S					6.9	0.90	21
210395	1020	SAUD	4S					6.5	1.90	22
010595	1245	SAUD	4S					6.6	10.80	39
090695	1210	SAUD	4S					7.1	18.70	41
220695	1215	SAUD	4S					6.8	12.80	32
150895	0910	SAUD	4S					6.5	4.20	18
010995	1305	SAUD	4S					6.8	12.40	27
181095	1250	SAUD	4S					6.8	10.80	31

Type "C" to Continue, "P" for previous screen, "Q" to Quit ()

TYPE ONLINE READY

ANALYTICAL SUMMARY OF:-

CHAGFORD S T W - EFFLUENT

25/04/88:- BOD 35 MG/L, SS 45 MG/L, AMM MG/L N, FLOW 273.00

Date	Time	Type	Purp	Mat	BOD ATU MG/L	OXYGEN DISS %	PH SATN	AMMON- IA MG/L N	AMM NO NITRIS EDMG/L	SOLIDS SUSP MG/L
271095	1140	SAUD	4S					6.8	7.80	23
141195	1230	SAUD	4S					6.9	11.30	39

Type "C" to Continue, "P" for previous screen, "Q" to Quit ()

TYPE ONLINE READY

ANALYTICAL SUMMARY OF:-

CHAGFORD S T W - EFFLUENT
25/04/88:- BOD 35 MG/L, SS 45 MG/L, AMM MG/L N, FLOW 273.00

Date	Time	Type	Purp	Mat	BOD ATU MG/L	OXYGEN DISS % SATN	PH IA MG/L N	AMMON- NIDNIS EDMG/L	AMM NO SUSP MG/L	SOLIDS
040193	1250	SAUD	48		18.2		7.1	8.20		17
110293	1110	SAUD	48		10.6		6.8	1.00		13
100393	1215	SAUD	48		20.6		6.6	12.30		23
310393	1140	SAUD	48		31.4		6.8	10.40		35
200493	1325	SAUD	48		26.9		6.9	8.00		24
080693	0850	SAUD	48		14.7		6.8	2.20		27
070793	1135	SAUD	48		13.2		6.5	4.50		15
060893	0900	SAUD	48		13.7		6.8	3.70		21
021093	1130	SAUD	48		8.4		6.7	1.80		14
261093	1315	SAUD	48		21.5		6.8	8.30		22
041193	1040	SAUD	48		15.8		6.7	3.80		31

Type "C" to Continue, "P" for previous screen, "Q" to Quit ()

TYPE ONLINE READY

ANALYTICAL SUMMARY OF:-

CHAGFORD S T W - EFFLUENT
25/04/88:- BOD 35 MG/L, SS 45 MG/L, AMM MG/L N, FLOW 273.00

Date	Time	Type	Purp	Mat	BOD ATU MG/L	OXYGEN DISS % SATN	PH IA MG/L N	AMMON- NIDNIS EDMG/L	AMM NO SUSP MG/L	SOLIDS
231193	1305	SAUD	48		20.1		6.8	7.20		17
120194	1020	SAUD	48		3.2		7.3	0.50		8
080294	1200	SAUD	48		27.5		7.1	4.60		29
010394	1205	SAUD	48		8.4		7.3	1.80		11
300394	1125	SAUD	48		10.2		6.4	1.60		16
210494	1025	SAUD	48		10.2		6.6	0.80		15
120594	1145	SAUD	48		18.1		6.4	4.20		28
280794	1335	SAUD	48		28.6		6.9	10.80		27
160994	1035	SAUD	48		3.7		7.1	0.60		8
241094	1205	SAUD	48		31.2		6.8	8.10		50
171194	1148	SAUD	48				7.0	3.60		11

Type "C" to Continue, "P" for previous screen, "Q" to Quit ()

TYPE ONLINE /READY

ANALYTICAL SUMMARY OF:-

RIVER, TEIGN ABOVE CHAGFORD STW
 DIS FEATURE NOT AVAILABLE

Date	Time	Type	Part	Net	BOD ATU MG/L	OXYGEN FH DISS % SATN	AMMON- IA MG/L	AMM NO NIDNIS EDMS/L	SOLIDS SUSP MB/L	
171194	1140	SOMR	2F		1.0	96	7.1	0.02	0.0001X	2
231194	1052	SOMR	2F		1.0X	94	7.1	0.02X	0.0001X	2
120195	1140	SOMR	2F		1.0	98	7.3	0.03X	0.0001X	
010295	1155	SAUD	2F		1.3	101	7.1	0.03X	0.0001X	6
140395	0950	SAUD	2F		1.1	103	7.5	0.03X	0.0001	4
310395	1015	SAUD	2F		1.0	102	7.4	0.03X	0.0001	3X
010595	1300	SAUD	2F		1.2	104	7.7	0.03X	0.0003	3X

Type "C" to Continue, "P" for previous screen, "Q" to Quit ()

TYPE

ONLINE

READY

National Rivers Authority
South Western RegionNATIONAL RIVERS AUTHORITY
DISCHARGE SURVEY
BIOLOGY

SOUTH WESTERN REGION

SITE DETAILS

Discharge

chagford STW

D

SW0609

Grid Reference

SX 7005 8810

Catchment No

06C

Watercourse

River Teign

Sampling Method

03

Samplers Initials

AH

Sorters Initials

AA

SAMPLE	U/S DISCHARGE	D/S DISCHARGE	ADDITIONAL
Sample Date	30/07/1996	30/07/1996	___/___/199__
Sample Time	15:20	15:00	___:___
Location	80 m U/S STW Discharge	60 m D/S STW discharge	_____
Grid Reference	SX 7000 8819	SX 7012 8820	_____
Width	___9___ m	___9___ m	___ m
Average Depth	___28___ cm	___14___ cm	___ cm
Boulders/Cobbles	___75___ %	___73___ %	___ %
Pebbles/Gravel	___10___ %	___15___ %	___ %
Sand	___10___ %	___5___ %	___ %
Silt/Clay	___5___ %	___2___ %	___ %
Conductivity	___ us/cm	___79___ us/cm	___ us/cm
Sewage Fungus	___0___ % above stones	___15___ % above stones	___ % above stones
	___0___ % below stones	___0___ % below stones	___ % below stones
Ochre	___0___ %	___0___ %	___ %
Cladophora	___0___ %	___0___ %	___ %

SCORE RESULTS

Scoring families

20

20

BMWP Score

121

115

BMWP ASPT

6.05

5.75

Predicted BMWP

Predicted ASPT

No Predicted Taxa

EQI Class

COMMENTS

Sheet 1 of 1

Discharge

Platform coated in sewage fungus, mixing zone
sewage fungus, smelly. Sewage fungus also
present downstream of mixing zone.

Stream

Scores both represent good water quality,
although there is a slight drop downstream.

Signed

Date

TAXA LIST

Discharge Site Reference SW: 0609

		U/S	D/S			U/S	D/S			U/S	D/S
GROUP 1 TAXA (10)											
Siphonuridae	☐	☐	☐	Neritidae	☐	☐	☐	Baetidae	☒	☒	☐
Heptageniidae	☒	☒	☐	Viviparidae	☐	☐	☐	Stalidae	☐	☐	☐
Leptophlebiidae	☐	☐	☐	Ancyliidae	☒	☒	☐	Psephenidae	☐	☐	☐
Ephemerellidae	☒	☒	☐	(Acroloxidae)				SUB-TOTAL TAXA ☒ ☒ ☒			
Potamanthidae	☐	☐	☐	Hydroptilidae	☐	☐	☐				
Ephemeridae	☐	☐	☐	Unionidae	☐	☐	☐				
Taeniopterygidae	☐	☐	☐	Corophiidae	☐	☐	☐				
Leuctridae	☒	☒	☐	Gammaridae	☐	☒	☐				
Capniidae	☐	☐	☐	(Crangonyctidae)							
Perlidae	☐	☐	☐	Platycnemidae	☐	☐	☐				
Perlidae	☐	☐	☐	Coenagrionidae	☐	☐	☐				
Chloroperlidae	☐	☒	☐	SUB-TOTAL TAXA ☒ ☒ ☒							
Aphelocheiridae	☐	☐	☐								
Phryganeidae	☐	☐	☐								
Molannidae	☐	☐	☐								
Beroeidae	☐	☐	☐								
Odontoceridae	☐	☐	☐								
Leptoceridae	☐	☐	☐								
Gaeridae	☒	☐	☐								
Lepidostomatidae	☐	☐	☐								
Brachycentridae	☐	☒	☐								
Sericostomatidae	☒	☐	☐								
SUB-TOTAL TAXA ☒ ☒ ☒											
GROUP 2 TAXA (8)											
Astocidae	☐	☐	☐								
Leuctidae	☐	☐	☐								
Calopterygidae	☐	☐	☐								
Gomphidae	☐	☐	☐								
Cordulegasteridae	☐	☐	☐								
Aeshnidae	☐	☐	☐								
Corduliidae	☐	☐	☐								
Libellulidae	☐	☐	☐								
Psychomyiidae	☐	☐	☐								
(Ecnomidae)											
Philopotamidae	☒	☐	☐								
SUB-TOTAL TAXA ☒ ☒ ☒											
GROUP 3 TAXA (7)											
Caenidae	☐	☐	☐								
Nemouridae	☐	☐	☐								
Rhyacophiliidae	☒	☒	☐								
(Glossosomatidae)											
Polycentropodidae	☐	☐	☐								
Limnephiliidae	☒	☐	☐								
SUB-TOTAL TAXA ☒ ☒ ☒											
GROUP 4 TAXA (6)											
Neritidae	☐	☐	☐								
Viviparidae	☐	☐	☐								
Ancyliidae	☒	☒	☐								
(Acroloxidae)											
Hydroptilidae	☐	☐	☐								
Unionidae	☐	☐	☐								
Corophiidae	☐	☐	☐								
Gammaridae	☐	☒	☐								
(Crangonyctidae)											
Platycnemidae	☐	☐	☐								
Coenagrionidae	☐	☐	☐								
SUB-TOTAL TAXA ☒ ☒ ☒											
GROUP 5 TAXA (5)											
Mesoveliidae	☐	☐	☐								
Hydrometridae	☐	☐	☐								
Gerridae	☐	☐	☐								
Nepidae	☐	☐	☐								
Naucoridae	☐	☐	☐								
Notonectidae	☐	☐	☐								
Pleidae	☐	☐	☐								
Corixidae	☐	☐	☐								
Halplidae	☐	☐	☐								
Hygrobiidae	☐	☐	☐								
Dytiscidae	☐	☐	☐								
(Noteridae)											
Gyrinidae	☐	☐	☐								
Hydrophilidae	☒	☒	☐								
(Hydraenidae)											
Clambidae	☐	☐	☐								
Scirtidae	☐	☐	☐								
Dryopidae	☐	☐	☐								
Elmidae	☒	☒	☐								
(Chrysomelidae)	☐	☐	☐								
(Curculionidae)	☐	☐	☐								
Hydropsychidae	☒	☒	☐								
Tipulidae	☒	☒	☐								
Simuliidae	☒	☒	☐								
Planariidae	☒	☒	☐								
(Dugesidae)											
Dendrocoelidae	☐	☐	☐								
SUB-TOTAL TAXA ☒ ☒ ☒											
GROUP 6 TAXA (4)											
Baetidae	☒	☒	☐								
Stalidae	☐	☐	☐								
Psephenidae	☐	☐	☐								
SUB-TOTAL TAXA ☒ ☒ ☒											
GROUP 7 TAXA (3)											
Valvatidae	☐	☐	☐								
Hydrobiidae	☒	☒	☐								
(Bithyniidae)											
Lymnaeidae	☒	☒	☐								
Physidae	☐	☐	☐								
Planorbidae	☐	☐	☐								
Sphaeriidae	☐	☒	☐								
Glossiphoniidae	☐	☐	☐								
Hirudinidae	☐	☐	☐								
Erpobdellidae	☐	☐	☐								
Asellidae	☐	☐	☐								
SUB-TOTAL TAXA ☒ ☒ ☒											
GROUP 8 TAXA (2)											
Chironomidae	☒	☒	☐								
SUB-TOTAL TAXA ☒ ☒ ☒											
GROUP 9 TAXA (1)											
Oligochaeta	☒	☒	☐								
SUB-TOTAL TAXA ☒ ☒ ☒											
TOTAL TAXA ☒ ☒ ☒											
BMWP SCORE ☒ ☒ ☒											
Other Taxa U/S Athericidae - A hydracoria - A d/s Athericidae - A hydracoria - A * Non-scoring											

No. of Individuals
 A - 1-9
 B - 10-99
 C - 100-999
 D - 1000-9999
 E - 10000+

NATIONAL RIVERS AUTHORITY - SOUTH WESTERN REGION
BIOLOGICAL SURVEY SHEET - INVESTIGATIONS

RIVER <i>R. Tegan</i>	SITE <i>D/S Cheyford SW D/S Rushford Bridge</i>
SITE REF NUMBER <i>(1)</i>	NGR
SAMPLING METHOD <i>3 mtr.</i>	SAMPLING OFFICER <i>P.R.</i> DATE <i>19/09/96</i>
AVE WIDTH M <i>13m</i>	AVE DEPTH M <i>0.20m</i>
SHADE % <i>90</i>	FLOW WSEC
TURBIDITY	COLOUR <i>100</i>
MACROPHYTES PRESENT (% COVER) <i>Callitriche 40%</i> <i>Ranunculus 5%</i>	ALGAE (% COVER) GREEN FILAMENTOUS GREEN NON-FILAMENTOUS DIATOMS <i>15</i> OTHER
BRYOPHYTES (% COVER) <i>10</i>	SEWAGE FUNGUS (TOTAL % COVER) <i>1.5</i>
OCHRE (% COVER)	<i>T C C C S T 10 0 0 0</i>
SUBSTRATE (% COVER)	ROCK PAVEMENT BOULDERS (>256MM) <i>5</i>
COBBLES (64 - 256MM) <i>20</i>	PEBBLES (16-64MM) <i>30</i> GRAVEL (2-16MM) <i>20</i>
SAND (0.0625 - 2MM) <i>25</i>	SILT CLAY

COMMENTS *Brown trout + Bull heads present in River.*

			BMWP SCORE			BMWP SCORE			BMWP SCORE
EPHEMEROPTERA				LIMNephilidae	7			CHELICERATA	
BAETIDAE	4	—	B	MOLANNIDAE	10			ACARI	
CAENIDAE	7			ODONTOCERIDAE	10			MOLLUSCA	
EPHEMERELLIDAE	10	—	H	PHILOPOTAMIDAE	8			ACROLOXIDAE	6
EPHEMERIDAE	10			PHRYGANEIDAE	10			ANCYLIDAE	6
HEPTAGENIIDAE	10	—	H	POLYCENTROPODIDAE	7	—	A	BITHNIIDAE	3
LEPTOPHLEBIIDAE	10			PSYCHOMYIDAE	8			DREISSENIDAE	
POTAMANTHIDAE	10			RHYACOPHILIDAE	7			HYROBIIDAE	3
SIPHONURIDAE	10			SERICOSTOMATIDAE	10	—	B	LYMNAEIDAE	3
ODONATA				LEPIDOPTERA				NERITIDAE	6
AESHNIDAE	8			PYRALIDAE				PHYSIDAE	3
CALOPTERYGIIDAE	8			DIPTERA				PLANORBIDAE	3
COENAGRIIDAE	6			ATHERICIDAE				SPHAERIIDAE	3
CORDULEGASTERIDAE	8			CERATOPOGONIDAE				UNIONIDAE	6
CORDULIDAE	8			CHAEBORIDAE				VALVATIDAE	3
GOMPHIDAE	8			CHIRONOMIDAE	2	—	R	VIVIPARIDAE	6
LESTIDAE	8			CULICIDAE				BRYOZOA	
LIBELLULIDAE	8			DIXIDAE				OLIOCHEATA	1
PLATYCNEPIDAE	6			EMPIDIDAE				HIRUDINEA	
PLECOPTERA				MUSCIDAE				ERPOBELLIDAE	3
CAPNIIDAE	10			PSYCHODIDAE				GLOSSIPHONIIDAE	3
CHLOROPERLIDAE	10			PTYCHOPTERIDAE				HIRUDIDAE	3
LEUCTRIDAE	10			RHAGIONIDAE		—	A	PISCIOLIDAE	4
NEMOURIDAE	7			SIMULIIDAE	5	—	B	NEMATOMORPHA	
PERLIDAE	10			STRATIOMYIDAE				NEMATODA	
PERLODIDAE	10	—	H	SYRPHIDAE				PLATYHELMINTHES	
TAENIOPTERYGIDAE	10	—	H	TABANIDAE		—	B	DENDROCOELIDAE	5
HEMIPTERA				THAUMALEIDAE				DUGESIIDAE	5
APHELOCHEIRIDAE	10			TIPULIDAE	5	—	B	PLANARIIDAE	5
CORIXIDAE	5			COLEOPTERA				PORIFERA	
GERRIDAE	5			CHRYSOMELIDAE	5				
HYDROMETRIDAE	5			CURCLIONIDAE	5				
MESOVELIDAE	5			DRYOPIDAE	5				
NAUCORIDAE	5			DYTISCIDAE	5				
NEPIDAE	5			ELMIDAE	5	—	B		
NOTONECTIDAE	5			GYRINIDAE	5			BMWP SCORE	128
PLEIDAE	5			HALIPLIDAE	5			ASPT SCORE	6.4
VELIIDAE	5			HYDRAENIDAE	5			NO. OF SCORING TAXA	20
MEGALOPTERA				HYDROPHILIDAE	5			NO. OF NON-SCORING TAXA	3
SIALIDAE	4			HYGROBIIDAE	5			TOTAL TAXA	23
NEUROPTERA				NOTERIDAE	5				
OSMYLIDAE				SCIPTIDAE	5				
SISYRIDAE				CRUSTACEA					
TRICHOPTERA				ASELLIDAE	3				
BERAEIDAE	10			ASTACIDAE	8				
BRACHYCENTRIDAE	10			BRANCHIURA					
EDNOMIDAE	8			CLADOCERA					
GLOSSOSOMATIDAE	7	—	B	COPEPODA					
GOERIDAE	10	—	H	COROPHIDAE	6				
HYDROPSYCHIDAE	5	—	B	CRANGONYCTIDAE	6				
HYDROPTILIDAE	6			GAMMARIDAE	6				
LEPIDOSTOMATIDAE	10	—	H	OSTRACODA					
LEPTOCERIDAE	10								

APPENDIX III

TABLE 1 : STANDARDS FOR THE FIVE RIVER ECOSYSTEM USE CLASSES

Use Class	DO % sat 10%ile	BOD (ATU) mg/l 90%ile	Total Ammonia mgN/l 90%ile	Un-ionised Ammonia mgN/l 95%ile	pH 5%ile & 95%ile	Hardness mg/l CaCO ₃	Dissolved Copper µg/l 95%ile	Total Zinc µg/l 95%ile	Class Description
1	80	2.5	0.25	0.021	6.0 - 9.0	≤ 10 > 10 and ≤ 50 > 50 and ≤ 100 > 100	5 22 40 112	30 200 300 500	Water of very good quality suitable for all fish species
2	70	4.0	0.6	0.021	6.0 - 9.0	≤ 10 > 10 and ≤ 50 > 50 and ≤ 100 > 100	5 22 40 112	30 200 300 500	Water of good quality suitable for all fish species
3	60	6.0	1.3	0.021	6.0 - 9.0	≤ 10 > 10 and ≤ 50 > 50 and ≤ 100 > 100	5 22 40 112	300 700 1000 2000	Water of fair quality suitable for high class coarse fish populations
4	50	8.0	2.5		6.0 - 9.0	≤ 10 > 10 and ≤ 50 > 50 and ≤ 100 > 100	5 22 40 112	300 700 1000 2000	Water of fair quality suitable for coarse fish populations
5	20	15.0	9.0						Water of poor quality which is likely to limit coarse fish populations

APPENDIX IV

SWWA HIPS
REFERENCE R143

HYDROMETRIC SECTION
HYDROMETRIC SERVICES
MANLEY HOUSE

27/02/96 10:50
PAGE 16

ANNUAL SUMMARY OF RIVER FLOW FOR 1995

STATION SX87F051
DESCRIPTION PRESTON RIVER TEIGN
NGR SX-8556-7454
CATCHMENT AREA 380.0 SQ KM
START 0900.01.01.1995
END 0859.01.01.1996

FIRST RATING CURVE START 2145.07.02.1990
LAST RATING CURVE START 2145.07.02.1990

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	30.586	46.648-H	23.325	6.567	3.494	2.606	1.122	1.077-H	0.618EL	1.252	3.068	15.303
2	25.405	29.390	25.924-H	6.298	3.358	2.491	1.199	0.952	0.635-E	1.209-L	2.911	12.764
3	24.901	28.181	21.895	6.071	3.204	2.788	1.184	0.860	0.628-E	1.355	2.785	11.192
4	39.236	23.847	20.903	5.786	3.098	3.213-H	1.129	0.822	0.704-E	3.184	2.625	9.853
5	31.513	21.110	25.730	5.616	3.006	2.422	1.114	0.842	0.703-E	2.491	2.510	8.997
6	24.928	18.606-L	20.059	5.459	2.905	2.210	1.103	0.893	1.753-E	19.820-H	2.444	8.257
7	21.796	18.914	24.743	5.155	2.773	2.079	1.114	0.769-E	3.674	10.878	2.410	8.209
8	20.135	19.030	19.587	4.832	2.684	1.978	1.061	0.768-E	1.952	5.591	2.358-L	8.753
9	18.108	29.479	18.671	4.654	2.628	1.886	1.058	0.762	1.283	3.853	2.790	7.143
10	16.808	28.614	17.412	4.509	2.584	1.873	1.845	0.732-E	6.019-H	3.277	5.211	6.924
11	15.773	42.135	17.666	4.302	2.912	1.893	1.351	0.713-E	2.692	2.998	23.323	6.920
12	13.484	25.986	14.927	4.104	3.130	1.900	1.175	0.708-E	2.684	2.777	25.146-H	6.470
13	12.489	30.460	13.772	3.944	2.795	1.811	1.142	0.730-E	2.109	2.614	9.955	6.017
14	11.756	33.066	13.309	3.832	2.643	1.738	1.567	0.707-E	2.135	2.446	12.202	5.675
15	11.061-L	27.343	13.410	3.741	2.583	1.662	1.668	0.706-E	1.824	2.249	10.228	5.434-L
16	13.240	37.726	14.512	3.653	3.621	1.609	1.322	0.691-E	1.508	2.161	8.107	5.767
17	35.104	32.100	19.238	4.063	3.894	1.698	1.216	0.661-E	1.383	2.143	6.705	6.391
18	18.360	36.062	13.396	6.312	2.995	1.704	1.139	0.645-E	1.612	2.059	5.923	5.975
19	42.139	34.030	11.997	4.116	2.607	1.603	1.090	0.615-E	1.428	1.899	5.524	15.994
20	27.385	28.549	10.987	3.694	2.426	1.562	1.021	0.619-E	1.220	1.841	6.830	19.790
21	48.229	25.444	10.411	3.482-L	2.341	1.538	0.968	0.600EL	1.126	1.825	14.240	43.264
22	39.977	29.946	9.936	6.872-H	2.288	1.482	0.935	0.801-E	1.076	1.791	8.030	59.726-H
23	34.103	29.316	9.543	5.948	2.204-L	1.411	0.900	0.806	1.046	1.743	6.882	32.067
24	49.437	31.400	9.100	5.586	2.235	1.394	0.883-L	0.733-E	1.130	6.686	10.862	25.305
25	56.934	29.751	8.550	6.595	2.311	1.384	0.884	0.716-E	1.141	5.530	8.649	19.543
26	39.344	23.281	8.412	4.650	3.962	1.329	1.608	0.681-E	1.377	9.062	9.319	16.328
27	66.063-H	21.141	8.347	4.052	6.000	1.245	1.225	0.660-E	2.959	6.363	13.309	14.328
28	42.046	20.008	11.091	3.789	6.730-H	1.211	1.047	0.636-E	1.664	4.253	22.488	12.868
29	55.572		8.042	4.066	3.580	1.182	0.994	0.612-E	1.370	3.796	15.578	11.891
30	33.545		7.209	3.716	3.335	1.143-L	1.878-H	0.632-E	1.322	3.479	13.635	21.875
31	36.439		7.062-L		2.866		1.434	0.624-E		3.211		16.910
TOTAL	955.894	801.563	459.165	145.462	97.192	54.045	37.376	22.775	50.774	123.834	266.049	455.936
MEAN	30.835	28.627	14.812	4.849	3.135	1.802	1.206	0.735	1.692	3.995	8.868	14.708
MAX FLOW	92.487	74.448	41.580	8.681	11.747	3.772	2.715	1.198	9.515	41.424	66.906	74.963
TIME-DAY	2245-27	1200-01	1900-02	0030-23	1015-28	1330-04	2015-30	0900-01	1715-10	2100-06	1030-12	1045-22
ANNUAL TOTAL	3470.033	CUMEC DAYS			MAX OMF	66.063	CUMEC	27-01	MAX FLOW	92.487	CUMEC	2245-27-01
ANNUAL DMF	9.507	CUMEC			MIN OMF	0.600	CUMEC	21-08				

HYDROMETRIC SECTION
HYDROMETRIC SERVICES
MANLEY HOUSE

DAY	MEASURED DMF CUMECs											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	7.668	10.144-H	3.815	3.598	4.271	16.861	3.195	2.095	1.226	24.189	4.773	9.020
2	7.282	9.435	3.697	2.837-L	3.988	16.808	2.991	2.161	1.217	14.838	5.131	8.260-L
3	7.130-L	8.839	3.520	5.490	3.767	13.440	2.885	2.067	1.208	10.642	8.293	8.517
4	7.301	8.311	3.342	6.221	3.663	11.746	2.760	2.257	1.208	10.852	5.446	13.327
5	8.701	7.769	3.304	13.625-H	3.536	10.234	2.582	2.643	1.203	19.054	5.700	8.355
6	9.440	7.390	3.264	5.401	3.412	9.244	2.482	2.036	1.193-L	25.426	4.968	10.517
7	9.007	7.106	3.209	4.635	3.265	8.368	2.427	1.907	2.289	20.594	4.595	21.324
8	8.385	7.101	3.140	5.190	3.321	7.561	2.382	1.812	7.344	21.382	4.500-L	24.581
9	15.961	6.917	3.062	7.703	3.347	7.782	2.941	1.813	11.228	17.020	5.389	14.871
10	71.487-H	6.526	2.991	6.790	3.255	7.379	2.672	1.841	5.792	16.864	6.983	15.434
11	31.203	6.212	2.918	11.764	3.245-L	14.133	2.570	2.049	3.930	36.267-H	5.385	14.963
12	24.775	5.867	2.979	9.342	4.322	19.240-H	2.366	2.939-H	47.272-H	29.374	5.307	37.895
13	68.057	5.573	2.904	8.310	3.985	10.245	2.764	1.968	35.673	22.440	16.995	33.449
14	35.059	5.326	2.805	7.059	3.834	10.228	3.341	1.775	13.717	18.108	11.820	34.360
15	40.062	5.092	2.683	6.263	3.370	8.026	5.839-H	1.710	10.667	16.217	7.277	35.402
16	29.158	4.865	2.643	5.839	7.621	13.386	4.900	1.622	8.453	14.178	6.680	35.583
17	25.673	4.705	2.603	5.779	20.368	8.334	3.002	1.541	7.030	12.563	6.255	34.852
18	22.119	4.587	2.529	5.411	10.134	7.737	2.998	1.512	6.181	11.158	5.904	48.653
19	22.055	4.349	2.462	5.049	8.204	6.677	4.795	1.482	5.814	10.156	5.605	60.117
20	31.922	4.170	2.453	4.848	6.467	5.996	2.915	1.450	7.848	9.351	5.337	91.040-H
21	29.192	4.083	2.574	4.612	5.991	5.533	2.524	1.420	6.392	8.644	5.184	50.427
22	27.373	3.981	3.130	5.331	6.567	5.214	2.391	1.464	6.368	7.877	4.847	60.500
23	22.940	3.845	2.646	7.093	6.579	4.872	2.306	1.517	5.502	7.342	4.871	44.946
24	20.234	3.710-L	2.429	5.982	6.464	4.514	2.375	1.392	5.258	6.877	6.758	36.149
25	17.597	4.868	2.334	5.233	22.846	4.261	2.373	1.357	4.736	6.468	5.755	31.958
26	16.447	5.772	2.285-L	7.594	34.237-H	4.161	2.325	1.337	4.591	6.197	5.181	25.924
27	15.336	4.613	2.290	6.478	17.593	3.889	4.352	1.322	4.250	5.916	4.863	24.533
28	14.613	3.968	2.296	5.407	13.517	3.659	2.923	1.302	4.129	5.677	4.639	27.220
29	13.892		2.292	4.827	15.231	3.500	3.165	1.277	5.891	5.360	19.355-H	25.718
30	12.106											

Press "C" to Continue, "P" for previous screen, "Q" to quit ()

TYPE

ONLINE

READY

MONTH YEAR (MAR)(1993)
STATION (RF361213)
DESCRIPTION FURLONG MILL
NGR SX-7090-8950
ALTITUDE 146 METRES
CATCHMENT TEIGN

DAILY RAINFALL VALUES ARE SHOWN
IN MILLIMETRES.

MONTHLY LTA (1941-70) N/A

(C.YR)

1	1.2	11	0.0	21	6.8
2	0.0	12	0.0	22	1.0
3	0.0	13	0.0	23	0.0
4	0.0	14	0.0	24	0.0
5	0.0	15	1.0	25	0.0
6	0.0	16	0.0	26	0.0
7	0.0	17	0.0	27	0.0
8	0.0	18	0.0	28	0.9
9	0.0	19	0.0	29	2.4
0	0.0	20	0.0	30	2.7

MONTHLY TOTAL 22.6

Enter M to return to MENU or ? for HELP ()

TYPE

ONLINE

READY

MONTH YEAR (JUL)(1993)
STATION (RF361213)
DESCRIPTION FURLONG MILL
NGR SX-7090-8950
ALTITUDE 146 METRES
CATCHMENT TEIGN

DAILY RAINFALL VALUES ARE SHOWN
IN MILLIMETRES.

MONTHLY LTA (1941-70) N/A

(C.YR)

1	0.0	11	0.2	21	0.0
2	0.0	12	2.4	22	0.0
3	0.0	13	5.4	23	1.2
4	0.0	14	12.6	24	2.9
5	0.0	15	6.3	25	1.6
6	0.0	16	0.0	26	3.7
7	0.0	17	0.7	27	4.6
8	1.5	18	14.1	28	0.4
9	6.0	19	0.3	29	0.6
0	2.0	20	0.0	30	0.0

MONTH YEAR (JUN)(1993)
STATION (RF361213)
DESCRIPTION FURLONG MILL
NGR SX-7090-8950
ALTITUDE 146 METRES
CATCHMENT TEIGN

DAILY RAINFALL VALUES ARE SHOWN
IN MILLIMETRES.

MONTHLY LTA (1941-70) N/A

(C.YR)

1	5.6	11	33.8	21	0.0
2	0.0	12	0.0	22	0.0
3	0.0	13	1.8	23	0.0
4	0.0	14	2.0	24	0.0
5	0.0	15	0.9	25	0.0
6	0.0	16	9.1	26	0.0
7	0.0	17	1.0	27	0.0
8	2.2	18	0.0	28	0.0
9	3.9	19	0.0	29	0.0
10	0.4	20	0.0	30	0.0

MONTHLY TOTAL 60.7

Enter M to return to MENU or ? for HELP ()

TYPE ONLINE READY

MONTH YEAR (JUN)(1995)
STATION (RF361213)
DESCRIPTION FURLONG MILL
NGR SX-7090-8950
ALTITUDE 146 METRES
CATCHMENT TEIGN

DAILY RAINFALL VALUES ARE SHOWN
IN MILLIMETRES.

MONTHLY LTA (1941-70) N/A

(C.YR)

1	2.6	11	0.0	21	0.0
2	1.0	12	0.0	22	0.0
3	0.0	13	0.0	23	0.0
4	0.0	14	0.0	24	0.0
5	0.0	15	0.0	25	0.0
6	0.2	16	0.1	26	0.0
7	0.0	17	0.0	27	0.0
8	0.0	18	0.0	28	0.0
9	0.0	19	0.0	29	0.0
10	0.0	20	0.0	30	0.0

MONTHLY TOTAL 3.9

Enter M to return to MENU or ? for HELP ()

TYPE ONLINE READY

MONTH YEAR (MAY)(1995)
STATION (RF361213)
DESCRIPTION FURLONG MILL
NGR SX-7090-8950
ALTITUDE 146 METRES
CATCHMENT TEIGN

DAILY RAINFALL VALUES ARE SHOWN
IN MILLIMETRES.

MONTHLY LTA (1941-70) N/A

(C.YR)

1	0.0	11	5.2	21	0.0
2	0.0	12	0.5	22	0.0
3	0.0	13	0.0	23	0.0
4	0.0	14	0.0	24	3.5
5	0.0	15	2.7	25	1.5
6	0.0	16	12.4	26	11.7
7	0.0	17	0.2	27	9.1
8	0.0	18	0.0	28	0.9
9	0.0	19	0.0	29	3.2
10	2.1	20	0.0	30	1.0
				31	0.0

MONTH YEAR (AUG)(1995)
STATION (RF861213)
DESCRIPTION FURLONG MILL
GR SX-7090-8950
ALTITUDE 146 METRES
ATCHMENT TEIGN

DAILY RAINFALL VALUES ARE SHOWN
IN MILLIMETRES.

MONTHLY LTA (1941-70) N/A

(C.YR)

0.0	11	0.0	21	0.0
0.0	12	0.0	22	6.3
0.0	13	0.0	23	2.5
0.0	14	0.0	24	0.0
0.4	15	0.0	25	0.0
0.4	16	0.0	26	0.6
0.0	17	0.0	27	0.0
0.0	18	0.0	28	0.0
0.0	19	0.0	29	0.0
0.0	20	0.0	30	0.0
			31	0.0

MONTHLY TOTAL 10.2

Enter M to return to MENU or ? for HELP ()

TYPE ONLINE READY

MONTH YEAR (SEP)(1995)
STATION (RF861213)
DESCRIPTION FURLONG MILL
GR SX-7090-8950
ALTITUDE 146 METRES
ATCHMENT TEIGN

DAILY RAINFALL VALUES ARE SHOWN
IN MILLIMETRES.

MONTHLY LTA (1941-70) N/A

(C.YR)

1.5	11	6.9	21	0.0
0.3	12	6.7	22	0.0
1.2	13	2.3	23	6.0
1.6	14	5.0	24	0.2
0.9	15	0.5	25	0.6
27.3	16	0.9	26	17.2
15.6	17	0.6	27	0.7
0.2	18	1.0	28	0.3
10.2	19	0.0	29	0.3
16.3	20	0.0	30	0.8

MONTHLY TOTAL 126.1

Enter M to return to MENU or ? for HELP ()

TYPE ONLINE READY

MONTH YEAR (NOV)(1995)
STATION (RF861213)
DESCRIPTION FURLONG MILL
GR SX-7090-8950
ALTITUDE 146 METRES
ATCHMENT TEIGN

DAILY RAINFALL VALUES ARE SHOWN
IN MILLIMETRES.

MONTHLY LTA (1941-70) N/A

(C.YR)

0.0	11	15.3	21	4.7
0.0	12	0.1	22	0.3
0.0	13	0.0	23	0.3
0.0	14	7.7	24	3.8
0.0	15	1.4	25	2.0
0.0	16	0.0	26	10.2
0.0	17	0.0	27	7.1
0.3	18	0.0	28	4.4
5.6	19	0.0	29	1.0
23.0	20	13.0	30	4.7