

ANNEX 1: TABLES / ATTACHMENT

Attachment	Description
A1 Map 1	1:50,000 Location Map
A1 Map 2	Site Location of WWTP
A1 Map 3	Wastewater Treatment Plant – Site Layout
B1 Map 4	Agglomeration
B2 Map 5	Layout of Waste Water Treatment Plant
B3 Map 6	Location of Primary Discharge Point SW01 BALLY
B3 Map 7	Location of Sampling Points
B4	Not Applicable
B5	Not Applicable
B6	Part VIII
B7	Not Applicable
B8 Map 8	Location of Site Notice
B8	Notice & Advertisement
B10	Not Applicable
B 11	Not Applicable
B 12	Not Applicable
C1 Map 9	Layout Wastewater Treatment Plant
C1 Drg 1	Schematic of Wastewater Treatment Plant
C2	Not Applicable
D1	Not Applicable
Section D2	Discharge Points
E2	Not Applicable
Section E3	Monitoring & Sampling Points
E4	Sampling Results
F1	Draft River basin Management Plan for the SWRBD SAC Blackwater River Site Synopsis
F2	Not Applicable
G1	SAC Blackwater River Site Synopsis
G2	Not Applicable
G3	Not Applicable
G4	Not Applicable

WWD Licence Application

Agglomeration details

Leading Local Authority	Cork County Council
Co-Applicants	
Agglomeration	Ballyhooley
Population Equivalent	900
Level of Treatment	Secondary
Treatment plant address	Conva, Ballyhooley, Fermoy, Co. Cork
Grid Ref (12 digits, 6E, 6N)	172668 / 099051
EPA Reference No:	

Contact details

Contact Name:	Frank Cronin
Contact Address:	Water Services Section Cork County Council Northern Division Annabella Mallow Co Cork
Contact Number:	022-21123
Contact Fax:	022-21983
Contact Email:	Frank.cronin@corkcoco.ie

Table D.1(i)(a): EMISSIONS TO SURFACE/GROUND WATERS (Primary Discharge Point)

Discharge Point Code: SW-1

Local Authority Ref No:	SW-01 BALY
Source of Emission:	Ballyhooley Wastewater Treatment Plant
Location:	Conva, Ballyhooley
Grid Ref (12 digits, 6E, 6N)	172596 / 099026
Name of Receiving waters:	Blackwater
Water Body:	River Water Body
River Basin District	South Western RBD
Designation of Receiving Waters:	Salmoid River
Flow Rate in Receiving Waters:	4 m ³ .sec ⁻¹ Dry Weather Flow
	6.8 m ³ .sec ⁻¹ 95% Weather Flow
Additional Comments (e.g. commentary on zero flow or other information deemed of value)	

Emission Details:

(i) Volume emitted			
Normal/day	220 m ³	Maximum/day	660 m ³
Maximum rate/hour	27.5 m ³	Period of emission (avg)	60 min/hr 24 hr/day 365 day/yr
Dry Weather Flow	0.0025 m ³ /sec		

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Table D.1(i)(b): EMISSIONS TO SURFACE/GROUND WATERS - Characteristics of The Emission (Primary Discharge Point)

Discharge Point Code: SW-1

Substance	As discharged			
	Unit of Measurement	Sampling Method	Max Daily Avg.	kg/day
pH	pH	24 hr composite	= 9	
Temperature	°C	24 hr composite	= 30	
Electrical Conductivity (@ 25°C)	µS/cm	24 hr composite	= 1000	
Suspended Solids	mg/l	24 hr composite	= 35	23.1
Ammonia (as N)	mg/l	24 hr composite	= 0	0
Biochemical Oxygen Demand	mg/l	24 hr composite	= 25	16.5
Chemical Oxygen Demand	mg/l	24 hr composite	= 125	82.5
Total Nitrogen (as N)	mg/l	24 hr composite	= 35	23
Nitrite (as N)	mg/l	24 hr composite	= 0	0
Nitrate (as N)	mg/l	24 hr composite	= 0	0
Total Phosphorous (as P)	mg/l	24 hr composite	= 8	5.28
OrthoPhosphate (as P)	mg/l	24 hr composite	= 6	3.96
Sulphate (SO ₄)	mg/l	24 hr composite	= 0	0
Phenols (Sum)	µg/l	24 hr composite	= 0	0

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
 For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

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Table D.1(i)(c): DANGEROUS SUBSTANCE EMISSIONS TO SURFACE/GROUND WATERS - Characteristics of The Emission (Primary Discharge Point)

Discharge Point Code: SW-1

Substance	As discharged			
	Unit of Measurement	Sampling Method	Max Daily Avg.	kg/day
Atrazine	µg/l	24 hr composite	= 0	0
Dichloromethane	µg/l	24 hr composite	= 0	0
Simazine	µg/l	24 hr composite	= 0	0
Toluene	µg/l	24 hr composite	= 0	0
Tributyltin	µg/l	24 hr composite	= 0	0
Xylenes	µg/l	24 hr composite	= 0	0
Arsenic	µg/l	24 hr composite	= 0	0
Chromium	µg/l	24 hr composite	= 0	0
Copper	µg/l	24 hr composite	= 0	0
Cyanide	µg/l	24 hr composite	= 0	0
Flouride	µg/l	24 hr composite	= 0	0
Lead	µg/l	24 hr composite	= 0	0
Nickel	µg/l	24 hr composite	= 0	0
Zinc	µg/l	24 hr composite	= 0	0
Boron	µg/l	24 hr composite	= 0	0
Cadmium	µg/l	24 hr composite	= 0	0
Mercury	µg/l	24 hr composite	= 0	0
Selenium	µg/l	24 hr composite	= 0	0
Barium	µg/l	24 hr composite	= 0	0

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
 For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

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TABLE E.1(i): WASTE WATER FREQUENCY AND QUANTITY OF DISCHARGE – Primary and Secondary Discharge Points

Identification Code for Discharge point	Frequency of discharge (days/annum)	Quantity of Waste Water Discharged (m ³ /annum)
SW-1	365	80300

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TABLE E.1(ii): WASTE WATER FREQUENCY AND QUANTITY OF DISCHARGE – Storm Water Overflows

Identification Code for Discharge point	Frequency of discharge (days/annum)	Quantity of Waste Water Discharged (m ³ /annum)	Complies with Definition of Storm Water Overflow
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TABLE F.1(i)(a): SURFACE/GROUND WATER MONITORING

Primary Discharge Point

Discharge Point Code:	SW-1
MONITORING POINT CODE:	aSW-1d
Grid Ref (12 digits, 6E, 6N)	172931 / 098752

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	01/01/09	19/03/09	17/04/09	14/05/09			
pH		= 7.9	= 7.7	= 8	Grab	2	Electrochemical
Temperature	= 0				Grab	0.5	Electrochemical
Electrical Conductivity (@ 25°C)		= 328	= 209	= 297	Grab	0.5	Electrochemical
Suspended Solids		< 2	< 9	= 2.5	Grab	0.5	Gravimetric
Ammonia (as N)		< 0.05	= 0.07	< 0.1	Grab	0.02	Colorimetric
Biochemical Oxygen Demand			= 3	= 1	Grab	0.06	Electrochemical
Chemical Oxygen Demand		< 5	= 19	< 21	Grab	8	Digestion & Colorimetric
Dissolved Oxygen	= 0				Grab	0	ISE
Hardness (as CaCO ₃)	= 0				Grab	0	Titimetric
Total Nitrogen (as N)		= 2.8	= 2	= 3.88	Grab	0.5	Digestion & Colorimetric
Nitrite (as N)				< 0.1	Grab	0.013	Colorimetric
Nitrate (as N)				= 2.96	Grab	0.04	Colorimetric
Total Phosphorous (as P)		= 0.15	= 0.13	< 0.05	Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)		< 0.05	= 0.06	< 0.05	Grab	0.02	Colorimetric
Sulphate (SO ₄)				< 30	Grab	30	Turbidimetric
Phenols (Sum)				< 0.1	Grab	0.1	GC-MS2

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper

For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Additional Comments:	01/01/09 and 0 used where results are not available
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Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	25/05/09						
pH	= 7.7				Grab	2	Electrochemical
Temperature					Grab	0.5	Electrochemical
Electrical Conductivity (@ 25°C)	= 256				Grab	0.5	Electrochemical
Suspended Solids	= 9				Grab	0.5	Gravimetric
Ammonia (as N)	= 0.07				Grab	0.02	Colorimetric
Biochemical Oxygen Demand	= 2				Grab	0.06	Electrochemical
Chemical Oxygen Demand	= 22				Grab	8	Digestion & Colorimetric
Dissolved Oxygen					Grab	0	ISE
Hardness (as CaCO ₃)					Grab	0	Titimetric
Total Nitrogen (as N)	= 2.81				Grab	0.5	Digestion & Colorimetric
Nitrite (as N)					Grab	0.013	Colorimetric
Nitrate (as N)					Grab	0.04	Colorimetric
Total Phosphorous (as P)	= 0.11				Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)	= 0.07				Grab	0.02	Colorimetric
Sulphate (SO ₄)					Grab	30	Turbidimetric
Phenols (Sum)					Grab	0.1	GC-MS2

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
 For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Additional Comments:	01/01/09 and 0 used where results are not available
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TABLE F.1(i)(b): SURFACE/GROUND WATER MONITORING (Dangerous Substances)

Primary Discharge Point

Discharge Point Code:	SW-1
MONITORING POINT CODE:	aSW-1d
Grid Ref (12 digits, 6E, 6N)	172931 / 098752

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	01/01/09	19/03/09	17/04/09	14/05/09			
Atrazine				< 0.01	Grab	0.96	HPLC
Dichloromethane				< 1	Grab	1	GC-MS1
Simazine				< 0.01	Grab	0.01	HPLC
Toluene				< 0.28	Grab	0.02	GC-MS1
Tributyltin	= 0				Grab	0.02	GC-MS1
Xylenes				< 1	Grab	1	GC-MS1
Arsenic				< 0.96	Grab	0.96	ICP-MS
Chromium		< 20	< 20	< 20	Grab	20	ICP-OES
Copper		< 20	< 20	< 20	Grab	20	ICP-OES
Cyanide				< 5	Grab	5	Colorimetric
Flouride				< 100	Grab	100	ISE
Lead		< 20	< 20	< 20	Grab	20	ICP-OES
Nickel		< 20	< 20	< 20	Grab	20	ICP-OES
Zinc		= 33.3	< 20	< 20	Grab	20	ICP-OES
Boron		= 86.8	< 20	< 20	Grab	20	ICP-OES
Cadmium		< 20	< 0.2	< 20	Grab	20	ICP-OES
Mercury			= 1.2	< 0.2	Grab	0.2	ICP-MS
Selenium				= 1.2	Grab	0.74	ICP-MS
Barium		< 20	< 20	= 31.675	Grab	20	ICP-OES

Additional Comments:	TBT value is 0.02ug/l as Sn TBT testing not required
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Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	25/05/09						
Atrazine					Grab	0.96	HPLC
Dichloromethane					Grab	1	GC-MS1
Simazine					Grab	0.01	HPLC
Toluene					Grab	0.02	GC-MS1
Tributyltin					Grab	0.02	GC-MS1
Xylenes					Grab	1	GC-MS1
Arsenic					Grab	0.96	ICP-MS
Chromium	< 20				Grab	20	ICP-OES
Copper	< 20				Grab	20	ICP-OES
Cyanide					Grab	5	Colorimetric
Flouride					Grab	100	ISE
Lead	< 20				Grab	20	ICP-OES
Nickel	< 20				Grab	20	ICP-OES
Zinc	< 20				Grab	20	ICP-OES
Boron	< 20				Grab	20	ICP-OES
Cadmium	< 20				Grab	20	ICP-OES
Mercury					Grab	0.2	ICP-MS
Selenium					Grab	0.74	ICP-MS
Barium	< 20				Grab	20	ICP-OES

Additional Comments:	TBT value is 0.02ug/l as Sn TBT testing not required
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TABLE F.1(i)(a): SURFACE/GROUND WATER MONITORING

Primary Discharge Point

Discharge Point Code:	SW-1
MONITORING POINT CODE:	aSW-1u
Grid Ref (12 digits, 6E, 6N)	171490 / 099111

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	01/01/09	19/03/09	17/04/09	14/05/09			
pH		= 7.9	= 7.8	= 8	Grab	2	Electrochemical
Temperature	= 0				Grab	0.5	Electrochemical
Electrical Conductivity (@ 25°C)		= 330	= 210	= 210	Grab	0.5	Electrochemical
Suspended Solids		< 2	= 10	< 2.5	Grab	0.5	Gravimetric
Ammonia (as N)		< 0.05	= 0.06	< 0.1	Grab	0.02	Colorimetric
Biochemical Oxygen Demand		< 2	= 3	= 1	Grab	0.06	Electrochemical
Chemical Oxygen Demand		< 5	= 31	< 21	Grab	8	Digestion & Colorimetric
Dissolved Oxygen	= 0				Grab	0	ISE
Hardness (as CaCO ₃)	= 0				Grab	0	Titimetric
Total Nitrogen (as N)		= 2.8	= 2	= 3.38	Grab	0.5	Digestion & Colorimetric
Nitrite (as N)				< 0.1	Grab	0.013	Colorimetric
Nitrate (as N)				= 2.62	Grab	0.04	Colorimetric
Total Phosphorous (as P)		= 0.12	= 0.07	< 0.05	Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)		< 0.05	= 0.06	< 0.05	Grab	0.02	Colorimetric
Sulphate (SO ₄)				< 30	Grab	30	Turbidimetric
Phenols (Sum)				< 0.1	Grab	0.1	GC-MS2

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper

For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Additional Comments:	default of 01/01/09 and 0 used in locations where results are not available
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Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	25/05/09						
pH	= 7.8				Grab	2	Electrochemical
Temperature					Grab	0.5	Electrochemical
Electrical Conductivity (@ 25°C)	= 257				Grab	0.5	Electrochemical
Suspended Solids	= 6				Grab	0.5	Gravimetric
Ammonia (as N)	= 0.08				Grab	0.02	Colorimetric
Biochemical Oxygen Demand	< 2				Grab	0.06	Electrochemical
Chemical Oxygen Demand	= 21				Grab	8	Digestion & Colorimetric
Dissolved Oxygen					Grab	0	ISE
Hardness (as CaCO ₃)					Grab	0	Titimetric
Total Nitrogen (as N)	= 2.84				Grab	0.5	Digestion & Colorimetric
Nitrite (as N)					Grab	0.013	Colorimetric
Nitrate (as N)					Grab	0.04	Colorimetric
Total Phosphorous (as P)	= 0.07				Grab	0.2	Digestion & Colorimetric
OrthoPhosphate (as P)	= 0.05				Grab	0.02	Colorimetric
Sulphate (SO ₄)					Grab	30	Turbidimetric
Phenols (Sum)					Grab	0.1	GC-MS2

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
 For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Additional Comments:	default of 01/01/09 and 0 used in locations where results are not available
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TABLE F.1(i)(b): SURFACE/GROUND WATER MONITORING (Dangerous Substances)

Primary Discharge Point

Discharge Point Code:	SW-1
MONITORING POINT CODE:	aSW-1u
Grid Ref (12 digits, 6E, 6N)	171490 / 099111

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	01/01/09	19/03/09	17/04/09	14/05/09			
Atrazine				< 0.01	Grab	0.96	HPLC
Dichloromethane				< 1	Grab	1	GC-MS1
Simazine				< 0.01	Grab	0.01	HPLC
Toluene				< 0.28	Grab	0.02	GC-MS1
Tributyltin	= 0				Grab	0.02	GC-MS1
Xylenes				< 1	Grab	1	GC-MS1
Arsenic				< 0.96	Grab	0.96	ICP-MS
Chromium		< 20	< 20	< 20	Grab	20	ICP-OES
Copper		< 20	< 20	< 20	Grab	20	ICP-OES
Cyanide				< 5	Grab	5	Colorimetric
Flouride				< 100	Grab	100	ISE
Lead		< 20	< 20	< 20	Grab	20	ICP-OES
Nickel		< 20	< 20	< 20	Grab	20	ICP-OES
Zinc		< 20	< 20	< 20	Grab	20	ICP-OES
Boron		< 20	< 20	< 20	Grab	20	ICP-OES
Cadmium		< 20	< 20	< 20	Grab	20	ICP-OES
Mercury				< 0.2	Grab	0.2	ICP-MS
Selenium				< 0.74	Grab	0.74	ICP-MS
Barium		= 26.2	< 20	= 115.19	Grab	20	ICP-OES

Additional Comments:	TBT value is 0.02ug/l as Sn TBT testing not required
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Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	25/05/09						
Atrazine					Grab	0.96	HPLC
Dichloromethane					Grab	1	GC-MS1
Simazine					Grab	0.01	HPLC
Toluene					Grab	0.02	GC-MS1
Tributyltin					Grab	0.02	GC-MS1
Xylenes					Grab	1	GC-MS1
Arsenic					Grab	0.96	ICP-MS
Chromium	< 20				Grab	20	ICP-OES
Copper	< 20				Grab	20	ICP-OES
Cyanide					Grab	5	Colorimetric
Flouride					Grab	100	ISE
Lead	< 20				Grab	20	ICP-OES
Nickel	< 20				Grab	20	ICP-OES
Zinc	< 20				Grab	20	ICP-OES
Boron	= 31.5				Grab	20	ICP-OES
Cadmium	< 20				Grab	20	ICP-OES
Mercury					Grab	0.2	ICP-MS
Selenium					Grab	0.74	ICP-MS
Barium	< 20				Grab	20	ICP-OES

Additional Comments:	TBT value is 0.02ug/l as Sn TBT testing not required
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Annex 2: Check List For Regulation 16 Compliance

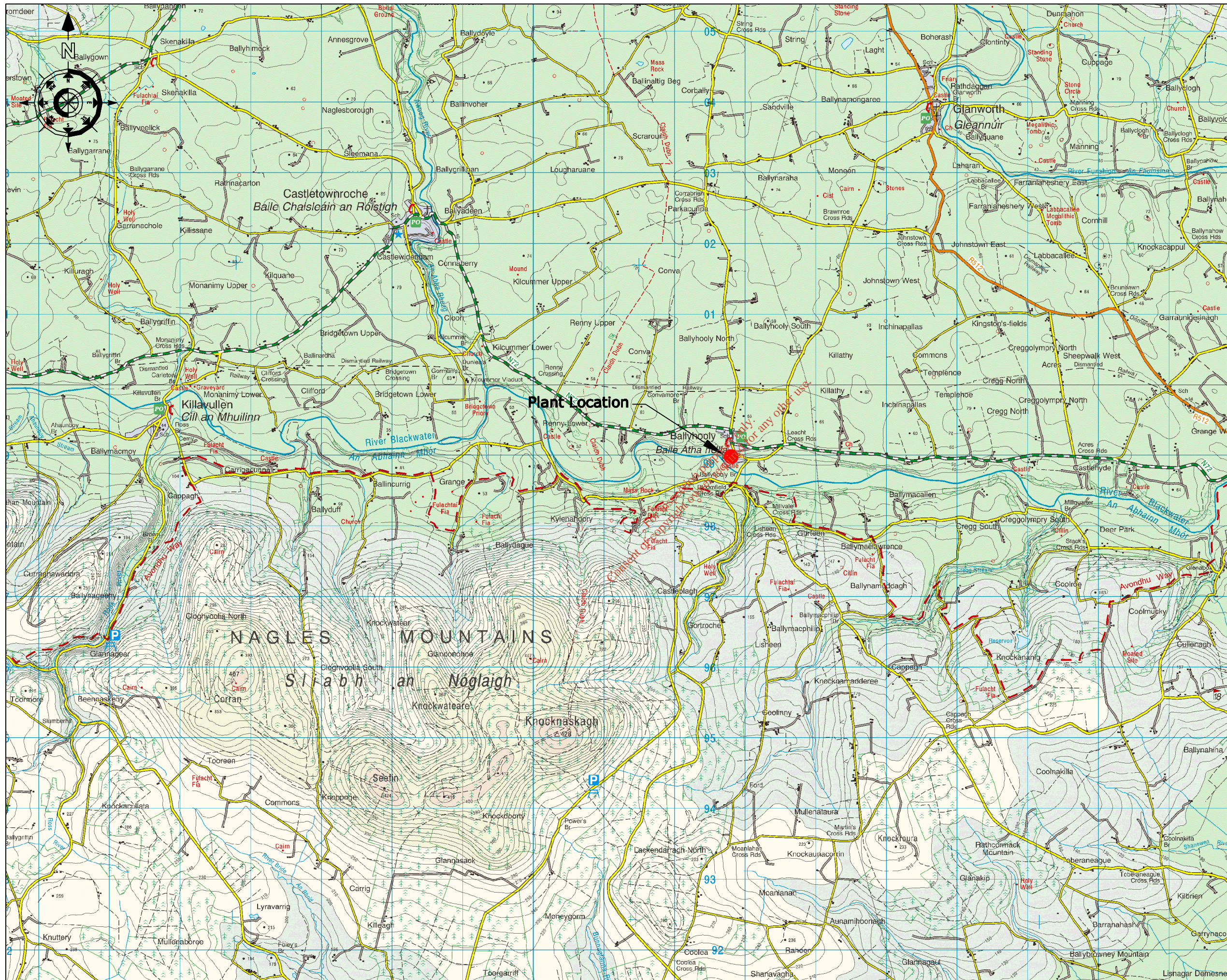
Regulation 16 of the waste water discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007) sets out the information which must, in all cases, accompany a discharge licence application. In order to ensure that the application fully complies with the legal requirements of regulation 16 of the 2007 Regulations, all applicants should complete the following.

In each case, refer to the attachment number(s), of your application which contains(s) the information requested in the appropriate sub-article.

Regulation 16(1) In the case of an application for a waste water discharge licence, the application shall -		Attachment Number	Checked by Applicant
(a)	give the name, address, telefax number (if any) and telephone number of the applicant (and, if different, of the operator of any treatment plant concerned) and the address to which correspondence relating to the application should be sent and, if the operator is a body corporate, the address of its registered office or principal office,	B1	Yes
(b)	give the name of the water services authority in whose functional area the relevant waste water discharge takes place or is to take place, if different from that of the applicant,	Not Applicable	Yes
(c)	give the location or postal address (including where appropriate, the name of the townland or townlands) and the National Grid reference of the location of the waste water treatment plant and/or the waste water discharge point or points to which the application relates,	B2	Yes
(d)	state the population equivalent of the agglomeration to which the application relates,	Not Applicable	Yes
(e)	specify the content and extent of the waste water discharge, the level of treatment provided, if any, and the flow and type of discharge,	C, D	Yes
(f)	give details of the receiving water body, including its protected area status, if any, and details of any sensitive areas or protected areas or both in the vicinity of the discharge point or points likely to be affected by the discharge concerned, and for discharges to ground provide details of groundwater protection schemes in place for the receiving water body and all associated hydrogeological and geological assessments related to the receiving water environment in the vicinity of the discharge.	F1	Yes
(g)	identify monitoring and sampling points and indicate proposed arrangements for the monitoring of discharges and, if Regulation 17 does not apply, provide details of the likely environmental consequences of any such discharges,	E3	Yes
(h)	in the case of an existing waste water treatment plant, specify the sampling data pertaining to the discharge based on the samples taken in the 12 months preceding the making of the application,	E4	Yes
(i)	describe the existing or proposed measures, including emergency procedures, to prevent unintended waste water discharges and to minimise the impact on the environment of any such discharges,	Not Applicable	Yes
(j)	give particulars of the nearest downstream drinking water abstraction point or points to the discharge point or points,	Not Applicable	Yes
(k)	give details, and an assessment of the effects, of any existing or proposed emissions on the environment, including any environmental medium other than those into which the emissions are, or are to be made, and of proposed measures to prevent or eliminate or, where that is not practicable, to limit any pollution caused in such discharges,	F1	Yes
(l)	give detail of compliance with relevant monitoring requirements and treatment standards contained in any applicable Council Directives of Regulations,	E4	Yes
(m)	give details of any work necessary to meet relevant effluent discharge standards and a timeframe and schedule for such work.	Not Applicable	Yes
(n)	Any other information as may be stipulated by the Agency.	Not Applicable	Yes
Regulation 16(3) Without prejudice to Regulation 16 (1) and (2), an application for a licence shall be accompanied by -		Attachment Number	Checked by Applicant
(a)	a copy of the notice of intention to make an application given pursuant to Regulation 9,	B8	Yes
(b)	where appropriate, a copy of the notice given to a relevant water services authority under Regulation 13,	Not Applicable	Yes
(c)	Such other particulars, drawings, maps, reports and supporting documentation as are necessary to identify and describe, as appropriate -	B	Yes
(c) (i)	the point or points, including storm water overflows, from which a discharge or discharges take place or are to take place, and	B3	Yes
(c) (ii)	the point or points at which monitoring and sampling are undertaken or are to be undertaken,	E3	Yes
(d)	such fee as is appropriate having regard to the provisions of Regulations 38 and 39.	Not Applicable	Yes

Regulation 16(4) An original application shall be accompanied by 2 copies of it and of all accompanying documents and particulars as required under Regulation 16(3) in hardcopy or in an electronic or other format as specified by the Agency.		Attachment Number	Checked by Applicant
1	An Original Application shall be accompanied by 2 copies of it and of all accompanying documents and particulars as required under regulation 16(3) in hardcopy or in electronic or other format as specified by the agency.		Yes
Regulation 16(5) For the purpose of paragraph (4), all or part of the 2 copies of the said application and associated documents and particulars may, with the agreement of the Agency, be submitted in an electronic or other format specified by the Agency.		Attachment Number	Checked by Applicant
1	Signed original.		Yes
2	2 hardcopies of application provided or 2 CD versions of application (PDF files) provided.		Yes
3	1 CD of geo-referenced digital files provided.		Yes
Regulation 17 Where a treatment plant associated with the relevant waste water works is or has been subject to the European Communities (Environmental Impact Assessment) Regulations 1989 to 2001, in addition to compliance with the requirements of Regulation 16, an application in respect of the relevant discharge shall be accompanied by a copy of an environmental impact statement and approval in accordance with the Act of 2000 in respect of the said development and may be submitted in an electronic or other format specified by the Agency		Attachment Number	Checked by Applicant
1	EIA provided if applicable		Yes
2	2 hardcopies of EIS provided if applicable.		Yes
3	2 CD versions of EIS, as PDF files, provided.		Yes

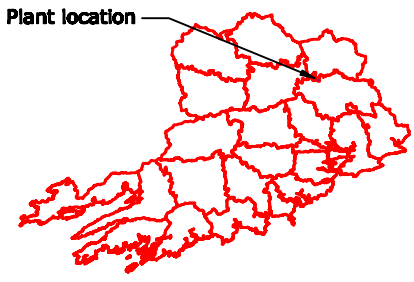
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NOTES

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.

Plant location



Key Map

No.	Date	Drawn	Surv	Chk'd	Revision	Description

Cork County Council,
Northern Division.

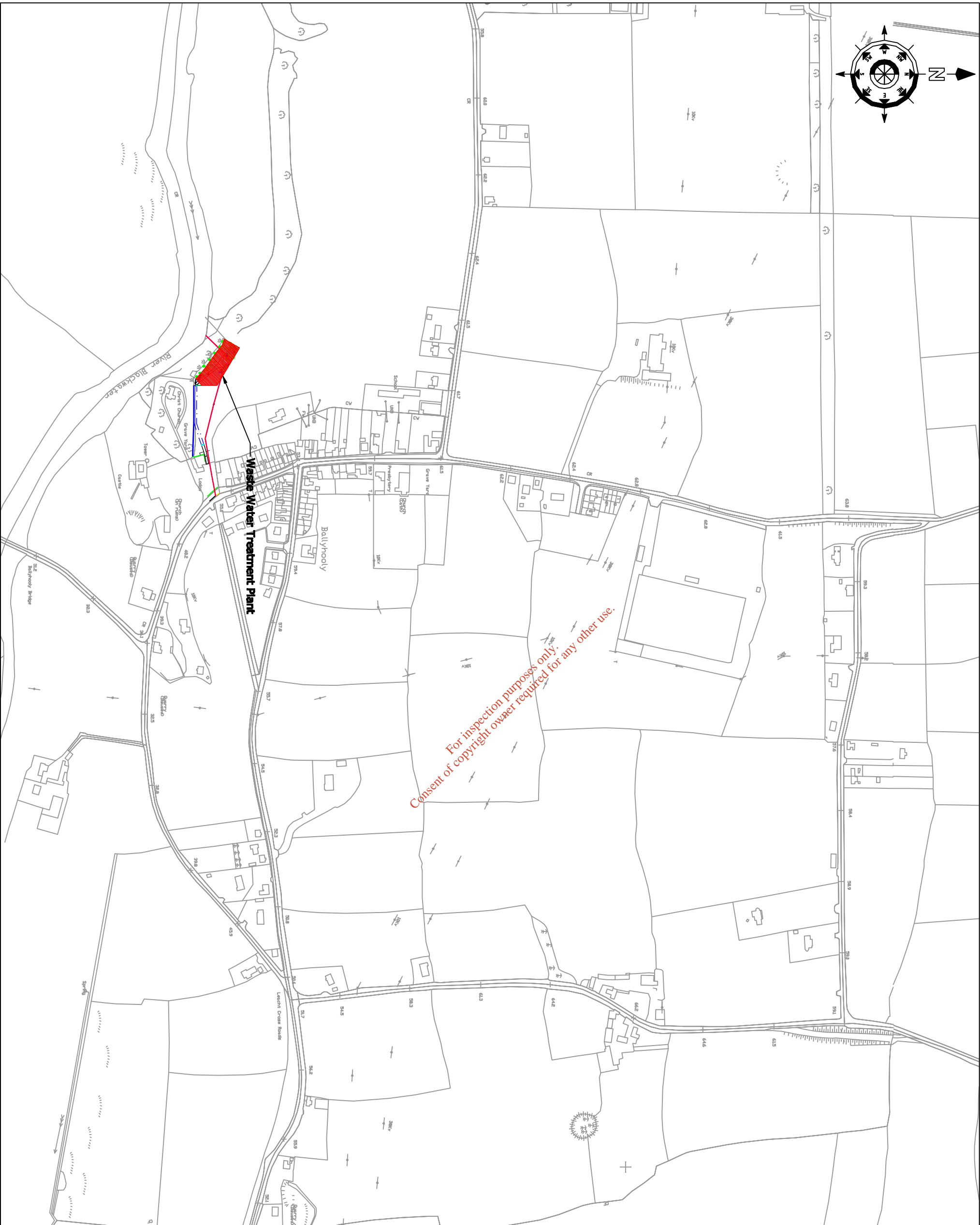
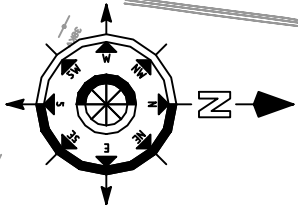


N. O'KEEFE, B.E.,
COUNTY ENGINEER,
COUNTY HALL,
CDRK.

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

Drawing Title:
**Location Map
Scale - 1:50,000
Attachment A1 - Map 1**

Scales: 1:50,000 @ A3	Surveyed by: D.L.	Drawn by: D.L.
Designed by: F.J.	Checked by: F.C.	Date: June 2009
Drawing number: A1 - Map 1	Rev: -	



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.

Designed by:	DL	Drawn by:	DL
Checked by:	P.L.	Date:	June 2009
Drawing number:	A1-Map2		

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

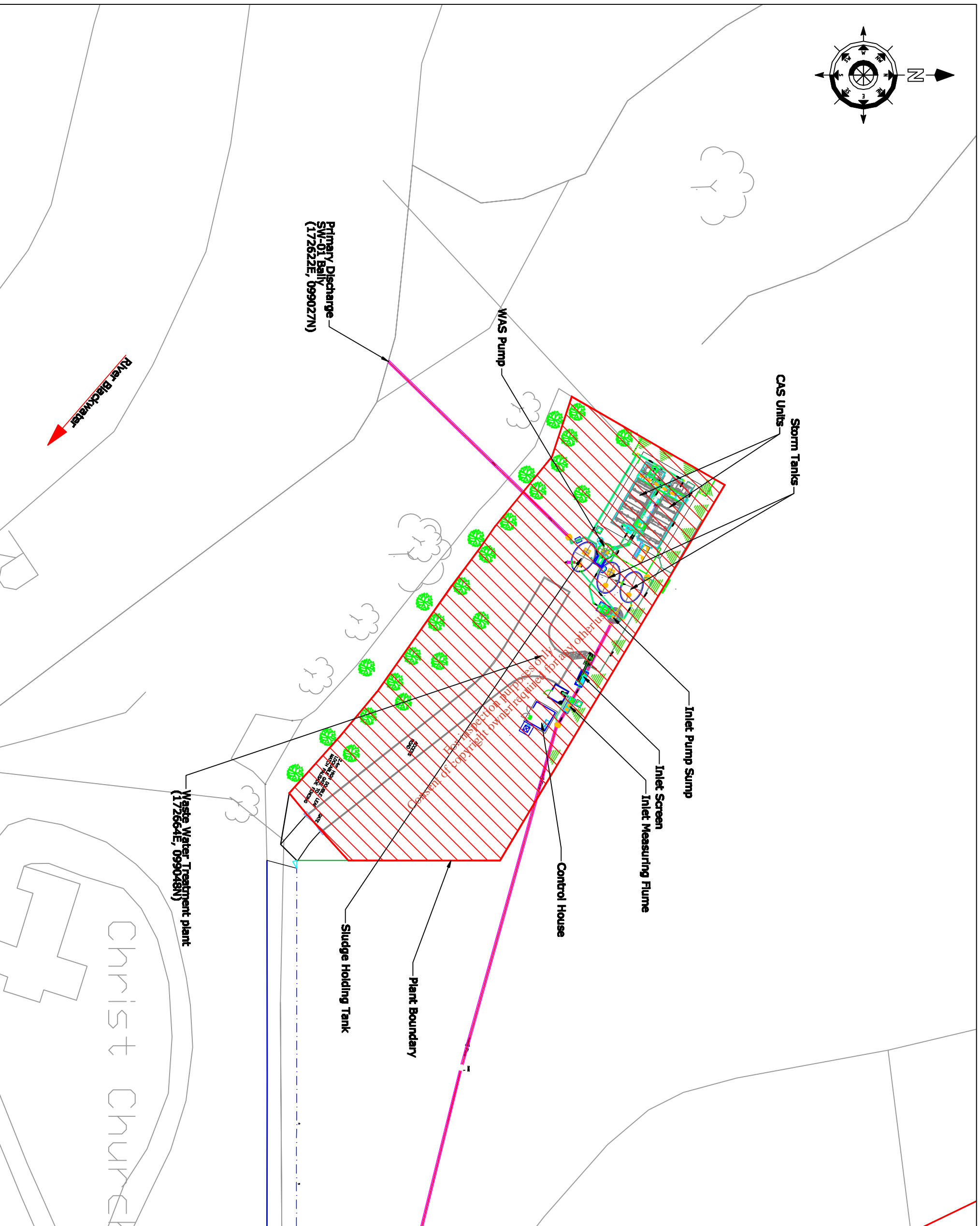
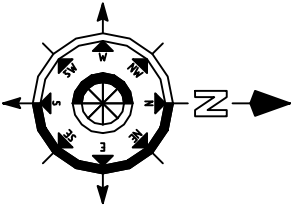
Drawing Title:
**Site Locations of W.W.T.P.
 Attachment A1 - Map 2**



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

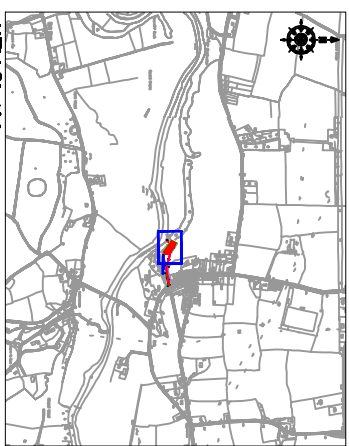
Cork County Council,
 Northern Division.

No.	Date	Drawn/Checked	Revision Description



NOTES

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No.	Date	Drawn/Checked	Revision Description

Cork County Council,
Northern Division.

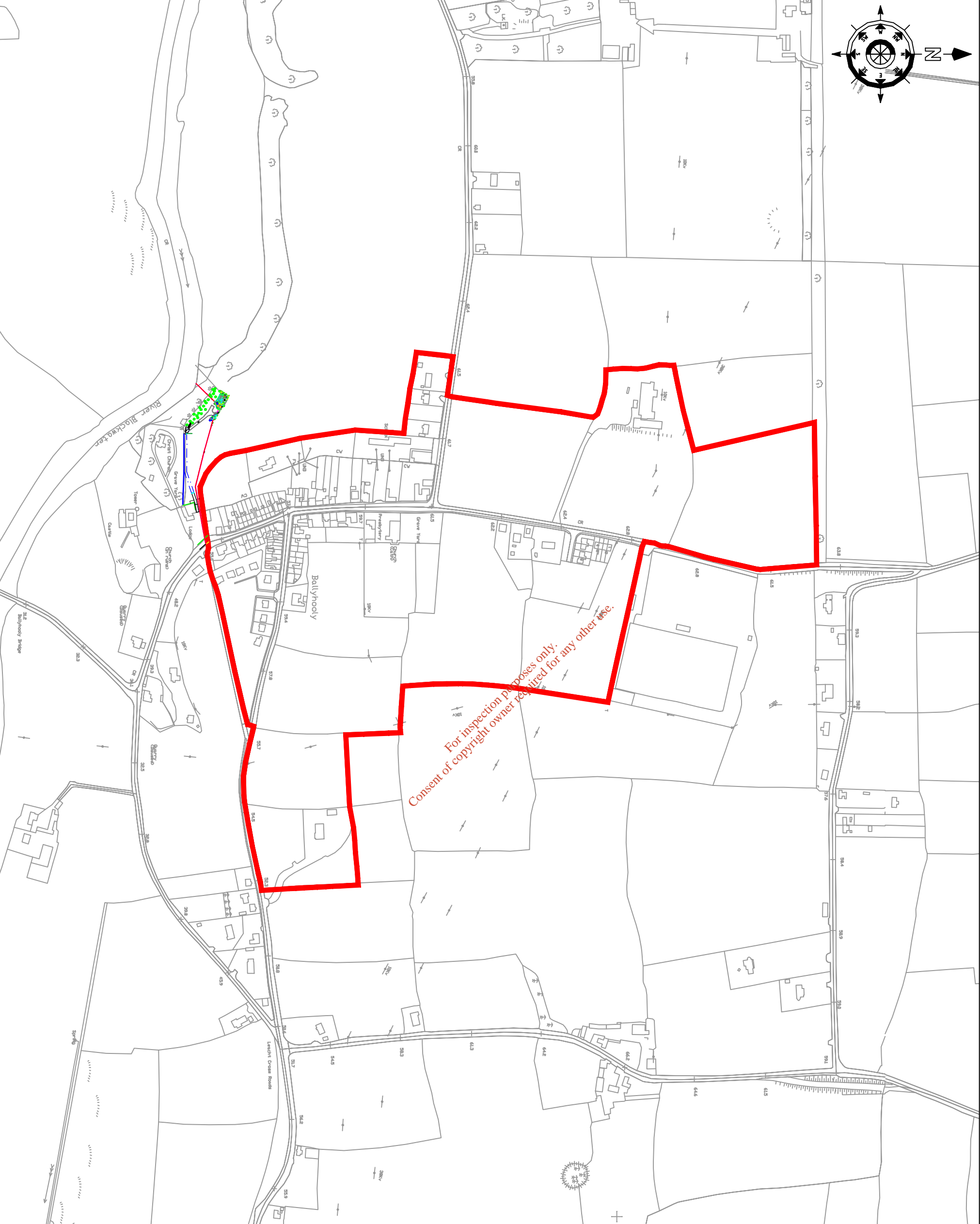
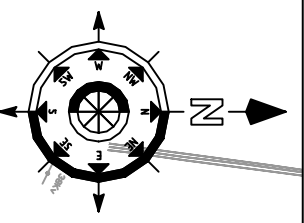


N. O'KEEFE, B.E.,
COUNTY ENGINEER,
COUNTY HALL,
CORK.

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

Drawing Title:
**Waste Water Treatment Plant
Site Layout
Attachment A1 - Map 3**

Scales:		Drawn by:	
1:500 @ A3	D.L.	D.L.	D.L.
Designed by:	Checked by:	Date:	
P.J.	P.C.	June 2009	
Drawing number:		Rev:	
A1 - Map 3		-	



NOTES

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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.

Designed by	DL	Drawn by	DL
Checked by	P.C.	Date	June 2009
Drawing number	B1 - Map 4	Rev	-

Drawing Title:
**Agglomeration Boundary
 Attachment B1 - Map 4**

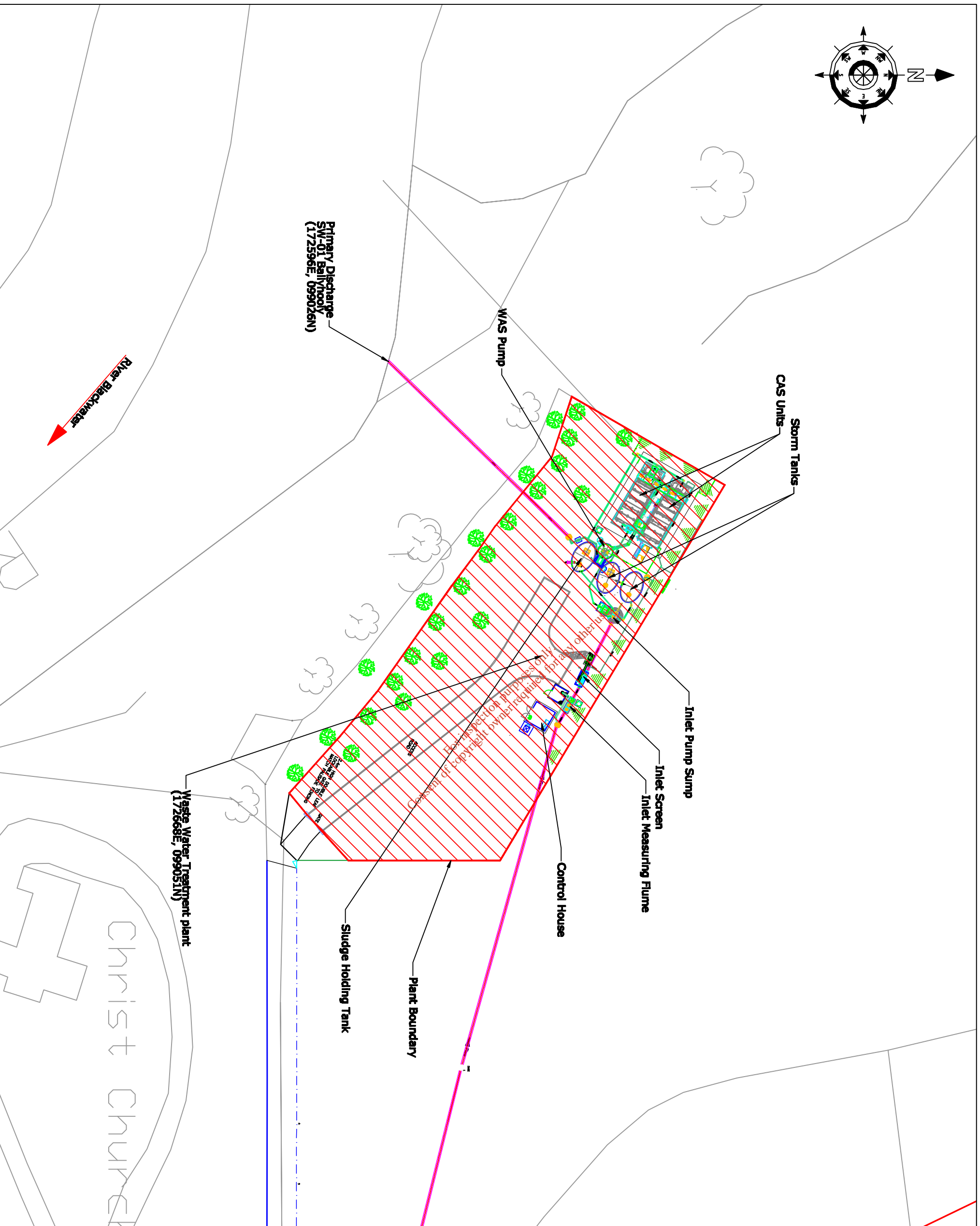
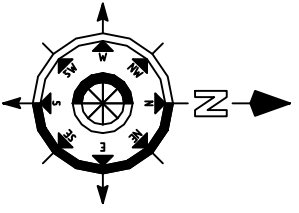
Job Title:
**Ballyhooley & Environs
 Waste Water Discharge
 Licence Application**



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

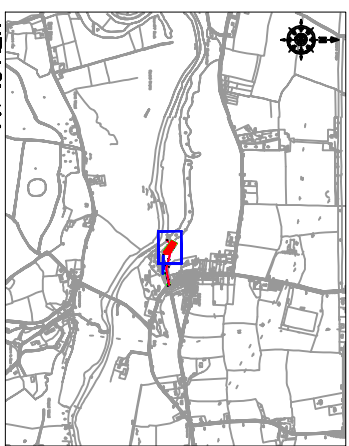
Cork County Council,
 Northern Division.

No.	Date	Drawn/Checked	Revision Description




NOTES

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No.	Date	Drawn/Survey/Checked	Revision Description

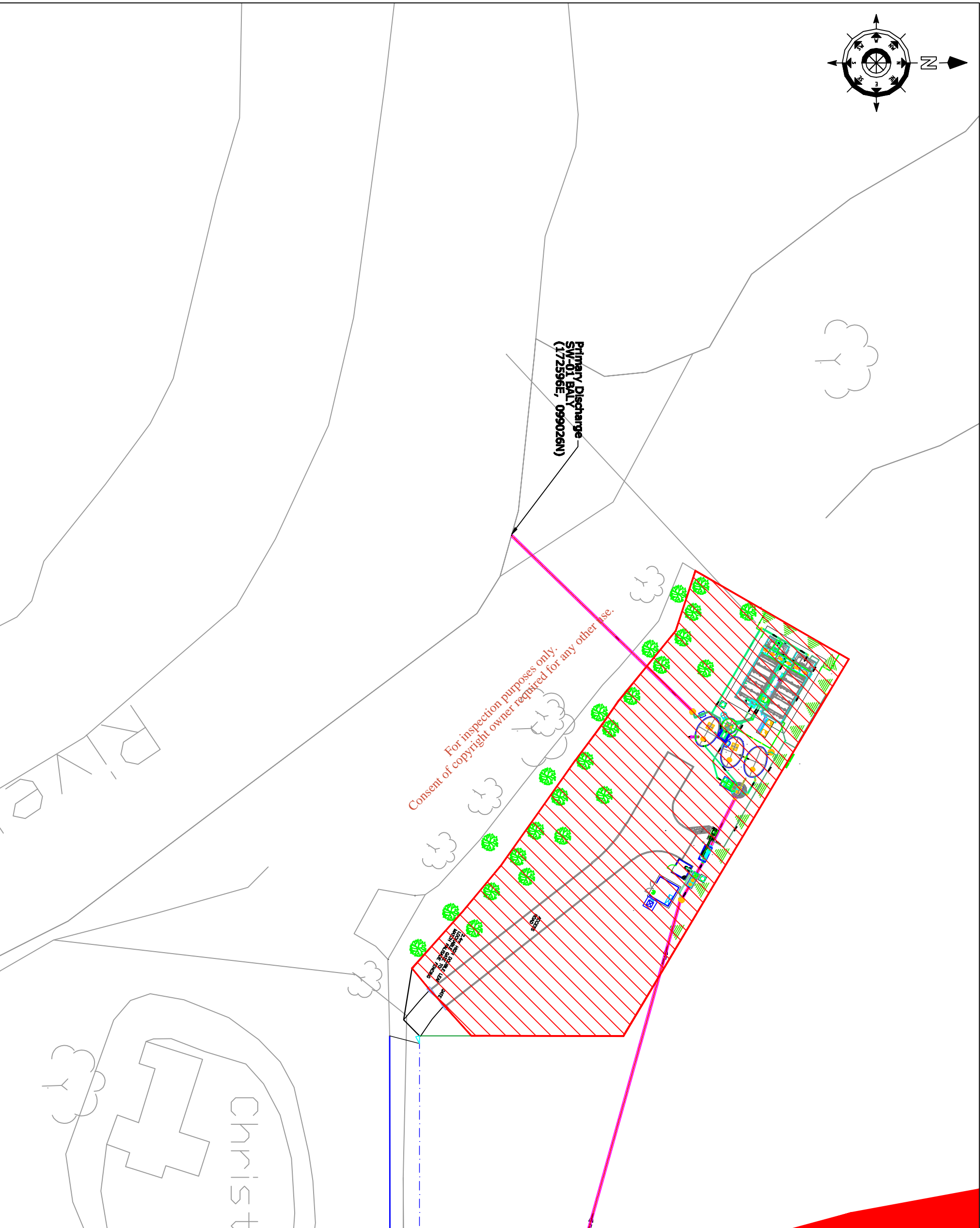
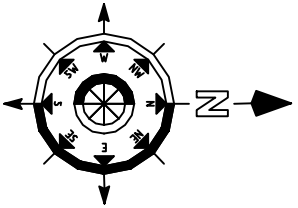
Cork County Council,
Northern Division.

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

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

Drawing Title:
**Waste Water Treatment Plant
Site Layout
Attachment B2 - Map 5**

Scales:	1:500 @ A3	Surveied by:	DL	Drawn by:	DL
Designed by:	P.J.	Checked by:	P.C.	Date:	June 2009
Drawing number:	B2 - Map 5	Rev:	-		

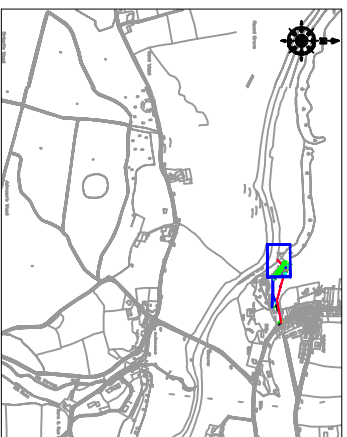


Primary Discharge
SW-01 BALLY
(172596E, 099026N)

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NOTES

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KEY PLAN

No.	Date	Drawn/Checked	Revision Description

Cork County Council,
Northern Division.

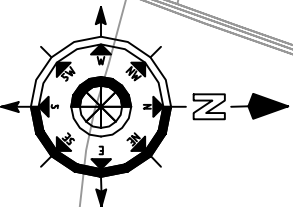
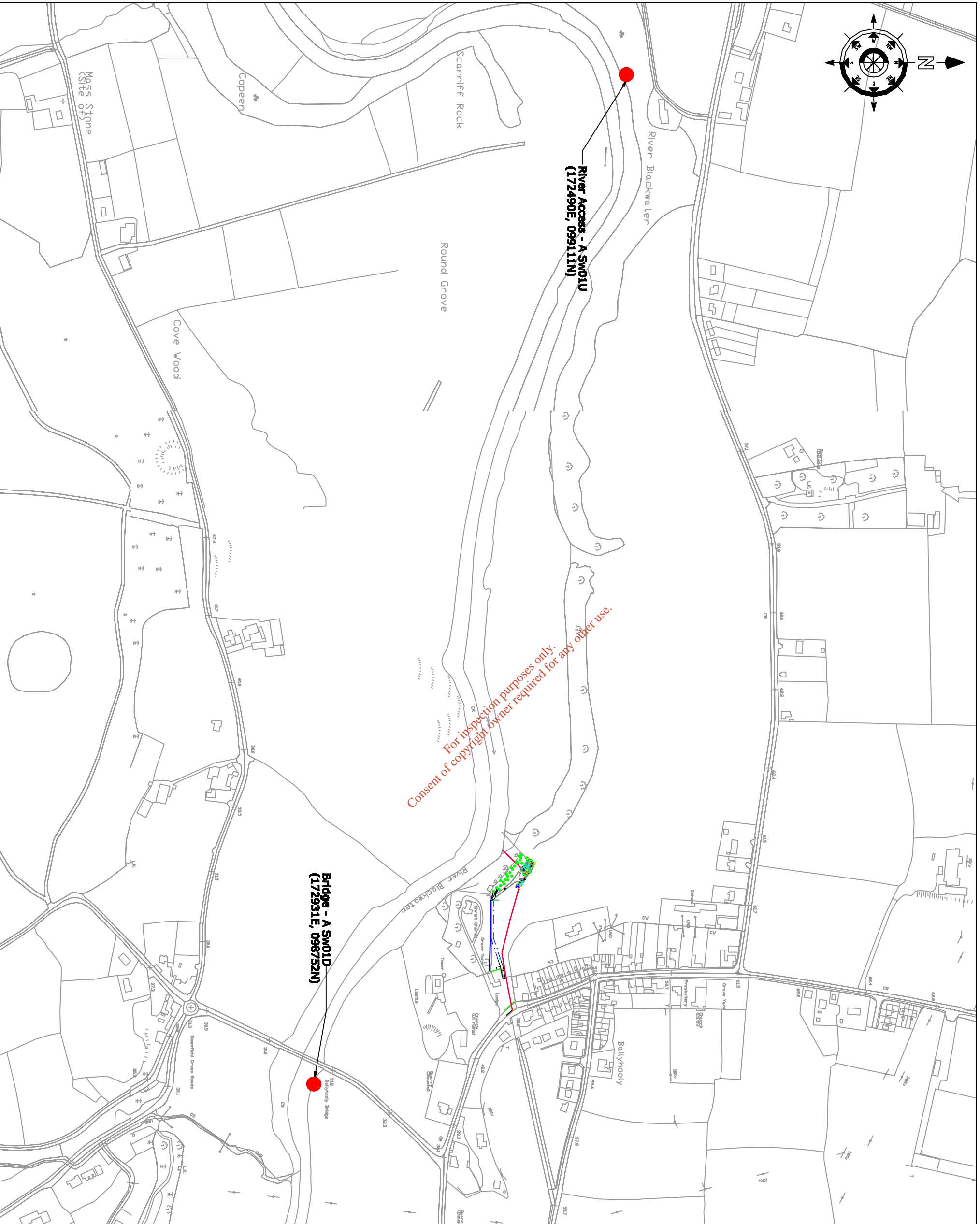


N. O'KEEFE, B.E.,
COUNTY ENGINEER,
COUNTY HALL,
CORK.

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

Drawing Title:
**Location of Primary Discharge
Point SW01 - BALLY
Attachment B3 - Map 6**

Scales:	1:500 @ A3	Drawn by:	DL
Designed by:	P.J.	Checked by:	P.C.
Date:	June 2009		
Drawing number:	B3 - Map 6		



NOTES

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<p>No. Date Drawn Survey/Checked Revision Description</p>				
<p>Cork County Council, Northern Division.</p>				
<p>N. O'KEEFE, B.E., COUNTY ENGINEER, COUNTY HALL, CORK.</p>				
<p>Job Title: Ballyhooly & Environs Waste Water Discharge Licence Application</p>				
<p>Drawing Title: Locations of sampling points Attachment B3 - Map 7</p>				
<p>Scales: Designed by: DL Checked by: P.J.</p>		<p>Surveyed by: DL Checked by: P.C.</p>		
<p>Drawing number: B3 - Map 7</p>		<p>Drawn by: DL Date: June 2009</p>		

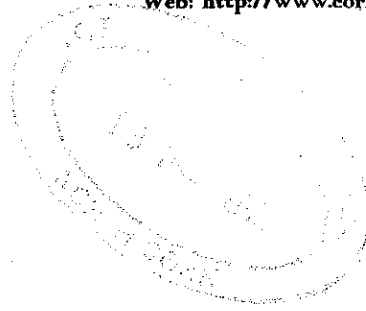
Comhairle Chontae Chorcaí
Cork County Council

County Hall,
Cork, Ireland.

Tel No: (021) 427680
Fax No: (021) 4276321

Web: <http://www.corkcoco.com/>

Ms. Tess Kelleher,
Senior Staff Officer,
Water Services Section,
Cork County Council,
Annabella,
Mallow,
Co. Cork.



Direct Dial: 021-4285454

Fax: 021-4345425

Email: corporate.affairs@corkcoco.ie

15th March, 2005

Re: Report under Article 179(3)(b) of the Planning & Development Act, 2000
Upgrading of existing Sewerage Treatment Plant, Ballyhooly, Mallow

I refer to your letter dated 28th February, 2005, in connection with the above.

At the meeting of Cork County Council held on 14th March, 2005, the recommendation of the Northern Committee was approved.



MARIAN MCCARTHY,
A/SENIOR EXECUTIVE OFFICER.

**CORK COUNTY COUNCIL
(NORTH)**

**LOCAL GOVERNMENT PLANNING AND DEVELOPMENT ACT
2000**

REPORT PURSUANT TO SECTION 179

DEVELOPMENT: Upgrading of existing Sewerage Treatment Plant

LOCATION: Ballyhooly, Mallow, Co. Cork

**NATURE/EXTENT/PRINCIPLE FEATURES OF PROPOSED
DEVELOPMENT: Upgrading of existing Sewerage Treatment Plant**

**PERSONS OR BODIES WHO MADE SUBMISSIONS OR
OBSERVATIONS: None**

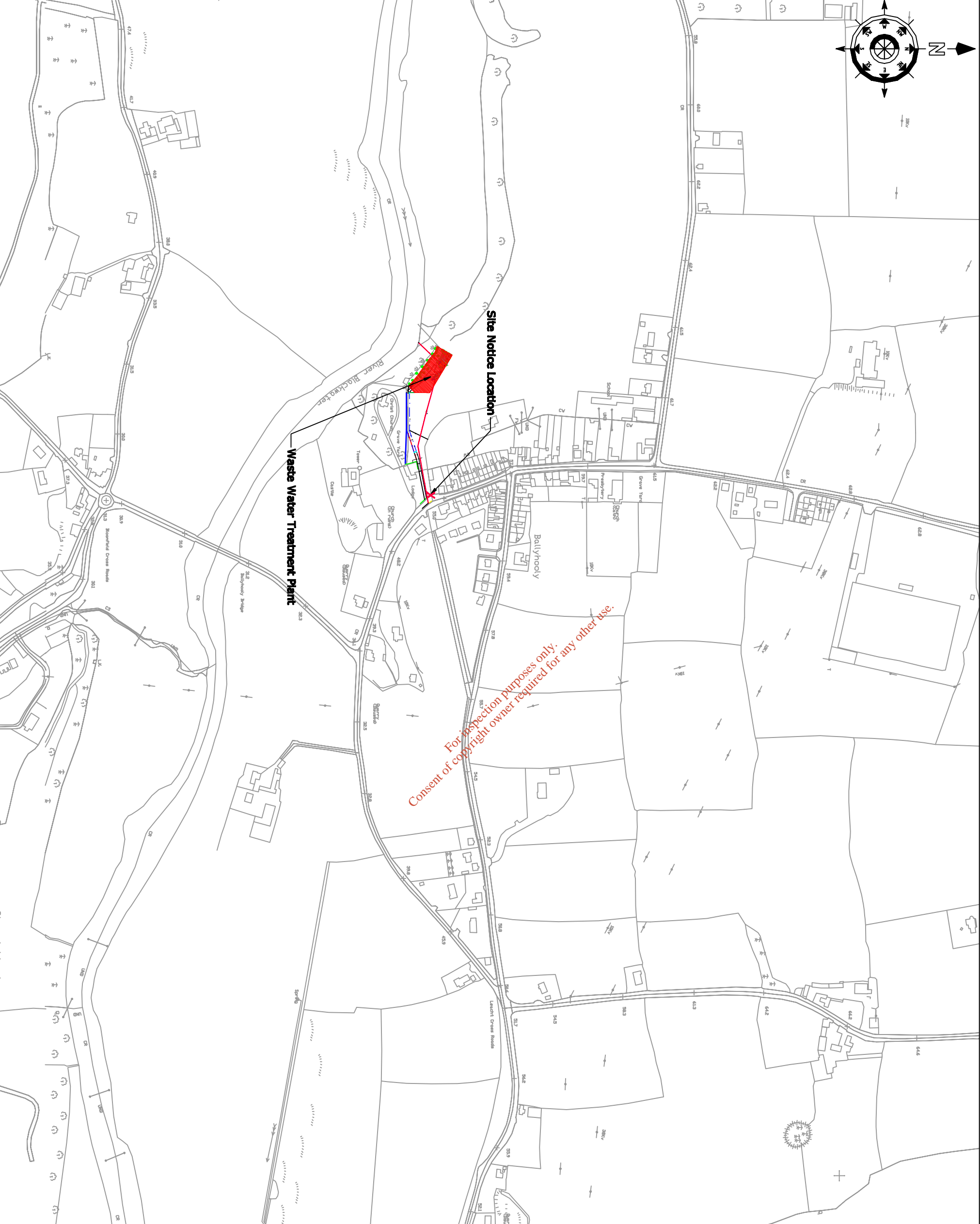
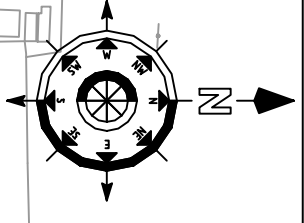
**LIKELY IMPLICATIONS WITH RESPECT TO THE PROPER
PLANNING AND DEVELOPMENT OF THE AREA: None**

IT IS PROPOSED: To proceed with the development

This report is submitted to the members of Cork County Council in the course of compliance with Section 2 (7) of the City and County Management (Amendment) Act, 1995.

**SIGNED: Tara Doherty
FOR HEAD OF CORPORATE AFFAIRS**

DATE: 13-12-04



NOTES

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<p>No. Date Drawn/Surveyed/Checked Revision Description</p>			
<p>Cork County Council, Northern Division.</p>			
<p>N. O'KEEFE, B.E., COUNTY ENGINEER, COUNTY HALL, CORK.</p>			
<p>Job Title: Ballyhooly & Environs Waste Water Discharge Licence Application</p>			
<p>Drawing Title: Location of Site Notice Attachment B8 - Map 8</p>			
<p>Scales: 1:5000 @ A3</p>		<p>Drawn by: D.L.</p>	
<p>Designed by: P.J.</p>		<p>Checked by: P.C.</p>	
<p>Drawing number: B8 - Map 8</p>		<p>Date: June 2009</p>	
		<p>Rev: -</p>	



CORK COUNTY COUNCIL

SITE NOTICE

APPLICATION TO THE ENVIRONMENTAL PROTECTION AGENCY FOR A WASTEWATER DISCHARGE LICENCE

In accordance with the Waste Water Discharge (Authorisation) Regulations 2007, Water Services Northern Division, Cork County Council, Annabella, Mallow is applying to the Environmental Protection Agency for a Waste Water Discharge Licence for the agglomeration of Ballyhooley Cork at the following locations:

Plant Name	Location	National Grid Ref.
Ballyhooley WWTP	Conva, Ballyhooley	E172668 N099051

Discharge	Function	Townland	Receptor	Grid Reference
Primary	Main	Conva	Blackwater	E172596 N099026

A copy of the application for the Waste Water Discharge Licence and such further information relating to the application as may be furnished to the Agency in the course of the Agency's consideration of the Application shall as soon as is practicable after receipt by the Agency be available for inspection or purchase at the

- Environmental Protection Agency, PO Box 3000, Johnstown Castle Estate, Co. Wexford, Lo Call 1890 335599 Telephone: 053-9160600 Fax: 053-9160699 Email: info@epa.ie

and at

- Cork County Council Offices, Annabella, Mallow, Co. Cork, Telephone: 022-21123 Fax: 022-21983

Submissions in relation to the application may be made to the Environmental Protection Agency at its headquarters described above.

Cork County Council Northern Division

**APPLICATION TO THE ENVIRONMENTAL
PROTECTION AGENCY FOR A WASTEWATER
DISCHARGE LICENCE**

In accordance with the Waste Water Discharge (Authorisation) Regulations 2007, Water Services Northern Division, Cork County Council, Annabella, Mallow is applying to the Environmental Protection Agency for a Waste Water Discharge Licence for the agglomeration of Ballyhooley at the following locations:

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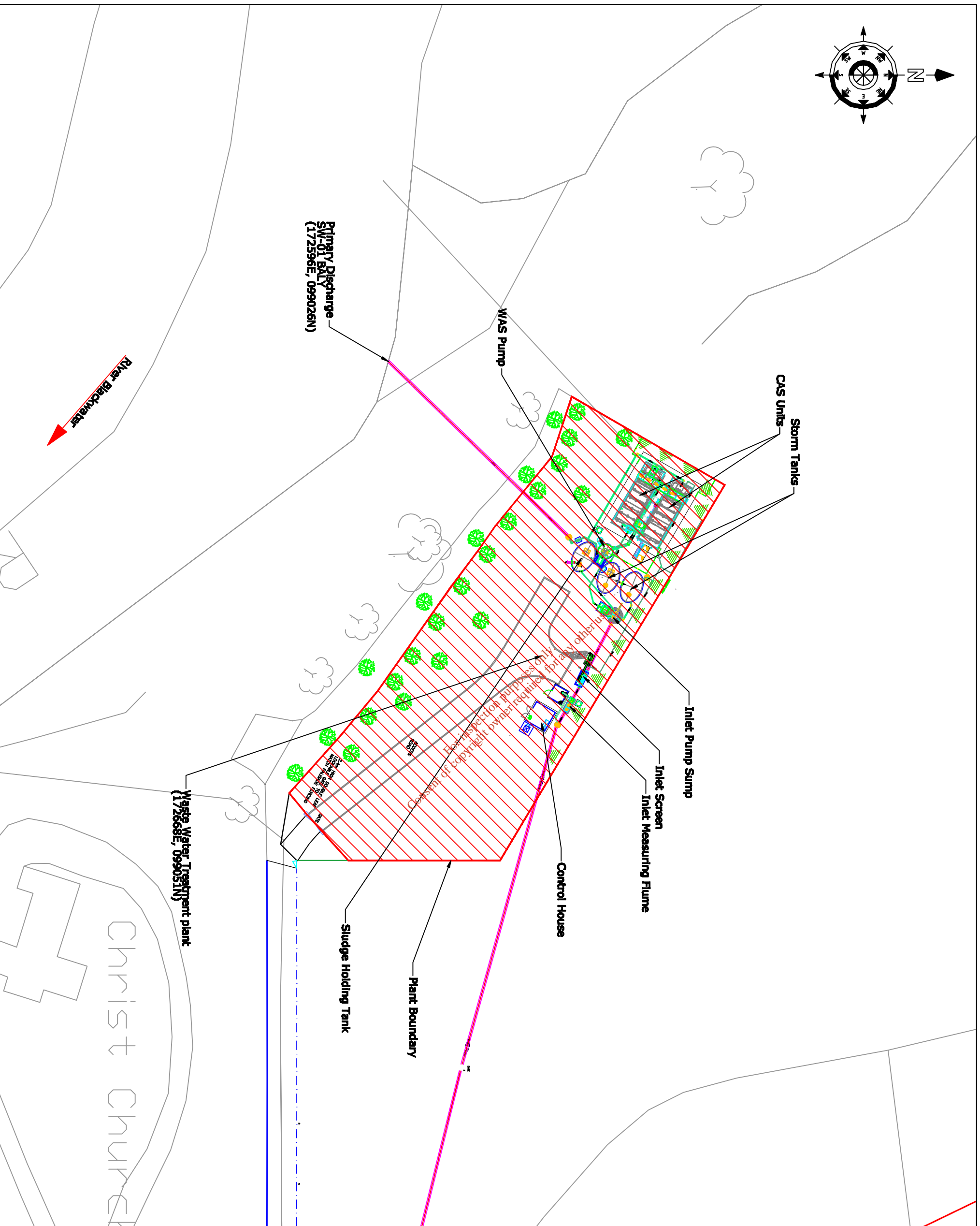
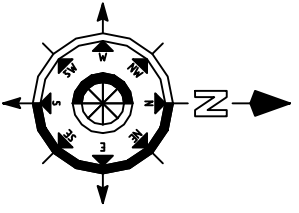
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and at

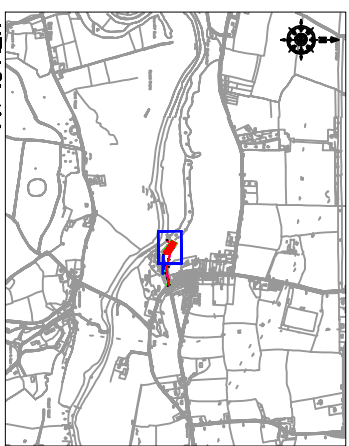
- Cork County Council Offices, Annabella, Mallow, Co. Cork, Telephone: 022-21123 Fax: 022-21893.


Submissions in relation to the application may be made to the Environmental Protection Agency at its headquarters described above.



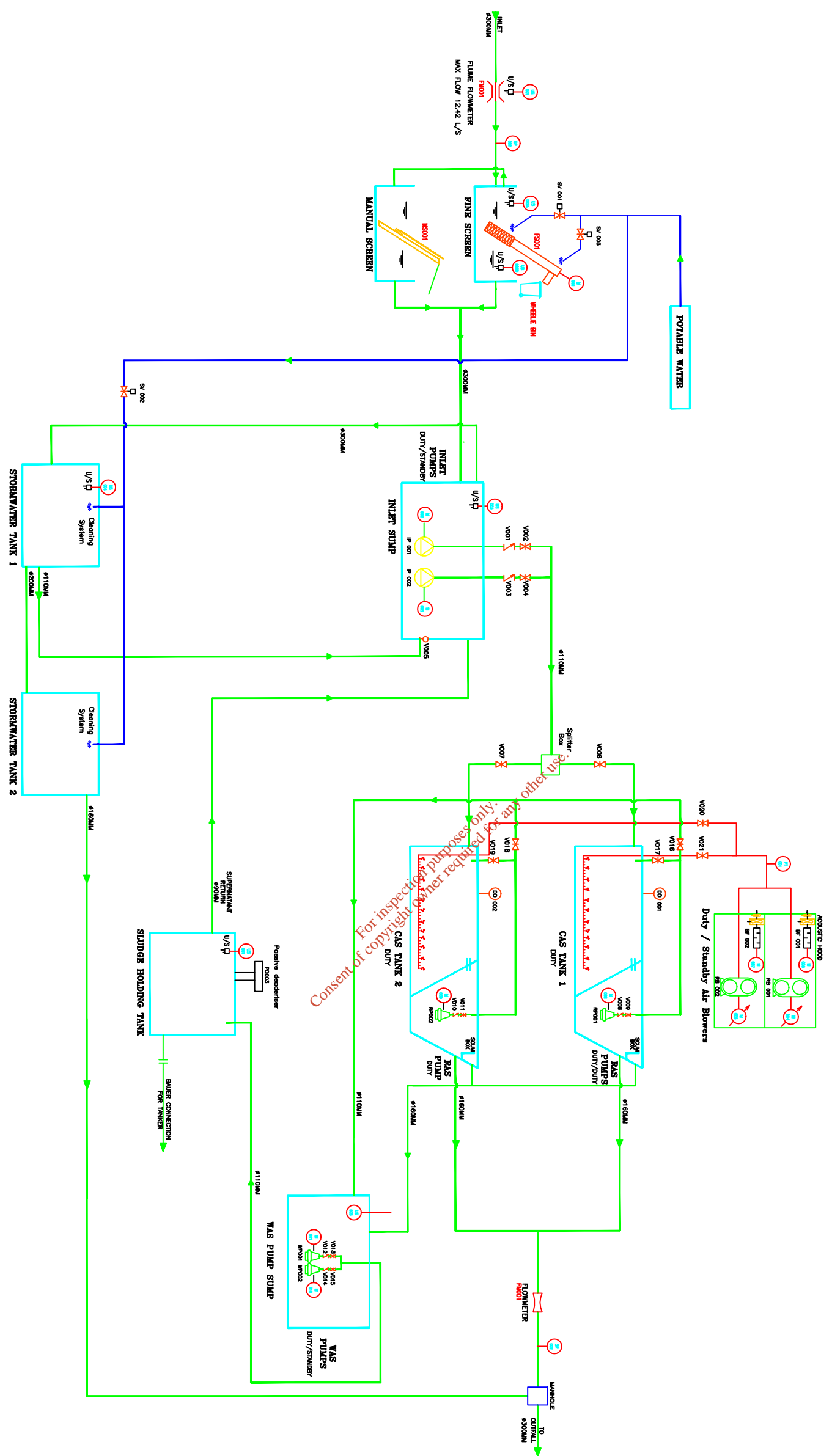
NOTES

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 <p>Cork County Council, Northern Division.</p>		<p>N. O'KEEFE, B.E., COUNTY ENGINEER, COUNTY HALL, CORK.</p>																	
<p>Job Title: Ballyhooby & Environs Waste Water Discharge Licence Application</p>																			
<p>Drawing Title: Waste Water Treatment Plant Site Layout Attachment C1 - Map 9</p>																			
<p>Scales: 1:500 @ A3</p>		<p>Drawn by: D.L.</p>																	
<p>Designed by: P.J.</p>		<p>Checked by: P.C.</p>																	
<p>Drawing number: C1 - Map 9</p>		<p>Date: June 2009</p>																	
		<p>Rev: -</p>																	
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No.	Date	Drawn/Checked	Revision Description																

- NOTES**
1. Dimensions are not to be scaled from drawing. For any discrepancies found consult with the design office.
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Drawing Title:
Schematic showing Existing Treatment Plant Process Attachment C1 - Drawing 1

Job Title:
Ballyhooley & Environs Waste Water Discharge Licence Application

Scale:
NTS

Designed by:	DL	Drawn by:	DL
Checked by:	P.L.	Date:	June 2009
Drawing number:	C1 - Drawing 1	Rev:	-



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

Cork County Council,
Northern Division.

No.	Date	Drawn/Checked	Revision Description

Attachment E4 Ballyhooley Inlet Table E4						
Sample Date	17/04/2008	19/03/2009	17/04/2009	14/05/2009	25/05/2009	
Sample	Influent	Influent	Influent	Influent	Influent	Average
Sample Code			GT711	GT652	GT793	
Flow M ³ /Day	*	*	*	*	*	
pH	8.1	8.5	8.6	8.2	8.1	8.3
Temperature °C	*	*	*	*	*	
Cond 20°C	1368	1238	1369	1128	2140	1448.6
SS mg/L	142	330	204	205	308	237.8
NH ₃ mg/L	*	62.2	40	27.7	57	46.725
BOD mg/L	230	504	480	204	230	329.6
COD mg/L	452	917	1049	878	940	847.2
TN mg/L	*	75	62	51.1	127.8	78.975
Nitrite mg/L	*	*	*	<0.10	*	<0.10
Nitrate mg/L	*	*	*	<0.50	*	<0.50
TP mg/L	4	7.1	9	5.98	9.6	7.136
O-PO ₄ -P mg/L	2	5.2	5	4.16	5.6	4.392
SO ₄ mg/L	*	*	*	78.2	*	78.2
Phenols µg/L	*	*	*	<0.10	*	<0.10
Atrazine µg/L	*	*	*	<0.01	*	<0.01
Dichloromethane µg/L	*	*	*	<1	*	<1
Simazine µg/L	*	*	*	<0.01	*	<0.01
Toluene µg/L	*	*	*	<0.28	*	<0.28
Tributyltin µg/L	*	*	*	not required	*	
Xylenes µg/L	*	*	*	<1	*	<1
Arsenic µg/L	*	*	*	<0.96	*	<0.96
Chromium ug/L	*	*	<20	<20	<20	<20
Copper ug/L	*	*	59.4	42	56.6	52.66666667
Cyanide µg/L	*	*	*	<5	*	<5
Fluoride µg/L	*	*	*	178	*	178
Lead ug/L	*	*	<20	<20	<20	<20
Nickel ug/L	*	*	<20	<20	<20	<20
Zinc ug/L	*	*	103.5	128	77.8	103.1
Boron ug/L	*	*	168.8	63	212.9	148.2333333
Cadmium ug/L	*	*	<20	<20	<20	<20
Mercury µg/L	*	*	*	<0.2	*	<0.2
Selenium µg/L	*	*	*	1.3	*	1.3
Barium ug/L	*	*	<20	23	<20	<20

value at 1/2 of LOD for stistical purposes =

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Attachment E4 Ballyhooley Discharge Outlet Table E4

Sample Date	17/04/2008	08/01/2009	19/03/2009	17/04/2009	14/05/2009	25/05/2009			
Sample	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent	Average	Kg/Day	Kg/year
Sample Code		GT007	GT413	GT712	GT653	GT794			
Flow M ³ /Day	*	*	*	*	*	*			
pH	7.9	*	7.4	7.5	7.4	7.6	7.56		
Temperature °C	*	*	*	*	*	*			
Cond 20°C	505	*	1482	1182	1294	1511	1194.8		
SS mg/L	78	24	30	23	47	24	37.66667		
NH ₃ mg/L	22	2.4	2.3	4	2.8	2.2	5.95		
BOD mg/L	110	8	22	20	19	9	31.33333		
COD mg/L	377	51	69	74	124	75	128.3333		
TN mg/L	*	*	35	26	47.8	38.2	36.75		
Nitrite mg/L	*	*	*	*	0.419	*	0.419		
Nitrate mg/L	*	*	*	*	32.8	*	32.8		
TP mg/L	7	*	5	3.4	5.13	4	4.906		
PO4-P mg/L	3	3.97	4.2	2.7	4.72	3.3	3.648333		
SO4 mg/L	*	46.2	*	*	44.5	*	45.35		
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	*	*	*	*	<0.28	*	<0.28		
Tributyltin µg/L	*	*	*	*	not required	*	*		
Xylenes µg/L	*	*	*	*	<1	*	<1		
Arsenic µg/L	*	*	*	*	<0.96	*	<0.96		
Chromium ug/L	*	<20	<20	<20	<20	<20	<20		
Copper ug/L	*	10	10	10	37	10	15.4		
Cyanide µg/L	*	*	*	*	<5	*	<5		
Fluoride µg/L	*	*	*	*	153	*	153		
Lead ug/L	*	<20	<20	<20	<20	<20	<20		
Nickel ug/L	*	<20	<20	<20	<20	<20	<20		
Zinc ug/L	*	10	10	10	72	32.2	26.84		
Boron ug/L	*	10	10	10	10	73.9	22.78		
Cadmium ug/L	*	<20	<20	<20	<20	<20	<20		
Mercury µg/L	*	*	*	*	<0.2	*	<0.2		
Selenium µg/L	*	*	*	*	2.7	*	2.7		
Barium ug/L	*	10	25.6	10	30	<20	18.9		

value at 1/2 of LOD for stistical purposes =

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Attachment E4 Ballyhooley Downstream Table E4

Sample Date	19/03/2009	17/04/2009	14/05/2009	25/05/2009	
Sample	River	River	River	River	Average
Sample Code	GT415	GT714	GT654		
Flow M ³ /Day	*	*	*	*	
pH	7.9	7.7	8	7.7	7.825
Temperature °C	*	*	*	*	
Cond 20°C	328	209	297	256	272.5
SS mg/L		9		9	5.0625
NH ₃ mg/L	<0.05	0.07	<0.10	0.07	0.07
BOD mg/L		3	1		1.5
COD mg/L	<5	19	<21	22	20.5
TN mg/L	2.8	2	3.88	2.81	2.8725
Nitrite mg/L	*	*	<0.10	*	
Nitrate mg/L	*	*	2.96	*	2.96
TP mg/L	0.15	0.13	0.07	0.11	0.10375
O-PO4-P mg/L		0.06		0.07	0.045
SO4 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	*	*	<0.28	*	<0.28
Tributyltin µg/L	*	*	not required	*	
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	*	*	<100	*	<100
Lead ug/L	<20	<20	<20	<20	<20
Nickel ug/L	<20	<20	<20	<20	<20
Zinc ug/L	33.3			<20	17.76666667
Boron ug/L	86.8	<20		<20	48.4
Cadmium ug/L	<20	<0.2	<20	<20	<20
Mercury µg/L	*	1.2	<0.2	*	<0.2
Selenium µg/L	*	*	1.2	*	1.2
Barium ug/L			31.675		15.41875

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value at 1/2 of LOD is 43.366667

County	Costello	19/05/2009	Atrazine	12	Ballyhooley Inlet	<0.01	ug/L
County	Costello	19/05/2009	Simazine	12	Ballyhooley Inlet	<0.01	ug/L
County	Costello	19/05/2009	(Eff.)	12	Ballyhooley Inlet	<0.28	ug/L
County	Costello	19/05/2009	(Total)	12	Ballyhooley Inlet	<1	ug/L
County	Costello	19/05/2009	Xylene	12	Ballyhooley Inlet	<0.73	ug/L
County	Costello	19/05/2009	(Eff.)	12	Ballyhooley Inlet	<0.35	ug/L
County	Costello	19/05/2009	ethane	12	Ballyhooley Inlet	<1	ug/L
County	Costello	19/05/2009	Arsenic	12	Ballyhooley Inlet		ug/L
County	Costello	19/05/2009	Mercury	12	Ballyhooley Inlet		ug/L
County	Costello	19/05/2009	Selenium	12	Ballyhooley Inlet		ug/L
County	Costello	19/05/2009	Cyanide	12	Ballyhooley Inlet		ug/L
County	Costello	19/05/2009	(Total)	12	Ballyhooley Inlet		ug/L
County	Costello	19/05/2009	Atrazine	13	Ballyhooley Downstream	<0.01	ug/L
County	Costello	19/05/2009	Simazine	13	Ballyhooley Downstream	<0.01	ug/L
County	Costello	19/05/2009	(Eff.)	13	Ballyhooley Downstream	<0.28	ug/L
County	Costello	19/05/2009	(Total)	13	Ballyhooley Downstream	<1	ug/L
County	Costello	19/05/2009	Xylene	13	Ballyhooley Downstream	<0.73	ug/L
County	Costello	19/05/2009	(Eff.)	13	Ballyhooley Downstream	<0.35	ug/L
County	Costello	19/05/2009	ethane	13	Ballyhooley Downstream	<1	ug/L
County	Costello	19/05/2009	Arsenic	13	Ballyhooley Downstream		ug/L
County	Costello	19/05/2009	Mercury	13	Ballyhooley Downstream		ug/L
County	Costello	19/05/2009	Selenium	13	Ballyhooley Downstream		ug/L
County	Costello	19/05/2009	Cyanide	13	Ballyhooley Downstream		ug/L
County	Costello	19/05/2009	(Total)	13	Ballyhooley Downstream	<0.10	ug/L
County	Costello	19/05/2009	Atrazine	14	Ballyhooley Upstream	<0.01	ug/L
County	Costello	19/05/2009	Simazine	14	Ballyhooley Upstream	<0.01	ug/L
County	Costello	19/05/2009	(Eff.)	14	Ballyhooley Upstream	<0.28	ug/L
County	Costello	19/05/2009	(Total)	14	Ballyhooley Upstream	<1	ug/L
County	Costello	19/05/2009	Xylene	14	Ballyhooley Upstream	<0.73	ug/L
County	Costello	19/05/2009	(Eff.)	14	Ballyhooley Upstream	<0.35	ug/L
County	Costello	19/05/2009	ethane	14	Ballyhooley Upstream	<1	ug/L
County	Costello	19/05/2009	Arsenic	14	Ballyhooley Upstream		ug/L
County	Costello	19/05/2009	Mercury	14	Ballyhooley Upstream		ug/L
County	Costello	19/05/2009	Selenium	14	Ballyhooley Upstream		ug/L
County	Costello	19/05/2009	Cyanide	14	Ballyhooley Upstream		ug/L
County	Costello	19/05/2009	(Total)	14	Ballyhooley Upstream	<0.10	ug/L
County	Costello	19/05/2009	Atrazine	15	Ballyhooley STP	<0.01	ug/L
County	Costello	19/05/2009	Simazine	15	Ballyhooley STP	<0.01	ug/L
County	Costello	19/05/2009	(Eff.)	15	Ballyhooley STP	<0.28	ug/L
County	Costello	19/05/2009	(Total)	15	Ballyhooley STP	<1	ug/L
County	Costello	19/05/2009	Xylene	15	Ballyhooley STP	<0.73	ug/L
County	Costello	19/05/2009	(Eff.)	15	Ballyhooley STP	<0.35	ug/L
County	Costello	19/05/2009	ethane	15	Ballyhooley STP	<1	ug/L
County	Costello	19/05/2009	Arsenic	15	Ballyhooley STP		ug/L
County	Costello	19/05/2009	Mercury	15	Ballyhooley STP		ug/L
County	Costello	19/05/2009	Selenium	15	Ballyhooley STP		ug/L
County	Costello	19/05/2009	Cyanide	15	Ballyhooley STP		ug/L
County	Costello	19/05/2009	(Total)	15	Ballyhooley STP	<0.10	ug/L

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Attachment E4 Ballyhooley Upstream Table E4					
Sample Date	19/03/2009	17/04/2009	14/05/2009	25/05/2009	
Sample	River	River	River	River	Average
Sample Code	GT414	GT713	GT655	GT795	
Flow M ³ /Day	*	*	*	*	
pH	7.9	7.8	8.0	7.8	7.875
Temperature °C	*		*	*	
Cond 20°C	330	210	210	257	251.75
SS mg/L	<2	10	<2.5	6	8
NH ₃ mg/L	<0.05	0.06	<0.1	0.08	0.07
BOD mg/L	<2	3	1	<2	2
COD mg/L	<5	31	<21	21	26
TN mg/L	2.8	2	3.38	2.84	2.755
Nitrite mg/L	*	*	<0.10	*	
Nitrate mg/L	*	*	2.62	*	2.62
TP mg/L	0.12	0.07	<0.05	0.07	0.086666667
O-PO4-P mg/L	<0.05	0.06	<0.05	0.05	0.055
SO4 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	*	*	<0.28	*	<0.28
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
Copper ug/L	<20	<20	<20	<20	<20
Cyanide µg/L	*	*	<5	*	<5
Fluoride µg/L	*	*	<100	*	<100
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	10	10	10	31.5	15.375
Cadmium ug/L	<20	<20	<20	<20	<20
Mercury µg/L	*	*	<0.2	*	<0.2
Selenium µg/L	*	*	<0.74	*	<0.74
Barium ug/L	26.2	10	57.595	10	25.94875

value at 1/2 of LOD for stistical purposes =

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