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WS - Water Quality Monitoring –
WW – Discharge Licence –
WW213 – Freshford

Waste Water Discharge Licence Attachments

Tracking Amendments

Revision	Date	Amendment	Reason
0	22-12-09	N/A	CoA Application
A	15-12-10	Certificate of Authorisation application details updated to WW Licence Application with addition of Section F & G	To complete application in full

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Section A Attachments

Non-Technical Summary

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A.1 Introduction

This application for a Waste Water Discharge Licence is made by Kilkenny County Council for the agglomeration of **Freshford**. The application is made pursuant to the Waste Water Discharge (Authorisation) Regulations, 2007, (S.I. No. 684 of 2007). All drawings referred to in this document can be found in Appendix 1 at the back of the document.

A.2 Location

Freshford is located in the Northern Area of County Kilkenny, (**240609E, 164659N**). It is located 15km North West of Kilkenny City and 15km East of Urlingford. The regional road R693, Kilkenny City to Urlingford passes through the village. Drawing “**KK-WWDL-213-A.2.1**” details the geographical location of Freshford, highlights some of the main roads and identifies the location of the Waste Water Treatment Plant that serves the agglomeration.

A.3 Plant & Agglomeration Operation

The Waste Water Treatment Plant serves the village of Freshford. The plant is located in the townland of Clintstown. It is situated about 50m north of the R698 on the northern banks of the Nuenna River (**241050E, 164772N**). Access to the plant is via the Clintstown Road.

The plant was built to cater for the influent from the village of Freshford and consists of a Septic Tank. The influent from Freshford gets to the plant predominately by gravity with the exception of one small housing estate, Nuenna Court, which is pumped to the gravity main. The gravity main gets to the siphon, which is located at Quinn’s Garage on the Clintstown Road, and the siphon pumps the influent under the River Nuenna to the tank. The final effluent discharges from the WWTP about 40m to the Nuenna River (**241087E, 164766N**). There is only one Storm Water Overflows and this is located at the at the siphon at Quinn’s Garage. There is only one pumping stations on the Agglomeration.

The sludge from the tanks is removed from site by bulk tanker and is disposed of in our main treatment plant in Purcellsinch, Kilkenny as part of our desludging programme. This is done four times a year.

There are no flow meters or composite samplers in place. Sampling is done by grab samples at the Inlet, Outlet, Upstream & Downstream. This monitoring is done by our Water Services and Environmental technical staff.

A.4 Plant & Agglomeration Supervision

The WWTP & agglomeration has a caretaker. The plant is checked at least twice a week

A.5 Future Upgrade

There are currently plans to upgrade this plant. This is at the detailed design stage and as this is likely to be a Design, Build and Operate plant details are unavailable at this stage. The treatment works will be sized to cater for a design loading (20 year design horizon) of 2,000 Population Equivalent (PE).

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Section B Attachments

General

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B.1 Agglomeration Details

Refer to drawing B.1.1 in Appendix 1 at the back of this document

B.2 Location of Associated Waste Water Treatment Plant

Refer to drawings A.2.1 & B.2.1 in Appendix 1 at the back of this document

B.3 Location of Primary Discharge Point

Refer to drawing B.3.1 in Appendix 1 at the back of this document

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Table KK-WWDL-213-B.2.1 - Sampling Details

Sample Point	Description	Sample Type	Kilkenny Co Co Lab Tests							External Lab
			Suspended Solids	COD	BOD ₅	DO	pH	Total Nitrogen	Total Phosphate	Dangerous Substances
KK213-001	Influent Sampling Point	Grab	✓	✓	✓	✗	✓	✓	✓	✓
KK213-002	Final Effluent Sampling Point	Grab	✓	✓	✓	✗	✓	✓	✓	✓
KK213-003	Up Stream Sampling Point	Grab	✓	✓	✓	✓	✓	✓	✓	✓
KK213-004	Down Stream Sampling Point	Grab	✓	✓	✓	✓	✓	✓	✓	✓

For Sampling Locations please refer to Drawings KK-WWDL-213-B.2.1 and KK-WWDL-213-B.3.1

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Table KK-WWDL-213-B.2.2 - 2009 Kilkenny Co Co Water Services Waste Water Sampling Programme

WA ID	Plant ID	Plant	Design PE	UWWT Minimum No. of Samples Required	BOD ₅	COD	TSS	Total P*	Total N*	Kilkenny Co Co Min. No. of Samples
33	755	Ballygriffin	30	Not Required	✓	✓	✓	✓	✓	0
33	196	Ballyhale-Knocktoper	400	Not Required	✓	✓	✓	✓	✓	2
33	207	Ballyragget WWTP	1920	6 Samples	✓	✓	✓	✓	✓	7
33	201	Bennettsbridge WWTP	500	6 Samples	✓	✓	✓	✓	✓	7
33	210	Callan WWTP	4000	12 Samples Year 1, 4 samples subsequent years	✓	✓	✓	✓	✓	13
33	200	Castlecomer WWTP	2540	12 Samples Year 1, 4 samples subsequent years	✓	✓	✓	✓	✓	13
33	203	Clogh-Mooneenroe WWTP	1740	6 Samples	✓	✓	✓	✓	✓	7
33	195	Coan	75	Not Required	✓	✓	✓	✓	✓	0
33	202	Deerpark	65	Not Required	✓	✓	✓	✓	✓	0
33	756	Dunamaggin	150	Not Required	✓	✓	✓	✓	✓	2
33	757	Dungarvan	65	Not Required	✓	✓	✓	✓	✓	0
33	221	Fiddown	300	Not Required	✓	✓	✓	✓	✓	2
33	213	Freshford	400	6 samples	✓	✓	✓	✓	✓	2
33	214	Glenmore	250	Not Required	✓	✓	✓	✓	✓	2
33	219	Goresbridge	400	Not Required	✓	✓	✓	✓	✓	2
33	194	Gowran WWTP	550	6 Samples	✓	✓	✓	✓	✓	7
33	209	Graiquenamanagh WWTP	3000	12 Samples Year 1, 4 samples subsequent years	✓	✓	✓	✓	✓	13
33	198	Inistioge	400	Not Required	✓	✓	✓	✓	✓	2
33	220	Johnstown WWTP	900	6 Samples	✓	✓	✓	✓	✓	7
33	215	Kells	300	Not Required	✓	✓	✓	✓	✓	2
33	758/759	Kilmacow (Dangan & Upper)	54 & 30	Not Required	✓	✓	✓	✓	✓	0
33	754	Kilmaganny	245	Not Required	✓	✓	✓	✓	✓	0
33	763	Kilmanagh	50	Not Required	✓	✓	✓	✓	✓	0
33	208	Mooncoin WWTP	2800	12 Samples Year 1, 4 samples subsequent years	✓	✓	✓	✓	✓	13
33	204	Mullinavat	280	Not Required	✓	✓	✓	✓	✓	2
33	197	Paulstown WWTP	1000	6 Samples	✓	✓	✓	✓	✓	7
33	206	Piltown WWTP	1500	6 Samples	✓	✓	✓	✓	✓	7
33	211	Purcellsinch WWTP	107650	24 Samples	✓	✓	✓	✓	✓	25
33	760	Sion Road	21	Not Required	✓	✓	✓	✓	✓	0
33	761	Skeaghvosteen	27	Not Required	✓	✓	✓	✓	✓	0
33	217	Stonyford WWTP	500	6 Samples	✓	✓	✓	✓	✓	7
33	212	Thomastown WWTP	3000	12 Samples Year 1, 4 samples subsequent years	✓	✓	✓	✓	✓	13
33	762	Tullaroan	20	Not Required	✓	✓	✓	✓	✓	0
33	205	Urlingford WWTP	1500	6 Samples	✓	✓	✓	✓	✓	7
33	WGAP	Windgap	27	Not Required	✓	✓	✓	✓	✓	0

* Total P & Total N only required for Discharges to Sensitive Rivers
 Co Kilkenny Only Sensitive Areas - River Nore Downstream of KMD Outfall to Inistioge Bridge

Table KK-WWDL-213-B.5.01 - Pumping Stations

Drawing Number	Description	ID Code	Easting	Northing	Screens	Storm Water Overflow	Discharge To	Monitoring	Type of Discharge Pipe	Operated By
KK-WWDL-213-B.5.02	Pumping Station at Nuenna Court	KK213-PS-01	240231	164674	✘	✘	None	Twice Weekly	Open Pipe	Private

Note: No Monitoring or sample points are currently in use with respect to these Storm Overflow Points.

Table KK-WWDL-213-B.5.02 – Storm Water Overflows Outfalls

Drawing Number	Description	ID Code	Easting	Northing	Screens	Storm Water Overflow	Discharge To	Monitoring	Type of Discharge Pipe	Operated By
KK-WWDL-213-B.5.02	Siphon at Quinn's Garage	KK213-SWOO-02	240958	164788	✘	✓	Nuenna	Twice Weekly	Open Pipe	Kilkenny Co. Co.

Note: No Monitoring or sample points are currently in use with respect to these Storm Overflow Points.

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Table KK-WWDL-213-B.5.03 - Storm Water Overflows Chambers

Drawing Number	Description	ID Code	Easting	Northing	Discharge To	Monitoring	Operated By
KK-WWDL-213-B.5.02	Siphon at Quinn's Garage	KK213-SWOO-02	240957	164785	Nuenna	Twice Weekly	Kilkenny Co. Co.

Note: No Monitoring or sample points are currently in use with respect to these Storm Overflow Points.

B.6 Previous Planning

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KILKENNY COUNTY COUNCIL



COMHAIRLE CHONTAE CHILL CHOINNIGH

**FRESHFORD
WASTEWATER
TREATMENT
WORKS**

- HISTORY
- PLANNING
- APPROVAL

FRESHFORD WASTEWATER TREATMENT WORKS:

HISTORY

The present Sewerage System including the Wastewater Treatment Works in Freshford appears to have been constructed in 1939, according to legal correspondence dated 1960.

The files giving details of the Design, the Departmental approval to, and the Subsequent construction of the Scheme and Treatment Works cannot be located.

The Treatment Works provided consisted of:

1. Main Sewerage Network to serve existing development in the Village
2. Inlet Chamber incorporating Manual Screen
3. Septic Tank and Outfall to Nuenna River

It is understood that the Treatment Works was, when constructed, designed to cater for a population of 400 persons; however using current design criteria, the nominal capacity of the Septic Tank is calculated at 320 PE. The Scheme pre-dates the introduction of the present Planning Acts and the approval process connected therewith. As stated above, documentation from or correspondence with the Department of Local Government relating to the approval or funding for the Scheme cannot be found; but the Scheme and Treatment Works were constructed and completed, and so it may be reliably assumed that such approval was obtained and funding granted.

Regarding the original Design, only a layout drawing of the Septic Tank survives, and a copy is appended.

The original sewerage network has been incrementally extended over the past 71 years; a drawing of its present extent is also appended.

In 2008, a Preliminary Report for upgrading of the Works to one having a nominal capacity of 2,000 PE, which comprised an allowance for all existing and future development in the village plus an allowance for population increase to the year 2033, was proposed by the Council's Consulting Engineers. It is intended that the upgrading work will be funded as a Design-Build-Operate Scheme under the Water Services Investment Programme of the Department of the Environment Heritage and Local Government. This upgrade is to be constructed as part of a Contract 'Bundle' together with upgrades to existing Wastewater Treatment Works in Johnstown and Goresbridge, Co Kilkenny. The upgraded Works is to provide secondary treatment with nutrient removal prior to discharge to outfall in the Nuenna River. The relevant sections of the Preliminary Report are appended.

However, as a consequence of present uncertainties surrounding investment in capital infrastructure, interim measures for upgrading the existing Works are being considered.

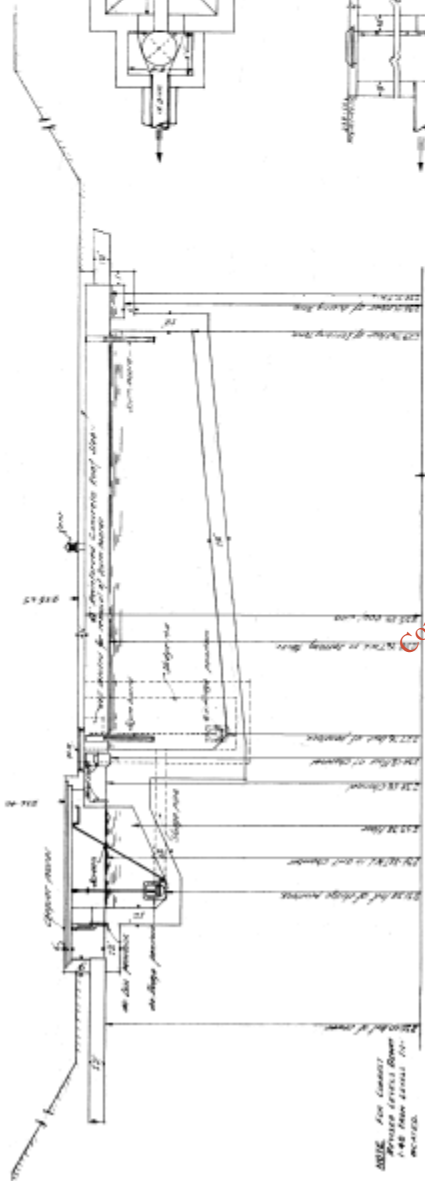
KILKENNY COUNTY COUNCIL



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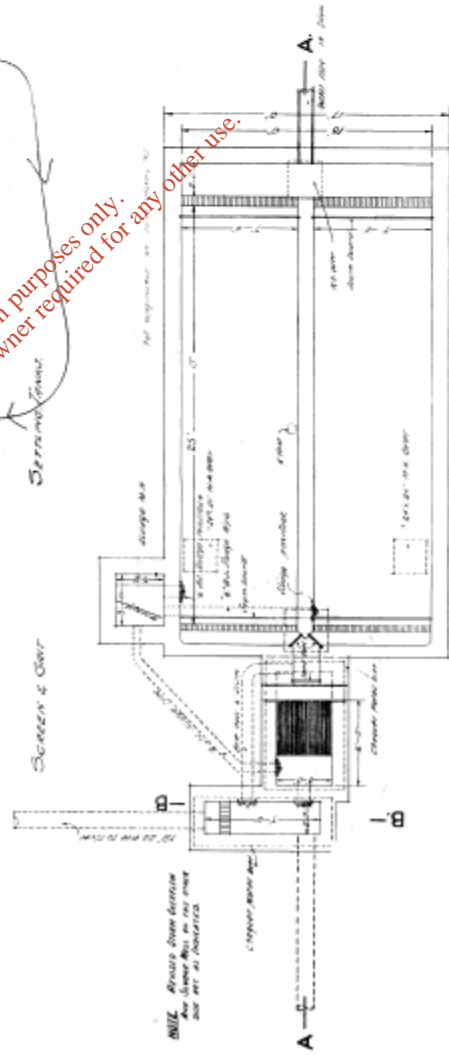
**FRESHFORD
WASTEWATER
TREATMENT
WORKS**

1939 TREATMENT WORKS



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SECTION A. A.



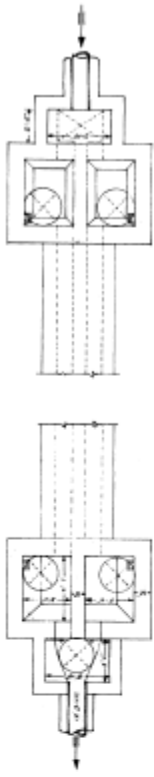
PLAN.



SECTION B. B.

SCALE 4 FEET TO ONE INCH

DETAIL OF FLAP OUTLET VALVE AT RIVER



PLAN

SYPHON

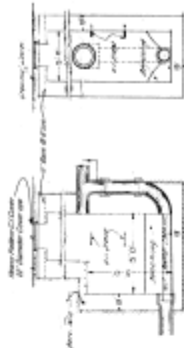
NUENA RIVER



SECTION



CROSS SECTION



LONG SECTION

CASCADE TYPE D FOR MANHOLES OVER SIX FEET DEEP



PLAN TYPE B

CASCADE TYPE A FOR MANHOLES UP TO SIX FEET DEEP



TYPICAL SECTION - 01 PER LINE

FRESHFORD SEWERAGE SCHEME
 DESIGN BY: T. KELLY
 DRAWING NO: 30/10/10
 DATE: 23/10/10
 T. KELLY BE & ASSOCIATES
 ENGINEERS, ARCHITECTS & PLANNERS
 100/100 RIVER STREET, DUBLIN 1

KILKENNY COUNTY COUNCIL



COMHAIRLE CHONTAE CHILL CHOINNIGH

**FRESHFORD
WASTEWATER
TREATMENT
WORKS**

2008-09 Proposed Upgrading:

- Preliminary Report
- DoEHLG Approval
- Drawing
- Part 8 Approval



KILKENNY COUNTY COUNCIL
COMHAIRLE CHONTAE CHILL CHAINNIGH

PRELIMINARY REPORT:

**FOR FRESHFORD, JOHNSTOWN AND GORESBRIDGE
SEWERAGE SCHEMES**

**VOLUME 1:
MAIN REPORT**

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Kilkenny County Council
County Hall
Kilkenny

January 2008



KILKENNY COUNTY COUNCIL
COMHAIRLE CHONTAE CHILL CHAINNIGH

PRELIMINARY REPORT:

**FOR FRESHFORD, JOHNSTOWN AND GORESBRIDGE
SEWERAGE SCHEMES**

**VOLUME 1:
MAIN REPORT**

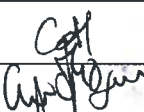


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8. POPULATION PROJECTIONS AND DESIGN LOADINGS FOR FRESHFORD

8.1 INTRODUCTION

8.1.1 This section reviews the population projections and design loadings for the village of Freshford. Future population projections and future loadings for the proposed WWTP are estimated. It is proposed to size the WWTP for the projected loadings over the next 25 years.

8.1.2 The census data for the Freshford DED for the years 1996, 2002 and 2006 indicate a population increase in line with the Province and State until 2002 after which the rate of increase is lower. The Freshford DED population data is summarised as follows:

- An average annual compounded growth rate 1.08% between 1996 and 2002 from 991 to 1057.
- An average annual compounded increase of 0.77% between 2002 and 2006 from 1057 to 1090.

8.2 CURRENT DOMESTIC POPULATION AND LOADING

8.2.1 The current population for Freshford village was estimated by means of a house count (using the An Post Geodirectory database and a village survey) and the application of an occupancy rate of 2.82. The occupancy rate of 2.82 is specified in the 2002-2008 County Kilkeny Development Plan. The 2006 current domestic population within the study area is estimated at 705 at based on a house count of 250

8.2.2 A survey undertaken in September 2006 established the number, size and location of all commercial, institutional and industrial premises within the village. The Standard EPA wastewater loading rates (see Table 1.3) were applied to the commercial premises (as indicated in Table 8.1) to estimate a current commercial loading at 9.2 kg/day BOD, 34.5 m³/day and a Population Equivalent (PE) of 151. A survey of the Freshford schools identified the current Institutional loading at 131 PE or 30.5 m³/day (as detailed in Table 8.2). The industrial premises identified contribute a wastewater load of a domestic nature. The total existing industrial load within the village is estimated at 10 PE or 2.3 m³/day. The current total wastewater loading for domestic, commercial, institutional and industrial load is estimated at a Population Equivalent of 997 and a hydraulic loading of 229.4 m³/day (as presented in Table 8.3 below).

Table 8.1 – Current Commercial Wastewater Loading for Freshford

Premises	No.	BOD Load kg/day	Discharge_m3/day	PE
Butcher	1	0.18	0.7	3
Church	2	0.38	1.4	6
Hairdresser	2	1.5	5.6	24
Hall	1	0.21	0.8	4
Office	1	0.18	0.7	3
Public House	5	4.0	15	65
Restaurant_(Takeaway)	1	0.8	3.0	26
Shop_(Grocery)	8	0.42	1.6	8
Shop_(Pharmacy)	1	0.06	0.2	1
Shop_(Filling Station)	1	0.7	2.5	11
Total		9.23	34.5	151

Table 8.2 – Current Institutional Loading for Freshford

Premises	No. Pupils	No. Beds	Total Discharge m ³ /day	PE
Primary School	179		10.7	46
Nursing_Home (Prague House)		28	8.4	36
Nursing_Home (St Catherine's)		38	11.4	49
Total			30.5	131

Table 8.3 – Current Total Loading for Freshford

Category	Loading (m3/day)	PE
Domestic	162.1	705
Commercial	34.5	151
Institutional	30.5	131
Industrial	2.3	10
Total	229.4	997

8.3 FUTURE POPULATION PROJECTIONS

8.3.1 Three separate growth rate scenarios are considered in projecting the future population within the study area. The village has a small retail and commercial base providing neighbourhood scale retail facilities serving a relatively local hinterland. It is anticipated that the growth of commercial and institutional developments will match the residential growth rate. There are approximately 15 ha of industrial zoned land within the Freshford Development Boundary. The 9 ha Slaney Foods site to the north of the town is not included in the sewerage scheme. A loading of 150 litres per 100m² per day is applied to the remaining 6 ha. This loading is consistent with warehouse type development. A Population Equivalent loading 390 PE is estimated for future industrial development. The Industrial loading of 390 PE is applied to the higher growth rate scenario. The average annual population growth refers to the rate of growth of population compounded annually over the given period of time. The separate growth rates are outlined as follows:

- An average annual population growth of 0.77% based on the population increase recorded by the Census 2002-2006 within the Freshford Electoral Division. The future population in 25 years time is calculated at 1208 based on a current Population Equivalent of 997 and an average annual growth rate of 0.77%.
- A future population based on applying a low housing density of 10 houses/ha to all of the 24 ha of undeveloped residentially zoned land within the Development Boundary. The future domestic Population Equivalent in 25 years time is calculated at 1381 based on low housing densities or an average annual population growth rate of 2.68%. The future non-residential Population Equivalent in 25 years is estimated at 551 based on the current non-residential Population Equivalent of 282 and a similar growth rate of

2.68%. The overall future Population Equivalent in 25 years time is calculated at 1932.

- A future population based on applying a high housing density of 25 houses/ha to the 20 ha of undeveloped land zoned general residential and applying a low housing density of 10 houses/ha to the 4 ha of the undeveloped land zoned low residential. The future domestic Population Equivalent in 25 years time is calculated at 2228 based on the mixed housing density or an average annual population growth rate of 4.60%. The future non-residential Population Equivalent in 25 years is estimated at 890 based on the current non-residential Population Equivalent of 282 and a similar growth rate of 4.60%. A future Industrial loading of 390 PE is applied to the higher growth rate scenario only. The overall future Population Equivalent in 25 years time is calculated at 3508.

8.4 CONCLUSIONS

- 8.4.1 The medium growth rate projection of 1,932 Population Equivalent (PE) is proposed as a basis for sizing the WWTP at 2,000 PE capacity. The projected loading to the WWTP is estimated at a hydraulic loading of 460 m³/day and an organic loading of 120 kg BOD/day. The loadings are based on a hydraulic loading of 230 litres/day per person and an organic loading of 0.06 kg BOD/day per person.
- 8.4.2 It is recommended that the inlet works to the WWTP be designed to accommodate the higher growth rate projection of 3,500 PE and that the layout of the main plant allows for the addition of a further 1,500 PE module as necessary.

9. REVIEW OF THE EXISTING WASTEWATER COLLECTION SYSTEM AND WWTP AT FRESHFORD

9.1 LOCATION AND CONDITION OF FRESHFORD WWTP

9.1.1 The existing WWTP is located in Freshford Village on the banks of the Nuenna River. There is no direct access road to the plant. The site area is accessed by entering and crossing a field. The site area is triangular in shape, small with limited space for expansion. The plant was originally constructed in the 1940's and comprises an inlet bar screen, a primary sedimentation tank and an outfall discharge pipe. The coarse bar screen is in poor condition and is not operational. The primary sedimentation tank appears to be in reasonable condition with the settling chamber and outlet channel operating satisfactorily. The sedimentation tank is operated as a septic tank with desludging being undertaken by a road tanker. The tank is adequately sized to provide primary treatment for a loading of approximately 300 Population Equivalent.

9.2 TREATMENT PROCESS AND DESCRIPTION OF FRESHFORD WWTP

9.2.1 Preliminary treatment is provided by a manually raked inclined bar screen. The screen is designed to remove or to reduce in size the large suspended or floating organic solids.

9.2.2 Primary treatment is provided by two horizontal flow settlement tanks operating in parallel. The tank is designed to remove the influent organic and inorganic settleable solids by sedimentation. The tank is operated as a septic tank with the settled solids being allowed to decompose at the bottom of the tank with desludging being undertaken by tanker truck on a quarterly basis.

9.2.3 The wastewater from Freshford is delivered to the inlet works by a single 300mm internal diameter gravity sewer. The wastewater passes through the bar screen and thereon to the settling tank. The inlet works is equipped with a storm overflow weir where storm flows are diverted directly to the Nuenna River. The solids settle out to the bottom of the settling tank. The clarified supernatant overflows to an outlet channel and onwards to a 300mm internal diameter discharge pipe to the river. The outlet channel is fitted with a scum board to reduce solids 'carryover' in the effluent.

9.3 CURRENT LOAD AND PERFORMANCE OF FRESHFORD WWTP

9.3.1 A flow and load survey undertaken in May 2006 indicates a dilute influent wastewater concentration as presented in Appendix 8. The average day time influent BOD concentration was recorded at 65mg/l and average day time influent total suspended solids concentration at 45mg/l. The average day time influent flow rate was measured at 150m³ /d. An average influent BOD and total suspended

solids of 250-300mg/l would normally be anticipated for a municipal type wastewater. The low influent concentrations indicate a high level of dilution. The average daytime effluent BOD concentration was recorded at 57mg/l and the average total suspended solids concentration at 30mg/l. The level of treatment provided by the existing Freshford WWTP is not adequate in terms of capacity or quality to meet current requirements.

9.4 DESCRIPTION AND CONDITION OF FRESHFORD WASTEWATER COLLECTION SYSTEM

9.4.1 The system is characterised as a partially combined gravity system. The original system was constructed in the 1940's with extensions at the Woodview estate and along the Bunacresha Street in more recent times. The original system is constructed of 225-300 mm diameter concrete pipework and manholes. The recent extensions are constructed of 100-150mm diameter PVC pipework and concrete manholes.

9.4.2 A total of 3726m of main sewer and branch lines were surveyed in October 2006. The survey indicated 120m of 100mm diameter PVC pipework, 1187m of 150mm diameter PVC pipework, 1725m of 225mm diameter concrete pipework, 123m of 225mm diameter PVC pipework, 591m of 300mm diameter concrete pipework and 82 concrete manholes. The survey recorded and assessed the condition of the system. The survey identified and categorised the defects within the system. The defects identified included broken pipes and numerous drainage obstructions resulting from poorly made connections. The sewer survey and rehabilitation schedule are detailed in section 11 and in appendix 4 and 7 of the report.

10. RECEIVING WATER BODY AT FRESHFORD

10.1 INTRODUCTION

10.1.1 The Nuenna River (An Uaithne) is a tributary of the River Nore. It rises near the Townland of Tubrid. The river flows through Freshford and onto its confluence with the River Nore near Threecastles. Its main Tributary is the Arigna River. The total area of the Nuenna catchments is approximately 58km². The capacity of the Nuenna River to assimilate the treated effluent is assessed in this section.

10.2 QUALITY OF THE RECEIVING WATER BODY AT FRESHFORD

10.2.1 The quality of the Nuenna River is determined to ascertain the level of effluent treatment required to comply with the river quality regulations. A review of the EPA classifications indicates deterioration in river quality with a fall in the unpolluted quality class and an increase in the moderately polluted class. The water quality of the Nuenna River (in line with the most recent year 1991) at East Bridge sampling station in Freshford upstream of the WWTP is reported as being slightly polluted with a biological Q rating of 3-4. A biological assessment of the Nuenna River based on macro invertebrate community analysis indicates a Q rating of 3-4 at a point 100m upstream of the WWTP discharge point. A Q rating of 1-2 was recorded 30m downstream of the WWTP discharge point. The drop in Q rating demonstrates the negative impact of the WWTP on the river quality. To comply with the quality standards prescribed in the 1998 regulations, it is necessary to maintain/improve the river quality to a biological rating of 4 or to meet the Ortho-Phosphate concentration of 0.03mg/l as listed in Table 10.1.

10.2.2 Table 10.1 – Quality Standards for Rivers (W.Q. Standards for Phosphorus)

Town	River, Station	Existing Quality Rating (Q)*	Min Target Q Rating	Target Ortho-Phosphate Concentration (µg P/l)
Freshford	Nuenna River	3-4	4	30

* Taken from the EPA, Water Quality Report 2001-2003

10.3 ASSIMILATIVE CAPACITY OF RECEIVING WATER BODY AT FRESHFORD

10.3.1 The assimilative capacity for the Nuenna River has been calculated for BOD, Phosphates, Ammonia and Nitrates and is presented in Table 10.2 and Table 10.3. The EPA median values (chemical analyses 2001-2003) for BOD, Ortho-Phosphate, Total Ammonia and Oxidised Nitrogen are used in determining the assimilative capacity of the Nuenna River. The maximum permissible river concentrations are

determined by reference to the EPA threshold values (see Table 1.2). However, where the BOD median value is below 2mg/l, the maximum permissible value of BOD is equal to the median value plus 1. The average flow for the Nuenna River is estimated at 1.0m³/s based on an examination of the catchment area, rainfall and site investigations while the 95 per centile flow is reported at 0.03 m³/s. An assimilative capacity of 2.59 kg BOD/day, 0.23 kg Total Ammonia/day, 73.44 kg Oxidised Nitrogen/day and 0.86 kg Ortho-Phosphate/day is estimated.

10.4 RECOMMENDED DISCHARGE STANDARDS AT FRESHFORD WWTP

10.4.1 The suitable discharge standards are determined by comparing the assimilative capacity of the river and the estimated discharge concentrations from the WWTP. The design Population Equivalent (PE) for the wastewater treatment plant at Freshford is proposed at 2,000. The calculations are based on a hydraulic discharge of 230 litres per PE. Adequate assimilative capacity is available at a discharge of 5.6mg/l BOD, 0.5mg/l Total Ammonia, 160mg/l Oxidised Nitrogen and 1.87mg/l Ortho-Phosphate.

10.4.2 The Total Ammonia concentration of 0.5mg/l (as N) has been converted to an Ammonium concentration of 0.6mg/l (as NH₄) by applying a conversion factor of 0.778. The Oxidised Nitrogen concentration of 160mg/l (as N) has been converted to a Nitrate concentration of 707mg/l (as NO₃) by applying a conversion factor of 4.42.

10.4.3 The recommended discharge standards for the Freshford wastewater treatment plant are presented in Table 10.4 below. It is noted that the standards are estimated on a conservative rate of 230 litres/person/day. The standards are necessary to ensure that the treated effluent complies with the regulations and does not negatively impact the quality of the receiving water body.

Table 10.2 – Nuenna River Assimilative Capacity for BOD and Total Ammonia at Freshford (East Bridge Station 0200)

95 Percentile Flow (m3/sec)	Median U/S Conc. (mg/l)		Max Permissible Concentration		Assimilative Capacity	
	BOD (mg/l O2)	Total Ammonia (as N) mg/l	BOD (mg/l O2)	Total Ammonia (as N) mg/l	kg BOD/day	kg Total Ammonia/day (as N)
0.03	0.5	0.01	1.5	0.1	2.59	0.23

Table 10.3 – Nuenna River Assimilative Capacity for Oxidised Nitrogen and Ortho-Phosphate at Freshford (East Bridge Station 0200)

Avg. Flow (m3/sec)	Median U/s Conc. (mg/l)		Max Permissible Concentration		Assimilative Capacity	
	Oxidised Nitrogen (as N) mg/l	Ortho-Phosphate (as P) mg/l	Oxidised Nitrogen (as N) mg/l	Ortho-Phosphate (as P) mg/l	Oxidised Nitrogen kg N/day	Ortho-Phosphate kg P/day
1.0	4.8	0.02	5.65	0.03	73.44	0.86

Table 10.4 – Recommended discharge standards for Freshford Wastewater Treatment Plant

BOD (mg/l)	Suspended Solids (mg/l)	Ortho-P (mg/l) as P	Total Ammonium mg/l (as NH4)
5	5	1.5	0.6

11. SEWER GRADING AND REHABILITATION AT FRESHFORD

11.1 INTRODUCTION

11.1.1 A survey of the sewers and manholes within the Freshford boundary area was carried out between August 2006 and October 2006. The survey identified details regarding sewer type, size, length and elevations. The survey established the internal condition and defects of the sewers. The complete CCTV and Manhole Survey report is contained in Appendix 7. This section of the report summarises the results of the survey and quantifies the number of sewer defects.

11.2 SEWER INTERNAL CONDITION GRADING

11.2.1 A total of 72 sewer lengths were surveyed of which approximately 21% contained defects with a grading 4 or 5. A grading of 4 or 5 requires upgrading in the short-term. A summary of the grading report is presented in Table 11.1 below. The table shows the peak grade in each sewer length, but does not take account of the number of other defects within that length that are also graded 4 or 5, for instance the structural grade 5 sewer (MH 32 to MH 33) contains five holes repaired from outside. The two operational grade 5 sewers (MH 12 to MH 13 and MH 36 to MH 7) result from gushing infiltration and mass roots. The survey identifies approximately 30 grade 4 and 5 defects within the entire sewer network. Structural rehabilitation of defective sewers will limit the potential for infiltration. Future occurrences of groundwater infiltration into the sewer system can be identified and rectified through a regular programme of sewer survey and maintenance. The defects are identified and located within the CCTV report in Appendix 7. It is noted that a small number of sewer length surveys were abandoned due to intrusions and obstructions. The main sewer defects in the village network are identified as follows;

- Defective and intruding connections
- Pipe breaks and holes
- Deformation of pipe walls
- Cracking – both circumferential and longitudinal
- Joint displacement

Table 11.1 Summary of Sewer Grading at Freshford

Type of Defect	Grade 4 Sewer Lengths	Grade 5 Sewer Lengths	Total Grade 4 & 5 Sewer Lengths
Structural	9	1	10
Service / Operational	3	2	5
Total			15

11.3 STRUCTURAL REHABILITATION OF DEFECTIVE SEWERS

- 11.3.1 The CCTV survey identified approximately 30 defects to be repaired immediately in Freshford. The defects are encountered in 15 sewer lengths. Cost estimates for the structural repair of the defective sewers in Freshford are presented in Appendix 4.

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12. PROPOSED SEWERS AT FRESHFORD

12.1 DESIGN APPROACH

12.1.1 Where the construction of additional foul sewers and manholes is required within the study boundary, the proposed foul sewers are to be laid at sufficient depths to ensure that all sub catchments can be drained by gravity either to the wastewater treatment plant or a pumping station. Where localised low spots exist within sub-catchments, the finished floor levels of the proposed developments should be raised so that a gravity connection to these proposed sewers is possible. The approach with regard to pumping is to minimise pumping requirements to eliminate or minimise the capital, operating and maintenance costs of pumping installations.

12.2 DESIGN CRITERIA

12.2.1 The following design criteria is recommended for the proposed sewers:

- The proposed sewers are to be designed for a peak daily flow of 3 times Dry Weather Flow (DWF) for the ultimate development subject to a minimum applied peak daily flow of 5 litres/second.
- The proposed sewers are to be constructed using precast concrete spigot and socket pipes. The minimum pipe size recommended for the new sewerage system is 225mm internal diameter. The size is not based on hydraulic capacity but on practical considerations, in particular minimising the risk of blockages.

12.3 PROPOSED SEWERS

12.3.1 A total of 290m of 375mm diameter new sewers and 3 manholes are proposed. Drawings of the proposed foul sewers including longitudinal sections are included in Appendix 1. Detailed calculation sheets for the design of the proposed sewers are included in Appendix 5 with cost estimates in Appendix 4.

12.3.2 The entire sewer system was modelled by applying a foul only load to the new sewers and a combined (foul and surface water) load to the existing sewers. Storm return period of 5 and 30 years were applied, flooding was highlighted in elements of the existing sewer system. The existing sewer system was altered to eliminate a risk of flooding for the 5 year and flooding for the 30 year return period. The alterations to the existing sewer system are outlined in Appendix 1 and 5 of the report. The alterations comprise changing sewer size and elevations of the highlighted sewers to cater for flows and achieve a minimum cover of 1.2m. The proposed changes and additions are identified as follows:

-
- Manhole 2 to WWTP (MH2-WWTP) comprising 290m of 375mm internal diameter sewer and 3 manholes.

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13. PROPOSED WWTP FACILITIES AT FRESHFORD

13.1 INTRODUCTION

13.1.1 The level of treatment provided by the existing WWTP is not adequate in terms of capacity or quality to meet current or future requirements. The design Population Equivalent (PE) for the plant is proposed at 2,000. A treated final effluent with phosphorous removal is required prior to discharge to the Nuenna River. A discharge standard of 5mg/l BOD, 5mg/l SS, 1.5mg/l Ortho- Phosphate and 0.6mg/l Total Ammonium (as NH₄) is deemed necessary as outlined in Section 10.

13.2 SITE LOCATION OF THE PROPOSED WWTP AT FRESHFORD

13.2.1 The existing WWTP site is too small to accommodate the proposed 2,000 PE WWTP. It is recommended that the proposed treatment plant be located in a field to the west of the existing WWTP. The proposed location allows the majority of the catchments to drain by gravity to the treatment plant site. A proposed site area measuring 60m x 80m approximately will allow for the construction of a continuous activated sludge plant or a sequencing batch reactor type plant. The new location allows for the creation of a 80m buffer zone between the nearest development and the WWTP. Investigation Reports undertaken indicate that there are no archaeological or ecological constraints present at the site location. The proposed treatment plant site area will require a 3 phase electrical power supply and mains water supply. An indicative WWTP layout drawing is included in Appendix 1.

13.3 DESCRIPTION OF THE PROPOSED WWTP AT FRESHFORD

13.3.1 It is anticipated that the proposed WWTP will comprise the following:

- Inlet works with screening, grit removal and Inlet pumping rated at 3,500 PE capacity.
- Storm water handling facilities
- An Activated sludge plant variant incorporating a Nitrification stage rated at 2,000 PE capacity
- Tertiary filtration and phosphorous removal facilities
- Sludge Thickening and Storage
- Final effluent flow measurement and sampling
- Odour abatement to the Inlet works and sludge storage facilities
- Plant Building incorporating an Air Blower room, Electrical Control room, Office and Welfare facilities.

- Access Road, Internal Road and Parking Area, Fencing, Landscaping and Site Lighting.

13.4 STORM WATER STORAGE REQUIREMENTS AT FRESHFORD

13.4.1 The UWWTD in Annex 1(a) states that “the design, construction and maintenance of collection systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding the limitation of pollution of receiving waters due to storm water overflows” (BATNEC Principle)

13.4.2 The UWWTD in Annex 1(a) states that “the design, construction and maintenance of collection systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding the limitation of pollution of receiving waters due to storm water overflows” (BATNEC Principle). In a footnote to Annex 1, the Directive does acknowledge the impracticability of constructing collection systems and treatment plants such as to treat all waste water during situations such as unusually heavy rainfall. It therefore places responsibility on member states to decide on measures to limit pollution from storm water overflows. The DoEHLG have issued procedures on “criteria in relation to storm water overflows” which is intended to assist Local Authorities and Consulting Engineers in the evaluation of their requirements for implementation of this aspect of the UWWTD.

13.4.3 These criteria state the following:

- Minimum setting for a storm overflow shall be flows above “formula A” ($1.36P + DWF + 2E$) where P = Population, DWF = Dry Weather Flow, E = Industrial;
- Overflows should be designed for effective containment of detritus and floating debris;
- Overflow discharge points should be discretely located.

13.4.4 The paper states that the Urban Pollution Management (UPM) Steering Group in the UK have developed a criteria for the initial assessment of storm water discharges into freshwater which is shown in **Table 13.1** below.

Table 13.1 UPM Indicative Impact Assessment Criteria for Storm Overflows to Freshwaters

Low Significance Dilution >8 : 1 (foul DWF @95%ile flow) No interaction with other discharges
Medium Significance Dilution <8 : 1 Limited or no interaction with other discharges >2,000 population equivalent Only if all these criteria apply
High Significance Dilution <2 : 1 Limited or no interaction with other discharges >10,000 population equivalent Cyprinid or salmonid fishery Only if all these criteria apply

- 13.4.5 The projected DWF for the foul catchments at the Freshford WWTP is projected to be 444m³/day for 20 year design horizon based on future population of 1,932 PE. The 95%ile flow in Nuenna River is 2,592m³/day. The Nuenna River therefore has a dilution capability of approximately 1 to 5.8. In accordance with **Table 13.1** the discharge will have low significance (The discharge is not of medium significance as the PE is not in excess of 2,000 PE).
- 13.4.6 The overflow setting for low significance receiving water courses requires a minimum of formula A flows to be passed forward. The Scottish Development Department have also issued a document which takes into account the available dilutions of the receiving water and recommends the size of storage to be provided at an overflow. This table is reproduced in **Table 13.2**.

Table 13.2 SDD Method Recommended Storage at Overflows

Dilution Factor	Overflow Setting	Storage Tank
>8	Formula A	None
>6	Formula A + 455P or Formula A	None 40l/head
>4	Formula A	40l/head
>2	Formula A	80l/head
>1	Formula A	120l/head

13.4.7 In line with **Table 13.2** it is recommended that the forward pumping rate to the WWTP be set at formula A to pass flows to the WWTP with no storage. It is however recommended that an underground storage tank be provided in the event of a mechanical breakdown based on 2 hours storage at 3DWF or 115m³ storage based on the projected 20 year flows. This equates to a circular 6.0m diameter Tank with a liquid depth of 4.0m. The overflow from the tank to the river will be fitted with a 6mm screen to ensure that no detritus and floating debris enter the river. Flows to the river from the high level overflow shall be regulated in order that the river does not flood downstream.

13.4.8 In the event that the WWTP is increased in capacity to 3,500 PE. The projected DWF for the foul catchments at the Freshford WWTP will be 805m³/day. The Nuenna River would have a dilution capability of approximately 1 to 3.2 in this scenario. In accordance with **Table 13.1** this discharge would have a medium significance. In line with **Table 13.2** it is recommended that the forward pumping rate to the WWTP be set at formula A to pass flows to the WWTP with 80l/head storage or a storage volume of 280 m³. This equates to a circular 9.0m diameter Tank with a liquid depth of 4.5m.

13.4.9 A storm water storage volume of 115m³ is recommended for the Freshford WWTP on the basis all future development will be subject to Kilkenny County Council storm water policy to ensure separation of foul and surface water systems. It is recommended that all new developments incorporate Sustainable Urban Drainage (SUDS) techniques of attenuation and use of permeable construction materials to limit the flow rates of surface water.

14. SLUDGE TREATMENT AND DISPOSAL AT FRESHFORD

14.1 INTRODUCTION

- 14.1.1 A waste sludge by-product is produced during the wastewater treatment process. The characteristics of the waste sludge, such as dry solids content, pathogen counts, vector attraction, stability and volumes are the prime considerations in the selection of the most appropriate sludge handling and treatment process.

14.2 KILKENNY SLUDGE MANAGEMENT PLAN

- 14.2.1 A Draft Sludge Management Plan (SMP) was prepared by Entec and O'Dwyer for Kilkenny County Council in February 2003. The SMP proposes the development of a hub centre sludge processing facility at the Kilkenny City Wastewater Treatment Plant. The waste sludge at the proposed WWTP at Freshford is to be stored as a liquid sludge on site prior to transporting to the hub centre for further treatment. In the preparation of the estimates for the capital and operational costs for the proposed works, sludge storage and tanker reception facilities have been included for the scheme. It is recommended that odour abatement equipment be provided with the Sludge Storage facilities due to the proximity of neighbouring developments.

14.3 ANTICIPATED WASTE SLUDGE VOLUMES AT FRESHFORD WWTP

- 14.3.1 It is anticipated that the proposed WWTP at Freshford will be an activated sludge (AS) type plant serving a Population Equivalent (PE) of 2,000. It is estimated that an AS plant of this size at peak loading will produce 60kg dry solids equates to 1,885kg per day at 3% dry solids or a liquid volume of 1.9m³ per day. A sludge storage thickener/storage tank having a 20 day storage capacity (or 38m³) is recommended.

15. COST ESTIMATE FOR FRESHFORD

15.1 CAPITAL COST

15.1.1 The estimated fixed capital cost for the proposed development, inclusive of VAT is €2,070,844 and comprises the following:

- Extensions and upsizing of the existing sewer network at €98,745. It is noted that this figure includes for a sum of €15,776 for road reinstatement.
- Replacement of existing defective sewers at €155,796. It is noted that this figure includes for a sum of €45,661 for road reinstatement.
- Proposed 2,000 PE WWTP at € 1,261,971.
- Non-Contract Costs, Land, Wayleaves, Fees, Site Supervision at € 554,332

15.1.2 A detailed estimate of the fixed capital costs for the proposed scheme at Freshford is included in Appendix 4 of the report.

15.2 OPERATIONAL COST

15.2.1 The estimated operational costs for the proposed 2,000 PE WWTP at Freshford, exclusive of VAT is € 639,210.

15.2.2 The operational period is taken as 20 years from the time the infrastructure becomes operational. The costs are discounted to their "present day" values using a discount rate of 5%. The discount rate of 5% is recommended by the Department of Finance (1994) and the CSF Evaluation Unit (1999) for public projects in Ireland. A detailed estimate of the operational costs for the proposed scheme at Freshford is included in Appendix 4 of the report.

16. CONCLUSIONS FOR FRESHFORD

16.1 CONCLUSIONS

16.1.1 The conclusions from the report are outlined as follows:

- The Nuenna River is rated by the EPA (Q rating 3-4) as slightly polluted upstream of the WWTP discharge point. The river has a 95 percentile flow of 0.03 m³/s and an average flow of 1.0m³/s. The river has limited assimilative capacity.
- The projected population equivalent (PE) loading for Freshford in 25 years time is estimated at 1,932.
- The existing WWTP is not adequate to meet current or future requirements in terms of capacity or treated effluent quality.
- The existing WWTP site is too small for the proposed expansion and does not have an access road. The site does not have an electrical or water supply.
- The waste sludge generated at the WWTP is to be stored on site and transported to the sludge hub centre at Kilkenny for further dewatering.
- The existing sewer system is a combined system, collecting surface waters. Sections of the sewer system are in a poor condition and require rehabilitation. The existing sewer system requires some alterations to cater for the study boundary catchment area and to avoid the risk of flooding. An additional 290m of sewers are required to serve the areas within the study boundary.
- The Fixed Capital Cost for the Freshford Scheme is estimated at €2,070,844 inclusive of VAT.
- The Operational Cost for the WWTP is estimated at €639,210 exclusive of VAT, based on 20 years operate period and a discount rate of 5%.

17. RECOMMENDATIONS FOR FRESHFORD

17.1 RECOMMENDATIONS

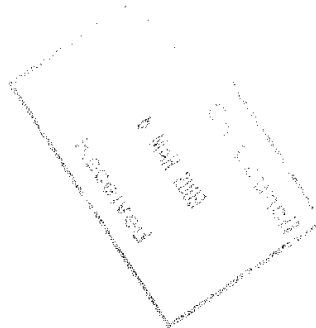
17.1.1 The recommendations arising from the report are listed as follows:

- To procure the additional proposed sewers and sewer rehabilitation work as one traditional contract alongside the sewer related work of the other two villages.
- To construct a new WWTP with a capacity 2,000 population equivalent (PE). The plant to be constructed with tertiary level treatment to allow for the limited assimilative of the Nuenna River. The treated effluent standard to be 5mg/l BOD, 5mg/l SS, 1.5mg/l Ortho-P, 0.6mg/l Ammonium.
- To prepare a PPP Assessment Report for the procurement of the WWTP as a bundled DBO contract alongside the WWTP's of the other two villages.
- To purchase a new WWTP site and an access road at an adjacent site to the east of the existing site.
- To provide the new WWTP site with a 3 phase electricity supply and a mains water supply.
- To provide odour abatement equipment at the WWTP due to the proximity of neighbouring developments.

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Comhshaol, Oidhreacht agus Rialtas Áitiúil
Environment, Heritage and Local Government



Mr Philip O'Neill
Director of Services
Kilkenny County Council
County Hall
John Street
Kilkenny.

Freshford, Johnstown, Goresbridge Sewerage Scheme

Dear Philip,

I wish to refer to the Council's letters of 17 and 22 December 2008 in relation to the progression of this scheme.

The procurement and appointment of the Consultant is a matter for the Council. In this regard, it might be noted that an expression in a Brief that an appointment may be extended is not, of itself, adequate to allow this course. The Council should have regard to the contract as advertised and satisfy itself as to compliance with public procurement legislative requirements and policy.

The next stages on the project that require Department approval are:

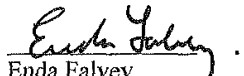
- The issues raised in the Department's letter of 13 November approving the PR for the scheme,
- Procurement/Construction Stage Budget
- The Brief for Client's Representative for DBO element of project, and
- The fee proposal where DBO procurement is involved.

The Department is satisfied with the clarifications provided in your letter of 22 December in response to the issues raised in the PR approval letter except for the clarifications provided in relation to organic growth and independent costs. In this regard, attention is drawn to our Inspector's e-mail communication of 20 January, which should clarify the situation for the Council. The Department's Inspector will be available for any further discussion or clarification needed on these points.

The Budget submission and related clarifications have been examined and approval is conveyed to the €6,157,184 arrived at as the Approved Cost of the scheme to which water pricing policy adjustments will be applied. The Council will be advised in due course of the Approved Grant to be calculated on the basis of a weighted average of the three water pricing policy percentages for the three villages involved.

On the brief for the Client's Representative, it is noted that this has to be submitted to the Department in due course (Schedules A & B have been submitted). Finally, the fee proposal in relation to the DBO procurement is approved, as included in the Procurement/Construction Stage Budget of €6,157,184.

Yours sincerely,


Enda Falvey
Water Services Section
4 March 2009.

LEGEND

EXISTING SERVICES & MANHOLES

No.	Description	By	Chk.	Appr.	Date

KILBERRY COUNTY COUNCIL

Englin House
 Long Alley
 Liscadd
 Kildare
 Ireland

16 91-41700
 Fax: 91-37141
 Email: enr@engling.com

Consulting Engineers
 Wallace Young & Greaves
 Old Street Industrial Estate, Dublin 15, Co. Dublin, Ireland

**FRESHFORD, JOHNSTOWN & CORESBIDGE
 SEWERAGE SCHEME**

Drawing No. _____

FRESHFORD EXISTING NETWORK

Name of I.T.I.	Search No.	Site	Created by	Date	Approved by	Date
CO4658	10	C				

Revision No. 02

Approval: INFORMATION TENDER CONTRACT CONSTRUCTION



Meeting Held: 20th July 2009

Proposed by

Mr. C. Conery

Seconded


Mr. J. Brennan and resolved

**Re Freshford Waste Water Treatment Plant and outfall to Nuenna River
Section 179 of the Planning & Development Act 2000
Part 8 of Planning & Development Regulations 2001**

Having considered the County Manager's Report, the members of Kilkenny County Council at their meeting held on 20th July 2009, in accordance with Section 179(4)(b) of the Planning & Development Act 2000 adopted the following resolution:

"That the proposed development namely Freshford Waste Water Treatment Plant and outfall to Nuenna River, be carried out as recommended in the County Manager's Reports of 13th July 2009 and 17th July 2009 "

Signed:


Cathaoirleach

Date

20.7.2009

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KILKENNY COUNTY COUNCIL

FRESHFORD WASTEWATER TREATMENT WORKS

PART 8 PLANNING REPORT

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Issue		Prepared by	Checked by	Verified by
V1	22/5/09	Sarah O'Neill Principal Engineer	Cuan O'Hogain Associate Director	Cuan O'Hogain Associate Director
V2	27/5/09	Sarah O'Neill Principal Engineer	Cuan O'Hogain Associate Director	Cuan O'Hogain Associate Director
File Location: H:\C&S Projects\C004958 Freshford Johnsvillage Goresbridge\DOC\08-REPORTS\Part 8 Planning Report				
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KILKENNY COUNTY COUNCIL

FRESHFORD WASTEWATER TREATMENT WORKS

PART 8 PLANNING REPORT

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6. Other Site Development Issues.....	6

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APPENDIX A - DRAWINGS

APPENDIX B - ECOLOGY REPORTS (3 VILLAGES)

APPENDIX C - ARCHAEOLOGY REPORTS (3 VILLAGES)



1. INTRODUCTION

Kilkenny County Council proposes to undertake works associated with the design, construction operation and maintenance of a waste water treatment plant (WWTP) for the village of Freshford, Co. Kilkenny.

The proposed works involve the development of a waste water treatment plant to provide appropriate treatment of waste water from the village. This work is categorised as a prescribed development in Article 80 of the Planning and Development Regulations 2001 Regulations "(d) the construction or erection of pumping stations, treatment works, holding tanks or outfall facilities for waste water or storm water."

2. PROCUREMENT

In accordance with Department of Environment, Heritage and Local Government procurement guidelines, the proposed WWTP is to be procured as part of a "bundled" Design Build Operate (DBO) Contract - i.e. it will be procured with two other WWTPs in County Kilkenny, namely Johnsvillage and Goresbridge, as a single DBO Contract. This type of procurement places the responsibility for the design, construction and operation of the works with a single Contractor. This DBO Contractor will be required to treat a specified volume of effluent to a required standard and meet specified performance requirements. The DBO Contractor will then be required to operate and maintain all three WWTPs for a period of 20 years.

It is anticipated that various designs will be offered for proposed WWTP. This report sets out the minimum requirements for the WWTP, but it is not the intention to constrain the DBO Contractor, who may wish to vary the plant & building configurations. This report therefore outlines the required output specification for the proposed WWTP under the following headings - Process Specification, Civil/Structural Specification, Environmental Specification.



3.0 PROCESS SPECIFICATION

3.1 Introduction

The existing sewage treatment plant in Freshford was built in the 1940's to cater for a population equivalent of 300. The existing plant is heavily overloaded and Kilkeny County Council (KCC) proposes to construct a new plant at a greenfield site in the village. The existing plant will continue to operate until the new plant is commissioned.

The proposed new site, as shown on drawings, is situated to the east of the village, on the bank of the River Nuenna. This site was identified as the optimum location for a new treatment plant in the 2007 Preliminary Report for the scheme and Kilkeny County Council is currently in discussions with the landowner regarding purchase of the site. Permission has been received from the landowner for by Kilkeny County Council to progress with this Part 8 planning application.

3.2 Effluent Standards

The treatment works will be sized to cater for a design loading (20 year design horizon) of 2,000 Population Equivalent (PE).

The DBO contractor can employ a combination of biological and chemical treatment processes to achieve the required final effluent standards for the proposed WWTP as outlined in Table 1 below. The treatment process will be complete with the necessary instrumentation and control equipment to allow automatic operation of the plant.

The required effluent standard for a design loading of 2,000PE is calculated on the basis of assimilative capacity of the River Nuenna. A separate application for a Wastewater Discharge Licence will be made by Kilkeny County Council to the EPA for the discharge to the River Nuenna.

Table 1 Effluent standards

BOD (mg/l)	Suspended Solids (mg/l)	Ortho-Phosphorus as P (mg/l)	Total Ammonia as N (mg/l)
5	5	1.5	0.75



The WWTP will incorporate sludge handling and treatment facilities. The sludge from the site will be transported to the Sludge treatment centre in Kilkeny City in line with the County Sludge Management Plan.

4.0 CIVIL/STRUCTURAL SPECIFICATION

4.1 Introduction

The planning drawings (Appendix A) indicate typical plans for the waste water treatment plant (WWTP). However, the drawings are for information purposes only and the actual design and layout of the tanks, buildings etc. will be the responsibility of the DBO contractor in accordance with the specification. The DBO Contractor's design of the WWTP is not intended to be inhibited by location, size or arrangement of the structures and buildings indicated on the attached drawings.

The DBO Contractor's design may include proposals for structures and buildings with a smaller footprint or larger than those shown on the planning drawings. However, the visual form of all buildings and structures shall comply with the following requirements:

4.2 Buildings – Heights & External Finishes

Buildings should be in the vernacular style, be plastered and have a pitched roof with black/grey roof tiles. A 5m maximum building height is proposed. Details of all finishes will be submitted for the written agreement of the Planning Authority.

4.3 Process Tanks/ Structures

Tanks shall generally be of reinforced concrete construction and shall be located substantially below ground level where suitable. A 5m maximum height is proposed for above ground structures on this site as the site is very well shielded from view by extensive hedgerows and trees on all sides.

4.4 Access, Site Roads and Hardstandings

A new site access road is to be constructed as part of the contract. The proposed access is off the local Clintstown Road (Road Schedule Reference L-100-23) and the entrance details are shown on the attached drawings. The entrance gate shall be located at a minimum setback of



4.5m from the edge of the public road. The lines of sight are not less than 90m in both directions. The lines of sight shall be improved to the east by raising the splayed entrance area to match the level of the public road and removing a single tree.

The DBO contractor will design, construct and maintain the access road and site roads within the WWTP site. All roads and hardstandings will have an asphalt wearing course on a macadam base course and will be designed to cater for the expected loading from all traffic expected to use the site.

All roads will be a minimum of 4m in width. Kerb radii at junctions will be sufficient to comfortably accommodate vehicle-turning movements. All roads, paved areas and hardstandings will be constructed to falls with all appropriate gullies and drains. The edge of all roads and hardstandings will be kerbed.

The layout of site roads and paved areas will provide access to all process elements sufficient to facilitate access, maintenance and removal/replacement of plant by mobile crane. Sufficient maneuvering space will be provided at buildings to facilitate sludge transfer, delivery of chemicals, removal of equipment etc. All areas adjacent to sludge handling facilities will be provided with suitable concrete hardstandings. Ramps will be provided at equipment access doors to enable a vehicle to be driven into the building, where required. The DBO Contractor will provide adequate turning areas for delivery trucks, sludge handling vehicles etc. within the site.

Footpaths of 1.2m minimum width will be provided around and between all buildings, tanks and chambers. All footpaths will be of in-situ concrete construction. Three car-parking spaces will be provided adjacent to the control building. These will be marked using thermoplastic material.

4.5 Site Services

The DBO Contractor will be responsible for provision of all site drainage, watermains, ductwork, and any other pipework or services required for a fully functional installation. Water supply will generally include for supply to the fire fighting system and the wash down system. All surface water run-off from roads, hard standings and roofs will be collected on site and disposed of to adjacent storm sewers, watercourses or soakaways. Petrol interceptors will be provided for surface water sewers.



5.0 ENVIRONMENTAL SPECIFICATION

5.1 Water Quality

The main benefit of the waste water treatment plant is an improvement in the quality of the receiving waters, thus protecting fish life in the river and preserving downstream water abstraction facilities. The Nuenna River (An Uaithne) is a tributary of the River Nore. It rises near the Townland of Tubrid. The river flows through Freshford and onto its confluence with the River Nore near Threecastles. Its main Tributary is the Arigna River. The total area of the Nuenna catchments is approximately 58km². The water quality of the Nuenna River at East Bridge sampling station in Freshford upstream of the WWTP is reported as being slightly polluted with a biological Q rating of 3-4. The proposed discharge standards for the new treatment plant (see section 3.2) will ensure a high quality effluent is discharged to the river. The effluent discharge will be the subject of a separate wastewater discharge licence to the EPA.

5.2 Sustainability

The waste water treatment plant will be designed such that gravity flow is maximized and therefore energy input for pumping will be minimized where possible. The DBO contractor is incentivised to maximise the energy efficiency of the process because he will have to operate the plant for a 20-year period.

5.3 Visual Impact

In order to ensure the DBO Contractor will design a visually acceptable treatment plant, the following minimum measures are proposed:

5.3.1 Buildings & Structures – Heights & External Finishes

All site buildings shall be in the vernacular style, shall be plastered and shall have a pitched roof with black/grey roof tiles. Tanks shall generally be of reinforced concrete construction and shall be located substantially below ground level where suitable. It is proposed to limit the height of all structures to 5m above the existing ground level to limit visual impact.

Details of the proposed layout, elevation and all finishes must be submitted for the written agreement of the Planning Authority and samples of all finishes shall be submitted on request.



The DBO Contractor shall not be permitted to significantly alter the existing topography of the site to accommodate higher buildings or structures.

5.3.2 Fencing

For security and safety reasons, the site boundaries for the WWTP sites will be completely and permanently enclosed with security fencing of minimum height 2.4m (see drawing in Appendix A). Double leaf sentinel (or equivalent) high-security access gates complete with piers, with a minimum width of 6m, shall be provided at the entrance to the WWTP. Gates shall match the fencing in appearance and will be of the same construction.

5.3.3 Landscaping

Landscaping at the works shall consist of screen planting around the site boundary (inside the fencing as shown on the drawings. This trees planted will include a variety of appropriate species native to the locality. It is proposed that the trees have a minimum girth of 500mm and be planted at 2m centres to minimize the visual impact of the proposed works. The existing hedgerow/trees which are located at the filed boundaries (on all sides) shall be retained as these provide significant screening to the site.

Gravel beds will be laid around tanks where it would prove impractical to maintain grass. Gravel will be good quality, rounded pebble of 12mm minimum diameter and will be applied to areas that have been previously prepared with herbicides. Areas of the site that are not paved or provided with gravel will be covered with topsoil to a minimum depth of 200mm and planted with grass. The landscaping of the site will be completed in conjunction with the completion of the WWTP and will be maintained over the 20-year operation and maintenance period. A Landscaping Plan shall be submitted for the written agreement of the Planning Authority.

5.4 Odour

The Contractor shall be required provide an odour control system at all potential sources of odour to comply with SI 787 of 2005, EC (Wastewater Treatment) (Prevention of Odours and Noise) Regulations 2005.

The site location was chosen such that the distance from the boundary of the site to the nearest residential property is over 80m. The DBO contractor will be required to provide an odour control system at all potential sources of odour to ensure the following:



The 1 hour average shall be $<1 \text{ OU}_E$ at the 98th percentile of total annual hours, as measured at the nearest odour sensitive location, taken as 50m from the fenceline boundary of the WWTP site, in all directions.

No residential development shall be permeated by Kilkeny County Council within 50m of the fenceline boundary.

Buildings in which odour arise will be actively ventilated to provide a negative internal pressure. Where appropriate, tanks will be covered, with all covers sealed and enclosed air ventilated to the ventilation stack. Overflow and discharge pipes, external mixers and plant to remove scum will be designed to prevent a route for air under covers being discharged to the atmosphere.

The DBO Contractor will be required to specify the odour control plant required for each stage of wastewater treatment, sludge treatment and storage. The odour control facilities will be located adjacent to odour sources and may be inter-connected to minimise space requirements. A single outlet stack for all ventilated and treated air and other treated gaseous emissions will be located at a suitable location. Waste materials will be stored in totally enclosed containers.

5.5 Noise.

The Contractor shall be required provide a noise control system at all potential sources of noise to comply with SI 787 of 2005, EC (Wastewater Treatment) (Prevention of Odours and Noise) Regulations 2005.

The DBO Contractor shall be required to employ the best practicable means to minimise noise produced by his construction and operation of the works and must comply with all relevant legislation and standards including the requirements of BS: 5228 'Noise and Vibration Control on Construction and Demolition sites'.

During construction work, noise will be generally be controlled by restricting normal working hours to between 8.00 am and 8.00 pm in the summer and between 8.00 am and 6.00 pm in the winter. Plant which gives rise to particularly high levels of noise, such as piling plant, would be required to use noise-reduction covers.

During the operation of the works, the control of noise will largely depend on the location of individual items of machinery and their operational characteristics. Any equipment that would cause noise levels expected to exceed acceptable levels shall either be enclosed in a building or surrounded by acoustic barriers.



5.6 Ecology

An ecological desk study was carried out by White Young Green (Environmental) in September 2006 (see Appendix B). No significant habitats were identified on the site, apart from the River Nuenna itself, which is a tributary of the River Nore, part of the Barrow and Nore Special Area of Conservation (SAC). The WWTP site itself does not lie within the SAC. In addition, an area of wet grassland evaluated as being of high local conservation value in the Freshford Local Area Plan (1005) exists to the immediate south east of the site, across the river. No other significant habitats are evident in the immediate vicinity of the proposed WWTP site.

The main impact of the proposed development on local ecology will therefore be an improvement in water quality in the River Nuenna and correspondingly the Barrow/Nore SAC, as noted in section 5.1. There will also be some limited works at the River Nuenna while constructing the inlet sewer and outfall headwall, however these works will be limited in duration and will not have any long term impact on the habitats in the area.

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6. OTHER SITE DEVELOPMENT ISSUES

6.1 ARCHAEOLOGY

An archaeological desk study was undertaken by Valerie J Keeley and Partners in October 2006 (See Appendix C). No significant features were identified in the area of the proposed WWTP. Sewer replacement work will take place near to one RMP Site (Record of Monument and Places), namely site AH2 (Bridge), but the monument itself is not directly affected. It is proposed that an archaeologist be employed to monitor site stripping and excavation during construction works.

6.2 TRAFFIC MANAGEMENT

A traffic management plan for the construction stage of the scheme will be prepared by the DBO contractor in liaison with Kilkeny County Council's Roads Office. The Traffic Management Plan will be prepared in accordance with the following documentation:

- (i) the Department of Environmental Guidelines for Traffic Management
- (ii) "Guidelines for Signposting Roadworks in Urban Areas" by Dublin Corporation
- (iii) "Guidelines for Signposting Roadworks in Rural Areas" by the DEHLG.
- (iv) Safety, Street and Roadwork Code of Practices, 65 & 124, Department of Transport in accordance with the new Road and Street Works Act.

It is proposed that construction traffic will operate during normal working hours to between 8.00 am and 8.00 pm in the summer and between 8.00 am and 6.00 pm in the winter. However, where concerns over safety or congestion due to construction traffic do arise, consideration will given to extending normal working hours.

During operation and maintenance (20 years), it is estimated that a single HGV will enter and exit the site during each working week, namely for sludge removal.



APPENIDIX A - DRAWINGS

Drg No.	Title
101	Freshford WWTP - Location Plan
102	Freshford WWTP - Indicative Site Layout
103	Freshford WWTP - Entrance Layout
108	Fencing and Gate Details

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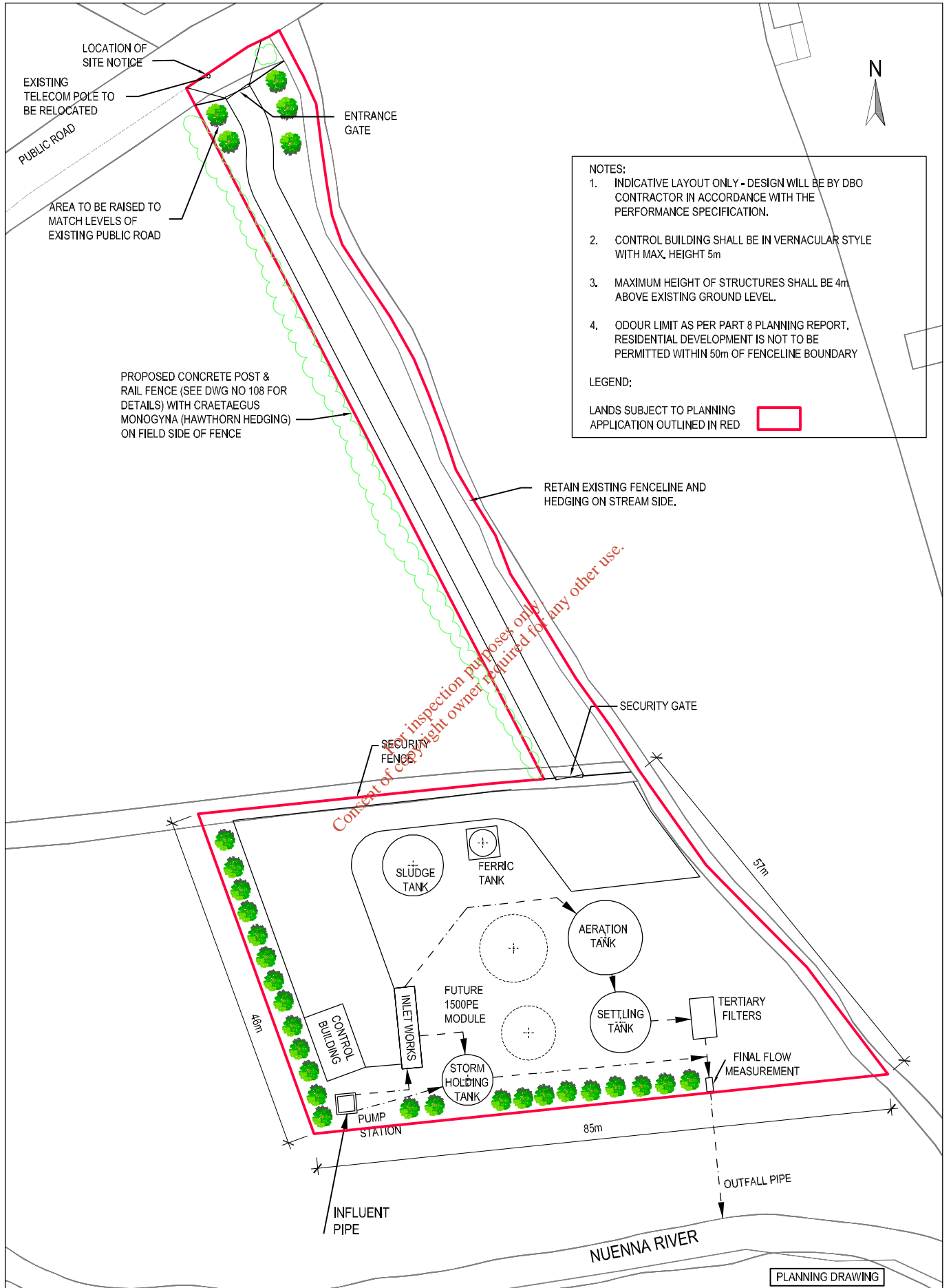


LEGAL
LAND:
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REV
Client:
KILKE

GROVE 1
CORRAL
LIMERIC

TEL:
FAX:
e-mail:
Project:
FRESH



NOTES:

- INDICATIVE LAYOUT ONLY - DESIGN WILL BE BY DBO CONTRACTOR IN ACCORDANCE WITH THE PERFORMANCE SPECIFICATION.
- CONTROL BUILDING SHALL BE IN VERNACULAR STYLE WITH MAX. HEIGHT 5m
- MAXIMUM HEIGHT OF STRUCTURES SHALL BE 4m ABOVE EXISTING GROUND LEVEL.
- ODOUR LIMIT AS PER PART 8 PLANNING REPORT. RESIDENTIAL DEVELOPMENT IS NOT TO BE PERMITTED WITHIN 50m OF FENCELINE BOUNDARY

LEGEND:

LANDS SUBJECT TO PLANNING APPLICATION OUTLINED IN RED

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PLANNING DRAWING

FILENAME: HICKS PROJECTS\004958 FRESHFORD JOHNSTOWN GORESBRIDGE\004958 P1 & PLANNING\004958\010\DWG.DWG | PLOTTED BY: F. SPANUS, KEANE | PLOTTED DATE: 27/07/2013 12:27:27

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KILKENNY COUNTY COUNCIL

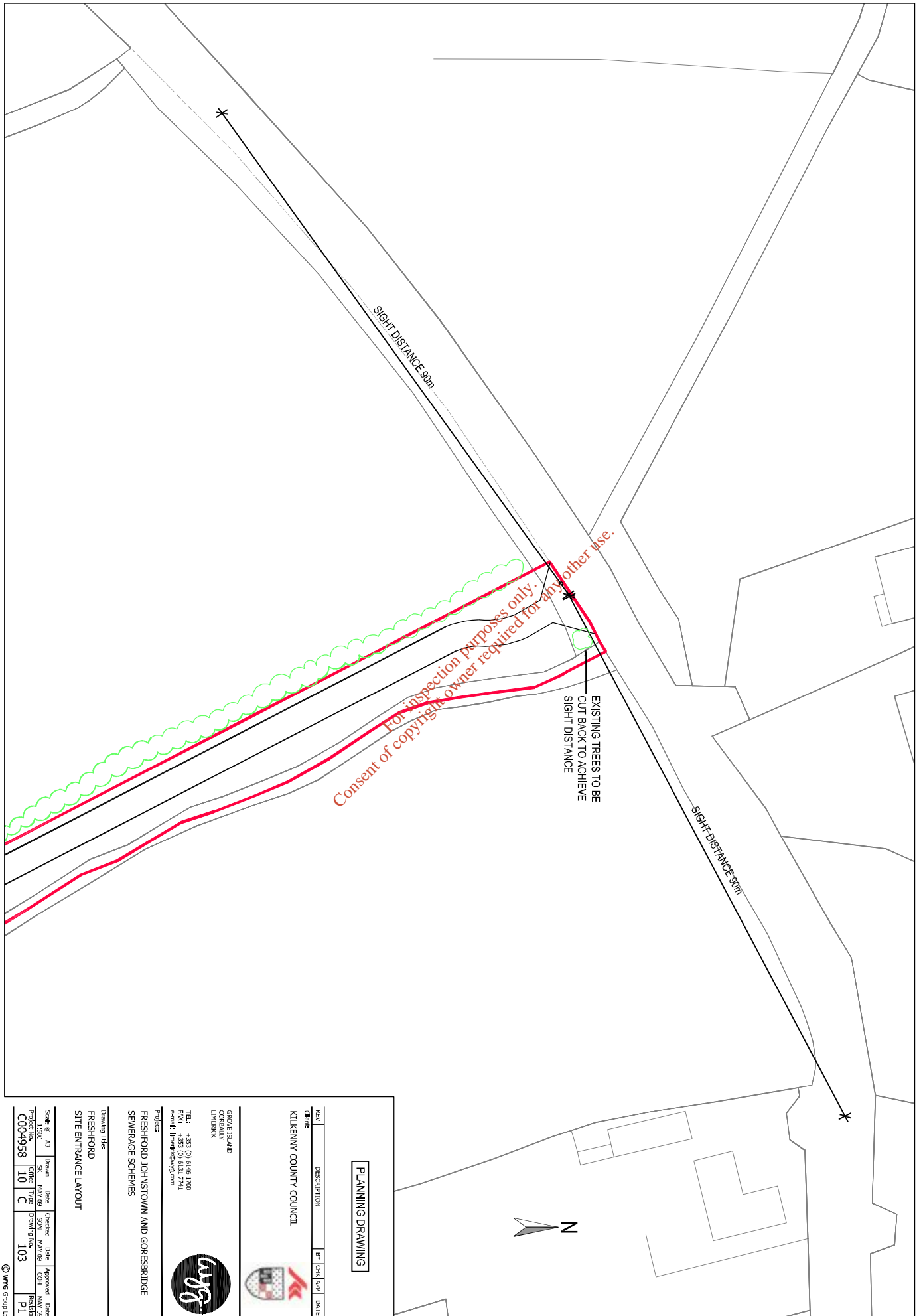


Project
FRESHFORD JOHNSTOWN & GORESBRIDGE SEWERAGE SCHEME

Drawing Title
FRESHFORD INDICATIVE WWTP SITE LAYOUT PLAN

REV	DESCRIPTION	BY	CHK	APP	DATE	
Scale @ A3 1:2500	Drawn	Date	Checked	Date	Approved	Date
Product No. C004958	Drawn 10	Type C	Drawing No. 102	Revision P1		

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PLANNING DRAWING

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01	Issue				

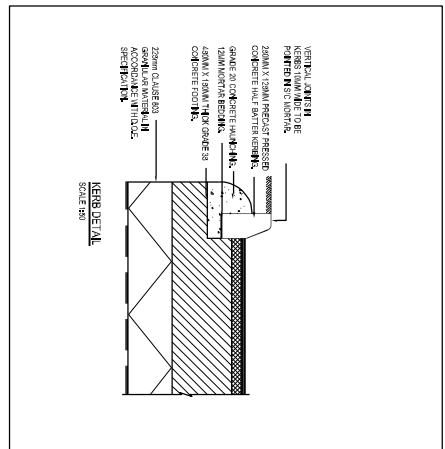
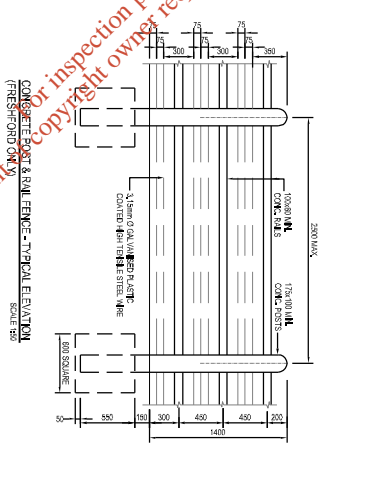
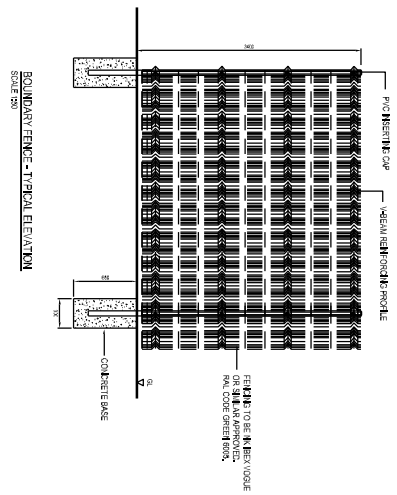
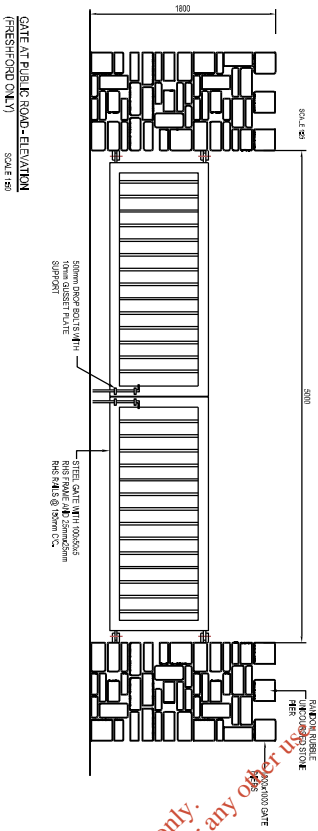
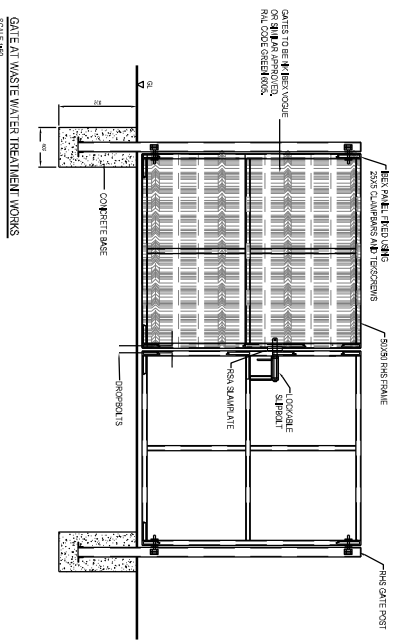


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**FRESHFORD JOHNSTOWN AND GORESBRIDGE
 SEWERAGE SCHEMES**

Drawing Title
**FRESHFORD
 SITE ENTRANCE LAYOUT**

Scale @	Drawn	Date	Checked	Date	Approved	Date
1:500	SK	MAY 09	SON	MAY 09	CDH	MAY 09
Project No.	Office	Type	Drawing No.	Revision		
C004958	10	C	103	P1		

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PLANNING DRAWING

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01	Issue for Planning	SK	SK		28/05/09



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 Project:
**FRESHFORD JOHNSTOWN AND GORESBRIDGE
 SEWERAGE SCHEMES**

SITE FENCING & ENTRANCE GATE DETAILS

Scale @	Drawn	Date	Checked	Date	Approved	Date	
AS SHOWN	SK	MAY 09	SK	MAY 09	CSH	MAY 09	
Project No.	C004958	Office Type	C	Drawing No.	108	Revision	P1

**Report under Section 179 of the
Planning and Development Act, 2000**



Freshford / Johnstown / Goresbridge Sewerage Scheme

**Freshford Wastewater Treatment Plant
and outfall to Nuenna River**

**Kilkenny County Council
Water Services Section**

For consideration by Kilkenny County Council at
Meeting to be held on
20th July 2009

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Introduction

This report has been prepared for submission to the elected members of Kilkenny County Council and contains information regarding the proposed development, issues raised following the public notice of the proposed development and the display for public inspection of the plans and particulars and other matters as required under Section 179 of the Planning & Development Act, 2000.

Description of proposed development

The proposed works involve the development of a waste water treatment plant to provide appropriate treatment of waste water from Freshford.

It is anticipated that various designs will be offered for proposed WWTP as it is intended to procure it as a DBO contract. This report sets out the minimum requirements for the WWTP, but it is not the intention to constrain the DBO Contractor, who may wish to vary the plant & building configurations.

The planning drawings indicate typical plans for the waste water treatment plant (WWTP). However, the drawings are for information purposes only and the actual design and layout of the tanks, buildings etc. will be the responsibility of the DBO contractor in accordance with the specification. The DBO Contractor's design of the WWTP is not intended to be inhibited by location, size or arrangement of the structures and buildings indicated on the attached drawings. The DBO Contractor's design may include proposals for structures and buildings with a smaller footprint or larger than those shown on the planning drawings.

Requirements will be placed on the DBO Contractor that buildings should be in the vernacular style, be plastered and have a pitched roof with black/grey roof tiles. A 5m maximum building height is proposed. Tanks shall generally be of reinforced concrete construction and shall be located substantially below ground level where suitable. A 5m maximum height is proposed for above ground structures on this site as the site is very well shielded from view by extensive hedgerows and trees on all sides.

A new site access road is to be constructed as part of the contract. The proposed access is off the local Clintstown Road (Road Schedule Reference L-100-23) and the entrance details are shown on the attached drawings. The entrance gate shall be located at a minimum setback of 4.5m from the edge of the public road. The lines of sight are not less than 90m in both directions. The lines of sight shall be improved to the east by raising the splayed entrance area to match the level of the public road and removing a single tree. The DBO contractor will design, construct and maintain the access road and site roads within the WWTP site. All roads and hardstandings will have an asphalt wearing course on a macadam base course and will be designed to cater for the expected loading from all traffic expected to use the site.

Notice of Development

Public Notices

- A notice describing the proposed development was placed in the Irish Independent dated Friday 29th May 2009.
- A site notice was displayed at the site location from 29th May 2009.
- The notice was also displayed on Kilkenny County Council's website www.kilkennycoco.ie

Details of the proposal were sent to the following parties for comment:

- Southern Regional Fisheries Board , Angelsea Street,, Clonmel,, Co. Tipperary,,
- Phillippe Beubry , Area Engineer, Castlecomer, Kilkenny County Council,
- Frank Stafford , Senior Executive Engineer , Road Design, Kilkenny County Council,
- Carol McCarthy , Senior Executive Engineer , Environment , Kilkenny County Council,
- Denis Malone , Senior Planner , Planning , Kilkenny County Council

Submissions Received

General Public

There was no written submission received from the general public with regard to this development. A verbal submission was made by residents of the Clintstown Road.

Consulted Statutory Bodies

A submission was received from the Senior Fisheries Environmental Officer, Southern Regional Fisheries Board. A copy of this submission is appended, as is Kilkenny County Council's response to same.

Reports were also received from the Senior Planner, Executive Engineer-Environment. Copies of these reports are appended. The development was discussed with the Executive Engineer, Road Design.

Issues Raised

Wells on Clintstown Road

A potential issue was raised verbally by residents of Clintstown Road. They had concerns regarding the effect construction work would have on their wells, as the water table is very high in this area and problems were experienced in the past when drainage was carried out in this field. A meeting was held with the residents and Eimear Cody, Project Engineer, where all issues were discussed. Positions of the wells were noted and it was agreed that the level of water in the wells would be monitored during site investigations. When more information was available, a strategy to manage the impact on the domestic water supplies would be put in place. A copy of a letter confirming this to the residents is attached.

Fisheries Board – Water Framework Directive

The fisheries board had raised concerns about discharge standards. The quality of discharge from the proposed plant will be determined by the EPA following Kilkenny County Council's Application for a Discharge Licence for the plant. The requirements of the Water Framework Directive, the Draft South Eastern River Basin Management Plan and the Draft European Communities Environmental Objectives (Surface Waters) Regulations 2008 will be taken into account in making the discharge licence

application. The discharge licence application process is separate to the Part 8 Planning Process and is the appropriate way to deal with issues of water quality etc.

Entrance

It was verbally agreed that a detailed design of the proposed entrance would be submitted to the Road Design Section for approval, following completion of the topographical surveys.

Implications for proper planning and sustainable development of the area

- The proposed development is consistent with the provisions of the County Development Plan and accords with the proper planning and sustainable development of the area. Copy of a report to this effect from the Senior Engineer, Planning is appended to this report.
- All comments will be taken into account when preparing the detailed tender drawings and discharge licence application.

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Councils intention regarding proposed development

I recommend that the County Council proceed with the proposed development in accordance with the plans made available for public inspection and taking into account the recommendations made by the Planning and other Service Departments.

SIGNED:

Billy Mernagh
Senior Engineer

DATE:

I recommend that the County Council proceed with the proposed development in accordance with the plans made available for public inspection, and taking into account the recommendations made by the Planning and other Service Departments.

SIGNED:

Philip O'Neill,
Director of Services

DATE:

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Appendix A - Site Notice

SITE NOTICE

Local Government (Planning & Development) Act, 2000
Local Government (Planning & Development) Regulations, 2001

Notice of Proposed Development by a Local Authority

Kilkenny County Council

Freshford Waste Water Treatment Plant

In accordance with Article 179 of the Local Government (Planning and Development) Act, 2000 and Part 8, Article 81 of the Planning and Development Regulations 2001, Kilkenny County Council hereby gives notice of its intention to construct a **waste water treatment plant with an outfall to the River Nuenna at Clintstown, Freshford, Co. Kilkenny.**

Plans and particulars for the above proposal will be available for inspection at the offices of Kilkenny County Council –

- County Hall, John Street, Kilkenny &
- Area Office, Castlecomer

between the hours of 9.00am to 5.00pm from **Friday 29th May, 2009 to Friday 26th June, 2009** (inclusive).

Submissions and observations with respect to the proposed development, dealing with the proper planning of the area in which the development would be situated, may be made in writing to the undersigned, not later than **Friday 10th July 2009 at 12 noon.**

Philip O'Neill
Director of Services
Kilkenny County Council
County Hall
John St
Kilkenny



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Site notice at location of proposed entrance to WWTP, off the Clintstown Road



Close up of site notice

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Appendix B – Newspaper Notice

Local Government (Planning & Development) Act, 2000
Local Government (Planning & Development) Regulations, 2001

Notice of Proposed Developments by a Local Authority

Kilkenny County Council

- a) Freshford Waste Water Treatment Plant
 - b) Goresbridge Waste Water Treatment Plant
 - c) Johnstown Waste Water Treatment Plant
-

In accordance with Article 179 of the Local Government (Planning and Development) Act, 2000 and Part 8, Article 81 of the Planning and Development Regulations 2001, Kilkenny County Council hereby gives notice of its intention to construct:

- a) A waste water treatment plant with an outfall to the River Nuenna at Clintstown, **Freshford**, Co. Kilkenny.
- b) A waste water treatment plant with an outfall to the River Barrow at Barrowmount, **Goresbridge**, Co. Kilkenny
- c) A waste water treatment plant with an outfall to the River Goul at Warrenstown, **Johnstown**, Co. Kilkenny.

Plans and particulars for the above proposal will be available for inspection at the offices of Kilkenny County Council, County Hall, John Street, Kilkenny and Area Office, Castlecomer between the hours of 9.00am to 5.00pm from **Friday 29th May, 2009 to Friday 26th June, 2009** (inclusive).

Submissions and observations with respect to the proposed developments, dealing with the proper planning of the area in which the development would be situated, may be made in writing to the undersigned, not later than **Friday 10th July 2009 at 12 noon**.

Philip O'Neill
Director of Services
Kilkenny County Council
County Hall
John St
Kilkenny



This was published in:

- Irish Independent dated Friday 29th May 2009,
- Kilkenny People week ending Friday 5th June 2009

Appendix C - Relevant Drawings

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Appendix D

Copies of Submissions

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Appendix E

Copies of Responses to Submissions (if relevant)

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ADDENDUM TO
Report under Section 179 of the
Planning and Development Act, 2000



Freshford / Johnstown / Goresbridge Sewerage Scheme

**Freshford Wastewater Treatment Plant
and outfall to Nuenna River**

**Kilkenny County Council
Water Services Section**

For consideration by Kilkenny County Council at
Meeting to be held on
20th July 2009

A number of submissions were inadvertently excluded from the Report to Members on the Freshford Waste Water Treatment Plant.

These are now attached and the County Manager's response to the issues raised discussed hereunder. This report should be appended to the original report.

Submissions Received

General Public:

A total of six submissions were received from the public and from various groups as follows:

1. Thomas Butler, Clintstown Road, Freshford – has concerns regarding smells from the plants and potential impact on his well.
2. Pat Durkin, Birdwatch Ireland – suggests that a reed bed system be put in place to treat the effluent before entering the river.
3. John Barnaville, Tim Brennan, John O'Sullivan, Tom Brennan, Martin Morrissey – fully support the application and would like their site on the Urlingford / Johnstown Road, which is zoned industrial, to be connected to the sewerage system.
4. Freshford Heritage and Development Group – welcome the application, would like the site, zoned industrial, on the Urlingford / Johnstown Road to be connected to the sewerage system.
5. Freshford 2020 – welcome the application, would like the site, zoned industrial, on the Urlingford / Johnstown Road to be connected to the sewerage system.
6. River Flow Green Sewerage Action Committee – Supports this application, hopes the project will proceed as quickly as possible.

Consulted Statutory Bodies:

A submission was received from the Senior Fisheries Environmental Officer, Southern Regional Fisheries Board and was dealt with in the main report.

Response to Issues Raised

Wells on Clintstown Road:

This was dealt with in the main report following verbal representation from the residents. A copy of a letter to the residents confirming the Kilkenny County Council's proposals to resolve any possible issue is attached.

Odours:

The Contract Documents for detailed design, construction and operation of the plant will be written to comply with SI 787 of 2005 (*European Communities (Waste Water Treatment) (Prevention of Odours and Noise) Regulations 2005*). The WWTP will be designed so that it does not give rise to odour nuisance. Odour scrubbers will be installed where appropriate, to remove any odours at source, so as to ensure that odour nuisance is not created and that the plant operates within the requirements of the above Regulations.

Reed Beds;

The installation of a reed bed at the bank of the river had been discussed with Kilkenny County Council's consultants as a possibility. The land to be purchased includes enough space to include a reed bed and this will be explored further and considered when the detailed contract documents are being finalised.

Extension of Sewerage Network to Lands at Urlingford / Johnstown Road:

The industrial zoned land is located at Tobernapeastia, Freshford. There are no plans to extend the sewerage network out as far as this land. The proposals at present are to construct a new waste water treatment plant, rehabilitate the existing network and make some minor additions to the network in order to connect into the new plant. The new treatment plant will be sized to cater for all zoned land in the town and each developer with land outside the extremities of the network has to carry out the necessary works to connect any development to the network (with the appropriate planning permissions). A connection could be made from the land at Tobernapeastia, as part of any development taking place there, so to connect to the existing sewerage network at the junction of Oldbridge St / Creel St / Mill Street.

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Councils intention regarding proposed development

I recommend that the County Council proceed with the proposed development in accordance with the plans made available for public inspection and taking into account the recommendations made by the Planning and other Service Departments.

SIGNED: _____
Billy Mernagh
Senior Engineer

DATE: _____

I recommend that the County Council proceed with the proposed development in accordance with the plans made available for public inspection, and taking into account the recommendations made by the Planning and other Service Departments.

SIGNED: _____
Philip O'Neill,
Director of Services

DATE: _____

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B.8 Notices and Advertisements

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B.8.1 Location of Site Notice

Please refer to drawing KCC-WWDL-213- B.8.1 in Appendix 1 at the back of this document

B.8.2 Copy of Site Notice

Please see copy of Site Notice overleaf

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Kilkenny County Council

Waste Water Discharge (Authorisation) Regulations, 2007. (S.I. 684 of 2007).

Application to the Environmental Protection Agency for a Waste Water Discharge Licence

In accordance with the requirements of Sections 9 and 11 of the above Regulations Kilkenny County Council hereby gives notice of the Council's intention to make an application to the Environmental Protection Agency for a Discharge Licence. The application shall be made within a period of two weeks from the date of publication of this notice and not later than 22nd December 2010.

The Discharge Licence application relates to the discharge from the Freshford Agglomeration, which is served by Freshford Waste Water Treatment Works, Clintstown, Freshford, Co. Kilkenny (241050E, 164772N). The sole discharge point from the Plant discharges directly to the Nuenna River at Clintstown, Freshford, Co. Kilkenny, (241087E, 164766N).

Freshford Waste Water Treatment Works treats wastewater influent from Freshford Agglomeration, wastewaters are supplied predominately by gravity sewer from the agglomeration. The sewer network has one pumping station one storm water overflows.

A copy of the application, together with such further information relating to the application as may be furnished to the Agency, shall be made available, as soon as is reasonably practicable post receipt, for public inspection or purchase at the Agency's headquarters, Johnstown Castle Estate, County Wexford.

A copy of the application shall also be available for public inspection or purchase at the offices of Kilkenny County Council, County Hall, John Street, Kilkenny from 17th December 2010. A person may make submissions to the Environmental Protection Agency with respect to this application, all such submissions addressed to;

Environmental Protection Agency,
PO Box 3000,
Johnstown Castle Estate,
County Wexford.

**Michael Arthurs,
Senior Executive Officer,
Water Services,
Kilkenny County Council.**

B.8.3 Photographs of Site Notice in Place



Photo KK-WWDL-213-B.8.3.1 Site Notice Erected



Photo KK-WWDL-213-B.8.3.2 Close up of Site Notice Erected

B.8.4 Copy of Newspaper Notice

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Kilkenny Borough Council
Arrangements for Christmas 2010 and New Year 2011

City Hall Offices

Will close on **Thursday 23rd December at 2.00pm.**

The offices will be **re-open** at 9.00 am on Thursday, 30th December, 2010. Offices will be closed Monday 3rd January, 2011, and will re-open Tuesday, 4th January, 2011.

Refuse Collection Service

GREEN WEEK (RECYCLING):

MONDAY 20TH DECEMBER, 2010 - NORMAL SERVICE
 TUESDAY 21ST DECEMBER, 2010 - NORMAL SERVICE
 WEDNESDAY 22ND DECEMBER, 2010 - NORMAL SERVICE
 THURSDAY 23RD DECEMBER, 2010 - NORMAL SERVICE
 FRIDAY 24TH DECEMBER, 2010 - NORMAL SERVICE (½ DAY)
 (PLEASE ENSURE ALL BAGS ARE OUT BEFORE 8.00 A.M. ON 24/12/2010)

YELLOW WEEK (DOMESTIC REFUSE):

MONDAY 27TH DECEMBER, 2010 - TO BE COLLECTED WEDNESDAY 29TH DECEMBER 2010
 TUESDAY 28TH DECEMBER, 2010 - TO BE COLLECTED THURSDAY 30TH DECEMBER 2010
 WEDNESDAY 29TH DECEMBER, 2010 - NORMAL SERVICE PLUS MONDAY 27TH DECEMBER 2010 COLLECTION.
 THURSDAY 30TH DECEMBER, 2010 - TUESDAY 28TH DECEMBER 2010 COLLECTION. (THURSDAY 30TH DECEMBER COLLECTION WILL BE COLLECTED FRIDAY 31ST DECEMBER, 2010).
 FRIDAY 31ST DECEMBER, 2010 - NORMAL SERVICE PLUS THURSDAY 30th DECEMBER COLLECTION SERVICE.

GREEN WEEK (RECYCLING):

MONDAY 3RD JANUARY, 2011 - TO BE COLLECTED SATURDAY 8TH JANUARY, 2011
 TUESDAY 4TH JANUARY, 2011 - NORMAL SERVICE
 WEDNESDAY 5TH JANUARY, 2011 - NORMAL SERVICE
 THURSDAY 6TH JANUARY, 2011 - NORMAL SERVICE
 FRIDAY 7TH JANUARY, 2011 - NORMAL SERVICE
 SATURDAY 8TH JANUARY, 2011 - COLLECTION FOR MONDAY 3RD JANUARY 2011

Customers are asked to co-operate with the above schedule by leaving out refuse on the appointed day only. Contaminated recycling bags will not be collected.

Brian Tyrrell, Town Clerk
 December 2010

Kilkenny Local Authorities
Opening Hours for Christmas & New Year 2010/2011

Thursday 23rd December 2010
9.00 a.m. – 2 p.m. (9.10 am – 1 pm Motor Tax)
 Friday 24th December 2010 **CLOSED**
 Monday 27th December 2010 **CLOSED**
 Tuesday 28th December 2010 **CLOSED**
 Wednesday 29th December 2010 **CLOSED**
 Thursday 30th December 2010
9.00 a.m. – 5 p.m. (9.10 am – 4 pm Motor Tax)
 Friday 31st December 2010
9.00 a.m. – 4 p.m. (9.10 am – 12 noon Motor Tax)
 Monday 3rd January 2010 **CLOSED**



THINK BEFORE YOU BUY
A PUPPY THIS CHRISTMAS

Before you think of giving a present of a puppy to a friend or loved one this Christmas the following are some points that should be considered:-

- Puppies grow up to be mature dogs often very different in appearance and temperament than that of the puppy.
- Ownership of a dog brings with it many responsibilities such as:-
 It will cost in the region of €1,500 per annum to care properly for a normal pet dog.
 The dog has to be fed and housed.
 The health of a dog is a major consideration of the dog owner as dogs can be carriers of diseases which may be potentially harmful to humans particularly children.
 The care of the dog while on Holidays.
- Selecting an appropriate breed of puppy which suits the family lifestyle or circumstances and whether a pure breed or a cross breed would be most appropriate. If you are going to buy a pure breed dog ensure that you buy from a reputable breeder. A young puppy is more adaptable than a fully grown dog. Crossbreeds can be re-homed from the Dog Shelter, Garryduff, Paulstown, Kilkenny 059/9726785.
- Seek advice from an expert such as your local Veterinary Surgeon. Normally, it is advised that all dogs be neutered and microchipped.

RESPONSIBLE DOG OWNERSHIP

- Includes:-
- Having your dog under your control at all times.
 - **Restricted Breeds:** are legally required to be securely muzzled and led on a strong leash/chain by a person >16yrs old when it is in a public place. Under no circumstances should such a dog be running loose in a public place.
- Example: If you let your dog out for an unsupervised runs (even for a short period of time) you have no idea what your dog may do. If you live in an urban area your dog can cause at the very least nuisance to pedestrians, cars, cyclist and Guide Dogs and in a rural area your dog can worry livestock i.e. **Sheep (Even the most domesticated dog can return to it's pack instincts and worry sheep)**. You as the owner are liable for any damage caused in such events.
 - Holding a dog licence which may be purchased at your local post office or the Environment Office in County Hall for a fee of €12.70. If you do not hold a current dog licence you can be liable for an on the spot fine of €30.00 or a fine of €1,270 for each offence should court proceedings be instigated.
 - Cleaning up when your dog fouls in a public place if not you are liable for On the spot fines of €125 apply to a maximum fine of €3,000. Pooper Scoopers can be purchased at the Environment Section, County Hall, John Street, Kilkenny (056 7794470) or locally at Veterinary Surgeries.

Having a tag on the dog's collar with name, address and contact number of the owner.

Carlow Kilkenny Dog Shelter

The Dog Shelter for both Kilkenny and Carlow is at Garryduff, Paulstown, Co. Kilkenny. The Dog Shelter is run by ISPCA staff. The Service promotes and facilitates the rehoming of unwanted dogs at the Shelter.

The opening hours of the Dog Shelter are as follows:
Monday and Thursday 10am to 4pm
Sunday and Tuesday Closed
Wednesday and Saturday 10am to 1pm
Friday 10am to 4.30pm
Telephone: 059 9726785

Christmas Arrangements

Normal opening hours as indicated above up to and including 23rd December, 2010.
Closed: 25th, 26th, 27th, 28th December, 2010 and the 3rd & 4th January, 2011
Open: 24th & 29th December, 2010 – 10.00am to 1pm
30th December, 2010 - 10.00am to 4pm
31st December, 2010 - 10.00am to 4.30pm
Re-open 5th January, 2011 as normal
 If over the Holiday period you lose your dog, please ring 059 9726785 and leave a message.

The Councils of the County and City of Kilkenny

Comhairli Chontae Agus Bhuirge Chill Chainnigh

Taxation of Goods Vehicles and Adapted Goods Vehicles.

The owners of Goods/Commercial Vehicles with a Design Gross Vehicle Weight not exceeding 3,500 kg will now be required to submit the following additional documentation prior to the next taxing of the vehicle:-

Renewal of Motor Tax on existing Goods Vehicles :

- Goods Only Declaration RF111A
- Commercial Insurance Certificate for the vehicle.

New Goods Vehicles, Change of Ownership, Change of Tax Class to Goods:

- Goods Only Declaration RF111A.
- Evidence of Registration for Tax Purposes as a business – one of the following is required:-
 Vat No.
 Tax Clearance Certificate.
 Notice of Tax Registration Form.
- If the person is an employee and uses the vehicle solely for work purposes, a letter from the Employer on headed paper stating the Vehicle Registration No. and that the vehicle is used in the course of the person's employment.
- Commercial Insurance Certificate for the vehicle.

Any queries in relation to the above, please contact Motor Tax Office at (056) 7794100. Goods Only Declaration Forms can be obtained from the Motor Tax Office or downloaded from www.motortax.ie

Application to the Environmental Protection Agency for a Waste Water Discharge Licence

Waste Water Discharge (Authorisation) Regulations, 2007

In accordance with the requirements of Section 10 of the above Regulations Kilkenny County Council hereby publishes notice of the Council's intent to make an application to the Environmental Protection Agency for a Discharge Licence. The application shall be made within a period of two weeks from the date of publication of this notice.

The Discharge Licence application relates to the discharge from the Fiddown Agglomeration which is served by Fiddown Waste Water Treatment Plant, Fiddown, Co. Kilkenny (246847E, 119648N). The sole discharge point from the plant discharges directly to the River Suir at Fiddown, Co. Kilkenny, (246806E, 119617N).

A copy of the Discharge Licence application shall be available for public inspection at the offices of the Environmental Protection Agency, Johnstown Castle Estate, County Wexford and at the offices of Kilkenny County Council, County Hall, John Street, Kilkenny from 17th December 2010 during normal office hours.

A person may make written submissions to the Agency with respect to this application to be addressed to;

Environmental Protection Agency, PO Box 3000, Johnstown Castle Estate, County Wexford.

Michael Arthurs, Senior Executive Officer, Water Services, Kilkenny County Council.

Application to the Environmental Protection Agency for a Waste Water Discharge Licence

Waste Water Discharge (Authorisation) Regulations, 2007

In accordance with the requirements of Section 10 of the above Regulations Kilkenny County Council hereby publishes notice of the Council's intent to make an application to the Environmental Protection Agency for a Discharge Licence. The application shall be made within a period of two weeks from the date of publication of this notice.

The Discharge Licence application relates to the discharge from the Kilmacow Agglomeration which is served by Kilmacow Waste Water Treatment Plant, Kilmacow, Co. Kilkenny (256813E, 117244N). The sole discharge point from the plant discharges directly to the River Blackwater at Kilmacow, Co. Kilkenny, (256826E, 117321N)

A copy of the Discharge Licence application shall be available for public inspection at the offices of the Environmental Protection Agency, Johnstown Castle Estate, County Wexford and at the offices of Kilkenny County Council, County Hall, John Street, Kilkenny from 17th December 2010 during normal office hours.

A person may make written submissions to the Agency with respect to this application to be addressed to;

Environmental Protection Agency, PO Box 3000, Johnstown Castle Estate, County Wexford.

Michael Arthurs, Senior Executive Officer, Water Services, Kilkenny County Council.

Application to the Environmental Protection Agency for a Waste Water Discharge Licence

Waste Water Discharge (Authorisation) Regulations, 2007

In accordance with the requirements of Section 10 of the above Regulations Kilkenny County Council hereby publishes notice of the Council's intent to make an application to the Environmental Protection Agency for a Discharge Licence. The application shall be made within a period of two weeks from the date of publication of this notice.

The Discharge Licence application relates to the discharge from the Ballyhale-Knocktopher Agglomeration which is served by Ballyhale-Knocktopher Waste Water Treatment Plant, Kiltorcan, Ballyhale, Co. Kilkenny (254255E, 136004N). The discharge point from the Plant discharges directly to the River Nore at Kiltorcan, Ballyhale, Co. Kilkenny, (254278E, 136002N).

A copy of the Discharge Licence application shall be available for public inspection at the offices of the Environmental Protection Agency, Johnstown Castle Estate, County Wexford and at the offices of Kilkenny County Council, County Hall, John Street, Kilkenny from 17th December 2010 during normal office hours.

A person may make written submissions to the Agency with respect to this application to be addressed to;

Environmental Protection Agency, PO Box 3000, Johnstown Castle Estate, County Wexford.

Michael Arthurs, Senior Executive Officer, Water Services, Kilkenny County Council.

Application to the Environmental Protection Agency for a Waste Water Discharge Licence

Waste Water Discharge (Authorisation) Regulations, 2007

In accordance with the requirements of Section 10 of the above Regulations Kilkenny County Council hereby publishes notice of the Council's intent to make an application to the Environmental Protection Agency for a Discharge Licence. The application shall be made within a period of two weeks from the date of publication of this notice.

The Discharge Licence application relates to the discharge from the Mullinavat Agglomeration which is served by Mullinavat Waste Water Treatment Works, Mullinavat, Co. Kilkenny (256365E, 124073N). The sole discharge point from the Plant discharges directly to the River Blackwater at Mullinavat, Co. Kilkenny, (256262E, 124031N).

A copy of the Discharge Licence application shall be available for public inspection at the offices of the Environmental Protection Agency, Johnstown Castle Estate, County Wexford and at the offices of Kilkenny County Council, County Hall, John Street, Kilkenny from 17th December 2010 during normal office hours.

A person may make written submissions to the Agency with respect to this application to be addressed to;

Environmental Protection Agency, PO Box 3000, Johnstown Castle Estate, County Wexford.

Michael Arthurs, Senior Executive Officer, Water Services, Kilkenny County Council.

Application to the Environmental Protection Agency for a Waste Water Discharge Licence

Waste Water Discharge (Authorisation) Regulations, 2007

In accordance with the requirements of Section 10 of the above Regulations Kilkenny County Council hereby publishes notice of the Council's intent to make an application to the Environmental Protection Agency for a Discharge Licence. The application shall be made within a period of two weeks from the date of publication of this notice.

The Discharge Licence application relates to the discharge from the Goresbridge Agglomeration which is served by Goresbridge Treatment Plant, Barrowmount, Goresbridge, Co. Kilkenny (268511E, 153516N). The sole discharge point from the Plant discharges directly to the River Barrow Barrowmount, Goresbridge, Co. Kilkenny, (268534E, 153528N).

A copy of the Discharge Licence application shall be available for public inspection at the offices of the Environmental Protection Agency, Johnstown Castle Estate, County Wexford and at the offices of Kilkenny County Council, County Hall, John Street, Kilkenny from 17th December 2010 during normal office hours.

A person may make written submissions to the Agency with respect to this application to be addressed to;

Environmental Protection Agency, PO Box 3000, Johnstown Castle Estate, County Wexford.

Michael Arthurs, Senior Executive Officer, Water Services, Kilkenny County Council.

Application to the Environmental Protection Agency for a Waste Water Discharge Licence

Waste Water Discharge (Authorisation) Regulations, 2007

In accordance with the requirements of Section 10 of the above Regulations Kilkenny County Council hereby publishes notice of the Council's intent to make an application to the Environmental Protection Agency for a Discharge Licence. The application shall be made within a period of two weeks from the date of publication of this notice.

The Discharge Licence application relates to the discharge from the Freshford Agglomeration, which is served by Freshford Waste Water Treatment Works, Clintstown, Freshford, Co. Kilkenny (241050E, 164772N). The sole discharge point from the Plant discharges directly to the Nuenna River at Clintstown, Freshford, Co. Kilkenny, (241087E, 164766N).

A copy of the Discharge Licence application shall be available for public inspection at the offices of the Environmental Protection Agency, Johnstown Castle Estate, County Wexford and at the offices of Kilkenny County Council, County Hall, John Street, Kilkenny from 17th December 2010 during normal office hours.

A person may make written submissions to the Agency with respect to this application to be addressed to;

Environmental Protection Agency, PO Box 3000, Johnstown Castle Estate, County Wexford.

Michael Arthurs, Senior Executive Officer, Water Services, Kilkenny County Council.

B.9 Pending Development

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B.9. (ii) Pending Development

Where planning permission has been granted for development(s), but development has not been commenced or completed to date, within the boundary of the agglomeration and this development is being, or is to be, served by the waste water works provide the following information;

- information on the calculated population equivalent (p.e.) to be contributed to the waste water works as a result of those planning permissions granted,
 - 466 PE – potential contributing PE from planning permissions granted but not yet developed
- the percentage of the projected p.e. to be contributed by the non-domestic activities, and
 - 6% of projected PE to be contributed by non-domestic
- the ability of the waste water works to accommodate this extra hydraulic and organic loading without posing an environmental risk to the receiving water habitat.
 - Existing treatment plant is presently operating above its design PE. Further analysis is underway as to existing PE demand level.

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B.10 Capital Investment Programme

Kilkenny County Council's 2010 – 2012 Needs Assessment submitted to the DOEHLG in Nov 2009 suggested both a short term and a longer term proposal for this plant. Interim works which included installation of a package plant (1,000PE) to improve the quality of the effluent and the long term full design were each proposed. Financial limitations would determine which course of action would be followed.

DOEHLG approval to go to design stage for a DBO contract to provide a new plant has been received and draft design documents have been prepared. Financial constraints have required that this process be reviewed and the use of an interim package plant solution is now under consideration.

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Scheme Name	Contract Name	W/S	Estimated Cost €
Contracts at Construction			
Kilmacow Sewerage Scheme	. Contract 2 (Wastewater Treatment Plant - DBO)	S	2,507,000
Mooncoin Regional Water Supply Scheme Phase 1A (SLI)	. Contract 1 (Network)	W	6,888,000
Thomastown Sewerage Scheme (SLI)	. Treatment Plant Upgrade	S	2,061,000
Water Conservation Stages 1 & 2 Works	. Water Conservation Stages 1 & 2 Works	W	4,800,000
			16,256,000
Contracts to Start			
Bennettsbridge Sewerage Scheme (SLI)	. Wastewater Treatment Plant Upgrade	S	620,000
Castlecomer Sewerage Scheme (SLI)	. Contract 1 (Wastewater Treatment Plant Upgrade)	S	550,000
Kilkenny City Sewerage Scheme (H)	. Wastewater Treatment Plant Upgrade	S	3,060,000
Kilkenny Grouped Villages Sewerage Scheme	. Ballyhale Wastewater Treatment Plant Upgrade	S	360,000
	. Clogh Moneenroe Wastewater Treatment Plant Upgrade	S	3,500,000
	. Fiddown Wastewater Treatment Plant Upgrade	S	360,000
	. Contract 1 (Interim Plant - Freshford/Johnstown/Goresbridge)	S	740,000
	. Inistioge Wastewater Treatment Plant	S	360,000
	. Piltown Wastewater Treatment Plant	S	900,000
	. Stoneyford Wastewater Treatment Plant	S	740,000
	. Urlingford Wastewater Treatment Plant	S	510,000
	. Mullinavat Wastewater Treatment Plant	S	360,000
Kilkenny Grouped Villages Water Supply Scheme	. Johnstown Water Supply - Contract 1	W	341,000
	. Johnstown Water Supply - Contract 2	W	180,000
	. Thomastown Source - Contract 1	W	4,073,000
	. Gowran Goresbridge Paulstown Water Supply - Contract 1 (UV & Filter)	W	174,000
	. Gowran Goresbridge Paulstown Water Supply - Contract 2 (Source)	W	285,000
	. Mooncoin Water Supply - Contract 1 (Clonassy Water Treatment Plant & Network)	W	4,700,000
Kilkenny Sewerage Scheme (SLI)	. Network (Western Environs SLI)	S	4,800,000
Kilkenny Regional Water Supply Scheme (H)	. Contract 1 (Radestown Reservoir)	W	80,000
	. Contract 2 (Wellfields)	W	1,300,000
	. Contract 4 (Outrath Reservoir)	W	500,000
	. Contract 5 (Troyswood Intake)	W	272,000
	. Contract 6 (Dinin Intake)	W	272,000
			29,037,000
Water Conservation Stage 3 Works	. Advanced Critical Rehabilitation Works	W	5,000,000
	. Critical Rehabilitation Programme	W	10,000,000
			15,000,000
	Contracts Total		60,293,000
Scheme Name	Contract Name	W/S	Estimated Cost €
Schemes at Planning			
Ballyragget, Clogh/Castlecomer & Urlingford/Johnstown Water Supply Scheme		W	
Callan, Graiguenamanagh, Thomastown and Inistioge Water Supply Scheme		W	
Freshford/Johnstown/Goresbridge Sewerage Scheme		S	
Kilkenny City Sewerage Scheme (Treatment Plant Upgrade) (H)		S	
Kilkenny Regional Water Supply Scheme (H)		W	
Mooncoin Regional Water Supply Scheme Phase 2		W	
Water Conservation Stage 3 Works		W	

Section C Attachments

Infrastructure and Operation

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Operational Information Requirements

C.1.1 Storm Water Overflows

C.1.1.1 Storm Water Overflow at The Siphon at Quinn's Garage



Photo – KK-WWDL-213-C.1.2.1 – Storm Water Overflow at The Siphon at Quinn's Garage

Please refer to drawing **KK-WWDL-213-B.5.01** for location details
(denoted KK213-SWOO-01)

- This overflow is located at the Siphon which pumps the influent under the Nuenna River.
- With no flow meters in place it is difficult to determine compliance with regulations. This SWO is checked by the caretaker on a daily basis.
- There are no immediate plans to cease the operation of this Storm Water Overflow.

C.1.2 Pumping Stations

C.1.2.1 Siphon at Quinn's Garage



Photo – KK-WWDL-213-C.1.2.1 – Pumping Station Nuenna Court

Please refer to drawing **KK-WWDL-213-B.5.01** for location details (denoted KK213-PS-01)

Pumping Station Details: Operated by: Private

- 1. Number of Duty & Standby Pumps:**
No Pumps – Mechanical Siphon
- 2. Measures Taken in Event of Power Failure:**
Power not an issue with the mechanical Siphon.
- 3. Pumping Storage Capacity:**
Unknown
- 4. The Frequency and duration of Emergency Overflow:**
With no flow meters in place it is hard to determine the amount or frequency of overflow

C.1.2.2 Pumping Station at Nuenna Court



Photo – KK-WWDL-213-C.1.2.1 – Pumping Station Nuenna Court

Please refer to drawing **KK-WWDL-213-B.5.02** for location details
(denoted KK213-PS-02)

Pumping Station Details: Operated by: Private

- 1. Number of Duty & Standby Pumps:**
2 Pumps (1 Duty & 1 Standby)
Unknown
- 2. Measures Taken in Event of Power Failure:**
No measures in Place.
- 3. Pumping Storage Capacity:**
Unknown
- 4. The Frequency and duration of Emergency Overflow:**
No Overflow

C.2.1 Outfall Design and Construction

C.2.1 P1 Primary Discharge Point

Please refer to drawing **KK-WWDL-213-B.3.01** for location details.

There are no design detail criteria or construction details available for this discharge point. The discharge pipe is a concrete pipe.

Due to its high river levels it was not possible to visit or photograph this Outfall Point.

C.2.2 Secondary Discharge Points

There are no Secondary Discharge points on this Agglomeration.

C.2.3 Storm Water Overflow

There are no Storm Water Overflow's on this Agglomeration.

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Section D Attachments

Discharges to The Aquatic Environment

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D.1 (i) Discharges to Surface Waters

Data supplied online

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D.2 Tabular Data on Discharge Points

PT_CD	PT_TYPE	LA_NAME	RWB_TYPE	RWB_NAME	DESIGNATION	EASTING	NORTHING	VERIFIED
Point Code Provide label ID's	Point Type (e.g., Primary/ Secondary/ Storm Water Overflow)	Local Authority Name (e.g., Donegal County Council)	Receiving Water Body Type (e.g., River, Lake, Groundwater, Transitional, Coastal)	Receiving Water Body Name (e.g., River Suir)	Protected Area Type (e.g., SAC, candidate SAC, NHA, SPA etc.)	6E-digit GPS Irish National Grid Reference	6N-digit GPS Irish National Grid Reference	Verified with GPS Y or N
KK213-P1	Primary Discharge Pipe	Kilkenny County Council	River	Nuenna		241087	164766	Y
KK213-SWOO-02	Storm Water Overflow	Kilkenny County Council	River	Nuenna		240958	164788	Y

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Section E Attachments

Monitoring

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E.2.1 General

Please refer to Drawing KK-WWDL-213-B.2.1 & KK-WWDL-213-B.3.1, Tables KK-WWDL-213-B.2.1 & 2 which identifies the onsite sampling points and the tests carried out at each point. The sample points denoted as grab samples are taken with a telescopic rod with a beaker fixed to the end. These grab samples are taken in the same locations each time in order to ensure consistency of the samples. As there is no electricity supply on site it is not possible to fit permanent composite samplers.

The testing is all carried out by Kilkenny County Council staff and predominately the analysis is carried out at our lab in Purcellsinch. With regard to the Dangerous Substance Testing these are outsourced to a private lab, ELS Ltd. Our in-house tests are carried out by lab staff that are of a technical background and have been inducted to the Purcellsinch WWTP lab practices and safety procedures associated with working/sampling in the lab and onsite. In order to ensure accuracy calibration checks are ran regularly and Quality Control checks are done daily. The lab at Purcellsinch WWTP is a member of the EPA intercalibration programme with the last four years. Results and analysis data is stored both electronically and hard copy. The data is entered on a daily basis in the same format; the data is printed, checked and filed on site. The softcopy of the data is then added to our LIMS - Labinfo. All tests are carried out in accordance to the procedures outlined in **KK-WWDL-213-Appendix 2**.

Note:

(Appendix 2 details the lab procedures, calibration details etc. . This data is supplied as part of this report in soft copy only and is available in hard copy on request)

E.3 Tabular Data on Monitoring Points

PT_CD	PT_TYPE	MON_TYPE	EASTING	NORTHING	VERIFIED
Point Code Provide label ID's assigned in section E of application	Point Type (e.g., Primary,	Monitoring Type	6E-digit GPS Irish National Grid Reference	6N-digit GPS Irish National Grid Reference	Y = GPS used
	Secondary, Storm Water Overflow)	M = Monitoring			N = GPS not used
		S = Sampling			
KK213-001	WWTP Inlet	M & S	241039	164781	Y
KK213-002	Primary Discharge to P1	M & S	241048	164779	Y
KK213-003	Upstream of P1	M & S	240975	164771	Y
KK213-004	Downstream of P1	M & S	241311	164647	Y

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E.4.1 Freshford Test Results

KK-WWDL-213-E.4.1.1 Routine Monitoring

Project	Location	Sample Reference	Sample Date	Parameter	COD	Ammonia as N	Chloride	Nitrates(N)	Nitrites(N)	TSS	Total Nitrogen	Total Phosphorus as P	BOD	Temperature	Ortho-phosphate (P)	pH	Dissolved Oxygen % Saturation
					mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	Deg C	mg/l
Freshford WWTP 213	Influent	1033WW001A0127A213	27-Jan-10		70	2.5	23.8	4.2	0.105	19	15.7	1.2	38	8.4	0.6	7.4	
Freshford WWTP 213	Influent	1033WW001A0209A213	09-Feb-10		72	2.8	23.4	6.6	0.139	20	13.9	1.1	32	7.8	0.67	7.3	
Freshford WWTP 213	Effluent	1033WW002A0127A213	27-Jan-10		60	2.9	25.4	4.3	0.01	11	14.2	1.1	32	8.6	0.682	7.4	
Freshford WWTP 213	Effluent	1033WW002A0209A213	09-Feb-10		93	3.6	26.4	6.9	0.18	25	13.6	1.4	42	7.9	0.72	7.3	
Freshford WWTP 213	Nuenna U/S	1033WW003A0127A213	27-Jan-10		<10	0.045	14	2.5	ND	5	5.8	0.02	0.5	7.8	0.023	8	89
Freshford WWTP 213	Nuenna U/S	1033WW003A0209A213	09-Feb-10		<10	0.018	21	3.5	0.001	0	4.2	<0.02	0.6	7	0.015	8	97
Freshford WWTP 213	Nuenna D/S	1033WW004A0127A213	27-Jan-10		<10	0.045	13.1	2.9	ND	1	3.4	0.03	0.6	8.2	0.023	7.8	85
Freshford WWTP 213	Nuenna D/S	1033WW004A0209A213	09-Feb-10		<10	0.034	12.6	3.7	0.001	0	3.3	<0.02	1	7.4	0.019	8	90

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KK-WWDL-213-E.4.1.2 Dangerous Substance Monitoring

Project	Location	Sample Reference	Sample Date	Parameter	2 Methyl 46 dinitrophenol	2,4 Dichlorophenol	2,4 Dimethyl Phenol	2,4,6 Trichlorophenol	2,4-Dinitrophenol	2-Chlorophenol	2-Nitrophenol	4 Chloro-3-methylphenol	4-Nitrophenol	Arsenic	Atrazine	Barium	Cadmium	Chromium	Cyanide - Total	Dichloromethane	Fluoride	Lead	Mercury
				µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	mg/l
Freshford WWTP 213	Influent	1033WW001A0127A213	27-Jan-10		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.9	<0.01	41.6	<0.1	0.2	<10	<5	0.1	0.8	<0.02
Freshford WWTP 213	Influent	1033WW001A0209A213	09-Feb-10		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	<0.01	40.5	<0.1	<1	<10	<5	<0.1	0.6	<0.02
Freshford WWTP 213	Effluent	1033WW002A0127A213	27-Jan-10		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.9	<0.01	39.8	<0.1	0.1	<10	<5	0.1	1.1	<0.02
Freshford WWTP 213	Effluent	1033WW002A0209A213	09-Feb-10		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	<0.01	44.3	<0.1	<1	<10	<5	<0.1	0.6	<0.02
Freshford WWTP 213	Nuenna U/S	1033WW003A0127A213	27-Jan-10		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.3	<0.01	19.5	<0.1	<1	<10	<5	<0.1	<0.3	<0.02
Freshford WWTP 213	Nuenna U/S	1033WW003A0209A213	09-Feb-10		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.01	19.6	<0.1	<1	<10	<5	<0.1	<0.3	<0.02
Freshford WWTP 213	Nuenna D/S	1033WW004A0127A213	27-Jan-10		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.3	<0.01	20	<0.1	<1	<10	<5	<0.1	<0.3	<0.02
Freshford WWTP 213	Nuenna D/S	1033WW004A0209A213	09-Feb-10		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.2	<0.01	19.9	<0.1	<1	<10	<5	<0.1	<0.3	<0.02

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KK-WWDL-213-E.4.1.2 Dangerous Substance Monitoring (contd.)

Project	Location	Sample Reference	Sample Date	Parameter	Nickel	o-xylene	Pentachlorophenol	Phenols	Phenols Total	pm xylene	Selenium	Simazine	Toluene	Total Hardness	Tributyl Tin	Zinc	Boron	Conductivity @ 25°C	Copper	Sulphate
				µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	mg/l	µg/l	µg/l	mg/l	µS/cm
Freshford WWTP 213	Influent	1033WW001A0127A213	27-Jan-10		0.9	<0.1	<0.5	<0.5	<0.5	<0.1	0.4	<0.01	<0.1		<0.02	23.8	0.03	779	28.3	15.8
Freshford WWTP 213	Influent	1033WW001A0209A213	09-Feb-10		0.9	<0.1	<0.5	<0.5	<0.5	<0.1	0.2	<0.01	<0.1		<0.02	17.7	0.03	764	23	17.7
Freshford WWTP 213	Effluent	1033WW002A0127A213	27-Jan-10		0.8	<0.1	<0.5	<0.5	<0.5	<0.1	0.7	<0.01	<0.1		<0.02	17.9	0.03	769	20.1	17.8
Freshford WWTP 213	Effluent	1033WW002A0209A213	09-Feb-10		0.9	<0.1	<0.5	<0.5	<0.5	<0.1	<0.2	<0.01	<0.1		<0.02	18.1	0.03	775	29.1	18.2
Freshford WWTP 213	Nuenna U/S	1033WW003A0127A213	27-Jan-10		<0.5	<0.1	<0.5	<0.5	<0.5	<0.1	0.2	<0.01	<0.1	340.4	<0.02	1.8	<0.02	664	<3	6
Freshford WWTP 213	Nuenna U/S	1033WW003A0209A213	09-Feb-10		0.7	<0.1	<0.5	<0.5	<0.5	<0.1	<0.2	<0.01	<0.1	320.7	<0.02	<1	<0.02	632	<3	5.5
Freshford WWTP 213	Nuenna D/S	1033WW004A0127A213	27-Jan-10		<0.5	<0.1	<0.5	<0.5	<0.5	<0.1	0.2	<0.01	<0.1	361.7	<0.02	1.7	<0.02	642	<3	5.3
Freshford WWTP 213	Nuenna D/S	1033WW004A0209A213	09-Feb-10		0.6	<0.1	<0.5	<0.5	<0.5	<0.1	<0.2	<0.01	<0.1	326.6	<0.02	<1	<0.02	621	<3	5.5

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Section F Attachments

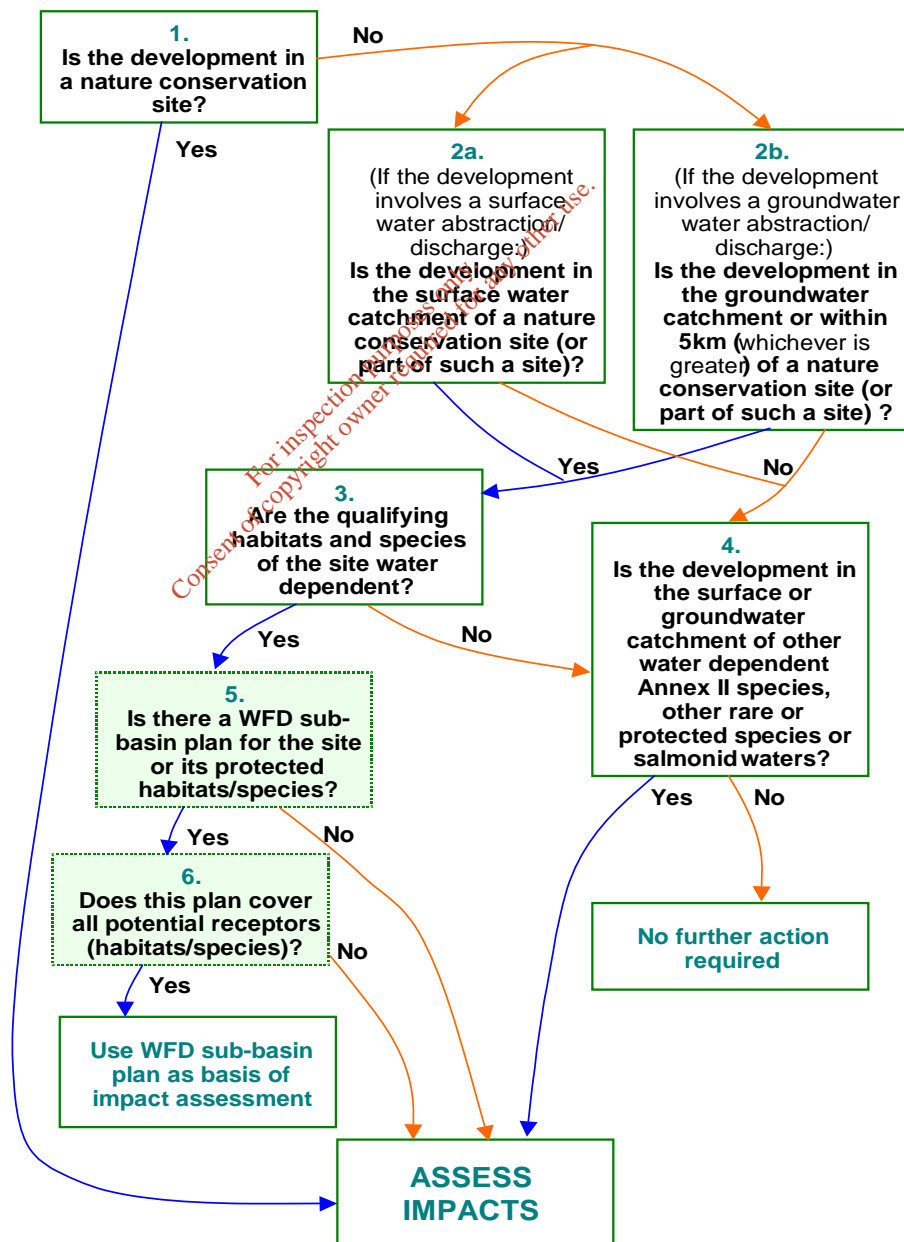
Existing Environment & Impact of the Discharge(s)

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F.1 Impact on Receiving Surface Water or Ground Water

Kilkenny County Council made the decision to carryout Appropriate Assessments on all of its Wastewater Treatment facilities covered under the EPA licensing/Certification programme. The necessary information for section F.1 is attached for the appropriate assessment of the Freshford Agglomeration.

The flow diagram for screening water services infrastructure projects Dept Circular L8/08 indicates that an Appropriate assessment must be carried out.



Freshford Appropriate Assessment – Pascal Sweeney Report

Please see overleaf the full 23 page Appropriate Assessment done on the Nuenna River at Freshford by Pascal Sweeney, (M.Sc., MIEEM, Consultant Ecologist, Sweeney Consultancy, Rahan, Mallow Co. Cork)

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**Appropriate Assessment of Biological Impacts of
Freshford WWTP
on Special Area of Conservation 002162**

May 2010

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1. INTRODUCTION

The present report by Pascal Sweeney, Consultant Ecologist, was commissioned by Kilkenny County Council. The discharge from Freshford Waste Water Treatment Plant enters the Nuenna River, a tributary of the River Nore, with the confluence c. 4km downstream, within Special Area of Conservation 002162 (River Barrow and River Nore SAC). Because the water quality of the Nuenna River has been unsatisfactory both downstream of the outfall in recent years, the possibility of significant effects of the discharge on the European Site cannot be eliminated and the precautionary principle must apply. Under Article 6(3) of the EU Habitats Directive, there is a requirement for an Appropriate Assessment of the implications for the designated site of a discharge such as this, in view of the site's conservation objectives.

The objective of this report is the assessment of the Nuenna River in order to establish the current effect, if any, of the existing discharge on the biota of the river and the implications of any such effects for protected habitats and species within SAC 002162. Potential effects include both direct damage, such as from toxic impacts, and indirect damage from impacts on water quality.

The scope of this assessment is:

- Invertebrate identification to the level necessary for the EPA Q-scheme, upstream and downstream of the outfall location.
- Biological water quality assessment, based on the macroinvertebrate fauna and the establishment of Q-values in accordance with the procedures of the EPA, upstream and downstream of the outfall location.
- Impacts of the discharge on invertebrate species composition, and biodiversity.
- Likely occurrence of protected aquatic species at and downstream of the proposed discharge point, based on habitat suitability and available records.
- Likely impacts of the discharge on protected aquatic species and habitats.
- Cumulative effects on the qualifying interests of the Natura 2000 site.
- Measures to mitigate negative impacts on the protected species and habitats.

2. METHODOLOGY

2.1 Rationale for Methodology

Because the Freshford WWTP is already in existence, the current impact on the biota of the receiving environment can be directly assessed by biological methods which measure the effects of pollution (as distinct from chemical methods which measure the causes of pollution). The information obtained from biological sampling reflects the prevailing water-quality conditions in the period leading up to that sampling event. Clabby *et al.* (2006) state: “*just two biological samples per annum (winter and summer) would normally provide a reasonably accurate assessment of average water quality*”.

2.2 Biological Sampling Sites

Two sites, suitable for biological assessment, were established in the Nuenna River. Because of the size of this river, sites had to be chosen primarily on the depth, substrate and flow type, rather than distance from the WWTP outfall. Site 1 is 30m upstream of the Freshford WWTP effluent outfall. Site 2 is 60m downstream of the outfall. Sampling site co-ordinates and other site information are presented in Appendix 1. Photographs of the sampling sites are shown in Appendix 2.

2.3 Field and Laboratory Procedures

2.3.1 Macroinvertebrate sampling and Q-rating

Field work was carried out on 24 March, 2010. At both of the sites, a qualitative assessment of habitat conditions was first carried out. A kick sample was taken at each site by the standard EPA method, using a hand-net (mesh size 1mm.). The contents of the sample net were checked for protected species and any found were immediately returned to the water. Samples were live sorted for a half hour each and macroinvertebrates were preserved in alcohol. Macroinvertebrates were identified using an Olympus dissecting microscope. A list of taxonomic keys used for identification is given in Appendix 7. Based on the relative abundance of indicator species, a Q-value was determined for each site, using the methodology of the EPA (Toner et al, 2005). The preserved samples were retained and stored in vials so that they may be checked, if necessary, in the future.

2.3.2 Plants

At both sites, the percentage cover of the substratum with each plant taxon was estimated.

2.3.3 Protected species

Available records of species listed in Annex II of the EU Habitats Directive were checked. The habitat quality for any of these species likely to be present at or within one kilometre downstream of the discharge point was assessed as follows:

- The habitat quality for Atlantic salmon (*Salmo salar*) was assessed, based on the criteria outlined by Kennedy (1984) and by Bardonnnet, A. and Baglinière, J. (2000) for the physical instream requirements of this species for spawning, nursery and adult habitat.
- The habitat quality for the three species of lamprey, the brook lamprey (*Lampetra planeri*), river lamprey (*Lampetra fluviatilis*), sea lamprey (*Petromyzon marinus*) was assessed, based on the criteria outlined by Maitland (1980) and by Johns (2002) for the physical instream requirements of these species for spawning, nursery and adult habitat.
- The habitat quality for crayfish (*Austropotamobius pallipes*) was assessed, based on the criteria outlined by Holdich (2003).

Although this 1km section of river is outside SAC 002162, impacts on a protected species in the Nuenna River could affect the overall population of the species in the catchment, particularly in cases where the habitat of the tributary is more suitable for a different life stage than that of the main channel.

2.4 Use of Available Chemical Data

The results of routine chemical monitoring of the river water by Kilkenny Co. Co. on two dates in 2010 were examined to help in the interpretation of the biological analysis (Appendix 6).

3. RESULTS

3.1 Macroinvertebrates

The macroinvertebrate community recorded at each site, giving abundances for each site, along with Q-values, is presented in Appendix 3.

At **Site 1**, three Group A (pollution sensitive) taxa made up nearly 25% of the total fauna. Four Group B (relatively pollution sensitive) taxa were also recorded here. The Group C (relatively pollution tolerant) species dominated Site 1, with the mayfly, *Baetis rhodani*, being the most abundant. Eight other Group C taxa were also recorded here. Group D (pollution tolerant) was represented by a single specimen of the water slater, *Asellus aquaticus*. No Group E (most pollution tolerant) taxa were found. With such a good Group A representation, the presence of five types of stonefly and only a single specimen from Group D, this site warrants a Q-value of **Q4-5** (Unpolluted).

At **Site 2**, Group A was also represented by three taxa, but only made up 5.6% of the total fauna. Two Group B taxa were recorded here. As at Site 1, Group C was dominant, with the mayfly, *Baetis rhodani*, being the most abundant. Group D was absent and Group E was represented by a single specimen of the tubificid worm, *Rhyacodrilus coccineus*. With a poorer representation of Group A than at Site 1, the fauna at Site 2 warrants a Q-value of **Q4** (Unpolluted).

Q4 is defined by the European Communities Environmental Objectives (Surface Waters) Regulations 2009 as “Good Ecological Status”, the standard which, in accordance with these regulations, must be achieved by December 2015. Q4-5 is defined by these regulations as “High Ecological Status”. Overall, the macroinvertebrate results from Sites 1 and Site 2 indicates that the discharge from Freshford WWTP is currently having a slight negative impact on the biological water quality of the Nuenna River, although the biological water quality downstream of the outfall still falls into the EPA “Unpolluted” category.

3.2 Plants

The plants recorded at each site are presented in Appendix 4. While the available chemical data (Appendix 6) does not indicate an increase in the concentrations of plant nutrients (Orthophosphate and Nitrate) downstream of the outfall, some growth of filamentous algae was noted.

3.3 Protected Habitats and Species.

In this section, the impact of Freshford WWTP discharge on each of the habitats and species for which the SAC is designated, is estimated. While the zone of potentially highest impact was taken as being from the discharge point to 1km downstream and this section of river was the main focus of the detailed investigation, the entire downstream freshwater section of the river was considered when assessing the presence of protected habitats and species and the potential effects of the discharge on these.

The Site Synopsis for the River Barrow and River Nore SAC states:

“The site is a candidate SAC selected for alluvial wet woodlands and petrifying springs, priority habitats on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for old oak woodlands, floating river vegetation, estuary, tidal mudflats, Salicornia mudflats, Atlantic salt meadows, Mediterranean salt meadows, dry heath and eutrophic tall herbs, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Nore Freshwater Pearl Mussel, Crayfish, Twite Shad, Atlantic Salmon, Otter, Vertigo moulinsiana and the plant Killarney Fern.”

Several of the species and habitats listed above are terrestrial and could not be affected by the Freshford WWTP discharge. Some are estuarine, in which cases the distance from the outfall to the saline waters must be taken into account when assessing the likelihood of any impacts.

3.3a Protected Habitats.

Floating River Vegetation.

Floating river vegetation occurs in the Nuenna River within the potential impact zone of the Freshford WWTP outfall. However, this is outside SAC 21612. A slight increase in plant nutrients would result in increased growth of floating river vegetation. A more substantial increase in plant nutrients could cause an increase in the competitive interactions between plant species, resulting in a loss of species. While no significant increase in plant nutrients is seen in the available recent chemical results, some increase would be expected to be associated with the recorded slight decline in biological water quality downstream of the Freshford WWTP outfall. However, any such increase would not significantly affect the Annex I habitat in the main channel of the River Nore.

Old Oak Woodlands, Dry Heath and Eutrophic Tall Herbs.

Terrestrial habitats, unaffected by discharges to rivers.

Estuary, Tidal Mudflats, Salicornia Mudflats, Atlantic Salt Meadows, Mediterranean Salt Meadows.

Saline habitats which potentially could be affected by substantially increased nutrient concentrations in the freshwater sections of rivers. However, with no significant increase in plant nutrient levels were recorded in the Nuenna River downstream of the outfall, only a slight drop in Q-value from Q4-5 to Q4 and given distance from the outfall to saline waters and the dilution involved, no impacts are considered likely.

3.3b Protected Species.

Of the Annex II species listed in the Site Synopsis, the first five considered below could not be significantly affected by discharge from the Freshford WWTP.

Freshwater Pearl Mussel (*Margaritifera margaritifera*).

Freshwater pearl mussels found in the River Nore part of SAC 002162 belong to the sub-species *Margaritifera margaritifera durrovensis* (see below).

Nore Freshwater Pearl Mussel (*Margaritifera margaritifera durrovensis*).

Within SAC 002162, the Nore freshwater pearl mussel is a sub-species which occurs only in a 10km stretch of the main channel of the River Nore, upstream of Tallyho Bridge, and is not found downstream of the Freshford WWTP.

Twaite Shad (*Alosa fallax*).

Twaite shad is an anadromous fish which enters large estuaries in late April or May to spawn in gravels near the end of the freshwater reaches (Whelan, 1989). Doherty *et al.* (2004) state that in Ireland the only known spawning location for Twaite shad is in the River Barrow. Adult Twaite shad are also known to occur in the lower parts of the River Nore, although spawning has not been confirmed here in recent years. Threats to Irish shad populations include deterioration of water quality and habitat degradation.

As only a slight decline in biological water quality (Q4-5 to Q4) was found, and given the distance from Freshford WWTP to the upstream end of the tidal range, no impacts are considered likely.

Moulins' Whorl Snail (*Vertigo moulinsiana*)

Vertigo moulinsiana is found in calcareous wetlands, usually adjacent to lowland rivers and lakes (Kerney, 1999). However, as it is not an aquatic species, it is not susceptible to changes in quality of river water.

Killarney Fern (*Trichomanes speciosum*)

Killarney fern is a terrestrial species, found on very sheltered, damp rock faces (Stace, 1991) and could not be affected by the river water quality.

Sea Lamprey (*Petromyzon marinus*), **Brook Lamprey** (*Lamprera planeri*) and **River Lamprey** (*Lamprera fluviatilis*).

Sea Lamprey usually spawn in the lower reaches of the River Nore between Thomastown and Inistioge, but sometimes as far up as Ballyragget (Kurz and Costello, 1999). Available information indicates that brook and river lampreys are widespread throughout the Nore system: Adult brook lamprey have been recorded in the Nore main channel between Abbeyleix and Ballyragget and unspecified lampreys have been observed in several of the tributaries (Kurz and Costello, 1999). A river lamprey was found dead after spawning in 1997 at Ballyragget, (J. Lucey, pers. comm.) and several river lampreys were caught by P. Sweeney while electro-fishing a small tributary of the River Nore about 8 kilometres downstream of Ballyragget in 1998. In the present survey, good lamprey spawning and nursery habitat was recorded in the Nuenna River. A significant drop in water quality could negatively affect any lamprey present. As the recorded drop in Q-value from Q4-5 at Site 1 to Q4 at Site 2 still keeps the biological water quality with the unpolluted category, it would not negatively impact on lamprey spawning and nursery habitat quality in the Nuenna River.

White-Clawed Crayfish (*Austropotamobius pallipes*).

This species formerly occurred throughout much of the River Nore and tributaries (J. Lucey, pers. comm.). A decline in the crayfish population was first noted in 2001. Information from local anglers indicates that a considerable kill occurred around this time in, with accumulations of dead crayfish reported in areas of slack water in the main channel of the Nore. A crayfish survey on 8 river stretches in the Nore catchment established an absence of the species in all except the Ballyroan River (Sweeney, 2006). The Nore population of this species could, however, recover in time.

A significant drop in water quality could negatively affect crayfish. As Demers *et al.* (2005) reported that over one third of the sites where crayfish were found were Q3-4 or less, the recorded drop in Q-value from Q4-5 at Site 1 to Q4 at Site 2 would not negatively impact on crayfish in the Nuenna River.

Atlantic Salmon (*Salmo salar*).

The section of river downstream of the outfall is rated as fair to good salmon spawning habitat, and good nursery habitat. O'Reilly (2002) states that the River Nore was once one of the finest salmon rivers in the country, but has declined dramatically in recent years. The main channel of the River Nore is a Salmonid Water, designated under the European Communities (Quality of Salmonid Waters) Regulations of 1988 (S.I. No. 293 of 1988). The chemical data presented in Appendix 6 are within the standards specified for compliance with these regulations in Salmonid Waters, both upstream and downstream of the outfall for the following parameters for which data are available: Temperature, pH, BOD, Dissolved Oxygen, Suspended Solids, Total Ammonium, Zinc and Copper. The egg and juvenile stages of the salmon life cycle are very vulnerable to deteriorations in water quality (Hendry and Cragg-Hine, 2003). A significant drop in water quality would also negatively affect adult salmon. In the present survey, good salmon spawning and nursery habitat was recorded in the Nuenna River. Although the recorded drop in Q-value from Q4-5 at Site 1 to Q4 at Site 2 still keeps the biological water quality with the unpolluted category, this slight decline could negatively impact on successful salmon reproduction as biological water quality of Q4 is not ideal salmon eggs and juveniles (M. O'Grady, Central Fisheries Board, *pers. comm.*).

Otter (*Lutra lutra*).

Within the South Eastern River Basin District, which includes the River Nore, Baily and Rochford (2006) recorded positive results at nearly 73% of the sites surveyed, indicating a widespread distribution of the species. If water quality dropped to the extent that the abundance of prey species were significantly affected, otters could be negatively impacted. However, given that Baily and Rochford (2006) found no significant difference in the occurrence of otters between polluted and unpolluted sites (their data appears to show a slight preference for slightly polluted sites over both extremes), the slight negative impact of the discharge on biological water quality would not affect otters.

4. CONCLUSIONS

4.1 Conservation Objectives.

Summarising the main threats to the designated site, the Site Synopsis for The River Barrow and River Nore SAC states:

“The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, overgrazing within the woodland areas, and invasion by non-native species, for example Cherry Laurel and Rhododendron (*Rhododendron ponticum*). The water quality of the site remains vulnerable. Good quality water is necessary to maintain the populations of the Annex II animal species listed above. Good quality is dependent on controlling fertilisation of the grasslands, particularly along the Nore. It also requires that sewage be properly treated before discharge. Drainage activities in the catchment can lead to flash floods which can damage the many Annex II species present. Capital and maintenance dredging within the lower reaches of the system pose a threat to migrating fish species such as lamprey and shad. Land reclamation also poses a threat to the salt meadows and the populations of legally protected species therein.”

The relevant conservation objective pertaining to the discharge from Freshford WWTP must therefore be to avoid impacts by proper treatment of the effluent before discharge to the river. The slight drop in biological water quality from Q4.5 to Q4, indicates that this conservation objective is currently not being achieved.

4.2 Cumulative Impacts.

Point sources, diffuse runoff and inputs from tributaries of unsatisfactory water quality are affecting the biological water quality of the River Nore along the course of the river. This can be seen in the 2007 EPA Q-ratings (Appendix 5). In that sampling season, in the section of river in Co. Kilkenny (from Site 1300 downstream), Q4 was recorded at five sites, Q3-4 at three sites, Q3 at two sites and Q2 at one. Several of the tributaries entering the river were in unsatisfactory condition.

The following facility in the catchment of the River Nore, north of Kilkenny, has a waste licence: Dunmore Landfill, Licence Code W0030-02. The licence specifies that there are to be no direct emissions to groundwater and that no leachate is to be discharged to surface waters. All leachate is transported to Purcellsinch WWTP for disposal.

The following facilities in the catchment of the River Nore, downstream of Abbeyleix have IPPC licences:

Randstone Limited T/A Stonearch Branch, Code P0332-01. The licence specifies conditions and limits for emission to sewer, the monitoring requirements for surface water discharges of non-process water and actions to be taken if contamination is detected. The licence also specifies conditions on the landspreading of waste.

Glanbia Ingredients (Ballyragget) Limited, Code P0359-02. The licence specifies emission limits to the River Nore.

Sunglen Limited, Code P0415-01. The licence specifies measures for the protection of surface waters and groundwater at the facility. The licence also specifies conditions on the landspreading of the slurry produced.

E. Smithwick & Sons Limited, Code P0448-01. The licence specifies conditions and limits for emission to sewer. The licence also specifies the monitoring requirements for surface water discharges of non-process water and actions to be taken if contamination is detected.

Office of Public Works, Code P0759-01. This facility has no emissions to water of environmental significance.

NN Euroball Ireland Limited, Code P0313-01. The licence specifies conditions and limits for emission to sewer. The licence also specifies the monitoring requirements for surface water discharges of non-process water and actions to be taken if contamination is detected.

Tex Tech Industries (Ireland) Limited, Code P0258-01. The licence specifies conditions and limits for emission to sewer. The licence also specifies the monitoring requirements for surface water discharges of non-process water and actions to be taken if contamination is detected.

Roadstone Provinces Limited, Code P0521-01. The licence specifies emission limits to a surface stream. The licence specifies measures for the protection of groundwater and surface waters at the facility and actions to be taken if contamination is detected.

Green Biofuels Ireland Ltd., Code P0829-01. The licence specifies emission limits to sewer and also specifies that there are to be no emissions to water of environmental significance.

Provided that the facilities listed above comply with the terms of their licences, they will have no cumulative impact on the biological water quality of the River Nore, and on the conservation objectives of Special Area of Conservation 002162.

While it would be very difficult ascertain the exact degree to which the effluent from the Freshford WWTP adds to the cumulative impact on the Natura 2000 site and its conservation objectives, the

present survey indicates that there is an impact on water quality in the Nuenna River, outside the SAC site, which could negatively affect salmon reproduction in this tributary.

4.3 Mitigation Measures.

The slight decline in biological water quality in the Nuenna River downstream of the outfall indicates the need for measures to improve the effluent quality. Upgrading of Freshford WWTP is planned. Details, provided by Kilkenny Co. Co., of mitigation measures to be provided within the upgraded WWTP, in order to avoid inputs to the river that would negatively impact on the conservation objectives of the SAC are presented in Appendix 8.

When the relevant catchment management plan is published, it will have to be ensured that all discharges will be compatible with the plan.

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5. NON TECHNICAL SUMMARY

- A biological assessment was carried out in order to assess the current effect, if any, of the discharge from Freshford Waste Water Treatment Plant (WWTP) on the biota of the Nuenna River and the implications of any such effects for protected habitats and species within this Special Area of Conservation (SAC). Sampling was undertaken on 24 March, 2010, with samples taken at two sites in the Nuenna River, upstream and downstream of the Freshford WWTP outfall.
- Biological water quality assessment indicates that while unpolluted conditions occur at both sites surveyed, the upstream site is of slightly higher quality indicating that the effluent from Freshford WWTP is currently having a slight negative impact on the biological water quality of the river.
- Six species and one habitat which are listed for protection under the EU Habitats Directive were identified as being present, or likely to be present at or within the zone of potential impact downstream of the Freshford WWTP outfall.
- The discharge is likely to have some negative effects on one of the protected species within the SAC.
- Improvement in effluent quality is necessary to prevent impacts on the qualifying interests of the SAC site.
- The results of this survey form a baseline against which future biological data can be compared.

APPENDIX 1

Sampling Site Locations and Site Details

Site Code	1	2
Watercourse	Nuenna River	Nuenna River
EPA River Code	15/N/02	15/N/02
Location	35m u/s WWTP outfall.	60m d/s WWTP outfall.
Grid Reference	24105 16477	24114 16475
Photograph	1	2
Substrate (in order of occurrence)	1. Cobble 2. Gravel 3. Large Rocks 4. Silt	1. Cobble 2. Gravel 3. Large Rocks 4. Sand 5. Silt
Sampling Depth (cm.)	40	40
Flow Type	Riffle: 70% Glide: 30%	Riffle: 80% Glide: 20%
Shade	Heavy	Medium
Salmon Spawning Habitat	Fair-Good	Fair-Good
Salmon Nursery Habitat	Fair-Good	Good
Lamprey Spawning Habitat	Good	Good
Lamprey Nursery Habitat	Poor-Fair	Poor-Fair
Crayfish Habitat	Good	Good

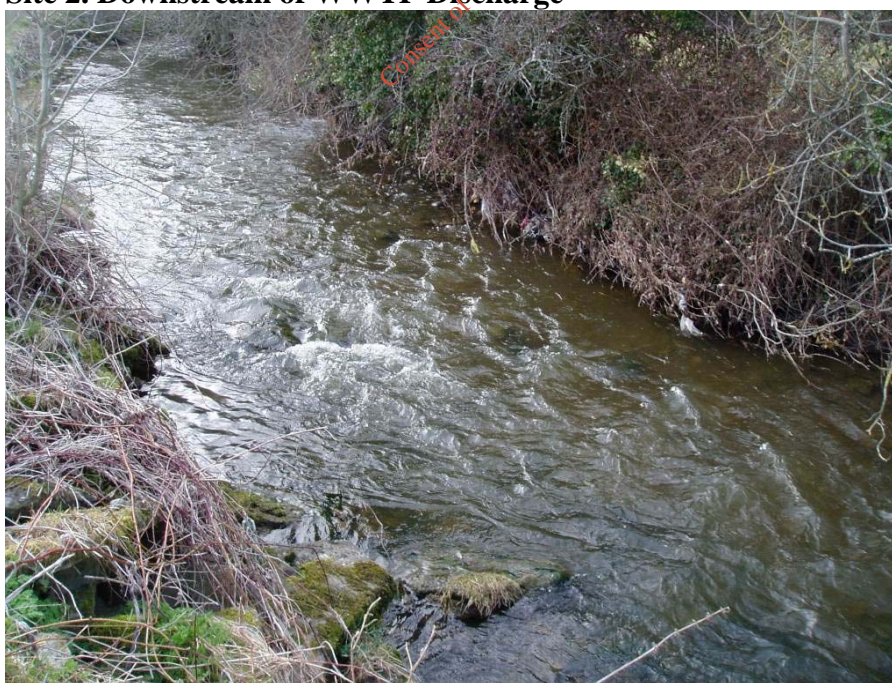
APPENDIX 2

Photographs

Site 1. Upstream of WWTP Discharge



Site 2. Downstream of WWTP Discharge



APPENDIX 3

Macroinvertebrate Community Composition

Abundance expressed as number of specimens sorted in 30 minutes.

EPA Group	Taxon	Site 1	Site 2
A (Sensitive Forms)	Chloroperlidae	2	6
	Perlodidae	5	
	<i>Ecdyonurus sp.</i>		2
	<i>Rhithrogena sp.</i>	63	4
B (Less Sensitive Forms)	Nemouridae	1	
	Taeniopterygidae	2	2
	<i>Leuctra sp.</i>	20	6
	<i>Baetis muticus</i>	1	
C (Tolerant Forms)	<i>Ancylus fluviatilis</i>	1	
	<i>Gammarus duebeni</i>	12	18
	<i>Baetis rhodani</i>	75	144
	Rhyacophilidae	3	2
	Hydropsychidae	3	4
	Polycentropodidae		1
	Limnephilidae		4
	Elmidae	1	4
	Simuliidae	62	3
	Chironomidae (ex. <i>Chironomus</i>)	11	9
D (Very Tolerant Forms)	<i>Asellus sp.</i>	1	
E (Most Tolerant Forms)	Tubificidae		1
Taxa not assigned to any Indicator Group	Lumbriculidae	20	4
	Q-rating	Q4-5	Q4

APPENDIX 4**PLANT COVER AT EACH SITE**

	Site 1	Site 2
Filamentous algae		10%
Moss/Liverwort	10%	10%

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APPENDIX 5

Nuenna River (15N02) EPA Q-values 2001 – 2007

Station No.	Station Location	2001	2004	2007
0100	Br d/s Clomantagh	3-4	3	4
0300	1km d/s Freshford	3	3	3
0400	Br near Cooleeshal	3-4	3-4	3

River Nore (15N01) EPA Q-values 2001 - 2008

Station No.	Station Location	2001	2004	2007	2008
0080	Br NE Clonakenny	3-4	3-4	4	-
0300	Quaker's Br	3-4	3-4	3-4	-
0500	Br S of Coolrain	4	4	4	-
0700	Kilbricken Br	4	3-4	3-4	-
0900	Poorman's Br	3-4	3-4	4	-
1100	Watercastle Br	4	4	4	-
1300	Tallyho Br	4-5	4-5	4	-
1450	Ballyragget Br	3-4	3-4	3-4	-
1500	1.5 km d/s Ballyragget	-	-	-	-
1600	Lismaine Br	4	4	-	-
1700	Threecastles Br	4	4	4	-
1800	1 km u/s Green's Br, Kilkenny	4	4	4	-
1950	Fennessy's Mill (Ossory Br)	3-4	3-4	3-4	-
2000	NE of Warrington, d/s Kilkenny	3	3-4	3	-
2200	Ballylinch Br	3-4	3-4	4	-
2300	Thomastown Br (Mid)	-	-	-	-
2305	Thomastown Br (LHS)	2	3	2	3
2310	Thomastown Br (RHS)	3-4	3-4	4	-
2320	1 km d/s Thomastown Br	3-4	3	3	-
2400	Brownsbarn Br	4	3-4	3-4	-

APPENDIX 6

CHEMICAL DATA – KILKENNY Co. Co. ROUTINE MONITORING

	<u>SampleDate</u>	COD mg/l O2	BOD mg/l O2	Suspended Solids mg/l	Conductivity @ 25°C uS/cm	Temperature °C	pH	Ortho-phosphate mg/l P	Nitrate mg/l N	Nitrite mg/l N	Ammonium mg/l N	Dissolved Oxygen % O2	Chloride mg/l	Total Hardness mg/l	Zinc ug/l	Copper ug/l
U/S	27-Jan-10	< 10	0.5	5	664	7.8	8	0.023	2.5		0.045	89	14	340.4	1.8	< 3
	09-Feb-10	< 10	0.6	0	632	7	8	0.015	3.5	0.001	0.018	97	21	320.7	< 1	< 3
D/S	27-Jan-10	< 10	0.6	1	642	8.2	7.8	0.023	2.9		0.045	85	13.1	361.7	1.7	< 3
	09-Feb-10	< 10	1	0	621	7.4	8	0.019	3.7	0.001	0.034	90	12.6	326.6	< 1	< 3

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Pascal Sweeney, Sweeney Consultancy, Rahan, Mallow, Co. Cork

Tel 022 26780 Email pascalsweeney@eircom.net

APPENDIX 7

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APPENDIX 8

Freshford WWTP – Mitigation Measures

As per Assessment of needs programme 2009.

This Document is attached in section G.3 of the Freshford WWTP Discharge Licence application “WS - Water Quality Monitoring – WW – Waste Water Discharge Licence – WW213 – Freshford”.

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F.2 Tabular Data on Drinking Water Abstraction Points

Kilkenny County Council has one drinking water abstraction point downstream of Freshford WWTP discharge. The discharge for Freshford WWTP is to the Nuenna River at 241087E, 164766N. Approximately 4.15Km downstream of the discharge, the Nuenna river joins the River Nore, at Threecastles. The abstraction point is for Kilkenny City (Troyswood) located at 249284E, 159796N, which is in total 11.5Km downstream of the discharge point.

Downstream of Troyswood Water Treatment Plant, County Kilkenny there are no Drinking Water Abstraction Points. Please see attached correspondence from Carlow, Waterford & Wexford Local Authorities confirming this.

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Carlow County Council Correspondence:

Page 1 of 2

Vincent Gallagher

From: Gerard O'Brien
Sent: 30 November 2009 13:59
To: Vincent Gallagher
Cc: Jerry Crowley; Sean Laffey
Subject: RE: Carlow Drinking Water Abstraction Points

Vincent,

This is to confirm that Carlow do not have any drinking water abstraction points on the River Barrow.

Regards,

Gerard O'Brien, Senior Executive Engineer,
Water Services, Carlow County Council,
Dublin Street, Carlow.
Gearóid Ó Briain, Innealtóir Sinsearach,
Seirbhísí Uisce, Comhairle Chontae Ceatharlach,
Sráid Bhaile Átha Cliath, Ceatharlach.

Tel. 059 9136265 Fax. 059 9164232
Email. gobrien@carlowcoco.ie

From: Vincent Gallagher [<mailto:vincent.gallagher@kilkennycoco.ie>]
Sent: 30 November 2009 13:09
To: Gerard O'Brien
Cc: Michael Murphy; Michael Arthurs
Subject: Carlow Drinking Water Abstraction Points

Ger,

With reverence to our Discharge Licence Applications, we have been requested to detail any Drinking Water abstraction points down stream of our WWTP discharge points. With respect to Carlow, could you please provide details of any abstraction points downstream of Bagenalstown on the River Barrow. If there are no abstraction points can you just confirm this to us?

Any queries just give me a call

Kind Regards,

Vincent Gallagher
Water Services,
Kilkenny Main Drainage,
Purcellsinch,
Sion Road,
Kilkenny

Phone: 056 - 7794191
e-mail: vincent.gallagher@kilkennycoco.ie

17/12/2009

Waterford County Council Correspondence:

Page 1 of 1

Vincent Gallagher

From: Loneragan, Eamon
Sent: 30 November 2009 15:06
To: Vincent Gallagher
Subject: RE: Waterford Drinking Water Abstraction Points

Vincent

I can confirm that Waterford County Council has no water abstraction points on the R. Suir downstream of Carrick-on-Suir.

Regards

Eamon

From: Vincent Gallagher
Sent: 30 November 2009 14:20
To: Loneragan, Eamon
Cc: Michael Murphy; Michael Arthurs
Subject: Waterford Drinking Water Abstraction Points

Eamon,

With reverence to our Discharge Licence Applications, we have been requested to detail any Drinking Water abstraction points down stream of our WWTP discharge points. With respect to Waterford, could you please provide details of any abstraction points downstream of Carrick-on-Suir on the River Suir. If there are no abstraction points can you just confirm this to us?

Any queries just give me a call.

Kind Regards,

Vincent Gallagher
Water Services,
Kilkenny Main Drainage,
Purcellsinch,
Sion Road,
Kilkenny

Phone: 056 - 7794191
e-mail: vincent.gallagher@kilkennycoco.ie

17/12/2009

Wexford County Council Correspondence:

Page 1 of 1

Vincent Gallagher

From: Gerry Forde
Sent: 01 December 2009 09:38
To: Vincent Gallagher
Subject: RE: Wexford Drinking Water Abstraction Points

Vincent

There are no Wexford Co. Co. water abstractions directly from the Barrow. One of the main feeds for New Ross is from the Poulmouny River which is a tributary of the Barrow. If you want a formal letter on Co. Co. headed paper let me know.

Gerry

From: Vincent Gallagher
Sent: 30 November 2009 16:28
To: Gerry Forde
Cc: Michael Murphy; Michael Arthurs
Subject: Wexford Drinking Water Abstraction Points

Gerry,

With reverence to our Discharge Licence Applications, we have been requested to detail any Drinking Water abstraction points downstream of our WWTP discharge points. With respect to Wexford, could you please provide details of any abstraction points downstream of the Carlow/Wexford Border on the River Barrow. If there are no abstraction points can you just confirm this to us?

Any queries just give me a call.

Kind Regards,

Vincent Gallagher
Water Services,
Kilkenny Main Drainage,
Purcellsinch,
Sion Road,
Kilkenny

Phone: 056 - 7794191
e-mail: vincent.gallagher@kilkennycoco.ie

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17/12/2009

Section G Attachments

Programmes of Improvements

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G.1 Compliance with Council directives

1. Dangerous Substance Directive 2006/11/EC

Kilkenny County Council are found to be compliant with the above directive based upon analysis carried on this agglomeration

2. Water Framework Directive 2000/60/EC

Kilkenny County Council is non compliant with this directive as the Habitats Directive and the Environmental liabilities directive are non compliant.

3. Birds Directive 79/409/EC

This directive does not apply. No designated bird areas within the agglomeration discharge

4. Groundwater Directive 80/68/EEC & 2006/118/EC

Compliant with this Directive as the plant discharges to a surface water

5. Drinking water Directives 80/778/EEC

Compliant as no drinking water abstraction from downstream of this discharge

6. Urban Waste water Treatment Directive 91/271/EEC

Non compliant. The upgraded plant will deal with these breaches

7. Habitats Directive 92/43/EEC

Non compliant due to the impact of the discharge on species listed by the appropriate assessment.

8. Environmental Liabilities Directive 2004/35/EC

Kilkenny County Council is non compliant with this directive as the necessary Insurance is not yet in place.

9. Bathing Water Directive 76/160/EEC

This directive does not apply as no designated bathing areas within agglomeration discharge

10. Shellfish Waters Directive 79/923/EEC

This directive does not apply. No designated shellfish waters within the agglomeration discharge

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G.2 Compliance with the European Communities Environmental Objectives (Surface Waters) Regulations 2009

Provide details on a programme of improvements, including any water quality management plans or catchment management plans in place, to ensure that improvements of water quality required under the Surface Water Regulations 2009 are being achieved.

The wastewater treatment plant has been highlighted under the Nore Main Water Management Unit Action plan of the South Eastern River Basin Plan. The plant has been given a priority 1 status. See attached page from the NMWMUAP:

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Nore Main Water Management Unit Action Plan

Point Source Discharge	County	Priority	Measure (Capital Works)
Ballinakill WWTP	Laois	1	Increase capacity of treatment plant.
Ballinakill WWTP	Laois	1	Provide tertiary treatment or relocate outfall.
Ballinakill WWTP	Laois	1	Provide nutrient removal or relocate outfall.
Freshford Sewerage Scheme WWTP	Kilkenny	1	Increase capacity of treatment plant.
Freshford Sewerage Scheme WWTP	Kilkenny	1	Provide tertiary treatment or relocate outfall.
Kilkenny City (Purcellsinch) WWTP	Kilkenny	1	Provide nutrient removal.
Kilkenny City (Purcellsinch) WWTP	Kilkenny	1	Provide tertiary treatment or relocate outfall.
Kilkenny City (Purcellsinch) WWTP	Kilkenny	1	Provide nutrient removal or relocate outfall.
Bennettsbridge Sewerage Scheme WWTP	Kilkenny	1	Increase capacity of treatment plant.
Ballyhale-Knocktopher Sewerage Scheme	Kilkenny	1	Increase capacity of treatment plant.
Ballyhale-Knocktopher Sewerage Scheme	Kilkenny	2	Provide tertiary treatment or relocate outfall.
Ballyhale-Knocktopher Sewerage Scheme	Kilkenny	2	Provide nutrient removal or relocate outfall.
Point Source Discharge	County	Priority	Measure (Investigation before Capital Works)
Ballinkillin	Carlow	2	Investigate the need for tertiary treatment or for the relocation of the outfall.
Ballinkillin	Carlow	2	Investigate the need for tertiary treatment or for the relocation of the outfall.
Ballyraggett Sewerage Scheme WWTP	Kilkenny	2	Investigate the need for tertiary treatment or for the relocation of the outfall.
Thomastown Sewerage Scheme WWTP	Kilkenny	2	Investigate the need for increase in capacity of treatment plant.
Point Source Discharge	County	Priority	Measure
Ballyraggett Sewerage Scheme WWTP	Kilkenny	1	Implement an appropriate performance management system
Kilkenny City (Purcellsinch) WWTP	Kilkenny	1	Implement an appropriate performance management system
Point Source Discharge	County	Priority	Measure
Kilkenny City (Purcellsinch) WWTP	Kilkenny	2	Investigation of CSO's
Point Source Discharge	County	Priority	Measure
Ballyraggett Sewerage Scheme WWTP	Kilkenny	2	Ensure capacity of treatment plant is not exceeded
Bennettsbridge Sewerage Scheme WWTP	Kilkenny	2	Ensure capacity of treatment plant is not exceeded

Provide details of any specific measures adopted for waste water works specified in Phosphorus Measures Implementation reports and the progress to date of those measures.

Kilkenny County Council Phosphorus Measures Implementation report July 2006 which has since been superseded by the Surface water regs 2009. The actions of the Phosphorous reports have been superseded by the Water Management unit's action plans.

Point source discharges within catchments:-

(1) Urban wastewater treatment plants have been upgraded to comply with the Urban Wastewater Treatment Regulations, 1994. These upgrades have resulted in reduction in the P-inputs from effluent discharges. The following Wastewater Treatment Plants (WWTP's) have been upgraded or will be upgraded by December 2006, since the submission of the last Implementation Report:

- (a) Callan STW.
- (b) Dunnamaggan STW.
- (c) Mooncoin STW.

(2) The following wastewater treatment plants will be upgraded in the next two to three years. In general WWTP's are being upgraded in co-operation with local developers in each town. The order shown should not be assumed to be the order that they will be completed.

- (a) Freshford STW.
- (b) Johnstown STW.
- (c) Urlingford STW.
- (d) Kilmacow STW.
- (e) Gowran STW. (Serviced Land Initiative)
- (f) Paulstown STW. (Serviced Land Initiative)

(3) The following Wastewater Treatment Plants are planned to be upgraded in a longer time frame. In general there are no new large scale developments in those areas to require them to receive greater priority. In addition the date of 31/12/2010 noted in the Implementation report should be considered the earliest possible date for any upgrade.

- (a) Kilkenny City (Purcellsinch) STW.
- (b) Tullaroan STW.
- (c) Kilmoganny STW.

(4) The following surface water/foul sewer drainage systems capital works will be carried out or are in the process of being carried out. Several other schemes are on more long-term plans.

- (a) Kilmacow.
- (b) Clogh & Mooneenroe (long term)

(5) The Sanitary Services section of Kilkenny County Council continues to bring to the attention of the Environment Section where in their view the treatment plants are subject to discharges of influent which were adversely affecting the workings of the Wastewater Treatment Plants. The plants where particular issues were noted included Kilkenny (Purcellsinch), Urlingford, Thomastown and Callan. The main issue related to the discharge of waste food and oils/fats/greases to the public sewer. The premises which would give rise to such discharges were noted and relevant notices were issued requiring premises which discharged trade effluent to make an application for a licence to Kilkenny County Council. Enforcement officers follow up any notices issued until the information required is submitted. The original notices continue to be followed up. Applications for the licence continue to be submitted and section 16 discharge licences are processed as required. Approximately 36 have been issued since the submission of the last implementation report. This requirement will increase to all other towns on a progressive basis prioritising areas with particular difficulties and those towns which have had their effluent treatment systems upgraded. On going difficulties have been notified on occasions in those towns where the original focus was made but of less frequency than before. It is considered that continued vigilance by the local authority in the area means that individuals are less likely to discharge unauthorised effluents.

(6) There has been some progress in reviewing section 4 discharge licences. 5 have been reviewed or are in the process of being reviewed since the last implementation report. In addition 1 section 16 licence has been reviewed in the same period. The review of these licences will continue to attempt eliminate older licences, greater than 10 years and to progressively reduce the period between reviews to approximately 3 years. In the period since the last implementation report 6 new section 4 and 36 new section 16 licences have been granted

(7) The tables in the implementation report make reference to a number of effluent treatment plants (STW) being the principal source of pollution. In such cases this conclusion is primarily based on the age of the effluent treatment system & that limited treatment is effected and not on any firm data to conclude that the plant is the direct source of unsatisfactory water quality noted. In many cases effluent quality upstream of the point of discharge is already not satisfactory so any improvement in the quality of effluent as discharged from effluent treatment plants may not necessarily lead to the expected improvement in water quality. Water quality upstream of the discharge point of these effluent treatment plants is generally affected by diffuse pollution sources.

Non-point source discharges within catchments:

- (1) There have only been approximately 230 farm surveys undertaken since the beginning of this year (this report relates to actions in 2005). This has been possible due to the appointment of additional staff to the Area offices in the past year part of whose time is allocated to Environment matters. It is hoped that these additional staff resources will lead to a considerable improvement in the quantum of farm surveys per year undertaken. Notices have been issued and followed up as required.
- (2) The site characterisation form in the EPA Wastewater Treatment Manual, Treatment Systems for Single Houses in conjunction with the Groundwater Protection Scheme is being utilised in assisting the planning authority in determining the suitability of sites for effluent treatment systems. This will hopefully attempt to ensure proper design of such systems and help reduce the

impacts of such systems on the receiving environment. In addition conditions are attached on the grant of permission that the systems are certified prior to occupation of the dwelling.

- (3) Through the Planning Process the Environment Section spends substantial resources in assessing the environmental impact of proposed developments. Further environmental reports, nutrient management plans etc are requested as deemed necessary. Following critical evaluation environmental conditions are attached to planning permissions granted as deemed appropriate including the provision of adequate protection measures for waters.
- (4) In order to ensure staff have sufficient knowledge to carry out the required assessments of planning applications appropriate training is provided. Two staff have undergone the Site Suitability Training Course for Single Houses and two staff have undergone the Nutrient Management Planning Training Course.
- (5) A Sludge Management Plan has been prepared by the Sanitary Services Section of Kilkenny County Council and has received approval from the Department of Environment, Heritage and Local Government.

(ii) Problems encountered:

- (1) Work demand on environment staff has increased to such an extent over the past number of years that resources have to be divided to deal with an ever increasing range of environmental legislation. This means that work which the local authority would like to do may not be possible to complete within planned time frames. The appointment of additional staff to the area office was subject to administrative difficulties and led to a slower start in the farm surveys than was originally envisaged in the last implementation report. Time frames in these cases have been extended. Staff resources continue to be an issue with one area office unfortunately not having an area technician replaced to date which means farm surveys are not possible within available resources in that area.

(iii) Future plans/New directions:

- (1) Continuing review of all section 4 and 16 discharge licences. Approximately 5 section 4 licences and approximately 1 section 16 licences have been reviewed since the last report.
- (2) The focus on farm surveys continues on a catchment by catchment basis. Investigations as a result of complaints continue to be investigated but the primary focus will be on this catchment by catchment basis.
- (3) Continue upgrading of all sewage treatment plants according to the Sanitary Services Assessment of Needs Programme. The time frames indicated in the implementation tables is based on the draft programme of August 2006. This required formal approval through the SPC in September 2006 before formal completion and forwarding to the relevant minister for approval. Consultation between the Environment Section and the Sanitary Services will continue.
- (4) Review all potential discharge points whether licensed or not. This continues to be a focus. In the first instance the focus will be on premises which discharge to the public sewer.
- (5) Continuation of enforcement measures.

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Provide details highlighting any waste water works that have been identified as the principal sources of pollution under the P regulations.

Table 2.2 Implementation Programme Summary table for Rivers in Local Authority Area. This table outlines the principle plants found under the P regulations to be the principal sources of pollution. See attached table:

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TABLE 2.2 IMPLEMENTATION PROGRAMME SUMMARY TABLE FOR RIVERS IN LOCAL AUTHORITY AREA													
Local Authority Name	KILKENNY		Reporting Year	2006									
River	Reach of River	Standard	Measures	Targets	Actions	Timeframe	Responsible for Implementation	Progress to Date	Corrective Actions	Action Completed Within Timeframe Yes/No	If No, State Revised Timeframe		
Clogh	200	4	Upgrade sewerage network at Chatsworth	Remove excess stormwater overflow	1. Prioritise in small schemes programme	31/12/2001	SEE Sanitary Services	Yes		Yes			
	400	4			2. Carry out improvement works	31/12/2001	SEE Sanitary Services	Yes		Yes			
					Carry out works	31/12/2007	SEE Sanitary Services	Yes (On going)					
Dinan	200	4	Farm surveys undertaken in '97	Reduce farm inputs	1. Review farm surveys	31/12/2008	SEE Environment	No					
	500	4	Upgrade Castlecomer sewage Treatment Plant	Improve quality of effluent	Design & carry out works	31/12/2005	SEE Sanitary Services	Yes		Yes			
	600-8	4	Upgrade Coon Sewage treatment plant	Improve quality of effluent	Design & carry out works	31/07/2002	SEE Housing	Yes		Yes			
Castlecomer Stream	100	4	None	Maintain quality	On-going monitoring	31/07/2007	SEE Environment	Yes (on-going)					
Cloghnagh	300	4	Farm surveys	Reduce farm inputs	1. Carry out farm surveys	31/12/2005	SEE Environment	Yes (On-going) 25%		No	31/12/2006		
	400	4			2. Consult with farmers 3. Issue & enforce notices								
Muckalee	100	4	None	Maintain quality	1. On-going monitoring	31/07/2007	SEE Environment	Yes (on-going)					
	200	4											
Barrow	3400	4	Upgrade Goresbridge sewage treatment works	Improve quality of effluent	Design & carry out works	31/12/2009	SEE Sanitary Services	Yes (on-going)					
	3500	4	Upgrade Graiguenamanagh sewage treatment plant	Improve quality of effluent	Carry out works	31/12/2001	SEE Sanitary Services	Yes (complete)		Yes			
					Upgrade Skeoghvosteen sewage treatment plant	Improve quality of effluent	Carry out works	31/07/2002	SEE Housing	Yes		Yes	
Monafelim	100	5	Identify & remedy suspected agricultural pollution sources at stations 800 & 1000	Reduce farm inputs	1. Carry out farm surveys	31/12/2006	SEE Environment	No		No	31/12/2007		
	300	5			2. Consult with farmers								
	800	3-4			3. Issue & enforce notices								
	1000	3-4											
Gowran	20	4-5	Improve Gowran sewage treatment works	Improve quality of effluent	Design & carry out works	31/12/2006	SEE Sanitary Services	Yes (Serviced Land Initiative)		No	31/12/2007		
	50	4			Intensify farm surveys	Reduce farm inputs	1. Follow up farm surveys	31/12/2005	SEE Environment	Yes (100% complete)		Yes	
	100	3-4					2. Consult with farmers						
	220	3-4					3. Consult with farmers						
	300	3-4											
400	3-4												
Glory	45	3	Upgrade Kilmoganny sewage Treatment Works	Improve quality of effluent	Design & carry out works	31/12/2009	SEE Sanitary Services	No		No	31/12/2010		
			Install Sewage Treatment Plant at Dunnamaggan	Improve quality of effluent	Design & carry out works	31/12/2006	SEE Sanitary Services	Yes		No			
			Install Sewage Treatment Plant at Windgap	Improve quality of effluent	Design & carry out works	31/07/2002	SEE Housing	Yes		Yes			
			Follow up farm surveys	Reduce farm inputs	1. Follow up farm surveys 2. Consult with farmers 3. Issue & enforce notices	31/12/2005	SEE Environment	No	Recommend	No	31/12/2007		
Arrigle	100	4	Farm surveys undertaken in '95	Reduce farm inputs	1. Review discharge licence of fish farm.	31/12/2005	SEE Environment	Yes (Data gathering)		No	31/12/2006		
	250	4											
	300	4											
Goul	80	3-4	Farm survey undertaken in '97	Reduce farm inputs	1. Review farm surveys	31/12/2007	SEE Environment	No					
	250	3-4			2. Consult with farmers								
	300	4			3. Issue & enforce notices								
Blackwater	60	4	Upgrade Urlingford sewage treatment works	Improve quality of effluent	Design & carry out works	31/12/2003	SEE Sanitary Services	Yes		Yes			
			Upgrade Johnstown sewage treatment works	Improve quality of effluent	Design & carry out works	31/12/2009	SEE Sanitary Services	Yes (Planning Stage)					
			None	Maintain quality	1. On-going monitoring	31/07/2007	SEE Environment	Yes (on-going)					
Poulanassa	80	4	Provide sewerage scheme @ Kilmacow	Eliminate diffuse/septic tank discharges	Design & carry out works	31/12/2006	SEE Sanitary Services	Yes (Consultants appointed)		No	31/12/2008		
	200	4-5											
	300	4											
	400	4											
	500	4											
Poulanassa	40	4	Extra monitoring commenced in 1998	Reduce farm inputs	1. Follow up farm surveys	31/12/2005	SEE Environment	No	Recommend	No	31/12/2007		
	100	4			2. Consult with farmers								
	300	4			3. Issue & enforce notices								
	500	4											

River	Reach of River	Standard	Measures	Targets	Actions	Timeframe	Responsible for Implementation	Progress to Date	Corrective Actions	Action Completed Within Timeframe Yes/No	If No, State Revised Timeframe
Smartscastle Stream	200	4									
	500	4	Licence trade discharge	Reduce suspended solids	Issue & enforce licence	31/12/2005	SEE Environment	No (Quarry discharge)	Use quarry r	No	31/12/2007
	800	4									
Breaghagh	80	3-4	Follow up farm surveys	Reduce farm inputs	1. Follow up farm surveys	31/12/2007	SEE Environment	No			
	350	3-4			2. Consult with farmers 3. Follow up farm surveys						
			Complete Breaghagh valley sewer	Eliminate diffuse/septic tank discharges	Carry out works	31/12/1999	SEE Sanitary Services	Yes		Yes	
Brownstown	800	3-4	Farm surveys undertaken in'95	Reduce farm inputs	1. Follow up farm surveys	31/12/2007	SEE Environment	No			
	1100	3-4			2. Consult with farmers 3. Issue & enforce notices						
Kings	500	3-4	Follow up farm surveys	Reduce farm inputs	1. Follow up farm surveys	31/12/2005	SEE Environment	Yes (40% complete)	Recommend	No	31/12/2006
	600	3-4			2. Consult with farmers						
	700	4			3. Issue & enforce notices						
	850	3-4									
	900	3-4		Provide P removal at Callan sewage treatment works	Reduce phosphorous in effluent discharge	1. Prioritise on sanitary schemes list	31/12/2001	SEE Sanitary Services	Yes		Yes
					2. Design & carry out work	31/12/2004	SEE Sanitary Services	Yes (On going)			
			Complete commissioning of Kells sewage treatment works	Improve quality of effluent	Complete commissioning	31/12/1999	SEE Sanitary Services	Yes (complete)		Yes	
			Upgrade Stoneyford sewage treatment works	Improve quality of effluent	Design & carry out works	31/12/2000	SEE Sanitary Services	Yes (complete)		Yes	
			Complete commissioning Stoneyford effluent treatment plant	Improve quality of effluent	Complete commissioning	31/12/2005	SEE Sanitary Services	Yes (on-going)		Yes	
Munster	400	4	Follow up farm surveys	Reduce farm inputs	1. Follow up farm surveys	31/12/2006	SEE Environment	No		No	31/12/2007
	450				2. Consult with farmers						
	600				3. Issue & enforce notices						
	700		Install Sewage Treatment Plant at Tullaroan	Improve quality of effluent	Design & carry out works	31/12/2009	SEE Sanitary Services	No		No	31/12/2010
Desart Stream	300	3-4	Follow up farm surveys	Reduce farm inputs	1. Follow up farm surveys	31/12/2008	SEE Environment	No			
	500	3-4			2. Consult with farmers 3. Issue & enforce notices						
			Recommence surveys	Improve quality of effluent	Recommence monitoring	31/12/2005	SEE Environment			Yes	
Caherleske stream	400	3-4	Follow up farm surveys	Reduce farm inputs	1. Follow up farm surveys	31/12/2006	SEE Environment	No		No	31/12/2007
					2. Consult with farmers 3. Issue & enforce notices						
Ennisnag	700	4	Follow up farm surveys	Reduce farm inputs	1. Follow up farm surveys	31/12/2007	SEE Environment	No			
					2. Consult with farmers 3. Issue & enforce notices						
Duiske	100	4	Identify and remedy storm & sewage direct discharges to river at Graiguenamanagh	Remove uncontrolled discharge	Survey, design & carry out works	31/12/2001	SEE Sanitary Services	Yes		Yes	
	200	3-4									
			Intensify farm surveys	Reduce farm inputs	1. Carry out farm surveys	31/12/2008	SEE Environment	No			
					2. Consult with farmers 3. Issue & enforce notices						
Powerstown	200	4	Farm surveys	Reduce farm inputs	1. Carry out farm surveys	31/12/2006	SEE Environment	No			
	400	4			2. Consult with farmers 3. Issue & enforce notices						
Nore	1300	4									
	1400	4	Upgrade Ballyragget Sewage Treatment Plant	Improve quality of effluent	Carry out works	31/12/2002	SEE Sanitary Services	Yes		Yes	
	1450	4									
	1600	4									
	1700	4									
	1800	4	Farm surveys in mid-Nore & lower Nore catchments	Reduce farm inputs	1. Carry out farm surveys	31/12/2008	SEE Environment	No			
	1900	4			2. Consult with farmers 3. Issue & enforce notices						
1950	4										
	2000	3-4	Upgrade and provide P removal at Purcellsinch Treatment Plant	Reduce phosphorous in effluent discharge	Carry out works	31/12/2006	SEE Sanitary Services	Yes (Consultants appointed)		No	31/12/2010
	2100	4									
	2120	4									
	2200	4									
	2305	3	Improve sewerage network in Thomastown	Remove excess storm water overflow.	Carry out works	31/12/2001	SEE Sanitary Services	Yes (complete)		Yes	
	2310	4	Upgrade and provide new treatment works at Thomastown	Improve quality of effluent	Carry out works	31/12/2001	SEE Sanitary Services	Yes (complete)		Yes	
	2400	4									

River	Reach of River	Standard	Measures	Targets	Actions	Timeframe	Responsible for Implementation	Progress to Date	Corrective Actions	Action Completed Within Timeframe Yes/No	If No, State Revised Timeframe
Owveg	280	4	None	Maintain quality	1. Ongoing monitoring	31/07/2007	SEE Environment	Yes (on-going)			
	400	4									
Lisdowney	100	4	None	Maintain quality	Ongoing monitoring	31/07/2007	SEE Environment	Yes (on-going)			
			Recommence monitoring	Maintain quality	Recommence monitoring	31/12/2005	SEE Environment			No	31/12/2008
Nuenna	100	4	Farm surveys undertaken in '96	Reduce farm inputs	1. Review farm surveys	31/12/2007	SEE Environment	No			
	300	3-4			2. Consult with farmers						
	400	4			3. Issue & enforce notices						
			Upgrade Freshford sewage treatment works & sewage network	Improve quality of effluent	Design & carry out works	31/12/2009	SEE Sanitary Services	No		No	31/12/2009
Gorteenahilla	300	3-4	Farm surveys	Reduce farm inputs	1. Carry out farm surveys	31/12/2008	SEE Environment	No			
					2. Consult with farmers						
					3. Issue & enforce notices						
Arigna	400	4	Farm surveys	Reduce farm inputs	1. Carry out farm surveys	31/12/2008	SEE Environment	No			
					2. Consult with farmers						
					3. Issue & enforce notices						
			Recommence monitoring	Improve quality	Recommence monitoring	31/12/2005	SEE Environment	No		No	31/12/2008
Suir			Upgrade Mooncoin Sewage Treatment Plant	Improve quality of effluent	Design & carry out works	31/12/2006	SEE Sanitary Services	Yes(Serviced Land Initiative)		Yes	
Glenmore			Provide Sewage Treatment Plant at Glenmore	Improve quality of effluent	Design & carry out works	31/12/2002	SEE Housing	Yes		Yes	

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G.3 Impact Mitigation

Provide details on a programme of improvements to ensure that discharges from the agglomeration will not result in significant environmental pollution.

Kilkenny County Council submitted its Water Services Investment Programme 2010 – 2012 identifying its need assessments in 2009. The complete 72 page document is attached overleaf:

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**KILKENNY COUNTY COUNCIL
WATER SERVICES SECTION**

**WATER SERVICES INVESTMENT
PROGRAMME 2010 – 2012.**

NEEDS ASSESSMENT 2009.

October, 2009.

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1.0 INTRODUCTION

Kilkenny County Council has prepared its Water Services Investment Programme, 2010 – 2012 Needs Assessment in line with the Department's Circular L 6/09. The assessment has been prepared to emphasise contracts within schemes, rather than entire schemes and priorities have been allocated under the four headings specified in the Circular.

The Water Services Capital Programme has been a regular item for discussion with both the full Council and with the Infrastructure SPC of Kilkenny County Council. At their June meeting the full Council received a briefing on the capital projects and in September, the Oireachtas members were given an update on the capital programme.

Together with the categorised priorities, a report on "Interim Upgrades" to address existing serious environmental and public health issues is included (Appendix 1) and is considered to be a very important document, designed to address the most critical issues facing Kilkenny County Council Water Services Section.

At the October meeting of Kilkenny County Council, the prioritised assessments and the document in Appendix 1 were each presented by the County Manager and senior staff to the Elected Members and it was decided unanimously that they should be submitted to the department, as Kilkenny's 2010 – 2012 WSIP Assessment of Needs.

While this assessment prioritises a number of individual contracts, spread over several schemes, ahead of full schemes, this does not eliminate the need for the full schemes. The approach taken, targets the use of scarce resources in a number of areas, across several schemes, where these limited resources can have most impact and will be seen as having an immediate but incomplete impact on needs.

The assessment identifies significant issues and challenges, both environmental and financial, not just for the Local Authority, but also for the Department. These issues are further expanded in the following chapters.

2.0 KEY ISSUES:

In preparing this assessment, two key issues which constitute a substantial challenge for both Local and National Government have emerged.

These issues are:

1. Environment
2. Public Health

2.1 Environment:

In drawing up the Assessment, it was decided to look initially for areas where current unacceptable environmental impacts already existed. A study of discharges from all waste water treatment facilities was undertaken. The results are shown in Tabular form in Appendix “B” of the “Interim Upgrades” Report (Appendix 1 of this report). As can be seen in the table, the discharges, with little exception, are very poor.

To combat these unacceptable levels of discharge, one of two things could be done; build a plant which meets the Water Framework Directive and Surface Water Regulation requirements (slow & expensive but comprehensive and necessary solution) or as an interim, faster and less costly solution, carry out upgrades which, while not totally meeting the SW regulation discharge standards, would greatly improve the situation and would largely be in line with Urban Waste Water Regulation standards. While it is the Council’s preference to construct the full schemes at a cost of €218M, it is accepted that in times of severe financial constraints, this may not be possible. Many of the solutions offered, would entail part of the final plant upgrade and would form part of the final solution when the plant was upgraded to fully meet the SW Regulation standards.

In Chapter 4 of this report, locations where such discharge problems exist and where interim solutions are applicable have been identified by a red shaded “X” in the column marked “High Priority”. The summary table also identifies the cost estimates for the interim upgrade as well as estimates for the required final solution. The total estimated cost of the Interim Waste Water Upgrades is €1.795M. The total estimated cost of the full waste water upgrade programme for the same plants is €43,786M. These full upgrades would meet all the environmental parameters and standards

required. However it is recognised that the resources available to the state may not be enough to enable all of these works to be carried out in a short timeframe.

The Council now faces the risk of prosecution because discharge standards, in a number of schemes, are not in accordance with regulations. Priority must therefore be given to interim works to improve these standards. Kilkenny County Council considers this to be a prudent course of action designed to mitigate the environmental difficulties that exist around a number of schemes.

A number of interim schemes where works could be carried out to address the urgent cases, have been identified in Appendix 1. We strongly believe these works should be carried out without further delay, having regard to the urgent need to eliminate environmental non compliances and to eliminate the risk of prosecution by other agencies such as the EPA and the Fisheries Board. The Council believes that it should set the lead in environmental management rather than react to other agencies interventions or prosecutions.

If it could be funded, the interim programme could easily be completed in the life of the 2010 – 2012 WSIP. The total scheme would take much longer to deliver, even if funds were available. The immediate impact on the rivers of the county, as a result of the interim programme would be quick and very significant.

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2.2 Public Health:

Public health issues which were identified all related to water quality issues. Most of these have been well flagged already, either by way of the EPA's Remedial Action List (RAL) or by Kilkenny County Council's own water quality testing regime.

The targeted expenditure for the four identified schemes (Kilkenny City Regional, Gowran Goresbridge Paulstown, Inistioge and Clogh Mooneenroe) is highlighted as "high Priority" on the summary sheet in Chapter 4.

This estimated expenditure of approximately €0.25M on drinking water scheme improvements (which would form part of the longer term upgrade) would have an immediate and positive impact on water quality, but would not eliminate the longer term need for the full scheme upgrades. The estimated cost of the full water scheme upgrades is €3.7M.

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3.0 CHALLENGES

Having identified the key issues as protection of the Environment and Public Health, it becomes evident that the biggest challenge facing all the relevant parties will be how these urgent measures can be funded.

The total cost of the full schemes identified comes to **€18M**. Based on current water pricing policy, it is estimated that this would be funded as follows: Department €14M, Local Authority €6M, IDA €4M.

The total cost of the contract and “interim proposals” is estimated to be **€2M**. Based on current water pricing policy, it is estimated that this would be funded as follows: Department €4M, Local Authority €2M, IDA €4M.

From a Local Authority perspective, the only source of our element of such funding is borrowing. Currently Kilkenny County Council has an existing loan of €8.5M, taken out to fund completed Water Services Projects. If Kilkenny County Council was to borrow their element of the funding required for the works outlined in this assessment, it would require additional borrowings of €6M for the full programme or €2M for the essential works programme. This would bring Kilkenny County Council’s total borrowings for Water Services to either €8.5M or €28.5M, depending on the option chosen.

Kilkenny County Council’s only source of finance to fund the repayments on such a loan is development contributions. Because of the dramatic drop off in development, the level of development contributions has equally fallen. In 2009, it is anticipated that the amount of development contributions available for Water Services will be 0.8M. The repayments on the required loans would be €6.0M/annum or €2.75M/annum, depending on the chosen option. Given that Kilkenny County Council only has 0.8M/annum at its disposal to repay these loans, an alarming funding shortfall of between €2M/annum and €5.2M/annum quickly becomes apparent.

The above bleak scenario also depends on the Department’s ability to fund their element of the programme, as well as the Councils ability to obtain borrowing approval for the required loans.

This Council, like others, is facing financial difficulties. Both the elected members and the management of the Council consider that the upgrading of water services is the most urgent issue facing the Council. The present structure by which capital schemes are financed, is proving unsustainable.

In the case of this Council, it is estimated that the Council's contribution to the full works is €60M and to the interim works €20M. We will generate €0.8M this year from development contributions. Therefore, even in relation to the interim works, the income generated from development levies falls way short of that required to finance capital schemes under the current Water Pricing Policy.

Kilkenny County Council therefore requests that the Department, in the allocations made to the Council, makes good this deficit. This would allow the Council to address the environmental and regulatory issues set out in this Needs Assessment in a meaningful way and in the shortest possible timeframe.

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4.0 Needs Assessment Summary.

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NEEDS ASSESSMENT 2009 --- SUMMARY

Scheme	Planning Stage 2010-12	Current Status					Water Conservation (1)	Category				Priority Contracts - L6/09	Estimated Cost	Delivery Timeframe	Total Scheme Cost	
		Planning Stage	PR with DOE Design & Contract Documents	Tender	Under Construction	High Priority		ECJ Judgements (2)	Environment /Public Health (3)	Economic Development (4)						
WATER																
Kilkenny City Regional WSS																
			X				X	X	X	X	Repairs to Radestown Reservoir	€80,000	2010			
			X					X	X	X	Development of Wellfields	€1,300,000	2009/10			
			X					X	X	X	Bankside Storage	€2,108,150	2010			
			X					X	X	X	New Reservoir at Outrath	€500,000	2011			
			X					X	X	X	Intake Screens - Troyswood	€272,000	2011			
			X					X	X	X	Intake Screens -Dinin	€272,000	2011			
											€4,532,150				€24,522,097	
Water Conservation																
					X	X	X				Staff, Equipment, Materials -- Stage 2	€627,063	2009/10			
					X	X	X				Project Consultant Services -- Stage 2	€549,650	2009/10			
					X	X	X				External Leak Detection -- Stage 2	€295,852	2009/10			
					X	X	X				Leak Repair Works -- Stage 2	€1,498,232	2009/10			
	X				X	X	X				Advanced Critical Rehabilitation Works	€5,000,000	2010/12			
	X						X				Critical Rehabilitation Programme	€20,000,000	2011/13			
															€27,970,797	
Mooncoin Regional Water Supply Scheme																
			X		X	X			X	X	Phase 1A (develop wells, harness Kilmacow wellfield, trunk mains to Belview, treatment works, reservoir)	€13,000,000	2009/10			
			X			X			X	X	Phase 1B (connect all wellfields to network)	€4,700,000	2011/12			
			X			X			X	X	Phase 1C (upgrade Clonassy plant & distribution network)	€3,100,000	2012			
											€25,800,000				€44,000,000	

Urlingford Johnstown WSS											X	Access to existing Tower	€100,000	2011		
											X	Source Protection works	€65,263	2011		
											X	Rising Mains to Tower	€78,315	2012		
Urlingford/Johnstown Contract total													€243,578		€7,400,000	
Kilkenny City Western Environs				X								X	Provide water & waste water infrastructure		2011/16	€4,800,000

WASTE WATER

Kilmacow SS																	
Kilmacow WWTP -DBO					X	X						X	X	Construction of WWTP	€1,500,000	2009/10	
																	€1,500,000
Purcellsinch (Kilkenny City WWTP & County Sludge Hub)				X													
						X			X		X	X	Inlet works, settling tank, sludge handling upgrades. Ferric dosing. Biotower removal.PLC/SCADA system	€2,900,000	2010		
																	€19,700,000
Thomastown WWTP					X	X						X	X			2009/2010	€2,300,000
Stonyford WWTP					X	X						X	X	Construct new plant with absolute essentials only	€740,000	2011	€350,000
Bennettsbridge WWTP					X	X						X	X	Construct Interim Reusable Plant	€620,000	2010	€2,200,000
Freshford Johnstown Goresbridge Waste Water																	
Freshford					X	X						X	X	interim package plant	€560,000	2010	€1,610,000
Johnstown					X	X						X	X	interin package plant	€492,000	2011	€1,515,000

Goresbridge				X						X	X	interim package plant	€360,000	2011	€1,511,000
Paulstown WWTP	X									X	X	reusable upgradeto existing plant	€403,000	2011	€2,000,000
Castlecomer WWTP				X						X	X	interim reusable parallel upgrade to existing plant	€550,000	2011	€4,500,000
Urlingford WWTP										X		add 3rd SBR + other improvement items	€510,000	2012	€1,250,000
Fiddown WWTP										X		interim package plant	€360,000	2012	€700,000
Mullinavat WWTP										X		interim package plant	€360,000	2012	€850,000
Inistioge WWTP										X	X	Interim Package Plant	€360,000	2012	€900,000
Ballyhale WWTP										X	X	upgrade existing plant & provide new outfall	€580,000	2011	€900,000
Piltown WWTP										X		Plant 100% overloaded. Discharge problems. Discharges to Riv Suir	€950,000	2012	€2,300,000
Clough Mooneenroe Sewerage Scheme	X									X	X			>2012	€3,500,000
Asset Management											X	Carry out CIS mapping of WW network	€500,000	2010-2012	€500,000
Storm Water Overflows										X		Monitor & improve 45 SW overflows County wide, in line with EPA conditions.	€1,000,000	2010/14	€1,000,000

5.0 Category 1 -- Water Conservation

5.1 Strategic Overview:

The benefits of water conservation are well established. In Kilkenny Stage 2 works are underway at present. Already substantial savings have been identified, even though the project is at an early stage. It is expected that an advance Stage 3 contract, designed to rehabilitate some of the worst sections of watermain in the County will be ready to put before the Department for approval in the very near future.

Currently, it is anticipated that because of water conservation, a number of schemes, which were high priority some time ago, can now be delayed by a number of years because of the success of the water conservation project. It is most likely that, as the water conservation scheme progresses, it will be possible to either delay or curtail a number of other supply schemes.

To date, the presence of lead in drinking water in County Kilkenny has been relatively limited. There are no lead mains, though there are a number of areas where lead distribution pipes are used on private property. To date, it has been possible to control lead levels to below the current MAC by means of PH adjustment. It is anticipated that expenditure required to undertake further PH corrections can be financed from the Small Schemes Programme.

Like all other Local Authorities, Kilkenny County Council has infrastructure, which cost several million euro buried in the ground. It is vital to the proper management of this valuable infrastructure that proper mapping is in place. To date proper details of the water network have been recorded under the Complete Information System (CIS). No such records of the waste water network exist. It is crucial that funds are made available to establish an accurate picture of the waste water network, using CIS.

The prioritisation of Water Conservation projects for inclusion in the 2010 - 2012 WSIP is set out in Section 5.2 and represents good value for money and good use of scarce resources for both the Department and the Council.

5.2 Priorities

NEEDS ASSESSMENT 2009. Contracts (In Order Of Priority) Category 1- **Water Conservation**

Scheme	Current Status					Priority Contracts - L6/09	Estimated Cost	Delivery Timeframe	Also Included in Category	Priority Justification
	Planning Stage	PR with DOE	Design & Contract Documents	Tender	Construction					
Water Conservation Project					X	Staff, Equipment, Materials -- Stage 2	€627,063	2009/10		Under Way at present
Water Conservation Project					X	Project Consultant Services -- Stage 2	€549,650	2009/10		Under Way at present
Water Conservation Project					X	External Leak Detection -- Stage 2	€295,852	2009/10		Under Way at present
Water Conservation Project					X	Leak Repair Works -- Stage 2	€1,498,232	2009/10		Under Way at present
Kilkenny City Regional WSS		X				Repairs to Radestown Reservoir	€80,000	2010	3&4	Estimated that up to 750 cum of treated water lost per day. (See Appendix 1)
Water Conservation Project	X					Advanced Critical Rehabilitation Works	€5,000,000	2010/12		Substantial amount of mains rehab identified already. Should be carried out as quickly as possible.

Asset Management					Carry out CIS mapping of WW network	€500,000	2010/12	4	Needed to identify network details in order to identify deficiencies therein.
Ballyragget WSS		X			Repair & Upgrade to existing Tower	€163,156	2011	3	Water overflowing to waste at inlet valve. Leaking from joints in RC Tower.
Water Conservation Project	X				Critical Rehabilitation Programme	€20,000,000	2011/13		Should follow Stage 2 without delay.

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6.0 Category 2 -- ECJ Judgements

6.1 Strategic Overview:

In Case C-95/09, brought by the EU Commission to the European Court of Justice, it was alleged that the Kilkenny City was one of the agglomerations not in compliance with Article 5 of the EU Urban Waste Water Treatment Directive.

The Kilkenny City Treatment Plant at Purcellsinch is also the subject of an ongoing complaint to the EU Parliament's Petitions Committee.

The Kilkenny City Regional Water Supply Scheme is the subject of an ongoing complaint (Petition 661/2000) to the EU Parliament's Petitions Committee.

The works proposed for both schemes above are in compliance with national and local commitments given to the Committee.

Kilkenny City's ability to expand, in line with its NSS Hub status, is dependant on having a proper critical infrastructure system, including water & waste water facilities.

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6.2 Priorities;

NEEDS ASSESSMENT 2009. Contracts Category 2 - (In Order Of Priority) - ECJ Judgements

Scheme	Current Status				Priority Contracts - L6/09	Estimated Cost	Delivery Timeframe	Also Included in Category	Priority Justification
	Planning Stage	PR with DOE	Design & Contract Documents	Tender					
Purcellsinch (Kilkenny City WWTP & County Sludge Hub)		X							To address the issues as raised in Case C-95/09 brought to the ECJ by European Commission.(See Appendix 1)
Kilkenny City Regional WSS					X	€1,300,000	2009/10	3&4	EU Parliament Petitions Committee enquiry into water quality (Petition 661/2000) (See Appendix 1)
Kilkenny City Regional WSS		X				€2,108,150	2010	3&4	EU Parliament Petitions Committee enquiry into water quality (Petition 661/2000) (See Appendix 1)
Kilkenny City Regional WSS		X				€80,000	2010	1,3&4	EU Parliament Petitions Committee enquiry into water quality (Petition 661/2000) (See Appendix 1)

Kilkenny City Regional WSS		X				New Reservoir at Outrath	€500,000	2011	3&4	EU Parliament Petitions Committee enquiry into water quality (Petition 661/2000) (See Appendix 1)
Kilkenny City Regional WSS		X				Intake Screens - Troyswood	€272,000	2011	3&4	EU Parliament Petitions Committee enquiry into water quality (Petition 661/2000) (See Appendix 1)
Kilkenny City Regional WSS		X				Intake Screens -Dinin	€272,000	2011	3&4	EU Parliament Petitions Committee enquiry into water quality (Petition 661/2000) (See Appendix 1)

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7.0 Category 3 -- Environment/Public Health

7.1 Strategic Overview:

It has been identified that a number of villages and small towns in County Kilkenny have waste water facilities which do not comply with Urban Waste Water Standards and urgently require upgrades. This is reflected by their high priority rating in Section 7.2 and they are flagged as “high Priority” in the “Summary” in Section 4 of this report. Details of these proposed upgrades are outlined in Appendix 1. While these interim proposals will greatly improve the quality of the discharge from the plants, they are unlikely to meet the full requirements of the Surface Water Regulations, 2009 and hence unlikely to meet EPA licence conditions. The funding available, both Nationally and Locally should determine whether the interim or the full solution is implemented.

In total, it is estimated that there are 45 storm overflows in County Kilkenny. These will be controlled by way of condition when the EPA issue discharge licences for the plants. At present it is impossible to forecast the level of work which will be required. Therefore, a nominal sum has been included in the Assessment in order to cater for the storm overflows.

The priority lists submitted, reflect what we anticipate will be included in the SE River Basin Management Plan. The prioritisation reflects the fact that almost all waste water outfalls in County Kilkenny discharge to the Barrow Nore SAC, where under the Water Framework Directive, “good” status must be achieved by 2015. It is important to note that part of North Kilkenny (Urlingford, Johnstown & Ballyragget) is in an area inhabited by Freshwater Pearl Mussel.

THM levels above the maximum allowable concentration have been a problem in County Kilkenny, particularly in Inistioge and Clogh/Castlecomer water supply schemes. Both of these have been included on the EPA’s Remedial Action List for this parameter. Inistioge has also been included on the RAL because of high levels of arsenic, aluminium and coliforms.

Gowran/Goresbridge/Paulstown Water Supply Scheme, is rated as a very high cryptosporidium risk, has ever present background levels of cryptosporidium, has had a level of 1.09 oocysts/10L recorded. It is included on the EPA’s RAL for this reason.

Because of the variable quality of the raw water in Kilkenny City Regional Water Supply Scheme, it is very difficult to control the levels of aluminium in the final water. High Aluminium levels have been recorded and were the reason for the scheme being the subject of a submission to the Petitions Committee of the EU Parliament. Bankside storage at Troyswood would provide a far more constant raw water and would reduce the chances of a breach of standards because of Aluminium.

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7.2 Priorities;

NEEDS ASSESSMENT 2009 - Contracts Category 3 (in order of priority) - Environmental/ Public Health Objectives

Scheme	Current Status					Priority Contracts - L6/09	Estimated Contract Cost	Delivery Timeframe	Also Included in Category	Priority Justification
	Planning Stage	PR with DOE Design & Contract Documents	Tender	Construction						
Mooncoin Regional Water Supply Scheme		X		X	Phase 1A (develop wells, harness Kilmacow wellfield, trunk mains to Belview, treatment works, reservoir)	€13,000,000	2009/10	4	Will supply high quality drinking water to Waterford City Environs & reduce pressure on existing source & treatment plant. Under Construction	
Kilmacow WWTP -DBO				X	Construction of WWTP	€1,500,000	2009/10	4	Totally new scheme. Village of approx 1000pe currently served by individual septic tanks. Under Construction. (See attached report)	
Kilkenny City Regional WSS		X		X	Development of Wellfields	€1,300,000	2009/10	2&4	Replace & augment existing variable source. Under Construction.	
Gowran Goresbridge Paulstown Water Supply scheme			X	X	Alternative source investigation	€105,000	2009/10		On EPA RAL; EPA direction of 3rd March 2008 recommended that Tobergoolick Pool be replaced with an alternative secure and less vulnerable source of raw water for the Gowran/Goresbridge/Paulstown public Water Supply .(See Appendix 1)	
Gowran Goresbridge Paulstown Water Supply scheme			X	X	Install UV and filter	€174,000	2009/10		On EPA RAL; EPA direction of 3rd March 2008 recommended that should replacement of source not be available that optimum source protection and water treatment is provided to provide an effective barrier to prevent breaches of the European Communities (Drinking Water) Regulations (no. 2), 2007 occurring and to prevent Cryptosporidium from entering the water supply. (See Appendix 1)	
Gowran Goresbridge Paulstown Water Supply scheme			X	X	Acquire land and construct access	€180,000	2009/10		On EPA RAL; EPA direction of 3rd March 2008 recommended that that there is robust measures in place to produce drinking water that meets the standards specified in the Regulations. This will require a road access for ongoing operation and maintainance. (See Appendix 1)	
Thomastown WWTP				X		€2,300,000	2009/2010	4	Existing Plant overloaded. Discharge problems. Discharging to River Nore (SAC) (See Appendix 1)	

Thomastown/Inistioge WSS		X				Develop new source in Thomastown and connect new source to Inistioge network	€4,073,000	2011	4	Inistioge WSS On EPA RAL; Regular quality and quantity problems(colour, THM, Arsenic, low chlorine). No alternative source available locally and no source improvement works possible so new supply source is required. New well in Thomastown identified as source for Inistioge.(See Appendix 1)
Storm Water Overflows						Monitor and improve SW overflows, in line with anticipated EPA discharge licence conditions.	€1,000,000	2010/14		Approx 45 SW overflows County wide. EPA will determine extent of works in conditions. Very varied. Difficult to estimate exact costs at present.
Kilkenny City Regional WSS		X				Repairs to Radestown Reservoir	€80,000	2010	1&4	15% of water to be stored is lost. Repair would mean that less water would need treatment. Chlorine detected in adjacent stream. (See Appendix 1)
Purcellsinch (Kilkenny City WWTP & County Sludge Hub)		X				Inlet works, settling tank & sludge handling upgrades. Ferric dosing. Biotower removal.PLC/SCADA system	€2,900,000	2010	2&4	30 year old 107,600 PE Plant. Does not have nutrient removal. Odour issues with neighbours. These works would defer full upgrade for some years. Existing sludge arrangements to continue. (See Appendix 1)
Kilkenny City Regional WSS		X				Bankside Storage	€2,108,150	2010	2&4	improved raw water. Consistent quality of raw supply during flooding etc. Less chemicals required during treatment process. (See Appendix 1)

Freshford WW			X			interim package plant	€560,000	2010	4	Very poor quality discharge to small river (Nuenna) which is a tributary of the Nore (SAC). Meets Nore upstream of Troyswood Water intake. This option would bring discharge in line with UWW standards.(See Appendix 1)
Clogh - Castlecomer WSS		X				Oxidation for Manganese removal at Loon WTP	€180,000	2010		High THM levels detected. Included on EPA's remedial action list.(See Appendix 1)
Bennettsbridge WWTP			X			Construct Interim Reusable Plant	€620,000	2010	4	Very poor quality discharge to River Nore (SAC) (See Appendix 1)
Ballyhale WWTP						upgrade existing plant & provide new outfall	€580,000	2011	4	Very poor quality discharge from overloaded plant to small river. Proposed works include pumping effluent to larger river.(See attached report)
Ballyragget WSS		X				Upgrade access to Infiltration Gallery	€13,053	2010		Acquire land for access and construct road to WTP. Road flooded - plant inaccessible during recent floods -H&S issue
Castlecomer WWTP			X			interim reusable parallel upgrade to existing plant	€550,000	2011	4	Overloaded plant. Poor quality discharge.(See attached report)

Johnstown WW			X		interin package plant	€492,000	2011	4	Overloaded plant. Poor quality discharge.Freshwater Pearl Mussel Catchment.(See attached report)
Stonyford WWTP			X		Construct new plant with absolute essentials only	€740,000	2011	4	Overloaded plant. Poor quality discharge.Discharging to Kings River which is a tributary of the Nore(SAC)
Paulstown WWTP					reusable upgradeto existing plant	€403,000	2011	4	Overloaded plant. Poor quality discharge to River Barrow SAC.
Urlingford WWTP					add 3rd SBR + other improvement items	€510,000	2011		Overloaded plant. Poor quality discharge. Freshwater Pearl Mussel Catchment.
Mullinavat WWTP					interim package plant	€360,000	2012		Overloaded plant. Poor quality discharge.(See Appendix 1)
Goresbridge WW			X		interim package plant	€360,000	2011	4	Overloaded plant. Poor quality discharge to Barrow SAC.(See Appendix 1)
Inistioge WWTP					Interim Package Plant	€360,000	2012	4	Overloaded plant. Poor quality discharge to River Nore SAC.(See Appendix 1)
Mooncoin Regional Water Supply Scheme		X			Phase 1C (upgrade Clonassy plant & distribution network)	€8,100,000	2012	4	Plant overloaded. Source intakes to be improved.
Fiddown WWTP					interim package plant	€360,000	2012		Overloaded plant discharging poor quality effluent to River Suir.(See Appendix 1)
Piltown WWTP					parallell 1500 PE plant	€950,000	2012		Overloaded plant discharging poor quality effluent to River Suir.(See Appendix 1)
Ballyragget WSS		X			Repair & Upgrade to existing Tower	€163,156	2011	1	Replace inlet valve to prevent overflowing to waste and repair joints in RC Tower to prevent leaks
Kilkenny City Regional WSS		X			Intake Screens - Troyswood	€272,000	2011	4	Limited screening at present. H & S issues + improved raw water.(See Appendix 1)
Kilkenny City Regional WSS		X			Intake Screens -Dinin	€272,000	2011	4	Inadequate screening of raw water. H & S issues + improved raw water. (See Appendix 1)
Urlingford Johnstown WSS		X			Access to existing Tower	€100,000	2011		There is no vehicular access to the Tower at present and all equipment for repairs etc has to be carried across fields -H&S/operational issue
Urlingford Johnstown WSS		X			Source Protection works	€65,263	2011		Thin overburden in vicinity of wells. Danger that agricultural sources of contamination might impact on the raw water.
Clogh - Castlecomer WSS		X			Reconstruct Love Lane Treatment Plant	€326,313	2012		Provide new building, pumps and treatment plant to improve water quality as well as operational health and safety.

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Clogh - Castlecomer WSS	X				Upgrade Loon Treatment Plant	€345,891	2012	4	to improve the operational and environmental efficiency of the manganese removal at the plant.
Ballyragget WSS	X				Install Treatment for Iron and Manganese	€783,150	2012		High manganese levels recorded. Plant proposed for manganese removal.
Clogh - Castlecomer WSS	X				Install Kiltown treatment and pump station	€809,255	2012	4	To bring new production borehole into operation & provide improved water quality.
Mooncoin Regional Water Supply Scheme	X				Phase 1B (connect all wellfields to network)	€4,700,000	2011/12	4	Reduce reliance on overloaded plant and vulnerable source.
Kilkenny City Regional WSS	X				New Reservoir at Outrath	€500,000	2011	4	Low chlorine levels recorded due to the length of time the water has spent in the pipe.(See Appendix 1)
Urlingford Johnstown WSS	X				Rising Mains to Tower	€78,315	2012	4	There have been several leaks on the existing rising main resulting in the loss of treated water. It is difficult to get permission from the landowner to gain access to carry out the repairs. Also buildings have been constructed over the existing rising main.
Bennettsbridge Regional Water Supply Scheme							>2012	4	Scheme on 07/09 WSIP, but because of water conservation the urgency on improvement works will reduce.
Clough Mooneenroe Sewerage Scheme							>2012	4	Plant overloaded. Effluent quality mixed.
Graigenamannagh WSS	X						>2012	4	Scheme on 07/09 WSIP, but because of water conservation the urgency on improvement works will reduce.
Callan WSS	X						>2012	4	Source capacity problems. Scheme on 07/09 WSIP, but because of water conservation the urgency on improvement works will reduce.
Piltown Fiddown WSSS							>2012	4	Scheme on 07/09 WSIP, but because of water conservation the urgency on improvement works will reduce.

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8.0 Category 4 -- Economic Development

8.1 Strategic Overview:

Under the National Spatial Strategy, Waterford city has been designated as a “Gateway”, Kilkenny City has been designated as a “Hub”, while Thomastown as a town which can perform an important role in the Region.

The Draft SE Regional Planning Guidelines reflect this approach.

The 2008 Forfas Report – *Assessment of Water and Waste Water Services for Enterprise* – emphasises the importance of the NSS approach and additionally the importance of proper water and waste water services to support the NSS approach to strategic planning.

A number of the needs identified in this document refer to these important strategic centres. In terms of the Strategic planning of the Country as a whole, it is crucial that proper water & waste water facilities are provided in these strategic centres.

Nationally, the IDA have four strategic zones. One of these zones is located in South Kilkenny adjacent to Belview Port. The upgrade of the Mooncoin Regional Water Supply Scheme is designed to supply water to this zone. 350 jobs are dependant on Phase 1A of this scheme being in place by June 2010. Further development of the zone cannot take place until Phase 1B is in place. The quick delivery of this scheme is crucial to the entire South East Region.

8.2 Priorities

NEEDS ASSESSMENT 2009. Contracts (In Order Of Priority) Category 4 - **Economic Development**

Scheme	Current Status				Priority Contracts - L6/09	Estimated Contract Cost	Delivery Timeframe	Also Included in Category	Priority Justification
	Planning Stage	PR with DOE Design & Contract Documents	Tender	Construction					
Mooncoin Regional Water Supply Scheme				X	Phase 1A (develop wells, harness Kilmacow wellfield, trunk mains to Belview, treatment works, reservoir)	€13,000,000	2009/10	3	IDA supported. Crucial to employment creation in the Belview Industrial Zone. Will also serve expanding environs of Waterford City -- NSS Gateway. Under Construction
Thomastown WWTP				X		€2,300,000	2009/10	3	No development for some years in this NSS support town because of lack of WW treatment capacity. Scheduled Town in County Dev Plan. Under Construction. (See Appendix 1)
Kilkenny City Regional WSS				X	Development of Wellfields	€1,300,000	2009/10	2&3	Limited quantity of poor quality raw water in NSS hub. Many recent developments served by private boreholes because of lack of public water capacity. Under Construction. (See Appendix 1)
Kilmacow WWTP -DBO				X	Construction of WWTP	€1,500,000	2009/10	3	Ongoing demand for housing. Substantial zoned land. No WWTP. Under Construction. (See Appendix 1)

Purcellsinch (Kilkenny City WWTP & County Sludge Hub)		X				Inlet works, settling tank, sludge handling upgrades. Ferric dosing. Biotower removal. PLC/SCADA system	€2,900,000	2010	2&3	30 year old plant. Lack of capacity has held back development of Kilkenny City -- NSS Hub.(See Appendix 1)
Castlecomer WWTP			X			interim reusable parallel upgrade to existing plant	€550,000	2011	3	Development curtailed for some years because of lack of WWTP capacity. Built up demand for development in this Scheduled Town.(See Appendix 1)
Asset Management						Carry out CIS mapping of WW network	€500,000	2010/12	1	Needed to identify network details in order to inform Development Plans as to the existence of networks, so that zoned land can be prioritised in areas where services exist, thereby creating value for money.
Kilkenny City Regional WSS			X			Repairs to Radestown Reservoir	€80,000	2010	1,2&3	Limited quantity of poor quality raw water in NSS hub. Many recent developments served by private boreholes because of lack of public water capacity.(See Appendix 1)
Kilkenny City Regional WSS		X				Bankside Storage	€2,108,150	2010	2&3	Limited quantity of poor quality raw water in NSS hub. Many recent developments served by private boreholes because of lack of public water capacity.(See Appendix 1)
Mooncoin Regional Water Supply Scheme		X				Phase 1B (connect all wellfields to network)	€4,700,000	2011/12	3	IDA supported. Crucial to employment creation in the Belview Industrial Zone. Will also serve expanding environs of Waterford City -- NSS Gateway.
Thomastown/Inistioge WSS				X		Thomastown relief road watermain contract	€758,252	2010	3	Relief Rd under construction. Prudent to include watermain now rather than excavate a trafficked road in the future.

Kilkenny City Regional WSS		X				New Reservoir at Outrath	€500,000	2011	2&3	Limited quantity of poor quality raw water in NSS hub. Many recent developments served by private boreholes because of lack of public water capacity.(See Appendix 1)
Freshford			X			interim package plant	€560,000	2010	3	Lack of WWTP capacity has curtailed development for some years. Development demand currently exists.(See Appendix 1)
Ballyhale WWTP	X					upgrade existing plant & provide new outfall	€580,000	2011	3	Lack of WWTP capacity has curtailed development for some years. Development demand currently exists.(See Appendix 1)
Urlingford Johnstown WSS		X				Rising Mains to Tower	€78,315	2012	3	Main needs to be replaced. When doing so it should be upsized from 5" to 8" to cater for future demand
Kilkenny City Regional WSS		X				Intake Screens - Troyswood	€272,000	2011	2&3	Limited quantity of poor quality raw water in NSS hub. Many recent developments served by private boreholes because of lack of public water capacity.(See Appendix 1)
Kilkenny City Regional WSS		X				Intake Screens -Dinin	€272,000	2011	2&3	Limited quantity of poor quality raw water in NSS hub. Many recent developments served by private boreholes because of lack of public water capacity.(See Appendix 1)
Mooncoin Regional Water Supply Scheme		X				Phase 1C (upgrade Clonassy plant & distribution network)	€8,100,000	2012	3	Over loaded treatment plant and network needs modernising and upgrading to meet demand in a fast growing part of the County which includes the environs of Waterford City (NSS Gateway) and surrounding hinterland.
Kilkenny City Western Environs				X		Provide water & waste water infrastructure	€4,800,000	2011/16		Western Environs Quarter is an essential part of future development of Kilkenny City

Thomastown/Inistioge WSS		X			Develop new source in Thomastown and connect new source to Inistioge network	€4,073,000	2012	3	Development curtailed in Inistioge (tourist village) because of lack of adequate water supply.(See Appendix 1)
Clogh - Castlecomer WSS		X			Upgrade Loon Treatment Plant	€345,891	2012	3	No Capacity for any increase in demand in existing plant.
Clogh - Castlecomer WSS		X			Install Kiltown treatment and pump station	€809,255	2012	3	Source capacity currently at limit.
Clogh - Castlecomer WSS		X			New Rising Main Kiltown borehole to Reservoir	€228,419	2012		Source capacity currently at limit.
Bennettsbridge Regional Water Supply Scheme	X						>2012	3	No New connections allowed for some years. Many developments using private wells. Water Conservation project will help, but network & plant upgrades will be required.
Graiguenamannagh WSS		X					>2012	3	Limited source capacity. Depending on water conservation to provide water for any new development.
Clogh - Castlecomer WSS		X			Booster pump station Yellow Road	€104,420	2012		Improve Poor Service level.
Clogh - Castlecomer WSS		X			New Rising Main at Yellow Road	€501,216	2012		Improve Poor Service level.
Clough Mooneenroe Sewerage Scheme	X						>2012	3	Plant operating above capacity & serious network restrictions have severely curtailed development.
Callan WSS		X					>2012	3	Source limitations. Aided by water conservation project.
Goresbridge Sewerage Scheme			X		interim package plant	€360,000	2011	3	Lack of WWTP capacity has curtailed development for some years. Development demand currently exists.(See Appendix 1)

Piltown Fiddown WSSS	X							>2012	3	Water quality and quantity issues are restricting development
Stonyford WWTP			X			Construct new plant with absolute essentials only	€740,000	2011	3	Lack of WWTP capacity has curtailed development for some years. Development demand currently exists.(See Appendix 1)
Paulstown WWTP	X					reusable upgrade to existing plant	€403,000	2011	3	Lack of WWTP capacity has limited development for some years. Development demand currently exists.(See Appendix 1)
Bennettsbridge WWTP			X			Construct Interim Reusable Plant	€620,000	2010	3	Lack of WWTP capacity has curtailed development for some years. Development demand currently exists.(See Appendix 1)
Inistioge WWTP	X					Interim Package Plant	€360,000	2012	3	Lack of WWTP capacity has curtailed development for some years. Development demand currently exists in this tourist village.(See Appendix 1)
Johnstown Sewerage Scheme			X			interim package plant	€492,000	2011	3	Lack of WWTP capacity has curtailed development for some years.(See Appendix 1)

9.0 CONCLUSIONS

- 1) The Elected Members of Kilkenny County Council, at their meeting of 19/10/2009 adopted this Needs Assessment and agreed that it be submitted to the Department. They further requested that the Department be asked to fund the “Interim Measures” immediately and that the full schemes identified would be included on the 2010-2012 Water Services Investment Programme.
- 2) It is very clear that the current funding arrangements for capital schemes, in the present economic environment, are unsustainable. The Department is therefore requested to make good the funding deficit to the Council, so that environmental and regulatory issues facing the Council can be rectified in the shortest possible time.

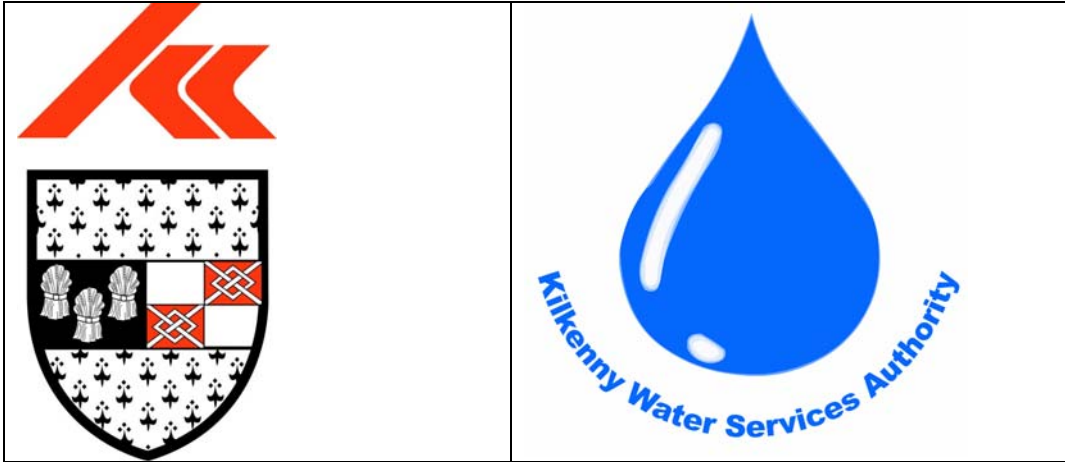
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Water Services.

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APPENDIX 1

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KILKENNY COUNTY COUNCIL
WATER SERVICES SECTION
WATER & WASTE WATER ESSENTIAL
INTERIM UPGRADES.

October, 2009.

INTRODUCTION:

Kilkenny County Council's 2007 Assessment of needs examined the water and waste water infrastructure required to cater for County Kilkenny's needs over a 20 to 25 year horizon. It was established that much of this infrastructure was required immediately in order to combat existing deficiencies and to curtail existing breaches of regulations. In all, the study identified a €200M shortfall in essential water and waste water infrastructure, across fifty different projects throughout the County.

The 2007 – 2009 Water Services Investment Programme (see Appendix D), published by the Department of Environment, Heritage & local Government included a €127,258,000 programme of works for water and waste water facilities in County Kilkenny.

Since the publication of the above documents, substantial progress has been made in the delivery of the identified infrastructure. To date the following projects have been completed:

**Gowran WWTP,
Mooncoin WWTP,
Kilmacow sewer network,
Belview/Gorteens sewer network,
Waterford main drainage,
New Ross WWTP,
Water Conservation, Stage 1,
Water metering project.**

The following projects are either ready to commence construction, or are currently under construction:

**Water Conservation, Stage 2,
Mooncoin Regional Water Supply, Phase 1A,
Kilmacow WWTP,
Thomastown WWTP,
Tullaroan Sewerage scheme.**

The following projects are at detailed design stage:

**Freshford, Johnstown, Goresbridge Sewerage bundle,
Castlecomer WWTP,
Bennettsbridge WWTP
Stonyford WWTP.**

The Environmental Impact Statement for the **Kilkenny WWTP and sludge hub centre** has been lodged with An Bord Pleanála and an Oral hearing has taken place. The Preliminary Report for this scheme has been submitted to the Department of the Environment, Heritage and Local Government for their approval.

Preliminary reports for the following schemes have been prepared and evaluated and are currently with the Department of the Environment, Heritage and Local Government for their approval:

**Kilkenny City Regional Water Supply scheme,
Ballyragget, Clogh/Castlecomer, Urlingford/Johnstown water supply
bundle,
Mooncoin Regional Water Supply.**

Preliminary Reports for the following schemes have been prepared and are currently being evaluated by Kilkenny County Council staff:

**Bennettsbridge Regional Water Supply Scheme.
Callan/Graiguenamanagh/Thomastown/Inistioge Water Supply bundle.**

Notwithstanding all of the above progress, substantial deficiencies still exist in water and waste water infrastructure within the County.

Furthermore, stricter legislation and regulations, particularly the Water Framework Directive and Surface Water Regulation requirements, as well as enhanced enforcement and regulatory powers assigned to the EPA, for both drinking water and waste water standards, means that the current drinking water and waste water discharge standards being achieved are no longer acceptable. It thus becomes imperative that action is taken immediately to address these deficiencies.

Given the current state of public finances, both nationally and locally, it is impractical to expect that the €200M shortfall in infrastructure identified in 2007 will be addressed in a meaningful way for the foreseeable future.

Kilkenny County Council therefore has undertaken an extensive examination of the existing infrastructure, identified the most problematic areas and in this document, now proposes interim solutions to improve the most problematic areas.

Many of the solutions proposed represent works which form part of the full long term solution. Others propose relatively low cost options to improve, rather than to fully solve current unacceptable situations.

Overall the proposals represent a minimum cost, medium term blue print which will create an extensive improvement in drinking water quality, ensure a secure and adequate supply of drinking water and provide a substantial improvement in the quality of waste water discharge from a number of waste water treatment plants across the County, satisfy a number of contractual commitments and allow limited development to take place in a number of strategic areas throughout the County, where heretofore development had been curtailed because of a lack of water services infrastructure.

It should be noted that most waste water treatment plants in County Kilkenny discharge, either directly or indirectly, to either the River Nore or to the River Barrow, each of which is a candidate Special Area of Conservation.

Section 1

Drinking Water

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- 5.0 Clogh / Castlecomer Water Supply Scheme.**

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1.0 Mooncoin Regional Water Supply Scheme.

Current Position:

The current, mainly rural, Mooncoin Regional Water Supply scheme serves a population of 11,000 people in an area extending from Mullinavat to the Waterford City environs. Source capacity deficiencies, final water quality problems and network deficiencies prompted the need for this scheme upgrade as far back as 1997. Coupled with the need to improve the local authority supply, IDA Ireland also identified a need for a substantial supply of water at their strategic industrial park adjacent to Belview Port.

To date, wells to provide 15,000cum of water have been developed and a contractor is due to be appointed shortly to undertake Phase 1A of this scheme, which involves the provision of pipe network and treatment capacity to deliver and treat approximately 3,500cum of this supply.

This scheme is crucial to the efforts of IDA Ireland to create jobs in the Belview Port Industrial zone and to serving the needs of Waterford City environs. Waterford has been designated as a gateway under the National Spatial Strategy.

Two distinct Phases of the overall Mooncoin Regional Scheme have been identified. Phase 1 meets the requirements of Kilkenny County Council to the year 2021 as well as the overall requirements of IDA Ireland, while Phase 2 meets all requirements until the year 2031.

Total estimated cost of Phase 1 is **€25,800,000**.

In excess of half of this amount is scheduled to come from IDA Ireland.

2.0 Kilkenny City Regional Water Supply.

Current Position:

The Kilkenny City Regional water supply scheme currently consists of two distinct schemes, Radestown water supply scheme which was built in the 1890s and Troyswood water supply scheme which was built in 1979.

Radestown is supplied from two surface water sources, the Dinan river and an impoundment reservoir (Muckalee) on the Douglas river. Troyswood supply is a run of the river abstraction from the River Nore. In all, circa 14,500 cum/day of drinking water is produced between both schemes and is fed to consumers via an interconnected network.

Over the years there have been problems with water quality in this scheme, as well as supply deficiencies, particularly at the southern extremities of the network. Poor water quality in this scheme has been the subject of a complaint to, plus an investigation by the Petitions Committee of the European Parliament.

Many of the quality problems occurred because of the variability in the raw water from the Nore and the Dinan. Recent works undertaken at the Muckalee impoundment reservoir has increased the supply from that source and reduced dependency on the very variable Dinan. The variability of the Nore remains a serious issue which it is proposed to overcome by bankside storage.

Kilkenny City has been designated “hub” status under the National Spatial Strategy.

The total estimated cost (from the PR) of the proposed WSIP upgrade of this scheme is **€18.2M**.

Proposed Essential Works:

1. 50,000 cum bankside storage at Troyswood	€2,108,150
2. New Intake screens at the Dinan	€272,000
3. New Intake screens at the Nore	€272,000
4. New 270 cum reservoir at Outrath	€500,000
5. Develop wellfields	€1,300,000
6. Repair Radestown reservoir	€80,000
TOTAL	€4,532,150

The above works 1 – 6 are all part of the final WSIP recommended scheme. None of these works would become redundant if the full scheme is developed.

3.0 Gowran, Goresbridge, Paulstown Water Supply Scheme.

Introduction:

As far back as the 1960s, this scheme was identified as requiring an upgrade. To date this upgrade has not happened. Much of the delay can be attributed to the inability to provide a proper access to the source at Tobergoolick Pool.

The total estimated cost of the WSIP upgrade scheme is €M

More alarmingly, tests (See Appendix A) have shown worryingly high levels and the constant presence of cryptosporidium in the water produced from this source.

In 2008, because of the risk posed by cryptosporidium, the EPA included this scheme on their Remedial Action List (RAL). They directed Kilkenny County Council to examine the possibility of finding an alternative source, or failing that, come up with a proposal to prevent cryptosporidium contamination of the drinking water produced from the existing source.

Efforts to find an alternative source failed, despite extensive testing. It is now proposed to install UV treatment at the source to combat the ongoing and regular presence of cryptosporidium.

Negotiations to provide an access to the source have also been successful and there is agreement in principal for this essential element of the scheme to proceed.

Cost Estimates for Essential Works:

- | | |
|--------------------------------------|----------|
| 1. Explore alternative source (RAL): | €105,000 |
| 2. Install UV and filter (RAL): | €174,000 |
| 3. Acquire and construct entrance: | €180,000 |

TOTAL	€459,000
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4.0 Inistioge Water Supply Scheme.

Introduction:

This scheme was identified as requiring an upgrade in the WSIP 2007-2009 as part of a bundle of schemes containing Thomastown, Callan, Graiguenamanagh and Inistioge.

Raw water is abstracted from the River Clodiagh. Raw water tests regularly show high concentrations of colour and iron with occasionally high concentrations of aluminium and arsenic. The source is also rated as being at “very high risk” of cryptosporidium contamination and clostridium perfringens have been detected.

The current treatment consists of slow sand filters followed by chlorination and fluoridation. The efficiency of the existing treatment is seriously hindered by the raw water quality which has resulted in poor quality of the treated water and increased maintenance costs. Final water quality data shows regular exceedances of the 2007 Drinking Water Regulations parametric values for iron. Exceedances of the parametric values for several parameters including aluminium, arsenic, THM, and coliform bacteria have been recorded. Elevated colour levels are regularly recorded. (see Appendix A)

(As recent as 15/10/09, THM levels of 288.1 ug/l were recorded and reported to the EPA as a failure to meet the requirements of Part 1 of the Drinking Water Regs. (MAC 100 ug/l))

Inistioge Water Supply Scheme is on the EPA Remedial Action List due to the high levels of THMs. An EPA audit, prompted by an arsenic exceedence, was carried out on the Inistioge scheme in February 2009. This audit recommended a series of short term improvements, but it did place much importance on the proposal to move to a new source, in the not too distant future.

There is also an ongoing issue due to the inadequate availability of water during times of low flow in the river.

Short term options to upgrade the quality of treatment provided at Inistioge have been considered, but no reliable treatment form can be identified. This fact, when considered together with the undependable quantity of water available, means that the only available option is to consider an alternative source.

The Preliminary Report, prepared as part of the WSIP process, recommended the abandonment of the existing source due **quantity and quality** issues. Efforts to find an alternative source in Inistioge proved fruitless. In order to provide water to the Inistioge area, the report recommends the connection of the scheme to a new source near Thomastown and an amalgamation of both schemes.

The total estimated cost of the WSIP proposal for the combined Inistioge/Thomastown supply is €1.7M

The estimated cost of the interim element of the overall scheme, which is needed to provide a safe and adequate drinking water supply to Inistioge is **€4,073,000**.

5.0 Clogh / Castlecomer Water Supply Scheme.

Current Position:

The Clogh / Castlecomer Water Supply currently consists of three distinct schemes, Castlecomer Old, Clogh Castlecomer, and Gorteen. The upgrade of this scheme under the Water Services Investment Programme recommends retaining the three current sources, developing a new well to provide 540m³ per day north of Castlecomer and various improvements to the network and upgrading of existing treatment facilities. The estimated cost of this scheme is €6m.

The major difficulty with this water supply is the elevated level of manganese in the Clogh/Castlecomer scheme and the subsequent problems associated with its removal. The manganese is removed from the raw water at the Loon treatment plant by chemical oxidation using chlorous (liquid form of chlorine) and then by passing the water through a pair of manganese removal filters. Even after this process, there remains higher than normal levels of manganese in the final water. This presents operational difficulties rather than any water quality issue as manganese is more an aesthetic issue and does not represent a health risk. A more significant problem with this process is that it leads to the production of trihalomethanes (THMs) which are carcinogenic. The excessive level of THMs found in the Clogh Castlecomer scheme has led to the scheme being included on the EPA's Remedial Action List (RAL) for this parameter.

Proposed Essential Works:

To reduce the presence of THMs in the final water an alternative treatment process for the Manganese removal is required. THMs are produced by the combination of organic matter and chlorine. The chlorine addition to the water in Loon is required for disinfection purposes, but is also added here in the form of chlorous to oxidise the manganese prior to filtration. Oxidation methods, other than chlorination, would reduce the amount of chlorine added to the water and lead to a reduction in the production of THMs. There is also a requirement for additional manganese removal to supplement the filters as final manganese levels are still a problem.

It is proposed to construct a combined oxidation and settlement tank prior to the manganese filters. Oxidation of the manganese will be by physical means or by air addition (non chemical oxidation), followed by settlement with a desludging facility.

The estimated cost of this work is €180,000.

SECTION 2

Waste Water

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1.0 Purcellsinch (Kilkenny City) Waste Water Treatment Plant & Sludge Hub.

1.1 Existing plant

The existing plant at Purcellsinch consists of

- Preliminary treatment, which consists of coarse screening, grit removal, stormwater handling, fine screening, and neutralisation;
- Secondary treatment, which includes biological filtration, activated sludge treatment, and secondary clarification; and
- Sludge handling, comprising sludge thickening, dewatering and lime stabilisation.

The original design loading of the plant was for a population equivalent of 107,500 with a hydraulic equivalent of 16,968cum/day.

The current load is estimated at a population equivalent of 85,000.

Reason for upgrade:

Over the years, there have been a number of breaches of the effluent standards, as well as regular unpleasant odour emissions, due mainly to spike loads entering the network. There is no facility at the plant for nutrient removal. This has resulted in calls from a number of interested parties, both statutory and non statutory, for the upgrade of the plant. The Purcellsinch plant was identified under the WSIP as requiring upgrading since 2000.

Kilkenny City has been designated “hub” status under the National Spatial Strategy. The estimated cost of the full upgrade and sludge hub is €19,700,000

Design;

The Preliminary Report and EIS have been prepared and are awaiting approval. The PR recommends a DBO contract for the design, construction and operation of the WWTP upgrade and sludge hub. The predicted cost of the specimen design works contained in the PR are €19.7million, of which approximately €7.5 million for WWTP upgrade and €12.2 million for the Sludge hub.

The interim works now proposed are for the basic requirements to address the ongoing issues at Purcellsinch, to maintain the effluent to the required standards, reduce odours, introduce nutrient removal and to substantially satisfy the expected requirements of the wastewater discharge license due from the EPA. It is not proposed to construct the sludge hub at this stage. Rather, it is proposed to continue with the present system of sludge disposal of lime stabilisation and land spread.

The interim works currently proposed are:

- Inlet works upgrade
- Ferric Dosing
- Biotower removal
- Final settling tank upgrade
- Imported sludge handling system
- PLC/SCADA system.

The expected total cost of these interim works is **€2,900,000**

2.0 Thomastown Waste Water Treatment Plant.

2.1 Existing Plant (3,000 PE)

The existing WWTP in Thomastown is a standard aeration and settlement plant with a design capacity of 3,000 PE.

The present load on the plant is 4,500 PE, resulting in periodic poor quality discharge and constant pressure on the plant to perform at a level well above that for which it was designed.

2.2 Reason for Upgrade (7,500 PE)

Because of the substantial overloading of the plant, discharge to the River Nore is regularly poor. With very tight monitoring, it has been possible to maintain discharge standards largely within the requirements of the Urban Waste Water Regulations. However, even the highest standards achieved do not meet the requirements of the recent Surface Water Regulations.

Thomastown is recognised under the National Spatial Strategy and in the South East Regional Planning guidelines, as a town that can perform an important role in driving the development of the overall region. Because of a lack of capacity to treat waste water, development has been severely curtailed in Thomastown for a number of years.

Recognising the above facts, Kilkenny County Council, in partnership with a group of local developers have prepared a design for an upgrade of the WWTP to provide a high quality discharge to the River Nore and to allow a re-commencement of development in Thomastown which will, initially, supply a pent up demand for development and thereafter cater for this important town's needs into the future.

Kilkenny County Council has obtained tenders for this proposed upgrade and has issued a letter of intent to the successful tenderer. This tenderer has incurred expense on foot of this letter and is in a position to commence the contract immediately.

2.3 Upgrade (7,500PE)

The proposed upgrade is based on the addition of a sequencing batch reactor system to the current aeration plant. Provision has also been made to add to this system in the future, should such an addition be required.

The estimated cost of this plant is **€2,300,000**

3.0 Stonyford WWTP.

3.1 Existing Plant (500 PE):

The existing plant at Stonyford is a twin SBR plant.

The plant is designed for a population equivalent of 500 and has a hydraulic capacity of approximately 100 m³ per day.

The current load is estimated at 1,250 PE.

In addition, the plant is subject to flooding.

3.2 Reason for upgrade:

Because the plant is substantially overloaded and because of the ongoing flooding problem on the site, the quality of the final effluent from the plant has been poor. (see Appendix B). The existing quality of the receiving waters in the King's River is already poor and coupled with low Summer flows, this calls for a high quality of discharge.

3.3 Upgrade (1,250 PE):

A new plant design has already been prepared for this site. This design abandons the existing fine screen and balance tank due to the flooding problem and incorporates a new fine screen, a new inlet sump and a new activated sludge plant.

The proposed interim solution is a low cost, “no frills” option to build a substantial amount of the new plant and to reuse as much of the existing plant as possible. Costs are reduced from the original full design by omitting the following:

- New Control Room Building
- New Inlet Screen and Ancillaries Equipment.
- New Storm Handling Facilities (new overflow in Inlet Sump).
- New Instrumentation
- New Access Road
- New Security Fence

The cost estimate for this “no frills” option is **€740,000.**

(The cost estimate for the full new plant is €850,000)

This plant can be used to form a substantial part of a full plant upgrade and can also be used as Phase 1 of a modular upgrade to a 2,500 PE capacity plant.

This plant provides high nitrogen and ammonia removal.

It is very difficult to provide a low cost interim upgrade design to this plant with any degree of value for money. Interim upgrade options yielded an inferior effluent to that from the new plant, were not reusable in the long term solution and were almost as costly as the “no frills” new plant.

Hence, the “no frills” new plant is the recommended option.

4.0 Bennettsbridge Waste Water Treatment Plant.

4.1 Existing Plant (400 PE – Primary Treatment only):

The Existing plant at Bennettsbridge is a twin septic tank. The plant is designed for primary treatment of 400 PE. The current load is approx. 1,425 PE.

4.2 Reason for the upgrade:

This primary treatment facility is severely overloaded. The resultant effluent (see Appendix B), which discharges directly to the River Nore, is of a very poor quality and consequently an upgrade is essential. The estimated cost of a full upgrade is €2.2M

4.3 Upgrade Proposal (1,450 PE):

A new aeration and settling tank type activated sludge plant is proposed. The existing septic tanks will be retained as primary settling and for the co-settling of excess activated sludge.

A new inlet sump and pumps (duty / standby) transfer the primary effluent to a new above ground aeration and settling tank type activated sludge plant.

Practically all the plant involved can be used as part of the final full plant design.

The cost estimate for this is €20,000.

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5.0 Goresbridge Waste Water Treatment Plant.

5.1 Existing Plant (400 PE – Primary Treatment only).

The existing plant at Goresbridge is a septic tank.

The plant is designed for primary treatment of 400 PE. The current load is assumed to be circa 700 PE.

Goresbridge sewerage scheme, including network upgrades has been included as part of bundle of schemes on the WSIP. The Preliminary Report (PR) for this upgrade has been approved by Department of Heritage, Environment and Local Government. The PR estimate for the Goresbridge treatment works is €1,511,000

5.2 Reason for upgrade:

Treatment consists only of primary treatment in an overloaded septic tank. This in turn leads to a very poor quality effluent discharging to the River Barrow. (see Appendix B)

For a long time, because of the lack of waste water treatment capacity, there has been no development in Goresbridge. As a result, even in recessionary times, there is a substantial requirement for development in the village.

5.3 Proposed Upgrade (700 PE):

The upgrade proposes to retain the existing septic tank as primary settling and for the co-settling of excess sludge from a new SAF type package plant.

A new inlet sump and pumps (duty, standby) transfer the primary effluent to a 700 PE SAF unit followed by a 700 PE lamella clarifier.

The cost estimate for this is **€360,000**.

6.0 Freshford Waste Water Treatment Plant:

6.1 Existing Plant (400 PE – Primary Treatment only):

The existing plant at Freshford is a septic tank built in the 1940's, which discharges to the Nuenna river.

The plant is designed for primary treatment of 400 PE.

The present load on the plant is approximately 900PE.

Freshford sewerage scheme, including network upgrades has been included as part of bundle of schemes on the WSIP. The Preliminary Report (PR) for this upgrade has been approved by the Department of Heritage, Environment and Local Government. The PR estimate for the Freshford treatment works is €1,610,000

6.2 Reason for the upgrade:

The grossly overloaded septic tank, discharges a very poor quality effluent (see Appx B) to the Nuenna river, which is already heavily polluted and which offers little dilution for any further discharges.

Because of the lack of waste water treatment facilities, development in Freshford has been very limited in recent years. This has resulted in a build up of pressure for development in Freshford, with ongoing local and political agitation for the provision of a new plant.

The Nuenna is a tributary of the River Nore and joins the Nore upstream of Troyswood, which is the largest intake point for the Kilkenny City water supply.

6.3 Upgrade (1000 PE):

The upgrade proposes to retain the existing septic tank as primary settling and for co-settling of excess sludge from a new SAF type package plant.

A new inlet sump and pumps (duty / standby) transfer the primary effluent to two 600 PE SAF units, followed by two 600 PE lamella clarifiers.

The cost estimate for this is €60,000.

The selection of a larger unit with additional media will reduce the ammonia in the treated effluent to 5 mg/l.

7.0 Johnstown Waste Water Treatment Plant:

7.1 Existing Plant (900 PE – Primary Treatment only):

The existing plant at Johnstown is a primary treatment plant and comprises:

- Inlet Bar Screen
- Twin Grit channel
- Imhoff Tank
- Sludge Drying Beds

The plant is designed for primary treatment of 900 PE.

The current load on the plant is estimated to be 1,000 PE.

Johnstown sewerage scheme, including network upgrades has been included as part of bundle of schemes on the WSIP. The Preliminary Report (PR) for this upgrade has been approved by the Department of Heritage, Environment and Local Government.

The PR estimate for the Johnstown treatment works is €1,515,000 .

7.2 Reason for the upgrade (1,000 PE):

The treatment provided is primary only and the plant is operating above design capacity. Hence the discharge quality is very poor relative to the standards required (see Appendix B) . The plant discharges to a catchment inhabited by Freshwater Pearl Mussel.

7.3 Upgrade (1,000 PE)

The upgrade proposes to retain the existing Imhoff tanks and to co-settle excess sludge from a new SAF type package plant.

A new inlet sump and pumps (duty / standby) transfer the primary effluent to twin 500 PE SAF units and twin 500 PE lamella clarifiers.

The cost estimate for this is €492,000.

8.0 Paulstown Waste Water Treatment Plant.

8.1 Existing Plant (1,000 PE):

The existing plant at Paulstown is a conventional activated sludge plant and comprises:

- Storm Overflow
- Screw Type Inlet Pumps (duty / standby)
- Circular Aeration Tank c/w aerator (approx. 150 m³)
- Circular Settling Tank approx. 6.0 m diameter
- RAS / EAS Pumps
- Sludge Drying Beds
- Planthouse

The plant is designed for a population equivalent of 1,000 and has a peak hydraulic capacity of approx. 530 m³ per day based on the settling tank diameter.

The current load is estimated at 1,900 PE.

8.2 Reason for the upgrade:

The existing plant in Paulstown is, in itself, a reasonably good plant and should be well capable of treating its design load. Problems with the quality of the discharge from the Paulstown plant have arisen because of the severe overloading (190%) on the plant (See Appendix B).

The estimated cost of a full upgrade is €2,000,000

8.3 Upgrade (1,900 PE):

The proposed upgrade comprises the following:

- New Balance Tank (100 m³)
- New Forward Feed Pumps (22 m³/hr)
- New Fine Bubble Diffused Aeration System (15 kgO₂/hr)

The proposed balance tank is 100 m³ and is below ground to match the existing tankage.

Two (duty / standby) variable speed pumps feed forward to the aeration tank. The pumps are limited to 22 m³/hr in order to prevent washout of the settling tank.

The existing vertical aerator is replaced by a liftable fine bubble diffused aeration system. New blowers (duty / standby) are located outdoors in weatherproof acoustic enclosures.

The cost estimate is €403,000.

9.0 Castlecomer Waste Water Treatment Plant

9.1 Existing Plant (2,500 PE):

The existing plant was upgraded in 2000 to a design capacity of 2,500 PE.

The plant comprises:

- Inlet Channel with existing Fine Screen.
- Twin Grit Channel and Storm Overflow
- Primary Settling Tanks
- 2 No. Percolating Filters with plastic media and Recycle System.
- Transfer Pump to Clarifier
- Final Clarifier and Sludge Pump

The current load is estimated at 3,200 PE.

9.2 Reason for upgrade:

Because of the biological overloading of the existing plant, together with regular hydraulic overloading, due to storm water, as well as the relatively small dilution available in the receiving waters, the discharge achieved from the existing plant is unacceptable and does not meet the required standards (see Appendix B). Furthermore from a planning and a development view point, development has been totally curtailed in Castlecomer for a number of years because of the lack of waste water treatment capacity. As a result, Castlecomer, which is one of County Kilkenny's four scheduled towns, has almost totally missed out on the housing boom experienced elsewhere in recent years. Thus, there is a built up demand for new housing in Castlecomer, created by local people who, for a number of years, have been unable to acquire housing in the town in which they were brought up. The estimated cost of the full upgrade is €4.5M

9.2 Proposed Upgrade (3,300 PE):

In this design, it is proposed to build a new aeration tank in parallel with the existing percolating filters so as to reduce the hydraulic and organic load on the filters. It is also proposed to construct a new screened storm overflow on the main inlet pipe in Kilkenny Street.

The new aeration tank is fed by (duty / standby) pumps located in the splitter chamber to the percolating filters.

The new aeration tank (220 m³) is fitted with a liftable fine bubble diffusion aeration system. Air is provided by (duty / standby) blowers (4 kW approx.). The mixed liquor gravitates to the existing final clarifier. The clarifier sludge pump is replaced with uprated (duty / standby) pumps. The sludge (clarifier underflow) is returned to the new aeration tank. The new system is suitable for a load of 800 PE.

The existing transfer pump from the percolating filters is redirected to the new aeration tank.

The aeration tank also provides balancing to limit the flow to the clarifier to approx. 60 m³/hr. Long term flows in excess of 60 m³/hr will overflow to the river via an emergency overflow in the percolating filter outlet sump.

The cost estimate for this is **€50,000**.

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10.0 Urlingford Waste Water Treatment Plant

10.1 Existing Plant (1,500 PE):

The existing plant was upgraded in 2002 to an SBR type activated sludge plant. The plant comprises the following:

- Inclined screw type Fine Screen.
- Inlet Balancing (existing primary tanks)
- Inlet Balancing (precast tanks)
- SBR Feed Pumps (duty / standby)
- Twin SBR Reactors with venturi aerators and fixed decanters.
- Sludge Holding

The plant is designed for a population equivalent of 1,500 and has a hydraulic capacity of 345 m³ per day.

The current load is estimated at 2,700 PE. The plant is heavily overloaded.

9.2 Reason for upgrade:

Because of the plant overloading, discharge quality is very poor and does not meet required standards (see Appendix B).

The estimated cost of a full upgrade is €1.2M.

9.3 Upgrade (2,750 PE):

The proposed upgrade comprises a third SBR with a design capacity of 1,250 PE. The SBR has nominal dimensions of 8.53m diameter and 5.6m height (capacity 300 m³ approx.). This SBR is 1.4m higher than the existing units.

The new SBR is fitted with a fine bubble diffused aeration system. Air is provided by (duty / standby) air blowers located outdoor in weatherproof acoustic enclosures.

The system reuses the existing SBR feed pumps.

The existing sludge tank is converted to an inlet balancing tank.

A new sludge holding tank (50 m³) is required.

The fixed decanters in the existing SBR plant are replaced by float decanters

The cost estimate for this work is €10,000.

11.0 Fiddown Waste Water Treatment Plant:

11.1 Existing Plant (300 PE – Primary Treatment only):

The existing plant at Fiddown is a primary treatment plant and comprises:

- Twin Grit Channels
- Storm Overflow
- Inlet Flow Measurement
- Primary Settling Tank

The plant is designed for primary treatment of 300 PE.

The existing load on the plant is approximately 600PE.

10.2 Reason for upgrade:

The existing plant in Fiddown provides primary treatment only and is severely overloaded. The resultant discharge is heavily polluted and totally unsuitable (See Appendix B)

The estimated cost of a full upgrade is €0.7M

10.3 Upgrade (700 PE):

The upgrade proposes to retain the existing primary treatment plant and to co-settle excess sludge from a new SAF type package plant.

A new inlet sump and pumps (duty / standby) transfer the primary effluent to a 700 PE SAF unit and a 700 PE lamella clarifier.

The cost estimate for this is €360,000.

12.0 Mullinavat Waste Water Treatment Plant

12.1 Existing Plant (280 PE – Primary Treatment only):

The existing plant at Mullinavat is a septic tank.
The plant is designed for primary treatment of 280 PE.
The current load on the plant is estimated to be 600PE.

(There is an unused oxidation ditch next to the septic tank. This plant was built in the 1970's and never commissioned due to problems with flooding. This oxidation ditch is not deemed suitable for reuse due to the flooding problems and the shallow depth of the tank.)

12.2 Reason for upgrade:

The existing plant consists of an undersized septic tank only. Such treatment, even if not overloaded is not adequate to meet discharge standards.
The estimated cost of the full upgrade is €0.85M

12.3 Upgrade (500 PE):

The upgrade proposes to retain the existing septic tank and to co-settle excess sludge from a new SAF type package plant.

A new inlet sump and pumps (duty / standby) transfer the primary effluent to a 700 PE SAF unit and a 700 PE lamella clarifier.

The cost estimate for this is €360,000.

13.0 Inistioge Waste Water Treatment Plant

13.1 Existing Plant (400 PE – Primary Treatment only):

The existing plant at Inistioge is a twin primary settling tank with storm overflow. The plant is designed for primary treatment of 400 PE. The current load on the plant is estimated to be 700PE.

13.2 Reason for upgrade:

The existing plant provides primary treatment only and discharges directly to the River Nore. It is incapable of producing an effluent in compliance with any modern discharge standards. Overloading of the plant makes the situation even worse.

The very picturesque Inistioge village is a major tourist attraction in County Kilkenny. Inadequate waste water facilities have hindered the ability of the village to fully exploit its inherent charm.

The estimated cost of the full upgrade is €0.9M

13.3 Upgrade (700 PE):

The upgrade proposes to retain the existing primary tanks and to co-settle excess sludge from a new SAF type package plant.

A new inlet sump and pumps (duty/standby) transfer the primary effluent to a 700 PE SAF unit and a 700 PE lamella clarifier.

The cost estimate for this is €360,000.

14.0 Ballyhale Waste Water Treatment Plant:

14.1 Existing Plant (400 PE):

The existing plant is a twin SBR plant and was built in 1992.

The plant comprises the following:

- Inlet Sump with duty / standby pumps and high level storm overflow.
- Twin SBR Reactors complete with fine bubble diffused aeration equipment and high level fixed decanters (single blower in plant house).
- Planthouse complete with control panel and instrument air compressor.

The hydraulic capacity of the plant is limited due to the small batch volume of each reactor.

The plant also discharges to a very small stream which has very limited dilution available.

The current load is estimated to be 700 PE. Much of this inflow bypasses the existing plant.

14.2 Reason for upgrade:

The limited hydraulic capacity of the existing plant coupled with the high load entering the plant has resulted in an extremely poor quality effluent discharging to a small stream, which in times of dry weather carries a very low flow.

The estimated cost of the full upgrade is €0.9M

14.3 Upgrade (700 PE):

The proposed upgrade converts the existing SBR plant into a conventional activated sludge plant by the addition of a settling tank and pumps the discharge to a larger river, some 1200m away.

The new plant would comprise the following:

- Inlet pumping to Aeration Tanks using the existing pumps and new pipework.
- Inlet screen
- Operation of aeration tanks in series using the existing inlet pipework.
- New blower and reuse of existing diffusers.
- Mixed liquor feed to the new settling tank using the existing decanter outlet connections.
- New settling tank and scraper mechanism.
- New RAS / EAS pumps
- New Control Panel
- New sludge holding tank
- New pumping arrangement and rising main to pump effluent to an alternative discharge point on the Little Arrigal river.

The cost estimate for this is €580,000.

15.0 Tullaroan Waste Water Treatment Plant

15.0 Current situation:

A number of years ago an agreement was reached between the local community in Tullaroan and Kilkenny County Council for the provision of a waste water scheme. Essentially the local community are responsible for the construction of a sewerage network, and Kilkenny County Council is responsible for the construction and operation of the waste water treatment plant. Contracts for both elements are currently at the tender stage and have been advertised. The estimated construction cost of the treatment plant is **€400,000**.

At present all properties in Tullaroan are served by septic tank systems leading to environmental concerns and also limiting any further development of the village.

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16.0 Kilmacow Sewerage Scheme

16.1 Current Position:

Currently the contract to construct the waste water network in Kilmacow is substantially complete.

A contractor has been appointed to construct the WWTP and work is scheduled to commence shortly.

The estimated capital cost of this plant is **€1,500,000**.

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17.0 Piltown Waste Water Treatment Plant

17.1 Existing Plant (1,500 PE)

The existing plant in Piltown consists of an imhoff tank, followed by two trickling filters, followed by a settling tank.

It is an extremely well run plant, designed for a PE of 1,500.

The current load on the plant is 3,000 PE.

17.2 Reason for upgrade

Despite being a well run plant, the scale of the overloading is such that it is impossible to maintain the discharge quality within acceptable limits. Because the plant discharges to a tidal stretch of the River Suir, the poor quality discharge is less noticeable.

The estimated cost of the full upgrade is €2.3M

17.3 Upgrade (3,000 PE)

It is proposed to split the influent into two roughly equal streams. One stream will continue to the existing 1,500 PE plant, while the second stream will bypass the existing plant to a new extended aeration plant capable of treating 1,500 PE, thereby creating two distinct streams of treatment.

The estimated cost of this upgrade is €50,000

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Conclusions

Appendix C shows a summary of all the costs involved in meeting existing contractual commitments and carrying out the minimum amount of capital works to ensure that for the short to medium term water and waste water facilities in County Kilkenny are at a reasonable standard.

The funding required (~~€49M~~) is less than a quarter of that identified in the 2007 Assessment of needs.

Three quarters of the funding identified is to be spent on drinking water. Approximately €14M of this will come from IDA Ireland. Department funding and local funding of approximately ~~€21M~~ will be required to meet the remainder of the drinking water programme.

It is significant that a massive improvement in the quality of waste water discharging to our rivers can be achieved for ~~€14M~~ (less than the proposed cost of the Purcellsinch upgrade and sludge hub).

It must be borne in mind that this expenditure will **not** provide discharges which meet all recent legislative limits.

Department funding and local funding of approximately ~~€35M~~ will be required to meet the requirements of the joint programme.

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Appendix A

Scheme Code	Sample Date	Crypto	Manganese	Aluminium µg/l	Arsenic µg/l	Colour	Enteroco cci	Iron	Total Coliform Bacteria
Clogh Castlecomer PWS	7/30/2008		63.2						
Inistioge PWS	08/10/2008			252.1	13.4	49.4		327.1	
Inistioge PWS	28/05/2008					30			
Inistioge PWS	02/07/2008					32			
Inistioge PWS	27/08/2008					55			
Inistioge PWS	03/09/2008					32			
Inistioge PWS	17/11/2008					23			
Inistioge PWS	16/01/2008							250	
Inistioge PWS	21/05/2008							360	
Inistioge PWS	28/05/2008							496	
Inistioge PWS	11/06/2008							320	
Inistioge PWS	02/07/2008							440	
Inistioge PWS	27/08/2008							660	
Inistioge PWS	03/09/2008							800	
Inistioge PWS	27/08/2008								1
Inistioge PWS	06/05/2009					23			
Inistioge PWS	08/04/2009							260	
Inistioge PWS	06/05/2009							220	
Gowran-Goresbridge-Paulstown PWS	14/01/2008	1.09							
Gowran-Goresbridge-Paulstown PWS	17/01/2008	0.03							
Gowran-Goresbridge-Paulstown PWS	22/01/2008	0.29							
Gowran-Goresbridge-Paulstown PWS	25/01/2008	0.02							
Gowran-Goresbridge-Paulstown PWS	04/02/2008	0.02							
Gowran-Goresbridge-Paulstown PWS	07/07/2008	0.03							
Gowran-Goresbridge-Paulstown PWS	15/09/2008	0.11							
Gowran-Goresbridge-Paulstown PWS	27/10/2008	0.02							
Gowran-Goresbridge-Paulstown PWS	08/12/2008	0.04							
Gowran-Goresbridge-Paulstown PWS	05/01/2009	0.02							
Gowran-Goresbridge-Paulstown PWS	26/01/2009	0.06							
Gowran-Goresbridge-Paulstown PWS	09/02/2009	0.1							
Gowran-Goresbridge-Paulstown PWS	11/02/2009	0.03							
Gowran-Goresbridge-Paulstown PWS	30/03/2009	0.03							
Gowran-Goresbridge-Paulstown PWS	05/05/2009	0.02							
Gowran-Goresbridge-Paulstown PWS	13/07/2009	0.04							

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Total no. of Exceedances	16	1	1	1	7	0	10	1
Limit: S.I. No. 278 of 2007	Detected continuously	50µg/l	200µg/l	10µg/l	Acceptable to consumers or any abnormal change	0/100ml	200µg/l	0/100ml

2008/2009 Water Exceedances

Appendix B

SCHEME	Surface water Regs Discharge standards						Proposed Interim standards					Current discharge (Average)						
	Name	BOD	SS	Total Nitrogen (as N)	Ammonia (N) mg/l	O-phos (P)	Total P	BOD	SS	Total Nitrogen (as N)	Ammonia (N) mg/l	O-phos (P)	BOD	SS	Total Nitrogen (as N)	Ammonia (N) mg/l	Total P	O-phos (P)
Purcellsinch	20	30	15	5		1	20	30	15		1	10	15				15	
Paulstown WWTP	#	#	#	#	#	#	20	30		10	1	113	89	30	23		8	4
Freshford WWTP	5	5		0.75	1.5		20	30		6	1	154	95					
Goresbridge WWTP	25	35		20	0.5		20	30		10	1	129	76					
Johnstown WWTP	25	35		5	0.5		20	30		6	1	402	124	44	39		7	5
Ballyhale-Knocktopher WWTP	15	25	15	25	0.5		20	30		6	1	115	80					
Bennettsbridge WWTP	25	35	15		2		20	30		10	1	473	148	84	64		12	8
Castlecomer WWTP	15	35	15		0.02		20	30		10	1	72	31	19			12	4
Stonyford WWTP	10	10	15		0.25		20	30		8	1	40	25	17	5		2	2
Fiddown WWTP	#	#	#	#	#	#	20	30		10	1	442	117	107			4.7	
Mullinavat WWTP	#	#	#	#	#	#	20	30		10	1	No Data to date	No Data to date	No Data to date	No Data to date	No Data to date	No Data to date	No Data to date
Inistioge WWTP	#	#	#	#	#	#	20	30		10	1	No Data to date	No Data to date	No Data to date	No Data to date	No Data to date	No Data to date	No Data to date
Urlingford WWTP	25	35					20	30		6	1	95	80	12	7		2	2
Piltown WWTP	#	#	#	#	#	#	20	30		6	1	33	29	17			3	

= Indicates that the detailed analysis of the assimilative capacity of the receiving waters have not yet been calculated

Wastewater Treatment Standards

Appendix C

Water

SCHEME	INTERIM COST	REASON	PART OF FULL DESIGN	SCHEME COST
Mooncoin Regional Water Supply Scheme	€25,800,000	Existing quality and quantity problems. Employment generation. Contract ready to sign. NSS Gateway. (WSIP)	YES	€44,000,000
Kilkenny City Regional Water Supply.	€4,532,150	Quality & quantity issues. Network difficulties. Supply security. NSS Hub (WSIP)	YES	€24,522,097
Gowran, Goresbridge, Paulstown Water Supply Scheme.	€459,000	Crypto problem. Supply security. RAL (WSIP)	YES	€9,070,000
Inistioge Water Supply Scheme.	€4,073,000	Very poor quality & quantity raw water. Regular drinking water quality issues. RAL. (WSIP)	YES	€12,700,000
Clogh / Castlecomer Water Supply Scheme.	€180,000	THM & Manganese problems. RAL (WSIP)	YES	€6,000,000
WATER EXPENDITURE	€35,044,150			€96,292,097

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Appendix C

Waste Water

SCHEME	INTERIM COST	REASON	PART OF FULL DESIGN	SCHEME COST
Purcellsinch (Kilkenny City) Waste Water Treatment Plant & Sludge Hub.	€2,900,000	Nutrient & odour problems. Modernisation required. NSS Hub. (WSIP)	YES	€19,700,000
Thomastown Waste Water Treatment Plant.	€2,300,000	Capacity problems. Contract. Development restrictions. NSS important town. (SLI)	YES	€2,300,000
Stonyford Waste Water Treatment Plant.	€740,000	Capacity & discharge problems	YES	€850,000
Bennettsbridge Waste Water Treatment Plant.	€620,000	Prim treatment only. Overloaded. Discharge problems. (SLI)	YES	€2,200,000
Goresbridge Waste Water Treatment Plant.	€360,000	Prim treatment only. Overloaded. Discharge problems. Development restricted.(WSIP)	NO	€1,610,000
Freshford Waste Water Treatment Plant.	€560,000	Prim treatment only. Overloaded. Discharge problems. Development restricted.(WSIP)	NO	€1,515,000
Johnstown Waste Water Treatment Plant.	€492,000	Discharge problems. (WSIP)	NO	€1,511,000
Paulstown Waste Water Treatment Plant.	€403,000	Overloaded. Discharge Problems.(SLI)	YES	€2,000,000
Castlecomer Waste Water Treatment Plant.	€550,000	Overloaded. Discharge Problems. Development restricted. (SLI)	PARTIALLY (50%)	€4,500,000
Urlingford Waste Water Treatment Plant.	€510,000	Overloaded. Discharge Problems	YES	€1,250,000
Fiddown Waste Water Treatment Plant.	€360,000	Prim treatment only. Overloaded. Discharge problems	NO	€700,000
Mullinavat Waste Water Treatment Plant.	€360,000	Prim treatment only. Overloaded. Discharge problems	NO	€850,000
Inistioge Waste Water Treatment Plant.	€360,000	Prim treatment only. Overloaded. Discharge problems. Development restrictions.	NO	€900,000
Ballyhale Waste Water Treatment Plant.	€580,000	Overloaded. Discharge Problems. Limited dilution available.	YES	€900,000
Tullaroan Waste Water Treatment Plant.	€400,000	New plant. No plant at present. Contractual commitment.(Small Schemes)	YES	€400,000
Kilmacow Waste Water Treatment Plant.	€1,500,000	New plant. No plant at present. Contractual commitment. Network in place.(WSIP)	YES	€1,500,000
Piltown Waste Water Treatment Plant	€950,000	100% overloaded. Discharge problems.	YES	€2,300,000
WASTE WATER EXPENDITURE	€13,945,000			€44,986,000

Water Services Investment Programme 2007 - 2009

	W/S	Est. Cost
Schemes to start 2008		
Gowran/ Goresbridge/ Paulstown Water Supply Scheme	W	9,070,000
		9,070,000
Schemes to start 2009		
Ballyragget / Clogh / Castlecomer / Urlingford / Johnstown Water Supply Scheme	W	14,200,000
Bennettsbridge Water Supply Scheme	W	13,370,000
Callan / Graiguenamanagh / Thomastown / Inistiogue Water Supply Scheme	W	20,000,000
Kilkenny City Regional Water Supply Scheme (H)	W	10,000,000
Kilkenny City Wastewater Treatment Plant (H)	S	13,000,000
Kilkenny Sludge Management (H)	S	10,000,000
		80,570,000
Serviced Land Initiative		
Bennettsbridge Sewerage Scheme	S	800,000
Gowran Sewerage Scheme	S	816,000
Kilkenny City Western Environs Sewerage Scheme (H)	W/S	4,800,000
Mooncoin Sewerage Scheme	S	4,000,000
Paulstown Wastewater Treatment Plant	S	750,000
		11,166,000
Rural Towns & Villages Initiative		
Kilmacow Sewerage Scheme	S	5,000,000
		5,000,000
Schemes to Advance through Planning		
Freshford/ Johnstown/ Goresbridge Sewerage Scheme	S	7,900,000
Mooncoin Regional Water Supply Scheme	W	9,000,000
Piltown/Fiddown Water Supply Scheme	W	3,000,000
		19,900,000
Water Conservation Allocation		1,472,000
Asset Management Study		80,000
Programme Total		127,258,000

(H) Refers to a Hub as designated in the National Spatial Strategy

APPENDIX 2

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PART 1 - Completed Contracts for which Grant Aid is Required								
1	2	3	4	5	6	7	8	9
Contract	TYPE - Stage 1, 2 or 3	Scheme	Date Contract Completed	Contract Costs	Approved Grant	Balance of Grant Available	Additional Grant Funding Required	Total Grant Requirements (7 +8)
				€	€	€	€	€
KCC	Stage 1	Staff, Equipment, Materials	Dec-08	€ 237,677.00	€ 237,677.00	€ -	€ -	€ -
RHG	Stage 1	Project Consultant Services	Dec-08	€ 446,063.48	€ 326,344.75	€ -	€ 119,718.73	€ 119,718.73
Contract 1	Stage 2	Thomastown Pilot - Leak Repair Works	Dec-08	€ 111,250.00	€ 111,250.00	€ -	€ -	€ -
Contract 2	Stage 1	Meter Installation Works	Oct-08	€ 1,052,371.00	€ 1,052,371.00	€ -	€ -	€ -
Contract 3	Stage 1	Telemetry Installation Works	Nov-08	€ 177,382.31	€ 161,426.00	€ -	€ 15,956.31	€ 15,956.31

PART 2 - Contracts in Progress									
1	2	3	4		5	6	7	8	9
Contract	TYPE - Stage 1, 2 or 3	Scheme	Contract Dates		Contract Costs	Approved Grant	Balance of Grant Available	Additional Grant Funding Required	Total Grant Requirements (7 +8)
			Start	Finish	€	€	€	€	€
KCC	Stage 2	Staff, Equipment, Materials	Jan-09	Dec-10	€ 627,062.64	€ 627,062.64	€ -	€ -	€ -
RHG	Stage 2	Project Consultant Services	Jan-09	Dec-10	€ 549,649.54	€ 250,000.00	€ -	€ 299,649.54	€ 299,649.54
	Stage 2	External Leak Detection	Jan-09	Dec-10	€ 295,852.00	€ 295,852.00	€ -	€ -	€ -
Contract 5	Stage 2	Leak Repair Works	Sep-09	Dec-10	€ 1,498,232.37	€ 1,498,232.37	€ -	€ -	€ -

PART 3 - Contracts to Start 2010 - 2012									
1	2	3	4		5	6	7	8	9
Contract	TYPE - Stage 1, 2 or 3	Scheme	Contract Dates		Contract Costs	Approved Grant	Balance of Grant Available	Additional Grant Funding Required	Total Grant Requirements (7 +8)
			Start	Finish	€	€	€	€	€
Contract 6	Stage 2	Reservoir Leak Repair - Radestown (KK City) & Ballyragget	2010	2012	€ 243,156.00	€ 243,156.00	€ -	€ -	€ -

PART 4 - Stage 3 Schemes in Planning					
1	2		3	4	5
Scheme	Scheme Dates		Estimated Scheme Costs	Approved Grant	Balance of Grant Available
	Start	Finish	€	€	€
Advanced Critical Rehabilitation Works	2010	2012	5,000,000.00	NIL	NIL
Critical Rehabilitation Programme	2011	2013	20,000,000.00	NIL	NIL

Water Conservation Staff Resources			
Name	Grade	Time	Duties
Michael Murphy	Senior Executive Engineer	Part Time	Reporting to Senior Staff. Liaison with Project Team and Area Engineers.
Aidan Morrissey	Executive Engineer	Full Time	Maintain hydraulic models. Prepare monthly water audits. Supervise technician, leak detection, administration staff. Manage wastewater notices.
Michael Kavanagh	Technician Grade 1	Full Time	Maintain telemetry operation. Co-ordinate CIS updates. Support leak detection teams.
Claire M Murphy	Administration	Part Time	Update: DMA folders, leakage database. Generate and issue waste water notices.
2No. Leak Detection Personnel	Plumber	Full Time	Leak detection, deploy and recover data loggers, implement field and step testing.
Philip O'Neill	Director of Services	Part Time	Project Management. Liaise with Department, Government bodies.
Billy Mernagh	Senior Engineer	Part Time	Project Management. Liaise with Department, Government bodies.

Attachment G.3 should contain the most recent programme of improvements, including a copy of any approved funding for the project and a timeframe for the completion of the necessary works to take place.

The most recent programme of improvements is the Water Services Investment programme 2010-2012. The DOEHLG, in principal, has approved partial funding for these schemes. However, it is likely that the Local Authority resource requirements will exceed the current financial capacity of the Local Authority itself. To meet the targets of the WSIP, it will be necessary for Local and National Authorities to readdress funding mechanisms.

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Scheme Name	Contract Name	W/S	Estimated Cost €
Contracts at Construction			
Kilmacow Sewerage Scheme	. Contract 2 (Wastewater Treatment Plant - DBO)	S	2,507,000
Mooncoin Regional Water Supply Scheme Phase 1A (SLI)	. Contract 1 (Network)	W	6,888,000
Thomastown Sewerage Scheme (SLI)	. Treatment Plant Upgrade	S	2,061,000
Water Conservation Stages 1 & 2 Works	. Water Conservation Stages 1 & 2 Works	W	4,800,000
			16,256,000
Contracts to Start			
Bennettsbridge Sewerage Scheme (SLI)	. Wastewater Treatment Plant Upgrade	S	620,000
Castlecomer Sewerage Scheme (SLI)	. Contract 1 (Wastewater Treatment Plant Upgrade)	S	550,000
Kilkenny City Sewerage Scheme (H)	. Wastewater Treatment Plant Upgrade	S	3,060,000
Kilkenny Grouped Villages Sewerage Scheme	. Ballyhale Wastewater Treatment Plant Upgrade	S	360,000
	. Clogh Moneenroe Wastewater Treatment Plant Upgrade	S	3,500,000
	. Fiddown Wastewater Treatment Plant Upgrade	S	360,000
	. Contract 1 (Interim Plant - Freshford/Johnstown/Goresbridge)	S	740,000
	. Inistioge Wastewater Treatment Plant	S	360,000
	. Piltown Wastewater Treatment Plant	S	900,000
	. Stoneyford Wastewater Treatment Plant	S	740,000
	. Urlingford Wastewater Treatment Plant	S	510,000
	. Mullinavat Wastewater Treatment Plant	S	360,000
Kilkenny Grouped Villages Water Supply Scheme	. Johnstown Water Supply - Contract 1	W	341,000
	. Johnstown Water Supply - Contract 2	W	180,000
	. Thomastown Source - Contract 1	W	4,073,000
	. Gowran Goresbridge Paulstown Water Supply - Contract 1 (UV & Filter)	W	174,000
	. Gowran Goresbridge Paulstown Water Supply - Contract 2 (Source)	W	285,000
	. Mooncoin Water Supply - Contract 1 (Clonassy Water Treatment Plant & Network)	W	4,700,000
Kilkenny Sewerage Scheme (SLI)	. Network (Western Environs SLI)	S	4,800,000
Kilkenny Regional Water Supply Scheme (H)	. Contract 1 (Radestown Reservoir)	W	80,000
	. Contract 2 (Wellfields)	W	1,300,000
	. Contract 4 (Outrath Reservoir)	W	500,000
	. Contract 5 (Troyswood Intake)	W	272,000
	. Contract 6 (Dinin Intake)	W	272,000
			29,037,000
Water Conservation Stage 3 Works	. Advanced Critical Rehabilitation Works	W	5,000,000
	. Critical Rehabilitation Programme	W	10,000,000
			15,000,000
	Contracts Total		60,293,000
Scheme Name	Contract Name	W/S	Estimated Cost €
Schemes at Planning			
Ballyragget, Clogh/Castlecomer & Urlingford/Johnstown Water Supply Scheme		W	
Callan, Graiguenamanagh, Thomastown and Inistioge Water Supply Scheme		W	
Freshford/Johnstown/Goresbridge Sewerage Scheme		S	
Kilkenny City Sewerage Scheme (Treatment Plant Upgrade) (H)		S	
Kilkenny Regional Water Supply Scheme (H)		W	
Mooncoin Regional Water Supply Scheme Phase 2		W	
Water Conservation Stage 3 Works		W	

G.4 Storm Water Overflows

As outlined in Section B of this application a total of 1 Storm Water Overflows exist on the sewer network supplying Freshford Waste Water Treatment Plant. No definitive statement can be made at the date of lodging this application to categorically state whether these discharge points comply with the definition of a storm water overflow as defined in the Department of the Environment's *Urban Waste Water Treatment Directive – Procedures and Criteria in relation to Storm Water Overflows*.

No programme of improvements has been prepared nor funding sought to undertake an assessment of these discharge points.

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Appendix 1 – Drawings

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Appendix 2 – Monitoring (Soft Copy Only)

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Appendix 3 – Phosphorous Regulations

Implementation Report July 2006 (Soft Copy Only)

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