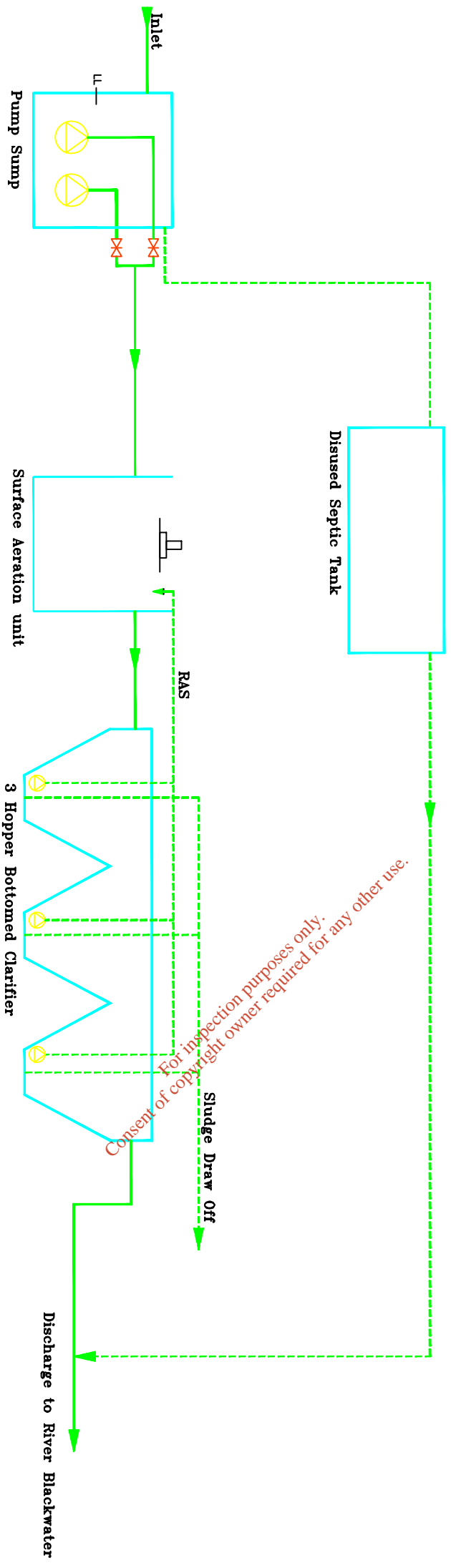
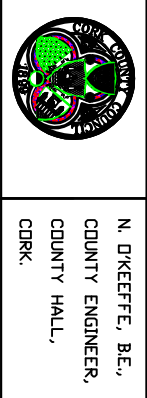


- NOTES**
1. Dimensions are not to be scaled from drawing. For any discrepancies found consult with the design office.
 2. This drawing is to be read in conjunction with the Specification.
 3. This drawing is to be read in conjunction with all other contract drawings.



No.	Date	Drawn/Checked	Revision Description

Cork County Council,
Northern Division.

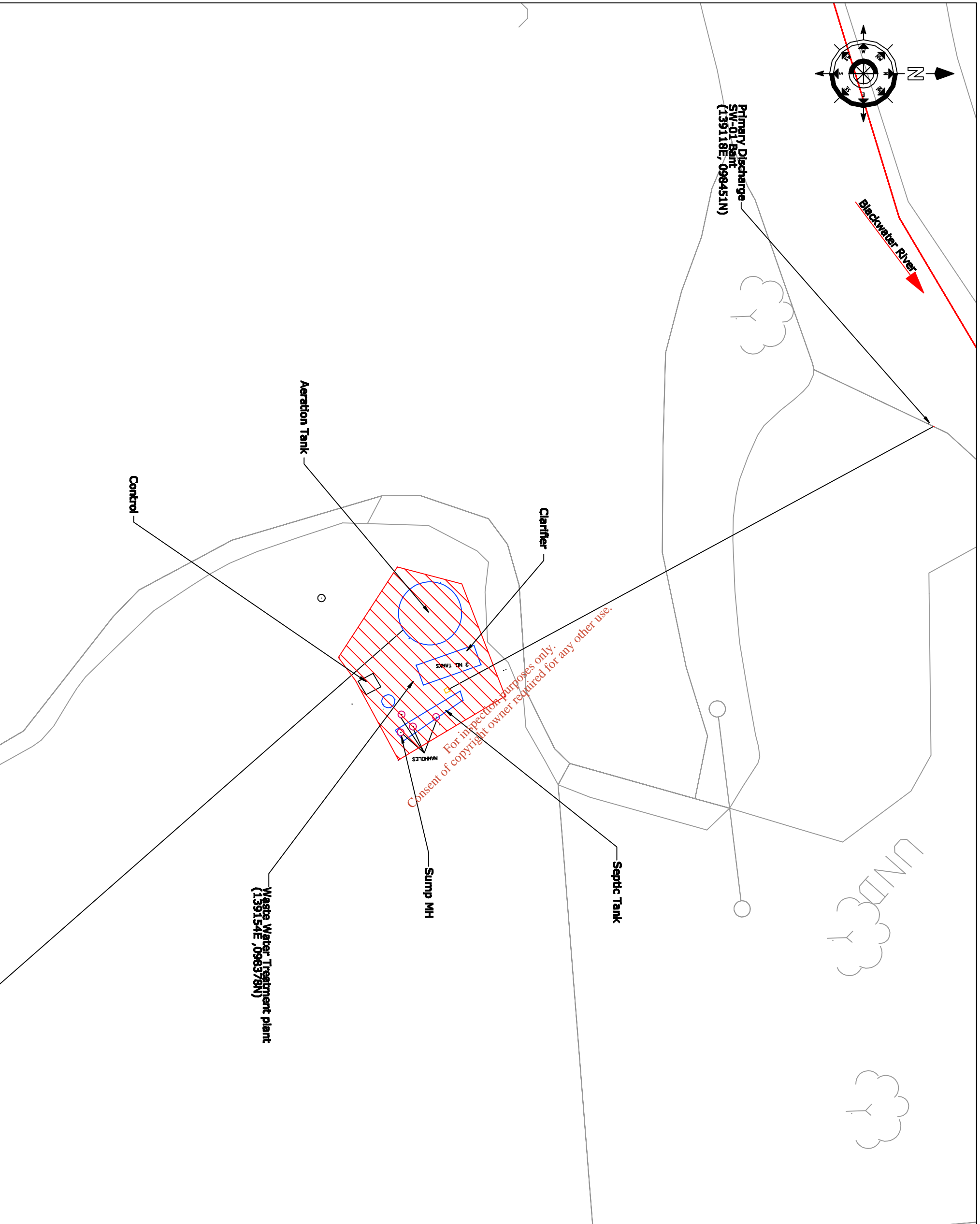


N. O'KEEFE, B.E.,
COUNTY ENGINEER,
COUNTY HALL,
CORK.

Job Title:
**Banteer & Environs
Waste Water Discharge
Licence Application**

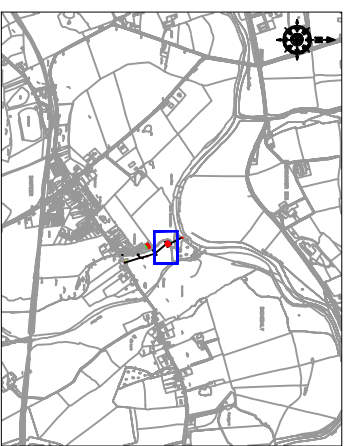
Drawing Title:
**Schematic showing Existing
Treatment Plant Process
Attachment C1 - Drawing 1**

Scales:	1:5000 @ A3	Drawn by:	DL
Designed by:	EM	Checked by:	FL
Date:	June 2009	Rev:	-
Drawing number:	C1 - Drawing 1		



NOTES

1. Dimensions are not to be scaled from drawing. For any discrepancies found consult with the design office.
2. This drawing is to be used in conjunction with the Specification.
3. This drawing is to be used in conjunction with all other contract drawings.



KEY PLAN

No.	Date	Drawn/Checked	Revision Description

Cork County Council,
Northern Division.

N. O'KEEFE, B.E.,
COUNTY ENGINEER,
COUNTY HALL,
CORK.

Job Title:
**Bantear & Emmons
Waste Water Discharge
Licence Application**

Drawing Title:
**Waste Water Treatment Plant
Site Layout
Attachment C1 - Map 9**

Scales:		Surveiled by:	Drawn by:
1:500 @ A3	D.L.	D.L.	D.L.
Designed by:	Checked by:	Date	
E.M.	P.L.	June 2009	
Drawing number:	Rev:		-
C1 - Map 9			

Attachment E4 Banteer Inlet Table E4

Sample Date	19/04/2007	28/01/2009	17/02/2009	06/04/2009	16/04/2009	12/05/2009	14/05/2009	
Sample	Influent	Influent	Influent	Influent	Influent	Influent	Influent	Average
Sample Code		GT143			GT687	*	GT741	
Flow M ³ /Day	*	*	*	*	*	*	*	
pH	6.6	6.7	6.7	7.1	*	6.6	*	6.74
Temperature °C	*	*	*	*	*	*	*	
Cond 20°C	472	349	434	426	*	599	*	456
SS mg/L	58	12	99	12	*	17	*	39.6
NH ₃ mg/L	19	2.3	6	6.2	*	10.5	*	8.8
BOD mg/L	118	31	36	49	*	49	*	56.6
COD mg/L	335	43	144	118	*	150	*	158
TN mg/L	*	5.4	13	16	*	*	25.4	14.95
Nitrite mg/L	*	0.0578	*	*	*	*	*	0.0578
Nitrate mg/L	*	4.1	*	*	*	*	*	4.1
TP mg/L	4	2.1	1.9	2.1	*	1.8	*	2.38
O-PO ₄ -P mg/L	3	0.31	1	1.5	*	1.1	*	1.382
SO ₄ mg/L	*	<30	*	*	*	*	*	<30
Phenols µg/L	*	<0.10	*	*	*	*	*	<0.10
Atrazine µg/L	*	<0.1	*	*	*	*	*	<0.1
Dichloromethane µg/L	*	<1	*	*	*	*	*	<1
Simazine µg/L	*	<0.01	*	*	*	*	*	<0.01
Toluene µg/L	*	<1	*	*	*	*	*	<1
Tributyltin µg/L	*	*	*	*	*	*	*	*
Xylenes µg/L	*	<1	*	*	*	*	*	<1
Arsenic µg/L	*	<0.96	*	*	*	*	*	<0.96
Chromium ug/L	*	<20	*	*	<20	*	<20	<20
Copper ug/L	*	<20	*	*	<20	*	<20	<20
Cyanide µg/L	*	5	*	*	*	*	*	5
Fluoride µg/L	*	36	*	*	*	*	*	36
Lead ug/L	*	<20	*	*	<20	*	<20	<20
Nickel ug/L	*	<20	*	*	<20	*	<20	<20
Zinc ug/L	*	<20	*	*	<20	*	<20	<20
Boron ug/L	*	<20	*	*	<20	*	<20	<20
Cadmium ug/L	*	<20	*	*	<20	*	<20	<20
Mercury µg/L	*	<0.2	*	*	*	*	*	<0.2
Selenium µg/L	*	1.7	*	*	*	*	*	1.7
Barium ug/L	*	35	*	*	10	*	10	18.333

value at 1/2 of LOD for stistical purposes =

For inspection purposes only. Consent of copyright owner required for any other use.

PT_CD	PT_TYPE	MON_TYPE	EASTING	NORTHING	VERIFIED
SWO1	Primary	Sampling	139107	98449	N
aSW01u	u/s	Sampling	139430	98269	N
aSW01u	d/s	Sampling	139578	99305	N

For inspection purposes only.
 Consent of copyright owner required for any other use.

Attachment E4 Banteer Upstream Table E4

Sample Date	28/01/2009	17/02/2009	16/04/2009	12/05/2009	14/05/2009	
Sample	River	River	River	River	River	Average
Sample Code	GT144	GT278	GT689		GT743	
Flow M ³ /Day	*	*	*	*	*	
pH	7.3	7.2	7.4	7.4	*	7.325
Temperature °C	*	*	*	*	*	
Cond 20°C	116	133.7	99	185	*	133.425
SS mg/L	1.25	1	34	1	*	9.3125
NH ₃ mg/L	0.05	0.06	0.09	0.06	*	0.065
BOD mg/L	1	1	4	1	*	1.75
COD mg/L	10.5	2.5	54	13	*	20
TN mg/L	2.1	2	1	*	2.05	1.7875
Nitrite mg/L	0.00948	*	*	*	*	0.00948
Nitrate mg/L	2.29	*	*	*	*	2.29
TP mg/L	<0.20	0.06	0.17	0.11	*	<0.20
O-PO ₄ -P mg/L	<0.05	<0.05	0.06	<0.05	*	<0.05
SO ₄ mg/L	<30	*	*	*	*	<30
Phenols µg/L	<0.10	*	*	*	*	<0.10
Atrazine µg/L	<0.01	*	*	*	*	<0.01
Dichloromethane	<1	*	*	*	*	<1
Simazine µg/L	<0.01	*	*	*	*	<0.01
Toluene µg/L	<1	*	*	*	*	<1
Tributyltin µg/L	*	*	*	*	*	*
Xylenes µg/L	<1	*	*	*	*	<1
Arsenic µg/L	<0.96	*	*	*	*	<0.96
Chromium ug/L	<20	<20	<20	*	<20	<20
Copper ug/L	<20	<20	22	*	<20	<20
Cyanide µg/L	<5	*	*	*	*	<5
Fluoride µg/L	31	*	*	*	*	31
Lead ug/L	<20	<20	<20	*	<20	<20
Nickel ug/L	<20	<20	<20	*	<20	<20
Zinc ug/L	<20	<20	<20	*	<20	<20
Boron ug/L	<20	<20	<20	*	<20	<20
Cadmium ug/L	<20	<20	<20	*	<20	<20
Mercury µg/L	<0.2	*	*	*	*	<0.2
Selenium µg/L	1.3	*	*	*	*	1.3
Barium ug/L	73	10	<20	*	10	31

value at 1/2 of LOD for stistical purposes =

Attachment E4 Banteer Discharge Outlet Table E4

Sample Date	19/04/2007	18/09/2008	28/01/2009	17/02/2009	16/04/2009	23/04/2009	12/05/2009	14/05/2009	Average
Sample	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	
Sample Code	GT142	GT142	GT277	GT688	GT521	GT521	GT521	GT521	
Flow M ³ /Day	*	*	*	*	*	*	*	*	
pH	6.9	7.5	7.1	7.2	7.3	7.3	7.2	7.2	7.2
Temperature °C	*	*	*	*	*	*	*	*	
Cond 20°C	1235	335	377	330			417		538.8
SS mg/L	7	15	<2	5	9	9	6	*	9.6667
NH ₃ mg/L	0.4	0.05	0.2	0.15	0.05	0.05	0.18	*	0.1717
BOD mg/L	5	6.87	3	5	2	2	8	*	5.1243
COD mg/L	10	10.5	7	15	10.5	10.5	32	*	13.6429
TN mg/L	*	8.9	9	8	13.8	13.8	*	12.1	10.36
Nitrite mg/L	*	0.172	*	*	*	*	*	*	0.172
Nitrate mg/L	*	8.9	*	*	*	*	*	*	8.9
TP mg/L	2	3	1	1.3	1.46	1.46	0.9	*	1.61
O-PO4-P mg/L	1	0.58	0.75	1	1.41	1.41	0.7	*	0.907
SO4 mg/L	*	<30	*	*	<30	<30	*	*	<30
Phenols µg/L	*	<0.10	*	*	*	*	*	*	<0.10
Atrazine µg/L	*	<0.01	*	*	*	*	*	*	<0.01
Dichloromethane	*	<1	*	*	*	*	*	*	<1
Simazine µg/L	*	<0.01	*	*	*	*	*	*	<0.01
Toluene µg/L	*	<1	*	*	*	*	*	*	<1
Tributyltin µg/L	*	not required	*	*	*	*	*	*	not required
Xylenes µg/L	*	<1	*	*	*	*	*	*	<1
Arsenic µg/L	*	<0.96	*	*	*	*	*	*	<0.96
Chromium ug/L	*	<20	<20	<20	<20	<20	<20	<20	<20
Copper ug/L	*	<20	<20	<20	<20	<20	<20	<20	<20
Cyanide µg/L	*	5	*	*	*	*	*	*	5
Fluoride µg/L	*	38	*	*	*	*	*	*	38
Lead ug/L	*	<20	<20	<20	<20	<20	<20	<20	<20
Nickel ug/L	*	<20	<20	<20	<20	<20	<20	<20	<20
Zinc ug/L	*	<20	<20	<20	<20	<20	<20	<20	<20
Boron ug/L	*	<20	<20	<20	<20	<20	<20	<20	<20
Cadmium ug/L	*	<20	<20	<20	<20	<20	<20	<20	<20
Mercury µg/L	*	<0.2	*	*	*	*	*	*	<0.2
Selenium µg/L	*	1.5	*	*	*	*	*	*	1.5
Barium ug/L	*	24	10	10	10	10	*	10	12.8

value at 1/2 of LOD for stistical purposes =

Attachment E4 Banteer Inlet Table E4

Sample Date	19/04/2007	28/01/2009	17/02/2009	06/04/2009	16/04/2009	12/05/2009	14/05/2009	
Sample	Influent	Influent	Influent	Influent	Influent	Influent	Influent	Average
Sample Code		GT143			GT687	*	GT741	
Flow M ³ /Day	*	*	*	*	*	*	*	
pH	6.6	6.7	6.7	7.1	*	6.6	*	6.74
Temperature °C	*	*	*	*	*	*	*	
Cond 20°C	472	349	434	426	*	599	*	456
SS mg/L	58	12	99	12	*	17	*	39.6
NH ₃ mg/L	19	2.3	6	6.2	*	10.5	*	8.8
BOD mg/L	118	31	36	49	*	49	*	56.6
COD mg/L	335	43	144	118	*	150	*	158
TN mg/L	*	5.4	13	16	*	*	25.4	14.95
Nitrite mg/L	*	0.0578	*	*	*	*	*	0.0578
Nitrate mg/L	*	4.1	*	*	*	*	*	4.1
TP mg/L	4	2.1	1.9	2.1	*	1.8	*	2.38
O-PO ₄ -P mg/L	3	0.31	1	1.5	*	1.1	*	1.382
SO ₄ mg/L	*	<30	*	*	*	*	*	<30
Phenols µg/L	*	<0.10	*	*	*	*	*	<0.10
Atrazine µg/L	*	<0.1	*	*	*	*	*	<0.1
Dichloromethane µg/L	*	<1	*	*	*	*	*	<1
Simazine µg/L	*	<0.01	*	*	*	*	*	<0.01
Toluene µg/L	*	<1	*	*	*	*	*	<1
Tributyltin µg/L	*	*	*	*	*	*	*	*
Xylenes µg/L	*	<1	*	*	*	*	*	<1
Arsenic µg/L	*	<0.96	*	*	*	*	*	<0.96
Chromium ug/L	*	<20	*	*	<20	*	<20	<20
Copper ug/L	*	<20	*	*	<20	*	<20	<20
Cyanide µg/L	*	5	*	*	*	*	*	5
Fluoride µg/L	*	36	*	*	*	*	*	36
Lead ug/L	*	<20	*	*	<20	*	<20	<20
Nickel ug/L	*	<20	*	*	<20	*	<20	<20
Zinc ug/L	*	<20	*	*	<20	*	<20	<20
Boron ug/L	*	<20	*	*	<20	*	<20	<20
Cadmium ug/L	*	<20	*	*	<20	*	<20	<20
Mercury µg/L	*	<0.2	*	*	*	*	*	<0.2
Selenium µg/L	*	1.7	*	*	*	*	*	1.7
Barium ug/L	*	35	*	*	10	*	10	18.333

value at 1/2 of LOD for stistical purposes =

For inspection purposes only. Consent of copyright owner required for any other use.

Attachment E4 Banteer Downstream Table E4

Sample Date	28/01/2009	17/02/2009	16/04/2009	14/05/2009	
Sample	River	River	River	River	Average
Sample Code	GT145	GT279	GT690	GT744	
Flow M ³ /Day	*	*	*	*	
pH	7.3	7.1	7.3	7.6	7.325
Temperature °C	*	*	*	*	
Cond 20°C	136	170.6	99	175	145.15
SS mg/L	4	1	33	0.5	9.625
NH ₃ mg/L	0.05	0.025	0.09	0.025	0.0475
BOD mg/L	0.5	1	3	1	1.375
COD mg/L	10.5	14	44	2.5	17.75
TN mg/L	2.1	2	1	2.06	1.79
Nitrite mg/L	0.00723	*	*	*	0.00723
Nitrate mg/L	2.01	*	*	*	2.01
TP mg/L	<0.20	<0.05	0.17	0.12	<0.20
O-PO ₄ -P mg/L	<0.05	<0.05	0.08	<0.05	<0.05
SO ₄ mg/L	<30	*	*	*	<30
Phenols µg/L	<0.10	*	*	*	<0.10
Atrazine µg/L	<0.01	*	*	*	<0.01
Dichloromethane	<1	*	*	*	<1
Simazine µg/L	<0.01	*	*	*	<0.01
Toluene µg/L	<1	*	*	*	<1
Tributyltin µg/L	*	*	*	*	*
Xylenes µg/L	<1	*	*	*	<1
Arsenic µg/L	<0.96	*	*	*	<0.96
Chromium ug/L	<20	<20	<20	<20	<20
Copper ug/L	<20	<20	<20	<20	<20
Cyanide µg/L	<5	*	*	*	<5
Fluoride µg/L	31	*	*	*	31
Lead ug/L	<20	<20	<20	<20	<20
Nickel ug/L	<20	<20	<20	<20	<20
Zinc ug/L	<20	<20	<20	<20	<20
Boron ug/L	<20	<20	<20	<20	<20
Cadmium ug/L	<20	<20	<20	<20	<20
Mercury µg/L	<0.2	*	*	*	<0.2
Selenium µg/L	1.3	*	*	*	1.3
Barium ug/L	66	10	<20	10	28.66666667

value at 1/2 of LOD for stistical purposes =