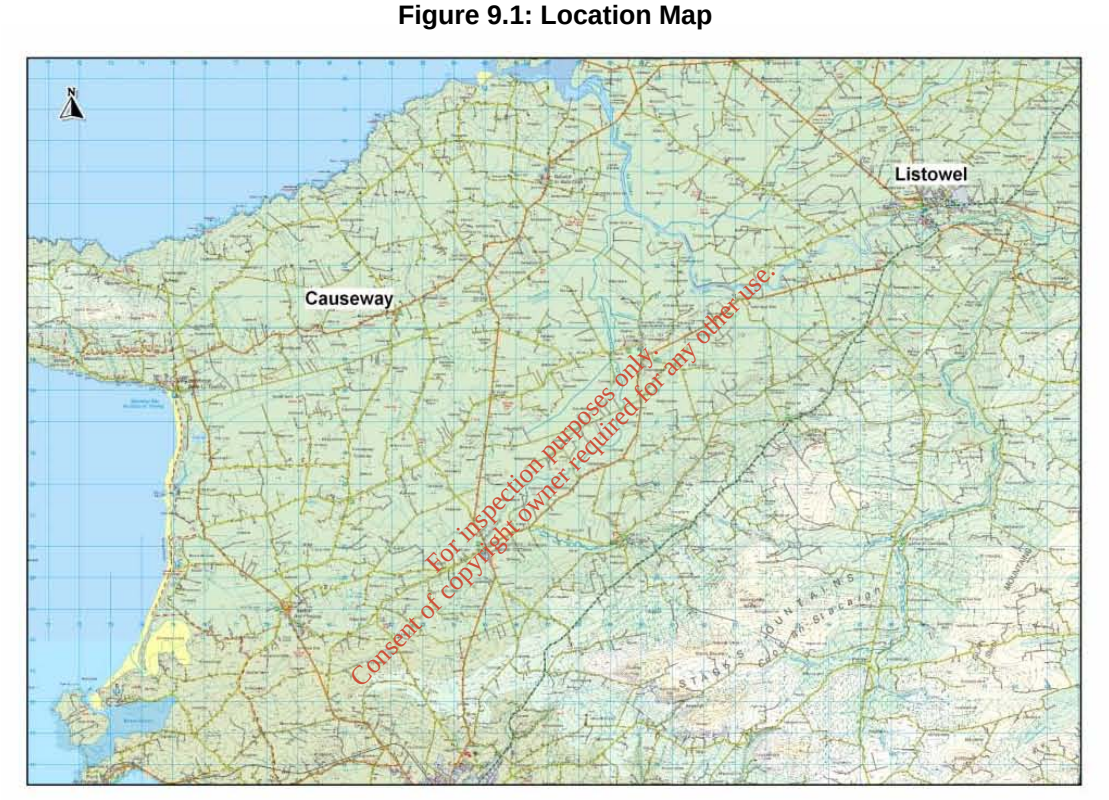
# 9. CAUSEWAY

## 9.1 INTRODUCTION

Causeway is a village in north Kerry, located on the R551, approximately 7.5km east of Ballyheigue, and approximately 10km north of Ardfert. In addition, the village is approximately 22km from both Tralee and Listowel.

The village provides a range of services for the area, including two shops, a shop/post office, a service station, two hairdressers, a fast food outlet, a funeral home, a butcher, four public houses, a community centre, a GAA pitch, a health centre, a church, a primary school, and a secondary school.

**Figure 9.1: Location Map**






## 9.2 EXISTING SYSTEM

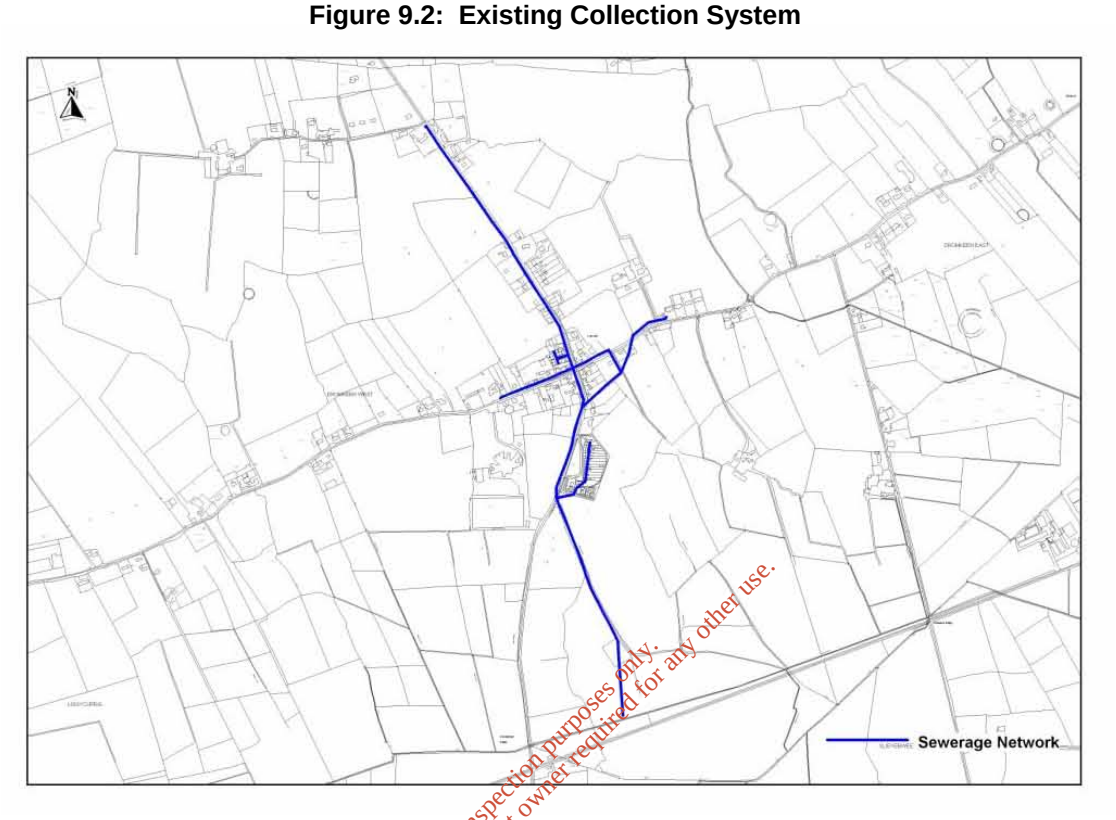
### 9.2.1 Existing Network

The original collection system in the village is a combined system constructed in 1954, with some minor additions completed subsequent. From the CiS data provided by Kerry County Council the network can be summarised as follows:-

- 12m of 100mm diameter pre cast concrete sewers, constructed in 1954.
- 1,638 of 150mm diameter pre cast concrete sewers, constructed in 1954.
- 72m of 150mm diameter uPVC sewers, constructed in 1995.
- 1,311m of 225mm diameter pre cast concrete sewers, constructed in 1954.

The network gravitates to a treatment plant to the south of the village, which discharges to a local stream, which in turn is a tributary of the Crompaun River. The existing network layout is shown on Figure 9.2.

**Figure 9.2: Existing Collection System**






### 9.2.2 Existing Wastewater Treatment Plant

Wastewater flows by gravity to an Imhoff tank and percolating filters located to the south of the village. The plant provides secondary treatment, before discharging treated effluent through a 170m long, 225mm diameter outfall to the local watercourse, a tributary of the Crompaun River. Kerry County Council report that design capacity of the plant is 250pe, and that it is currently overloaded.

## 9.3 FUTURE POPULATION & DRAINAGE AREAS

### 9.3.1 Population Projections

The recorded population of Causeway in the 2006 Census was 211 people. At an assumed occupancy rate of 2.75, this equates to 77 permanent residences.

The 2008 An Post Geodirectory shows 102 occupied residential units within the development area established by the Local Area Plan for the village, which is 25 more than the figure estimated from the 2006 census. This discrepancy is likely as a result of the completion of a number of residential developments within the village since the 2006 census. Hence, based on the GeoDirectory figures there may be as many as (102 x 2.75=) 281 people currently living in Causeway.

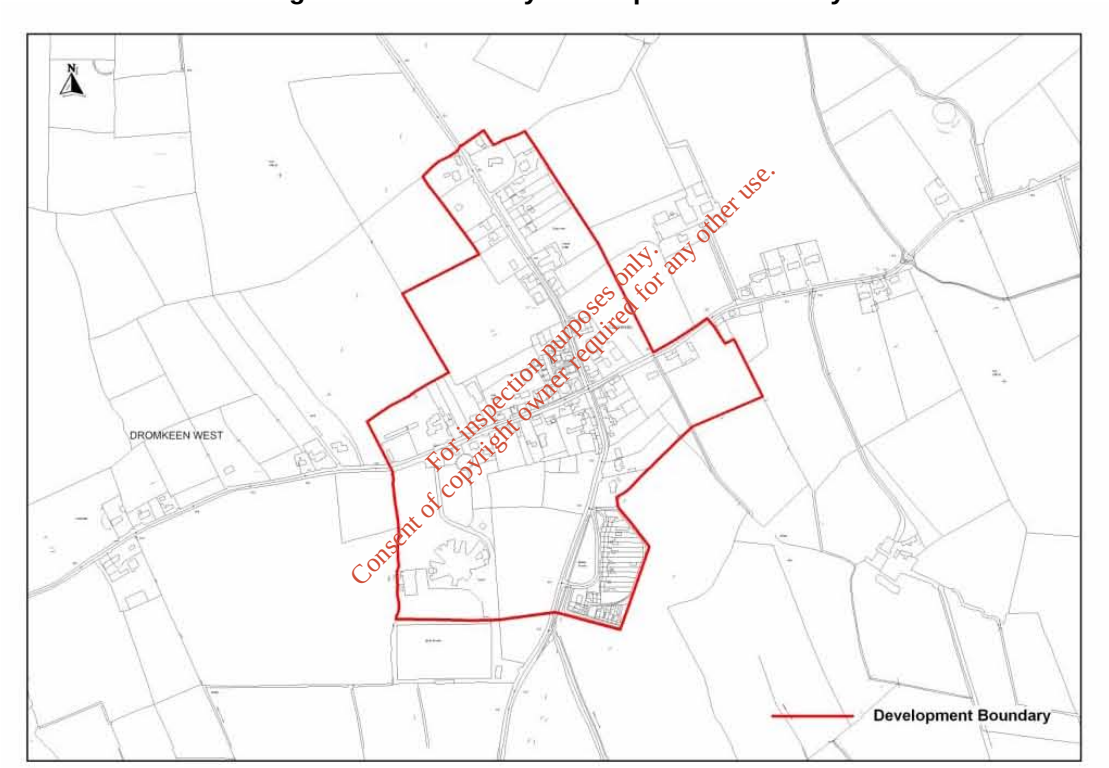
The population of Causeway is projected to increase by 165 people to give a future (2028) population of 446 (Ref. Appendix 1 – Population Forecast). At an assumed future occupancy rate of 2.4, this implies there will 187 permanent residential properties in the village, and increase of 85 over the current figure.

Allowing 20% of the domestic population as the contribution from non-domestic connections results in a future (2028) design population equivalent for Causeway of (446 x 1.2 =) **535pe**.

### 9.3.2 Development Area

The North Kerry Settlements Local Area Plan identifies a development area of 27.4Ha for Causeway, the boundary of which is shown in Figure 9.3. It also provides a number of sites for residential development, totalling 9.58Ha.

**Figure 9.3: Causeway Development Boundary**






Guidelines for Planning Authorities on Residential Density" published by the DEHLG states that *"In greenfield sites or those sites for which a Local or Action Plan is appropriate, public open space should be provided at a minimum rate of 15% of the total site area. This allocation should be in the form of useful open spaces within residential developments and, where appropriate, larger neighbourhood parks to serve the wider community".* Hence it is assumed that 15% of the areas detailed above will be provided for open/amenity space.

9.58Ha are zoned for residential development at an unspecified density. Allowing 15% for amenity/open space leaves (9.58/1.15=) 8.33Ha available for development. Assuming an average development density of 15 units/Ha, this could provide an additional 125-permament residences.

The capacity of the lands zoned for residential development in Causeway to accommodate the projected population growth within the development boundary to 2028 is assessed in Table 9.1.

**Table 9.1: Capacity of Zoned Residential Land in Causeway to Accommodate Projected Growth**

| | | | |
|---|---|---|---|
| Projected future permanent population | A | 446 | Persons |
| Current permanent housing stock | B | 102 | Units |
| Assumed future occupancy rate | C | 2.4 | Persons/unit |
| Future population to reside in current housing stock | D=BxC | 245 | Persons |
| Future population for which new housing is required | E=A-D | 201 | Persons |
| Additional houses required at assumed future occupancy rate | F=E/C | 84 | Units |
| Additional houses available from full development of zoned land | G | 125 | Units |
| Redundancy Factor | H=G/F | **1.49** | |

Table 9.1 shows that the current area of land zoned for residential development has almost 1.5 times the capacity required to provide for the projected population growth within the development boundary (165 people) to 2028.



## 9.4 PROPOSED NETWORK

### 9.4.1 Foul Sewer Network

There is no requirement to extend the foul collection system, as the existing system already services all areas of zoned land.

It is expected that the existing sections of 225mm diameter sewer do have sufficient capacity to cater for the 2028 population. However a CCTV survey will be required to assess their condition and identify any remedial works that may be necessary. For the purposes of this study it is assumed that 15% of the existing 225mm diameter sewers (165m) will need remedial work, based on experience of similar networks. Associated costs are included in the estimated costs for the scheme detailed in Table 9.4.

The existing network consists of 1,710 lin.m of 150 mm diameter pipes, which are generally deemed inadequate in a public system. However, approximately 350 m could be retained north of the development plan boundary, as this section is serving a limited number of houses in addition to the national school, and has sufficient capacity for this loading. Again this section should be surveyed to establish if remedial works are required . A provisional amount has been included in Table 9.4 to carry out remedial works to 15% of the section (62m).

Within the village development boundary, it is proposed to replace 1,360m of 150mm diameter sewers with 225mm diameter sewers, gravitating to the proposed treatment works.

### 9.4.2 Storm Sewer Network

Storm water in the village is currently catered for by the combined collection system. Section 5.3(f) of the Brief identifies the need to "provide for foul sewage and storm drainage collection systems as separate systems to the greatest extent practicable". Solely providing a foul network will not meet this criteria and will in time, it is suggested, result in a combined system.

Consequently it is proposed to provide a separate storm network to cater for runoff from impermeable areas within the development boundary.

The following Lloyd Davies formula was used to calculate the run off from the area in question.

$$Q = 2.78 \, Ap \, I$$

Where: Q =run off in litres/sec
Ap=impervious area in hectares.
I = rainfall intensity in mm/hr.

A rainfall intensity of 50mm/hr was applied, and an impermeability factor of 0.35 was assumed.

The area enclosed by the development plan boundary for Causeway is approximately 27.4Ha, and the calculated run off using the above formula is calculated to be 2,808l/s. To cater for this runoff, the following storm collection system is required.

**Table 9.2: Proposed Storm Sewer Network**

| Pipe Diameter (mm) | Location | Length (m) |
|---|---|---|
| 300 | Road | 450 |
| 450 | Road | 450 |
| 750 | Road | 750 |
| **Total Length** | | **1,241** |



## 9.5 PROPOSED TREATMENT WORKS

### 9.5.1 Introduction

Kerry County Council report that existing treatment plant is overloaded. It is therefore proposed to provide a new wastewater treatment plant for the village to cater for a future (2028) design population equivalent of **535pe.**

### 9.5.2 Wastewater Treatment Load

The design criteria for the proposed treatment plant in Causeway are set out in Table 9.3 below.

**Table 9.3: Design Criteria for Proposed Treatment Plant**

| Parameter | Unit | Design Criteria |
|---|---|---|
| Population Equivalent | nr | 535 |
| Per capita flow | l/c/d | 180 |
| Dry Weather Flow | $m^3/d$ | 96 |
| Flow to Full Treatment 3DWF | $m^3/d$ | 289 |
| BOD Load per Capita | kg/c/d | 0.06 |
| BOD Load per Day | kg/d | 32.1 |

### 9.5.3 Details of Proposed Wastewater Treatment Plant

It is proposed to provide a new WwTP at the existing site, discharging to unnamed watercourse that is a tributary of the Crompaun River. The Crompaun River in turn is a tributary of the Cashen River.

The plant will incorporate a treatment process that will produce effluent quality in compliance with current statutory regulations. The following legislation was considered in establishing the proposed discharge standards from the WwTP:-

- Neither the unnamed stream nor the Crompaun River is a designated "sensitive area" under the Third Schedule to the Urban Waste Water Treatment Regulations 2001. The Crompaun River discharges to the Cashen River approximately 9km downstream of the proposed discharge. The Cashen River is a designated "sensitive area" under the Third Schedule to the Urban Waste Water Treatment Regulations 2001.

  The Regulations specify that discharges from agglomerates with a population equivalent of less than 10,000 to waters not designated as sensitive shall be subject to "appropriate treatment". This is defined as "treatment of urban waste by any process and or disposal system, which after discharge allows the receiving water to meet the relevant quality objectives and the relevant provisions of the directive and of other community directives"



- The Local Government (Water Pollution) Act, 1977 (Water Quality Standards For Phosphorus) Regulations, 1998 (SI No. 258 of 1998) oblige local authorities to maintain or improve the water quality of rivers by 2007 by reference to the Q-Rating (biotic index) or the concentration of molydbate reactive phosphate (MRP). These Regulations apply to the proposed discharge.

- While the Crompaun River is not a designated salmonid river under the EC (Quality of Salmonid Waters) Regulations 1988 (SI No. 293 of 1988), the River Cashen/River Feale is a designated salmonid river and so these regulations apply to the proposed discharge.

- Neither the unnamed stream, nor Crompaun River, nor Cashen River is a designated bathing water under the Quality of Bathing Waters Regulations 1992 (SI No. 155 of 1992) and subsequent amendments – (SI No. 145 of 1994, SI No. 230 of 1996, SI No. 177 of 1988 and SI No. 22 of 2001).

  The River Cashen discharges to the sea near Ballybunnion beach, which is a blue flag beach and a designated bathing area. However, given the distance (approximately 21.5km) between the proposed discharge from Causeway and Ballybunnion beach, and the large dilution provided by the Cashen River which is tidal at the confluence with the Crompaun, it is considered that the Quality of Bathing Waters Regulations do not apply to the proposed discharge.

- The EC (Quality of Shellfish Waters) Regulations 2006 (S.I. No. 268 of 2006) do not apply to the proposed discharge.

In order determine the suitability of the watercourse for discharges from the new WwTP it is necessary to complete a waste assimilative capacity assessment at the proposed point of discharge. This requires water quality data, which is currently unavailable. Consequently we will complete an assessment based on available dilution at the 95-percentile flow.

There is no flow data available for any of the watercourses near Causeway. An assessment of the 1:50,000 OSI mapping suggests the catchment area of the unnamed stream to the existing discharge point is 2.76km². Typically, a specific dry weather run-off of greater than 1l/s/km² would be expected, but this figure can be applied to give a conservative estimate of the dry weather flow at the discharge point, calculated as 2.8l/s. Typically, the 95-percentile flow would be in the order of twice the dry weather flow, or 5.6l/s.

The 2028 design DWF from the proposed treatment plant is 1.1l/s. The available dilution at 95-percentile flow at the existing discharge point is 5.6/1.1 = 5, which is significantly less than the 25 required to limit the increase in BOD in the receiving water to less than 1mg/l.

Consequently it is proposed to move the discharge point approximately 1km downstream to Dromkeen Bridge. The flow in the stream at this location will be greater as it is downstream of the confluence of a number of streams that rise to the south of Causeway in Ballymaquim townland.

An assessment of the 1:50,000 OSI mapping suggests the catchment area of the unnamed stream to Dromkeen Bridge is 14.85km². Hence the 95-percentile flow at Dromkeen Bridge is estimated as (14.85/2.76 x 5.6=) 30.1l/s. The available dilution of the 2028 DWF at 95-percentile flow is 30.1/1.1 = 27, which is greater than the 25 required to limit the increase in BOD in the receiving water to less than 1mg/l.



As a result, it is proposed to provide secondary treatment to cater for existing and future wastewater discharges from Causeway to meet the 25/35 discharge standards as prescribed in Part 2 of the Second Schedule to the Urban Waste Water Treatment Regulations. The proposed treatment plant will discharge to the unnamed tributary of the Crompaun River at Dromkeen Bridge. It is assumed that there is no requirement for incorporating specific nutrient removal into the process, given the available dilution factors, although this can only be stated with certainty following an assessment of the assimilative capacity of the water body based on current water quality data

The European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003), giving effect to the EU Water Framework Directive 2000/60/EC, require public authorities to establish an integrated monitoring and management system for all waters, to develop a dynamic programme of management measures and to produce a River Basin Management Plan. This requirement is being implemented through the establishment of river basin management projects for River Basin Districts, of which there are eight in Ireland. The unnamed stream and Crompaun River are within the Shannon International River Basin District (SHIRBD). The Management System for SHIRBD is currently under development and no standards have yet been prescribed.

It is intended that a Draft River Basin Management Plan be released for public consultation in 2008, but to date this has not been published. When agreed, the Plan and its associated Programme of Measures may have an impact on the eventual discharge standards specified for the proposed WwTP at Causeway.

A number of treatment processes capable of meeting the final effluent quality proposed. These systems would include conventional activated sludge plants, Sequencing Batch Reactors (SBR), Rotating Biological Contactors (RBC), trickling filters, or constructed wetlands. Each system has advantages and disadvantages in terms of capital & maintenance costs, and land take requirements.

The treatment process that will ultimately be used in Causeway is dependent on the outcome of the strategy and the review of the available procurement options, however for the purpose of this assessment it is assumed that a conventional activated sludge process will be provided, designed to cater for a population equivalent of 535.

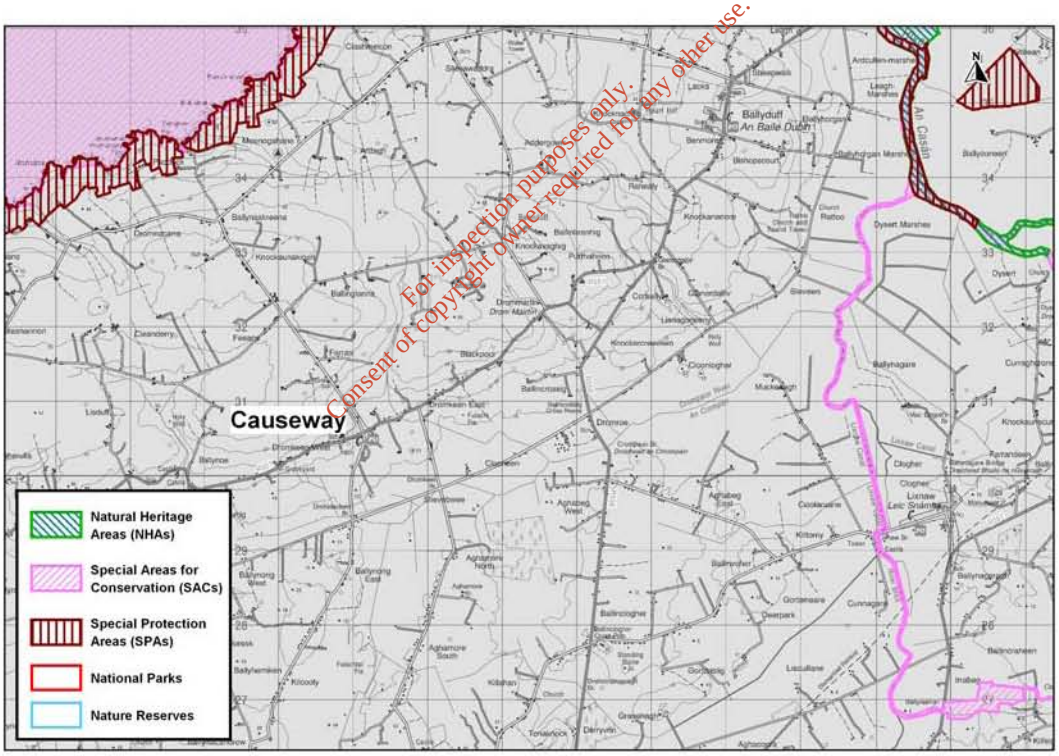
### 9.5.4 Sludge

It is proposed to incorporate a sludge thickener into the treatment process, which will assist the sludge to thicken to 3% dry solids. The sludge production from the proposed 535 pe extended aeration plant is estimated as **1.0m$^3$/day** based on a 95% BOD removal efficiency and 1 Kg of dry solids /kg BOD removed

### 9.5.5 Special Area of Conservation

As can be seen from Figure 9.4 the Crompaun River forms part of the Lower River Shannon Special Area of Conservation (Site Code 002165) downstream of the proposed discharge point.

**Figure 9.4:Special Area of Conservation near Causeway**



## 9.6 COSTS

With reference to the preceding sections the costs of the recommended works is summarised in Table 9.4 as follows:-

**Table 9.4: Summary of Estimated Costs**

| Description | | | | | Estimated Costs (€) |
|---|---|---|---|---|---|
| **Foul Collection Network** | | | | | 410,625.50 |
| **Pipe size** | **Location** | **Length** | **Cost/meter** | **Total cost** | |
| 100 | Field | 1060 | €150 | €159,000 | |
| 225 | Road | 1360 | €170 | €231,200 | |
| Remedial Works | | 226.95 | €90 | €20,426 | |
| **Total foul collection system cost** | | | | €410,626 | |
| **Storm Collection Network** | | | | | 263,070.00 |
| **Pipe size** | **Location** | **Length** | **Cost/meter** | **Total cost** | |
| 300 | Road | 450 | €180 | €81,000 | |
| 450 | Road | 450 | €200 | €90,000 | |
| 750 | Road | 341 | €270 | €92,070 | |
| **Total Storm collection system cost** | | | | €263,070 | |
| **Sub-Total** | | | | | **673,695.50** |
| WwTP (535 pe) | | | | | 428,000.00 |
| **Sub-Total** | | | | | **1,101,695.50** |
| Preliminaries (15%) | | | | | 165,254.33 |
| **Sub-Total** | | | | | **1,266,949.83** |
| VAT @ 13.5% | | | | | 171,038.23 |
| **Estimated Total Contract Cost** | | | | | **1,437,988.05** |
| Non Contract Costs (15%) | | | | | 215,698.21 |
| Land Acquisition Costs | | | | | 65,000.00 |
| **Estimated All In Capital Costs** | | | | | **1,718,686.26** |



The estimated all-in capital cost for the proposed scheme is **€1,718,686.** This equates to a unit cost of €1,718,686/102= €16,850 per existing domestic connection and €1,718,686/186 = €9,240 per projected 2028 domestic connection.

An Roinn Seirbhísí Uisce
Comhairle Contae Chiarraí,
Ráth Teas,
Trá Lí, Co. Chiarraí.

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**Chuig/ Clr. Michael Healy-Rae, Méara Chontae Chiarraí**

**Chuig/ Gach ball de Chomhairle Chontae Chiarraí**

# *Report on proposed Village Sewerage Schemes Programme*

There is an urgent need to provide new or upgraded sewerage schemes for most of the villages in Kerry, both for environmental reasons and to support the sustainable development of the villages in line with the policies of the County Development Plan. Five projects are already under construction (Milltown, Firies, Barraduff, Kilcummin and Sneem) and design reports and costings are being completed for 29 more.

Most of the schemes are included in the current Water Services Investment Programme (WSIP) to go to construction or to enter the planning phase, including Barraduff and Kilcummin. However, some very urgent schemes are not included in the WSIP while many of those which are included are not considered to be in the top priority category.

An investment of over €70 million will be required to deliver all the required schemes with up to 50% of the cost of some schemes having to be funded by Kerry County Council. There would be huge logistical problems in attempting to deliver 29 further schemes quickly and simultaneously, as well as funding difficulties. Therefore, it is necessary to prioritise and phase the delivery programme in order to draw down Department funding effectively and to deliver schemes as quickly as possible.



It is proposed that a submission be made to DEHLG to include a reprioritised list of schemes in the forthcoming revision of the WSIP.

## Phase 1 Schemes

Nineteen villages which are most urgent for environmental and developmental reasons, and which are likely to be more economic to fund, are included in Phase 1.

| | | | |
|---|---|---|---|
| Abbeydorney | Beaufort | Finuge | Milltown |
| Annascaul (WWTP) | Caherdaniel | Fieries | Lixnaw |
| Ardfert | Castlegregory | Glenbeigh | Sneem |
| Ballyduff | Castlemaine | Kilflynn | Tarbert |
| Ballylongford | Fenit | Kilgarvan | |

Substantial progress has been made in advancing these village schemes but it is vital that funding be secured through the WSIP and through Development Levies if they are all to be constructed in good time.

**Progress to Date:**

- Construction has started on 3 schemes (Fieries, Milltown and Sneem)
- Preliminary Reports are now complete for the other 16 schemes and will be sent to the Department of Environment, Heritage and Local Government by 20th July
- Site Investigation contracts are complete or substantially complete for 14 schemes.
- Site acquisitions for new treatment plants are completed for 2 schemes; are well advanced for 9 schemes; and are difficult for 3 schemes.
- Part 8 notices will be published for 16 schemes on 18th July.
- Consulting Engineers are being instructed to prepare Tender Documents for 16 schemes with a view to proceeding to tender in late 2007. Note that the actual tender date of projects is dependent on sites being acquired. The projects would be delayed if Compulsory Purchase Orders were required.

## Phase 2 Schemes

There are 13 schemes proposed for Phase 2 of the Programme. Some of these schemes could advance rapidly to construction in partnership with suitable developers.

| | | | |
|---|---|---|---|
| Annascaul (pipelines) | Brandon | Cromane | Scartaglin |
| Asdee | Cashen | Currow | Spa |
| Aughacasla | Chapeltown | Glenflesk | The Glen |
| Boolteens | | | |



- Preliminary Reports are being compiled and printed for all schemes and will be sent to the Department of Environment, Heritage and Local Government by 3rd August.
- Quick progress on Phase 2 schemes will depend on affordability issues and especially on the level of D.E.H.L.G. funding.
- The Preliminary Reports will provide scheme templates which can be used in any discussions with developers who would be willing to make realistic contributions towards funding or to provide elements of schemes. The Serviced Land Initiative (SLI) scheme could be useful in this context.

## Other Villages

As well as the 33 village schemes discussed above, a further 16 village scheme upgrades were included in the Assessment of Needs (2006) which was adopted by the Council last year. It is hoped that these schemes will be included in the forthcoming revision of the WSIP as schemes to enter planning. The villages are:

| | | |
|---|---|---|
| Baile an Fheirtéaraigh | An Clochán | Knocknagoshel |
| Baile na nGall | Duagh | Moyvane |
| Baile an Sceilg | An Fheothanach | An Mhuiríoch |
| Brosna | Gneeveguilla | Portmagee |
| Causeway | Kilfenora | |
| Ceann Trá | Knightstown | |

In any case, the Water Services Department would carry out interim upgrades for schemes where developments would warrant this.

Any remaining villages and development nodes will be examined in the forthcoming Kerry Wastewater and Sludge Project Strategic Study and the most suitable and effective infrastructural solutions will be identified.

**Funding:**

The challenge for Kerry County Council will be to finance the shortfall which will arise after the DEHLG funding element is accounted for. The shortfall could vary from say, 40% in a small number of schemes, to 60% for Serviced Land Initiative (SLI) funded schemes.

The shortfall will need to be funded almost entirely from development levies. At present, there is a countywide General Development Levy for sewerage of €3,020 per house. On top of this levy, there is an additional Special Development Contribution levy of €1,910 for the "fast-track" schemes of Milltown, Firies, Barraduff and Kilcummin and €4,000 for Tarbert.

The current best estimates available indicate that the funding shortfall could be over €8,000 per new house equivalent for Phase 1 schemes and could be over €12,000 per house in Phase 2 schemes. The Council should note that these figures mean that the development levies for sewerage must be increased if the Village Sewerage Scheme programme is to be delivered in a reasonable timescale.

It is intended to bring proposals to the Council for a revised sewerage Development Levy scheme for the Phase 1 villages at the September meeting.



**Conclusion:**

A new comprehensive, phased programme to deliver 32 new and improved Village Sewerage Scheme is proposed.

The support of the Council is sought

- for the revised Village Sewerage Scheme Programme to be submitted to DEHLG for inclusion in the Water Services Investment Programme
- for a limited revision of the sewerage Development Levy scheme which would fund targeted elements of the Village SS Programme

The Council's support is necessary enable the Water Services Section to progress these schemes to construction and to maximize the National Development Plan funding for the proposed Programme.

O.Ring,
Director of Services
July, 2007

# Comhairle Contae Chiarraí
# Kerry County Council



## Clár Infheistíochta na Seirbhísí Uisce
## Water Services Investment Programme

## Dréacht Mheasúnúcháin ar Riachtanais
## Draft Assessment of Needs

## 2006

PLEAN FORBARTHA NÁISIÚNTA

NATIONAL DEVELOPMENT PLAN

# Kerry Water Services Investment Programme

# Draft Assessment of Needs (2006) Report

## Background

In 2003, the Department of Environment, Heritage & Local Government (DEHLG) requested Kerry County Council to prepare an Assessment of Needs for Water Services Investment which would identify the medium term requirements of all the Local Authorities in one consolidated list. This was duly done and an Assessment of Needs was adopted by the members of Kerry County Council in November 2003.

Local Authorities have been requested by DEHLG to prepare updated assessments of water services needs in view of the scale and pattern of demographic and economic developments in recent years, and to provide an input into the next National Development Plan.

These assessments will also be used by DEHLG for project selection in future phases of the Water Services Investment Programme (WSIP) which is a three year rolling programme, mainly funded by DEHLG.



## Water Services Achievements, 2003 – 2006

Substantial works are in train as a result of the current and previous Water Services Investment Programmes. The following is the status of projects which have progressed since the 2003 Assessment of Needs was adopted.

### *Under Construction*

- Listowel RWSS Stage 4
- Caherciveen Water Supply Scheme
- Firies – Scartaglin Regional WSS

### *At Tender Stage*

- Waterville Sewerage Scheme
- Waterville Water Supply Scheme
- Milltown Sewerage Scheme
- Kilcummin Sewerage Scheme
- Barraduff Sewerage Scheme
- Firies Sewerage Scheme

***At Final Design Stage***

- Beaufort Sewerage Scheme
- North Ardfert Source Protection
- Kenmare Water Supply Scheme

***At Preliminary Design Stage***

- 28 Village Sewerage Schemes
- Tralee Sewerage Scheme (Nutrient Reduction)
- Listowel Sewerage Scheme (Nutrient Reduction)
- Central Regional Water Supply Scheme (Treatment)
- Central Regional Water Supply Scheme (Reservoir)
- Kenmare Main Drainage
- Listowel Town Water Supply Upgrade

These schemes will greatly strengthen the water services infrastructure in parts of Kerry which are under severe developmental and environmental pressures. They will facilitate increased sustainable economic activities and will provide a higher level of service for our customers.

The current WSIP also includes for improvements or expansion for the Killarney Wastewater Treatment Plant and Castleisland Sewerage Scheme.

**General Approach**

The Assessment of the strategic medium to long term needs of the County must take account of all relevant National and E.U. environmental, public health and water quality statutory requirements, as well as the provisions of various existing studies, such as the National Water Study, National Urban Waste Water Study, Rural Water Strategies.



The Assessment should be designed to meet the development needs identified in the County Development Plan and the deficiencies in the existing infrastructure. The settlement strategy of the County Development Plan envisages a settlement hierarchy of Regional towns, local towns and villages with an improved infrastructure being provided to facilitate development and to make villages, in particular, attractive settlements. The needs of the Town Councils must also be included in the Assessment.

Note that schemes which are included for construction in the current Water Services Investment Programme 2005- 2007 are not included in this draft Assessment, whereas schemes at planning stage are included.

The Water Services Department considers that the most pressing short terms needs of the county are to:

(a) meet our Statutory requirements to provide water that meets the standards of the Drinking Water Regulations

(b) improve the water supply and wastewater infrastructure in the areas which are under the greatest developmental and/or environmental pressures.

(c) Provide County Strategic Studies for the future development of the water and sewerage infrastructure

and that the key medium to long term needs are:

(c) the planning and provision of the Smearla dam

(d) a roll-out of the projects identified by the strategic studies

## Proposals - Water Supply Projects

**Item No.1** on the draft Assessment of Needs is Water Supply Quality Improvement Project. This is designed to deal with some small water schemes which can have problems in consistently complying with the Drinking Water Regulations. These are generally the smaller schemes, often those which depend on mountain streams that can vary greatly in quality due to climatic factors. Usually, these schemes have disinfection facilities only.

The Water Services Department has been tackling these problem schemes on a piecemeal basis under the Small Schemes Programme and our own resources. However, the limited funding available has meant that the rate of progress has been too slow. We have examined all the sub-standard schemes and prepared a costed schedule of minimum works which are necessary for the drinking water to meet the Regulations at all times. The Phase 1 works mainly include the provision of physical treatment and upgraded disinfection facilities as well as source protection. The Phase 2 works include new reservoirs, siteworks, mains replacements etc.



**Item No. 7** is a major strategic study of the medium and long term water supply demands, problems and future development of the water infrastructure of the county, and will provide the justification for future water schemes.

**Items Nos. 8, 9, 10 , 11,15, 16,17** are key water supply projects to serve areas where well identified problems exist. It is planned to amalgamate some smaller schemes into regional schemes that will have secure sources, particularly in West and South Kerry.

**Item Nos. 18 and 19** relate to the provision of the Smearla Dam which is needed to provide a long term secure high-quality water source for North Kerry, and is especially significant in view of the potential of the Ballylongford landbank for development.

## Proposals - Sewerage Scheme Projects

**Items Nos. 2, 3, 4, 5, & 6** are wastewater schemes and studies which are necessary to facilitate economic development and deal with environmental problems.

**Item No. 12** is a project to strategically examine how new and upgraded sewerage schemes for the 90 settlements identified in the County Development Plan should be procured and managed in the long term in the best interests of the county.

**Items Nos. 13 & 14** are sewerage schemes for villages which currently either have no sewerage infrastructure or which need upgraded facilities. These schemes will allow proper development and will deal with environmental problems.

The attached Draft Assessment of Needs contains 19 projects, some phased, with a total estimated cost of **€160.6 million**.

## Summary of Objectives of the Assessment of Needs

The objectives of the investment proposed in the Draft Assessment of Needs are to

- Provide a safe reliable supply of water to all our customers which will consistently meet the requirement of the Drinking Water Regulation by upgrading and consolidating the existing schemes.
- Expand the Water Supply network to meet the development needs of the county.
- Upgrade existing town sewerage schemes, where necessary, to meet development needs and to continue to protect the receiving waters.
- Upgrade existing village sewerage schemes and construct new village sewerage schemes to facilitate sustainable development and to eliminate environmental problems.
- Advance the Smearla Dam Project to support the potential development of North Kerry.



**September, 2006**

## Kerry Water Services Investment Programme

## Draft Assessment of Needs (2006)

| | SCHEMES | W/S | Est. Cost (€m) |
|---|---|---|---|
| 1 | Water Supply Quality Improvement Project (Annex 12 schemes) - | W | |
| | *Phase 1* | | 10.5 |
| | *Phase 2* | | 16.0 |
| 2 | NSS Hub Cluster Sewerage Schemes Project *( Abbeydorney, Ardfert, Castlemaine, Fieries, Fenit, Lixnaw, Kilflynn, Milltown, Spa)* | S | 18.0 |
| 3 | Kenmare Main Drainage | S | 6.3 |
| 4 | Killarney Main Drainage (including environs) - NSS scheme | S | 7.5 |
| 5 | Tralee Main Drainage Study (including environs) - NSS scheme | S | 5.5 |
| 6 | Listowel Main Drainage *(including environs, Dirha Cottages)* | S | 3.5 |
| 7 | Water Supply Schemes Strategic Study | W | 0.2 |
| 8 | Killorglin/ Mid-Kerry WS Improvement Scheme | W | 7.0 |
| 9 | Skellig Ring Water Supply Scheme | W | 5.5 |
| 10 | North Ardfert- Ballyheigue Water Supply Scheme | W | 1.5 |
| 11 | South Ardfert Water Supply Scheme | W | 1.0 |
| 12 | Wastewater and Sludge Project Strategic Study | S | 0.2 |
| 13 | Kerry Villages Waste Water Project - Phase 2 *(Annascaul, Ballyduff, Ballylongford, Castlegregory, Glenbeigh, Kilgarvan, Sneem, Tarbert)* | S | 12.0 |
| 14 | Village Sewerage Scheme Upgrades *(Baile an Fheirtéaraigh, Baile na nGall, Baile an Sceilg, Brosna, Causeway, Ceann Trá, An Clochán, Duagh, An Fheothanach, Gneeveguilla, Kilfenora, Knightstown, Knocknagoshel, Moyvane, An Mhuiríoch, Portmagee, )* | S | 16.0 |
| 15 | Castlegregory RWSS | W | 5.0 |
| 16 | An Ghaeltacht Thuaidh RWSS | W | 5.0 |
| 17 | An Ghaeltacht Theas RWSS | W | 4.0 |
| 18 | NE Kerry RWSS - Smearla Dam - Site Investigations | W | 0.9 |
| 19 | NE Kerry RWSS - Smearla Dam construction | W | 35.0 |
| | **Total programme** | | **160.6** |



***Note:***
*Schemes which are listed in the current Water Services Investment Programme 2005- 2007 are not included in the draft Assessment of Needs.*

# Kerry

## *Water Services Investment Programme 2007 - 2009*

| **Schemes at Construction** | **W/S** | **Est. Cost** |
|---|---|---|
| Caherciveen Water Supply Scheme | W | 5,550,000 |
| | | **5,550,000** |
| **Schemes to start 2007** | | |
| Lough Leane Catchment Sewerage Scheme (Kilcummin, Barraduff) (H) | S | 4,400,000 |
| North Ardfert Water Supply Scheme (Source Protection) | W | 360,000 |
| Waterville Water Supply & Sewerage Scheme | W/S | 18,000,000 |
| | | **22,760,000** |
| **Schemes to start 2008** | | |
| Kenmare Water Supply Scheme | W | 8,122,000 |
| Kerry Central Regional Water Supply Scheme (Reservoirs) (H) | W | 10,000,000 |
| Kerry Central Regional Water Supply Scheme (Treatment) | W | 6,900,000 |
| Kerry Sludge Management (H) | S | 4,620,000 |
| Kerry Villages Sewerage Schemes Phase 1 (Caherdaniel, Scartaglen, Finuge, Currow, Brandon, Boolteens, Beaufort, Asdee, Aughasala, The Glen, Glenflesk, Cromane, Chapeltown & Cashen) | S | 8,750,000 |
| Listowel Sewerage Scheme (Nutrient Reduction) | S | 220,000 |
| Listowel Town Water Supply Scheme (Upgrade) | W | 750,000 |
| Tralee Sewerage Scheme (Nutrient Reduction) (H) | S | 260,000 |
| | | **39,622,000** |
| **Schemes to start 2009** | | |
| Castleisland Sewerage Scheme Stage 2 | S | 5,700,000 |
| Kenmare Sewerage Scheme (Upgrade) | S | 6,300,000 |
| Kilorglin/Mid-Kerry Water Supply Improvement Scheme | W | 7,000,000 |
| Lough Leane Catchment Sewerage Scheme (Killarney) | S | 7,500,000 |
| | | **26,500,000** |
| **Serviced Land Initiative** | | |
| Ballyard Water Supply/ Sewerage Scheme | W/S | 250,000 |
| Rathass & Brewery Road Sewerage Scheme | S | 351,000 |
| | | **601,000** |
| **Schemes to Advance through Planning** | | |
| Skellig Ring Water Supply Scheme | W | 5,250,000 |
| Villages Sewerage Scheme Feasibility Study (Phase 1 Refurbishment) | S | 105,000 |
| Water Supply Schemes Strategic Study | W | 210,000 |
| NSS Hub Cluster Sewerage Scheme (Abbeydorney, Ardfert, Castlemaine, Fieries, Fenit, Lixnaw, Kilflynn, Milltown, Spa) (H) | S | 18,000,000 |
| Wastewater & Sludge Strategic Study | S | 200,000 |
| | | **23,765,000** |
| **Water Conservation Allocation** | | **2,809,000** |
| **Asset Management Study** | | **130,000** |
| **Programme Total** | | **121,737,000** |

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

# SITE SYNOPSIS

## SITE NAME : LOWER RIVER SHANNON

## SITE CODE : 002165

This very large site stretches along the Shannon valley from Killaloe to Loop Head/ Kerry Head, a distance of some 120 km. The site thus encompasses the Shannon, Feale, Mulkear and Fergus Estuaries, the freshwater lower reaches of the River Shannon (between Killaloe and Limerick), the freshwater stretches of much of the Feale and Mulkear catchments and the marine area between Loop Head and Kerry Head. The Shannon and Fergus flow through Carboniferous limestone as far as Foynes, but west of Foynes Namurian shales and flagstones predominate (except at Kerry Head, which is formed from Old Red Sandstone). The eastern sections of the Feale catchment flow through Namurian Rocks and the western stretches through Carboniferous Limestone. The Mulkear flows through Lower Palaeozoic Rocks in the upper reaches before passing through Namurian Rocks, followed by Lower Carboniferous Shales and Carboniferous Limestone. The Mulkear River itself, immediately north of Pallas Green, passes through an area of Rhyolites, Tuffs and Agglomerates. Rivers within the sub-catchment of the Feale include the Galey, Smearlagh, Oolagh, Allaughaun, Owveg, Clydagh, Caher, Breanagh and Glenacarney. Rivers within the sub-catchment of the Mulkear include the Killeenagarriff, Annagh, Newport, the Dead River, the Bilboa, Glashacloonaraveela, Gortnageragh and Cahernahallia.



The site is a candidate SAC selected for lagoons and alluvial wet woodlands, both habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for floating river vegetation, *Molinia* meadows, estuaries, tidal mudflats, Atlantic salt meadows, Mediterranean salt meadows, *Salicornia* mudflats, sand banks, perennial vegetation of stony banks, sea cliffs, reefs and large shallow inlets and bays 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 – Bottle-nosed Dolphin, Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Atlantic Salmon and Otter.

The Shannon and Fergus Estuaries form the largest estuarine complex in Ireland. They form a unit stretching from the upper tidal limits of the Shannon and Fergus Rivers to the mouth of the Shannon estuary (considered to be a line across the narrow strait between Kilcredaun Point and Kilconly Point). Within this main unit there are several tributaries with their own 'sub-estuaries' e.g. the Deel River, Mulkear River, and Maigue River. To the west of Foynes, a number of small estuaries form indentations in the predominantly hard coastline, namely Poulnasherry Bay, Ballylongford Bay, Clonderalaw Bay and the Feale or Cashen River Estuary.

Both the Fergus and inner Shannon estuaries feature vast expanses of intertidal mudflats, often fringed with saltmarsh vegetation. The smaller estuaries also feature mudflats, but have their own unique characteristics, e.g. Poulnasherry Bay is stony and unusually rich in species and biotopes. Plant species are typically scarce on the mudflats, although there are some Eel-grass beds (*Zostera* spp.) and patches of green

algae (e.g. *Ulva* sp. and *Enteromorpha* sp.). The main macro-invertebrate community, which has been noted from the inner Shannon and Fergus estuaries, is a *Macoma-Scrobicularia-Nereis* community.

In the transition zone between mudflats and saltmarsh, specialised colonisers of mud predominate: swards of Common Cord-grass (*Spartina anglica*) frequently occur in the upper parts of the estuaries. Less common are swards of Glasswort (*Salicornia europaea* agg.). In the innermost parts of the estuaries, the tidal channels or creeks are fringed with species such as Common Reed (*Phragmites australis*) and Club-rushes (*Scirpus maritimus, S. tabernaemontani* and *S. triquetrus*). In addition to the nationally rare Triangular Club-rush (*Scirpus triquetrus*), two scarce species are found in some of these creeks (e.g. Ballinacurra Creek): Lesser Bulrush (*Typha angustifolia*) and Summer Snowflake (*Leucojum aestivum*).

Saltmarsh vegetation frequently fringes the mudflats. Over twenty areas of estuarine saltmarsh have been identified within the site, the most important of which are around the Fergus Estuary and at Ringmoylan Quay. The dominant type of saltmarsh present is Atlantic salt meadow occurring over mud. Characteristic species occurring include Common Saltmarsh Grass (*Puccinellia maritima*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Sea-milkwort (*Glaux maritima*), Sea Plantain (*Plantago maritima*), Red Fescue (*Festuca rubra*), Creeping Bent (*Agrostis stolonifera*), Saltmarsh Rush (*Juncus gerardi*), Long-bracted Sedge (*Carex extensa*), Lesser Sea-spurrey (*Spergularia marina*) and Sea Arrowgrass (*Triglochin maritima*). Areas of Mediterranean salt meadows, characterised by clumps of Sea Rush (*Juncus maritimus*) occur occasionally. Two scarce species are found on saltmarshes in the vicinity of the Fergus Estuary: a type of robust Saltmarsh-grass (*Puccinellia foucaudii*), sometimes placed within the compass of Common Saltmarsh-grass (*Puccinellia maritima*) and Hard-grass (*Parapholis strigosa*).



Saltmarsh vegetation also occurs around a number of lagoons within the site. The two which have been surveyed as part of a National Inventory of Lagoons are Shannon Airport Lagoon and Cloonconeen Pool. Cloonconeen Pool (4-5 ha) is a natural sedimentary lagoon impounded by a low cobble barrier. Seawater enters by percolation through the barrier and by overwash. This lagoon represents a type which may be unique to Ireland since the substrate is composed almost entirely of peat. The adjacent shore features one of the best examples of a drowned forest in Ireland. Aquatic vegetation in the lagoon includes typical species such as Beaked Tasselweed (*Ruppia maritima*) and green algae (*Cladophora* sp.). The fauna is not diverse, but is typical of a high salinity lagoon and includes six lagoon specialists (*Hydrobia ventrosa, Cerastoderma glaucum, Lekanesphaera hookeri, Palaemonetes varians, Sigara stagnalis* and *Enochrus bicolor*). In contrast, Shannon Airport Lagoon (2 ha) is an artificial saline lake with an artificial barrier and sluiced outlet. However, it supports two Red Data Book species of Stonewort (*Chara canescens* and *Chara cf. connivens*).

Most of the site west of Kilcredaun Point/Kilconly Point is bounded by high rocky sea cliffs. The cliffs in the outer part of the site are sparsely vegetated with lichens, Red Fescue, Sea Beet (*Beta vulgaris*), Sea Campion (*Silene maritima*), Thrift and Plantains (*Plantago* spp.). A rare endemic Sea Lavender (*Limonium recurvum* subsp.

*pseudotranswallinum*) occurs on cliffs near Loop Head. Cliff-top vegetation usually consists of either grassland or maritime heath. The boulder clay cliffs further up the estuary tend to be more densely vegetated, with swards of Red Fescue and species such as Kidney Vetch (*Anthyllis vulneraria*) and Bird's-foot Trefoil ( *Lotus corniculatus*).

The site supports an excellent example of a large shallow inlet and bay. Littoral sediment communities in the mouth of the Shannon Estuary occur in areas that are exposed to wave action and also in areas extremely sheltered from wave action. Characteristically, exposed sediment communities are composed of coarse sand and have a sparse fauna. Species richness increases as conditions become more sheltered. All shores in the site have a zone of sand hoppers at the top and below this each of the shores has different characteristic species giving a range of different shore types in the pcSAC.

The intertidal reefs in the Shannon Estuary are exposed or moderately exposed to wave action and subject to moderate tidal streams. Known sites are steeply sloping and show a good zonation down the shore. Well developed lichen zones and littoral reef communities offering a high species richness in the sublittoral fringe and strong populations of *Paracentrotus lividus* are found. The communities found are tolerant to sand scour and tidal streams. The infralittoral reefs range from sloping platforms with some vertical steps to ridged bedrock with gullies of sand between the ridges to ridged bedrock with boulders or a mixture of cobbles, gravel and sand. Kelp is very common to about 18m. Below this it becomes rare and the community is characterised by coralline crusts and red foliose algae.



Other coastal habitats that occur within the site include the following:

- stony beaches and bedrock shores - these shores support a typical zonation of seaweeds (*Fucus* spp., *Ascophyllum nodosum* and kelps).
- shingle beaches - the more stable areas of shingle support characteristic species such as Sea Beet, Sea Mayweed (*Matricaria maritima*), Sea Campion and Curled Dock (*Rumex crispus*).
- Sandbanks which are slightly covered by sea water at all times – there is a known occurrence of sand/gravel beds in the area from Kerry Head to Beal Head.
- sand dunes - a small area of sand dunes occurs at Beal Point. The dominant species is Marram Grass (*Ammophila arenaria*).

Flowing into the estuaries are a number of tidal rivers.

Freshwater rivers have been included in the site, most notably the Feale and Mulkear catchments, the Shannon from Killaloe to Limerick (along with some of its tributaries, including a short stretch of the Kilmastulla River), the Fergus up as far as Ennis, and the Cloon River. These systems are very different in character: the Shannon being broad, generally slow-flowing and naturally eutrophic; the Fergus being smaller and alkaline; while the narrow, fast-flowing Cloon is acid in nature. The Feale and Mulkear catchments exhibit all the aspects of a river from source to mouth. Semi-natural habitats, such as wet grassland, wet woodland and marsh occur by the rivers, however, improved grassland is most common. One grassland type of particular

conservation significance, *Molinia* meadows, occurs in several parts of the site and the examples at Worldsend on the River Shannon are especially noteworthy. Here are found areas of wet meadow dominated by rushes and sedges and supporting a diverse and species-rich vegetation, including such uncommon species as Blue-eyed Grass (*Sisyrinchium bermudiana*) and Pale Sedge (*Carex pallescens*).

Floating river vegetation characterised by species of Water-crowfoot (*Ranunculus* spp.), Pondweeds (*Potamogeton* spp.) and the moss *Fontinalius antipyretica* are present throughout the major river systems within the site. The rivers contain an interesting bryoflora with *Schistidium alpicola* var. *alpicola* recorded from in-stream boulders on the Bilboa, new to county Limerick.

Alluvial woodland occurs on the banks of the Shannon and on islands in the vicinity of the University of Limerick. The woodland is up to 50m wide on the banks and somewhat wider on the largest island. The most prominent woodland type is gallery woodland where White Willow (*Salix alba*) dominates the tree layer with occasional Alder (*Alnus glutinosa*). The shrub layer consists of various willow species with sally (*Salix cinerea* ssp. *oleifolia*) and what appear to be hybrids of *S. alba* x *S. viminalis.* The herbaceous layer consists of tall perennial herbs. A fringe of Bulrush (*Typha* sp.) occurs on the riverside of the woodland. On slightly higher ground above the wet woodland and on the raised embankment remnants of mixed oak-ash-alder woodland occur. These are poorly developed and contain numerous exotic species but locally there are signs that it is invading open grassland. Alder is the principal tree species with occasional Oak (*Quercus robur*), Elm (*Ulmus glabra, U. procera*), Hazel (*Corylus avellana*), Hawthorn (*Crataegus monogyna*) and the shrubs Guelder-rose (*Viburnum opulus*) and willows. The ground flora is species-rich.



Woodland is infrequent within the site, however Cahiracon Wood contains a strip of old Oak woodland. Sessile Oak (*Quercus petraea*) forms the canopy, with an understorey of Hazel and Holly (*Ilex aquifolium*). Great Wood-rush (*Luzula sylvatica*) dominates the ground flora. Less common species present include Great Horsetail (*Equisetum telmeteia*) and Pendulous Sedge (*Carex pendula*).

In the low hills to the south of the Slievefelim mountains, the Cahernahallia River cuts a valley through the Upper Silurian rocks. For approximately 2km south of Cappagh Bridge at Knockanavar, the valley sides are wooded. The woodland consists of Birch (*Betula* spp.), Hazel, Oak, Rowan (*Sorbus aucuparia*), some Ash (*Fraxinus excelsior*) and Willow (*Salix* spp.). Most of the valley is not grazed by stock, and as a result the trees are regenerating well. The ground flora feature prominent Greater wood-rush and Bilberry (*Vaccinium myrtillus*) with a typical range of woodland herbs. Where there is more light available, Bracken (*Pteridium aquilinum*) features.

The valley sides of the Bilboa and Gortnageragh Rivers, on higher ground north east of Cappamore, support patches of semi-natural broadleaf woodland dominated by Ash, Hazel, Oak and Birch. There is a good scrub layer with Hawthorn, Willow, Holly and Blackthorn (*Prunus spinosa*) common. The herb layer in these woodlands is often open with a typically rich mixture of woodland herbs and ferns. Moss species diversity is high. The woodlands are ungrazed. The hazel is actively coppiced in places.

There is a small area of actively regenerating cut away raised bog at Ballyrorheen. It is situated approx. 5km north west of Cappamore Co. Limerick. The bog contains some wet areas with good moss (*Sphagnum*) cover. Species of particular interest include the Cranberry (*Vaccinium oxycoccos*) and the White Sedge (*Carex curta*) along with two other regionally rare mosses including *S. fimbriatum*. The site is being invaded by Birch (*Betula pubescens*) scrub woodland. Both commercial forestry and the spread of rhododendron has greatly reduced the overall value of the site.

A number of plant species that are Irish Red Data Book species occur within the site - several are protected under the Flora (Protection) Order, 1999:

- Triangular Club-rush (*Scirpus triquetrus*) - in Ireland this protected species is only found in the Shannon Estuary, where it borders creeks in the inner estuary.
- Opposite-leaved Pondweed (*Groenlandia densa*) - this protected pondweed is found in the Shannon where it passes through Limerick City.
- Meadow Barley (*Hordeum secalinum*) - this protected species is abundant in saltmarshes at Ringmoylan and Mantlehill.
- Hairy Violet (*Viola hirta*) - this protected violet occurs in the Askeaton/Foynes area.
- Golden Dock (*Rumex maritimus*) - noted as occurring in the River Fergus Estuary.
- Bearded Stonewort (*Chara canescens*) - a brackish water specialist found in Shannon Airport lagoon.
- Convergent Stonewort (*Chara connivens*) - presence in Shannon Airport Lagoon to be confirmed.



Overall, the Shannon and Fergus Estuaries support the largest numbers of wintering waterfowl in Ireland. The highest count in 1995-96 was 51,423 while in 1994-95 it was 62,701. Species listed on Annex I of the E.U. Birds Directive which contributed to these totals include: Great Northern Diver (3; 1994/95), Whooper Swan (201; 1995/96), Pale-bellied Brent Goose (246; 1995/96), Golden Plover (11,067; 1994/95) and Bar-tailed Godwit ( 476; 1995/96). In the past, three separate flocks of Greenland White-fronted Goose were regularly found but none were seen in 1993/94.

Other wintering waders and wildfowl present include Greylag Goose (216; 1995/96), Shelduck (1,060; 1995/96), Wigeon (5,976; 1995/96); Teal (2,319; 1995-96); Mallard (528; 1995/96), Pintail (45; 1995/96), Shoveler (84; 1995/96), Tufted Duck (272; 1995/96), Scaup (121; 1995/96), Ringed Plover (240; 1995/96), Grey Plover (750; 1995/96), Lapwing (24,581; 1995/96), Knot (800; 1995/96), Dunlin (20,100; 1995/96), Snipe (719, 1995/96), Black-tailed Godwit (1062; 1995/96), Curlew (1504; 1995/96), Redshank (3228; 1995/96), Greenshank (36; 1995/96) and Turnstone (107; 1995/96). A number of wintering gulls are also present, including Black-headed Gull (2,216; 1995/96), Common Gull (366; 1995/96) and Lesser Black-backed Gull (100; 1994/95). This is the most important coastal site in Ireland for a number of the waders including Lapwing, Dunlin, Snipe and Redshank. It also provides an important staging ground for species such as Black-tailed Godwit and Greenshank.

A number of species listed on Annex I of the E.U. Birds Directive breed within the site. These include Peregine Falcon (2-3 pairs), Sandwich Tern (34 pairs on Rat Island, 1995), Common Tern (15 pairs: 2 on Sturamus Island and 13 on Rat Island, 1995), Chough (14-41 pairs, 1992) and Kingfisher. Other breeding birds of note include Kittiwake (690 pairs at Loop Head, 1987) and Guillemot (4010 individuals at Loop Head, 1987)

There is a resident population of Bottle-nosed Dolphin in the Shannon Estuary consisting of at least 56-68 animals (1996). This is the only known resident population of this E.U. Habitats Directive Annex II species in Ireland. Otter, a species also listed on Annex II of this directive, is commonly found on the site.

Five species of fish listed on Annex II of the E.U. Habitats Directive are found within the site. These are Sea Lamprey (*Petromyzon marinus*), Brook Lamprey (*Lampetra planeri*), River Lamprey (*Lampetra fluviatilis*), Twaite Shad (*Allosa fallax fallax*) and Salmon (*Salmo salar*). The three lampreys and Salmon have all been observed spawning in the lower Shannon or its tributaries. The Fergus is important in its lower reaches for spring salmon while the Mulkear catchment excels as a grilse fishery though spring fish are caught on the actual Mulkear River. The Feale is important for both types. Twaite Shad is not thought to spawn within the site. There are few other river systems in Ireland which contain all three species of Lamprey.

Two additional fish of note, listed in the Irish Red Data Book, also occur, namely Smelt (*Osmerus eperlanus*) and Pollan (*Coregonus autumnalis pollan*). Only the former has been observed spawning in the Shannon.

Freshwater Pearl-mussel (*Margaritifera margaritifera*), a species listed on Annex II of the E.U. Habitats Directive, occurs abundantly in parts of the Cloon River.

There is a wide range of landuses within the site. The most common use of the terrestrial parts is grazing by cattle and some areas have been damaged through over-grazing and poaching. Much of the land adjacent to the rivers and estuaries has been improved or reclaimed and is protected by embankments (especially along the Fergus Estuary). Further, reclamation continues to pose a threat as do flood relief works (e.g. dredging of rivers). Gravel extraction poses a major threat on the Feale.

In the past, Cord-grass (*Spartina* sp.) was planted to assist in land reclamation. This has spread widely, and may oust less vigorous colonisers of mud and may also reduce the area of mudflat available to feeding birds.

Domestic and industrial wastes are discharged into the Shannon, but water quality is generally satisfactory - except in the upper estuary, reflecting the sewage load from Limerick City. Analyses for trace metals suggest a relatively clean estuary with no influences by industrial discharges apparent. Further industrial development along the Shannon and water polluting operations are potential threats.

Fishing is a main tourist attraction on the Shannon and there are a large number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. The River Feale is a designated Salmonid Water under the

E.U. Freshwater Fish Directive. Other uses of the site include commercial angling, oyster farming, boating (including dolphin-watching trips) and shooting. Some of these may pose threats to the birds and dolphins through disturbance. Specific threats to the dolphins include underwater acoustic disturbance, entanglement in fishing gear and collisions with fast moving craft.

This site is of great ecological interest as it contains a high number of habitats and species listed on Annexes I and II of the E.U. Habitats Directive, including the priority habitat lagoon, the only known resident population of Bottle-nosed Dolphin in Ireland and all three Irish lamprey species. A good number of Red Data Book species are also present, perhaps most notably the thriving populations of Triangular Club-rush. A number of species listed on Annex I of the E.U. Birds Directive are also present, either wintering or breeding. Indeed, the Shannon and Fergus Estuaries form the largest estuarine complex in Ireland and support more wintering wildfowl and waders than any other site in the country. Most of the estuarine part of the site has been designated a Special Protection Area (SPA), under the E.U. Birds Directive, primarily to protect the large numbers of migratory birds present in winter.



17.05.2005

An Roinn Seirbhísí Uisce
Comhairle Contae Chiarraí,
Ráth Teas,
Trá Lí, Co. Chiarraí.

Water Services
Kerry County Council,
Rathass,
Tralee, Co. Kerry.

COMHAIRLE CONTAE CHIARRAÍ
KERRY COUNTY COUNCIL

Guthán | Tel 066 7183503 Faics | Fax 066 7181639 Rphost | Email waterservices@kerrycoco.ie Suíomh | Web www.kerrycoco.ie

Mr. Eamonn Meskell,
Regional Manager,
National Parks and Wildlife Services,
Department of the Environment, Heritage and Local Government,
Muckross House,
Killarney,
Co. Kerry.

Dear Mr. Meskell,
In accordance with the Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007), Kerry County Council intend to apply to the Environmental Protection Agency for a Wastewater Discharge Certificate for the wastewater networks serving the following agglomerations in County Kerry.
In each case the agglomerations include the village and the developed surrounding areas. The wastewater network also includes the relevant wastewater treatment plant.

The receiving waters for the wastewater network discharges and the locations of the respective wastewater treatment plants are shown in the following table.



| Agglomeration | Receiving Waters | WWTP Location |
|---|---|---|
| Anascaul | Owenascaul River | Gurteen (Ballynacourty) |
| Ballydavid | Smerwick harbour | Murreagh (Ed Kilmalkedar) |
| Brosna | Clydagh River | Brosna West |
| Ballyferriter | Smerwick harbour via Unnamed local River | Reask |
| Castlemaine | River Maine | Blackhill |
| Causeway | Unnamed stream flowing to Crompaun River flowing to Cashen River 9km downstream. | Dromkeen West |
| Cloghane | Sea | Cloghane (ed Cloghane) |
| Duagh | Feale river via Glasha River | Foildarrig |
| Dungeagan/Ballinskelligs | Ballinskelligs Harbour | Ballinskelligs |
| Farranfore | Two streams within the village | Dromore (ed Molahiffe) |
| Feohanagh | Smerwick Harbour via Feohanagh River. | Feohanagh |
| Gneeveguilla | Quagmire river via a local stream via a stone filled ditch. | Gneevguilla |
| Kilfenora | Tralee Bay. | Ballymakegoge |
| Kilflynn | Shannow River. | Castletown |
| Kilgarvan | Roughty River. | Gortnaboul |
| Knocknagoshel | Owveg River via Unnamed Stream. | Knocknagoshel West |
| Moyvane | Galey River via Moyvane River. | Moyvane North |
| Murreagh | Sea. | Gallarus |
| Portmagee | Portmagee channel. | Doory (ed Portmagee) |
| Rossbeigh | Dingle Bay via Rossbehy Creek. | Rossbehy |
| Ventry | Sea | Cloghane (ed Glin) |

Kerry County Council has been requested by the EPA to correspond with the National Parks and Wildlife Services in relation to a determination as to the likelihood of discharges from the wastewater works having a significant effect on a European site. The Council would be obliged if you could advise it as to the likelihood of the discharges having a significant effect on a European site and if so, please advise as to any appropriate assessment of the implications for the designated site that must be carried out.

Yours sincerely,

Charles O'Leary.

Copy to:
Ms Mary Boothman,
Devlopment Applications Unit,
Department of the Environment, Heritage and local Government,
Dún Séine,
Harcourt Lane,
Dublin 2.

**Kerry County Council**

# COUNTY KERRY
# WASTEWATER & SLUDGE PROJECT

# STRATEGY FOR DELIVERY

## Brief for Engagement of Consultant/ Consortium

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Version 2.5 – August 2006

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# Chapter 1 – Project Overview

## 1.0 General

The 2003-2009 County Kerry Development Plan introduces the concept of the Settlement Strategy as the appropriate methodology to provide for the strategic development of towns, villages and settlements throughout the County as well as introducing an overall strategy for maintaining and strengthening rural areas. The County Development Plan proposes that investment on infrastructure and services should be directed to the centres identified within the Settlement Strategy and that the objectives for the provision of housing and infrastructure should be determined in accordance with the settlement hierarchy.

The Development Plan identifies 90 towns, villages and development nodes, grouped in accordance with the size of the settlement, location, function and interaction with other settlements and communities, as follows:

- 3 Regional Centres
- 7 District Centres
- 7 Towns
- 28 Small Villages
- 45 Small Villages/ Development Nodes

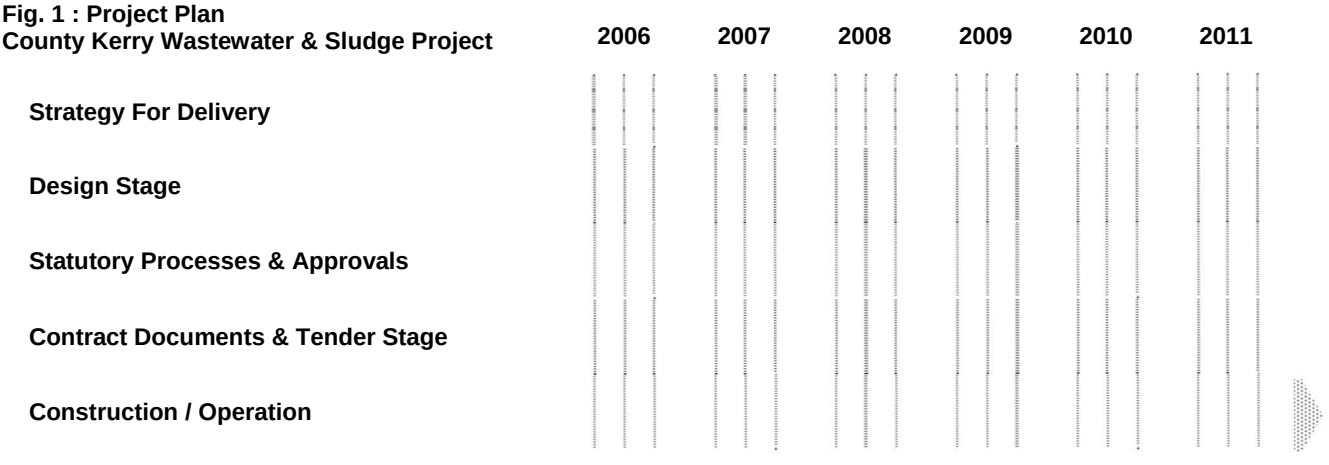
The Water Services Capital Unit of Kerry County Council is required to deliver the phased delivery of new and upgraded wastewater infrastructure at the above 90 towns, villages and development nodes and it is proposed to address the procurement, management and long-term operation of the required infrastructure under the *County Kerry Wastewater & Sludge Project*.



The current Brief, concerning the **Strategy for Delivery** stage of the *County Kerry Wastewater & Sludge Project*, sets out the scope for the formulation of an overall County strategy that will ensure that the required wastewater infrastructure is planned, financed, procured, delivered and subsequently operated through the most cost effective and appropriate methods and structures with specific examination of the potential of project bundling and Public Private Partnerships to achieve value for money and efficiency in project delivery.

The Strategy for Delivery may be seen as the first stage of the 5-Stage project as indicated on the Project Plan on Fig 1.

**Fig. 1 : Project Plan**
**County Kerry Wastewater & Sludge Project**



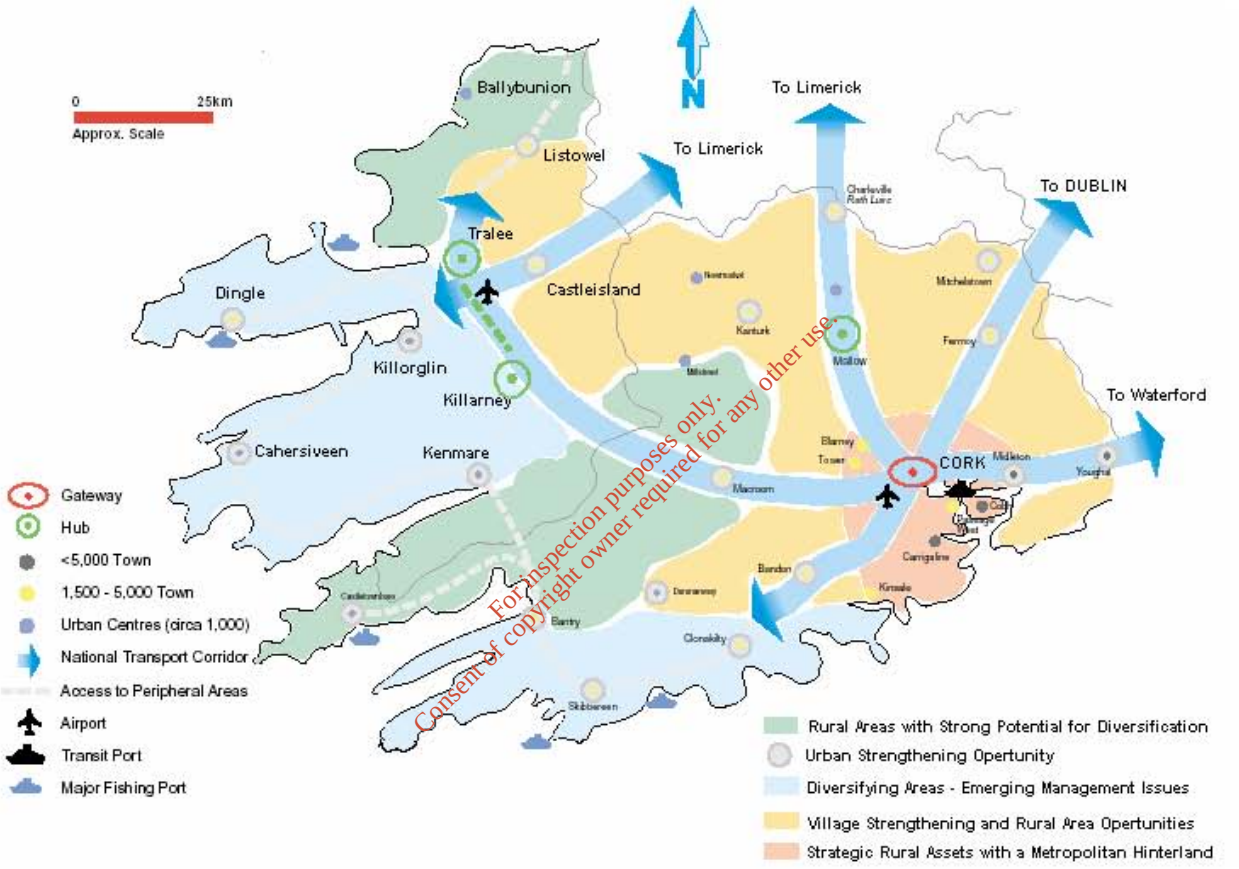

The Strategy for Delivery shall be formulated within an overall design horizon of at least 20 years and shall be subject to review on a 5-year basis.

# Chapter 2 – Background

## 2.0 County Kerry Development Plan 2003-2009

The 2003-2009 Kerry County Development Plan notes that the population of the County increased by 5.1% to 132,527 in the 1996 - 2002 Census period and presents estimates of the population of the County in 2021 at 167,000 persons. This estimate includes allowances for the growth that is expected to arise from the proposals formulated by the National Spatial Strategy in relation to the distribution of some of Dublin's growth to other regions in Ireland.

**Fig. 2 : National Spatial Strategy**






As part of the preparation of the 2003 – 2009 County Development Plan, Kerry County Council completed a series of strategic planning studies covering each of the 5 Electoral Areas within the County. The policies and objectives of the County Development Plan have been based on these studies and the following objectives are included in the County Development Plan:

- *Strengthen towns and villages throughout the County, improve the services and infrastructure provided within them and make them more attractive places in which to live.*

- *Promote the development of the Tralee - Killarney corridor as a means of strengthening the economic base of the County and acting as a focus for inward investment.*

## 2.1 County Kerry - Settlement Strategy

The 2003 – 2009 Development Plan notes that the 2002 Census of population indicates that large population centres and their immediate hinterlands are generally increasing in population while many of the villages in rural areas are in decline.

The Plan presents the concept of a Settlement Strategy as the methodology to address the strategic development of towns, villages and settlements throughout the County as well as providing an overall strategy for maintaining and strengthening rural areas. The Settlement Strategy places towns and villages into different categories related to their function, size and strategic potential.

Among the Objectives of the Settlement Strategy are:

- To ensure that development throughout the County is carried out in accordance with the proper planning and sustainable development of the area.
- To promote the development of the Tralee to Killarney development corridor in order to provide the impetus for the future development of the County.
- To strengthen towns and villages throughout the County, improve the services and infrastructure provided within them and make them more attractive places in which to live.
- To provide for the needs of local people to live in their own area and people wishing to establish their primary place of residence in rural areas in order to maintain vibrant rural communities.
- To make local area plans for identified settlements throughout the County that will promote these objectives.
- To provide adequate holiday home accommodation within or adjacent to existing settlements in order to promote sustainable tourism within the County while respecting the existing culture and character of the area.



## 2.2 Towns & Villages - Settlement Strategy

The 2003-2009 County Development Plan identifies a total of 90 towns, villages and settlements and groups these into a settlement hierarchy of 5 categories that are defined in terms of the size of the settlement, location, function and interaction with other settlements and communities. The 5 categories are listed as follows:

- 3 Regional Centres
- 7 District Centres
- 7 Towns
- 28 Small Villages
- 45 Small Villages/ Development Nodes

The Development Plan states that:

> ***"…investment in infrastructure and services will be directed to the centres identified within the hierarchy and the objectives for the provision of housing, water and sewerage and other services and infrastructure should be determined in accordance with this hierarchy….."***

A full list of the 90 towns, villages and settlements, presented in the 5 categories as identified by the Development Plan, are listed on **Table 1**.

**Table 1 – County Development Plan Settlement Hierarchy - (90 Settlements)**

| Settlement Hierarchy | Definition | Settlements | | |
|---|---|---|---|---|
| **3 Regional Centres** | Settlements with strategic location, populations in excess of 3,500 with good social & economic infrastructure | Killarney (Incl. Fossa)<br>Listowel<br>Tralee | | |
| **7 District Centres** | Large settlements that provide a range of services to the towns, villages and rural areas in their catchment, populations in excess of 1,000 | Ballybunion<br>Cahersiveen<br>Castleisland<br>Dingle<br>Kenmare<br>Killorglin<br>Rathmore | | |
| **7 Towns** | Towns provide for daily and weekly needs of inhabitants and a range of employment opportunities and community services appropriate to their size and function. | Ballyheigue<br>Castlegregory<br>Castlemaine<br>Farranfore<br>Milltown<br>Sneem<br>Waterville | | |
| **28 Small Villages** | Villages provide for convenience and daily needs and small scale employment opportunities and local community services for residents and surrounding rural population | Abbeydorney<br>Annascaul<br>Ardfert<br>Ballyduff<br>Ballyferriter<br>Ballylongford<br>Barraduff<br>Beaufort<br>Brosna | Caherdaniel<br>Causeway<br>Currow<br>Duagh<br>Fenit<br>Firies<br>Glenbeigh<br>Gneeveguilla<br>Kilcummin | Kilflynn<br>Kilgarvan<br>Knightstown<br>Knocknagashel<br>Lixnaw<br>Moyvane<br>Portmagee<br>Scartaglen<br>Tarbert<br>Ventry |
| **45 Small Villages /Development Nodes** | Localities with a scattered development pattern providing local community facilities. | Asdee<br>Aughacashla<br>Ballydavid<br>Ballyfinnane<br>Ballyhar<br>Ballymac/Clogher<br>Bunane<br>Boolteens/ Keel<br>Brandon<br>Camp<br>Cashen<br>Castlecove<br>Chapeltown<br>Cloghane | Cordal<br>Cromane<br>Currans<br>Dungegan/Ballinskelligs<br>Dunquin<br>Faha/Listry<br>Fahamore<br>Feoghanagh<br>Finuge<br>Glen<br>Glencar<br>Glenflesk<br>Inch<br>Kells<br>Kilfenora | Kilgobnet<br>Kilmoyley<br>Knockanure<br>Lauragh<br>Lispole<br>Lisselton<br>Lyrecrompane<br>Mastergeehy<br>Murreagh<br>Reenard<br>Rossbeigh<br>Stradbally<br>Tahilla<br>Templenoe<br>The Spa<br>Tuosist |

## 2.3 Settlement Hierarchy – Objectives

The County Development Plan defines the major objectives of the Settlement Strategy in terms of the Settlement Hierarchy as follows:

### 2.3.1 Regional Centres

- Accommodate and promote the development of linkages and infrastructure servicing these towns.
- Accommodate and promote proper planning and sustainable development in their environs
- Promote the role of these towns as economic, social and cultural centres for the surrounding areas
- Prepare Local Area Plans for the environs of Tralee, Killarney and Listowel.

### 2.3.2 District Centres/Towns

- Promote growth in these established towns to allow for balanced and co-ordinated development throughout the county
- Promote linkages between these towns and the Tralee/Killarney Corridor in order to distribute the influence of this corridor throughout the County
- Promote the strengthening of these towns as employment and service centres and as attractive residential centres.
- Facilitate development which will promote the social, cultural and economic development of these towns.
- Provide and facilitate the range of public services necessary to achieve growth and encourage these towns as district centres.
- Prepare Local Area Plans for these towns and zone sufficient lands for their residential, commercial, economic and social development in accordance with the recommendations of the Land Use and Transportation Studies carried out for the area.

### 2.3.3 Villages/ Small Villages/ Development Nodes

- Promote the strengthening of existing rural villages as a focus for the development of rural areas.
- Prepare plans for these villages identifying strategic objectives for their overall development within defined development limits.

## 2.4 County Kerry Water Services Investment Programme 2004 - 2006

The Capital Works Programme for Water Services in County Kerry is identified by Kerry County Council in the Assessment of Needs and is subsequently assessed and included by the DoEHLG in the Water Services Investment Programme (WSIP).

**Table 2** lists the wastewater projects that have been included by the DoEHLG in the Kerry County Council Water Services Investment Programme 2004 –2006:

**Table 2 : 30 Locations (WSIP 2004 – 2006 )**

| Project | | Location | Proposed Works |
|---|---|---|---|
| **Lough Leane Catchment Sewerage Schemes** 3 Projects | | Killarney/Fossa | Upgrade/Expansion |
| | | Barraduff | New Scheme |
| | | Kilcummin | New Scheme |
| **Town Wastewater Projects** | | Waterville | New Scheme |
| | | Castleisland | Upgrade/Expansion |
| | | Kenmare | Upgrade/Expansion |
| 24 Village Projects | **Kerry Villages Sewerage Scheme** (14 Projects) | Asdee | New Scheme |
| | | Aughasla | New Scheme |
| | | Beaufort | New Scheme |
| | | Boolteens/ Keel | New Scheme |
| | | Brandon | New Scheme |
| | | Caherdaniel | New Scheme |
| | | Cashen | New Scheme |
| | | Chapeltown | New Scheme |
| | | Cromane | New Scheme |
| | | Currow | New Scheme |
| | | Finuge | New Scheme |
| | | Glenflesk | New Scheme |
| | | Scartaglin | New Scheme |
| | | The Glen | New Scheme |
| | **Village Sewerage Scheme Refurbishment** Phase 1 – 10 Projects | Ardfert | Upgrade/Expansion |
| | | Ballyduff | Upgrade/Expansion |
| | | Ballylongford | Upgrade/Expansion |
| | | Fenit | Upgrade/Expansion |
| | | Firies | Upgrade/Expansion |
| | | Glenbeigh | Upgrade/Expansion |
| | | Lixnaw | Upgrade/Expansion |
| | | Milltown | Upgrade/Expansion |
| | | Sneem | Upgrade/Expansion |
| | | Tarbert | Upgrade/Expansion |
| **Kerry Sludge Management Plan** | | All Sludges | Sludge Treatment & Disposal |

## 2.5 Kerry County Council Water Services – Assessment of Needs 2003

Wastewater projects that have been included by the DoEHLG in the WSIP 2004 – 2006 have been selected from the list of projects that was identified by Kerry County Council in the 2003 Assessment of Needs. **Table 3** lists the Wastewater projects that have been identified in the 2003 Assessment of Needs and that await inclusion by the DoEHLG in future WSIPs:

**Table 3 : 36 Village Locations - (Assessment of Needs 2003)**

| | Project | Location | Proposed Works |
|---|---|---|---|
| 23 Village Projects | **Village Sewerage Scheme Refurbishment** Phase 2 : 8 Projects | Anascaul | Upgrade/Expansion |
| | | Ballyferriter | |
| | | Castlegregory | |
| | | Castlemaine | |
| | | Causeway | |
| | | Dungeagan / Ballinskelligs | |
| | | Knightstown | |
| | | Moyvane | |
| | **Village Sewerage Scheme Refurbishment** Phase 3 : 15 Projects | Abbeydorney | Upgrade/Expansion |
| | | Ballydavid | |
| | | Brosna | |
| | | Cloghane | |
| | | Duagh | |
| | | Feohanagh | |
| | | Gneeveguilla | |
| | | Kilfenora | |
| | | Kilflynn | |
| | | Kilgarvan | |
| | | Knocknagashel | |
| | | Murreagh | |
| | | Portmagee | |
| | | Rossbeigh | |
| | | Ventry | |
| 13 Village Projects | **Village Sewerage Schemes Programme No. 2** 13 Projects | Camp | New Schemes |
| | | Castlecove | |
| | | Currans | |
| | | Dunquin | |
| | | Inch | |
| | | Kells | |
| | | Knockanure | |
| | | Lauragh | |
| | | Lisselton | |
| | | Lispole | |
| | | Templenoe | |
| | | Tousist | |
| | | Spa | |

## 2.6 Kerry County Council - Operational Wastewater Projects

Kerry County Council currently operate 12 modern wastewater treatment plants as listed on **Table 4**:

**Table 4 : 12 Locations (Existing Wastewater Plants )**

| Project | Year Constructed/ Upgraded | Design Capacity P.E. |
|---|---|---|
| Ballybunnion | 1993 | 8,180 |
| Ballyheigue | 2003 | 4,234 |
| Caherciveen | 1995 | 5,000 |
| Castleisland * | 1992 | 6,000 |
| Dingle | 1995 | 8,600 |
| Farranfore | 2004 | 500 |
| Kenmare * | 1995 | 3,500 |
| Killarney* | 1997 | 42,000 |
| Killorglin | 1995 | 5,000 |
| Listowel | 1987 | 12,500 |
| Rathmore | 2002 | 1,750 |
| Tralee | 1998 | 42,000 |

**** Also listed in Table 1 as Projects requiring Upgrade/Expansion***



## 2.7 County Kerry Sludge Management Plan

In 1993, the Department of Environment, Heritage & Local Government published a Strategy Study on Options for the Treatment and Disposal of Sewage Sludge in Ireland. The study identified 48 sludge management regions nationally, within which a hub-centre for sludge treatment was located. County Kerry was divided into two regions, North Kerry (Region 17) and South Kerry (Region 18).

In July 2003, Kerry County Council published a *Sludge Management Plan for County Kerry* (prepared by Fehily Timoney & Company). The objectives of the Plan were:

- To identify integrated sludge management options to facilitate the treatment of municipal sludge so as to produce a Biosolid.
- To investigate the options for beneficial use of the Biosolids produced in County Kerry.
- To make recommendations for sustainable management of all non-hazardous sludges in County Kerry including agricultural slurry.

The 2003 Plan identified that 99.9% of all sludges generated in the County were disposed of to land spread and quantified the annual non-hazardous sludge generated in the County as follows:

- Agriculture 191,699 tDS
- Municipal Wastewater 3,202 tDS (predicted load at 2020 from 46 plants)
- Industry 3,081 tDS
- Septic Tank/Package Plants 174 tDS
- Municipal Water Treatment 157 tDS

.

## 2.8 County Kerry Sludge Management Plan - Recommendations

The recommendations arising out of the *2003 Kerry Sludge Management Plan* are:

a) Establish hub -centre(s) for treatment of municipal wastewater sludge to serve the westerly part of the Iveragh Peninsula.

b) Up-grade the sludge treatment plant at Tralee to serve as a sludge treatment centre for Region 17 (North Kerry) or alternatively establish hub-centre(s) at Listowel and /or Dingle or both.

c) Conduct a solids mass balance at Tralee wastewater treatment plant to identify the actual sludge production rate.

d) Install appropriate sludge treatment technologies at the selected hub-centre(s).

e) Provide adequate dewatering facilities and sufficient sludge storage capacity at the satellites serving hub-centres.

f) Maintain road access and hardstanding to allow tanker turning at the hub-centre(s) and satellites.

g) Promote Biosolids for use as a fertiliser in agriculture in County Kerry by establishing a Biosolids Use Committee between Kerry County Council and agricultural representatives.

h) Require sludge from Biofilters, packaged plants and septic tanks to be brought to the nearest hub-centre for treatment in accordance with the transportation plan.

i) Implement & adopt measures outlined for management of septic tank sludge and cooking oil.

j) Confirm volume of sludge arising at all municipal water treatment plants and install or upgrade holding tanks as appropriate.

k) Continue use of industrial sludges in agriculture, provided that all spreadlands are deemed suitable and that nutrients supplied in sludge are balanced with crop nutrient requirements.

l) Continue with current management strategies for sludges arising from treatment of potable water until alternative solutions are identified and implemented.

m) Perform nutrient balances in accordance with the Code of Good Practice for the Use of Biosolids in Agriculture when implementing the Biosolids use in agriculture.

n) Design all nutrient management plans for grasslands to a target soil phosphorus concentration of 10 mg/kg in accordance with Teagasc's target Index 3 criteria.

o) Implement a quality control system as an integral part of the success of the Sludge Management Plan. An EMS should be established to deal with quality control issues, including:

- sludge quantity, quality,transportation
- Biosolids quality, storage and use
- landspreading of non-hazardous sludges, sludge disposal to landfill
- hub-centre and satellite operation, staff training

## 2.9 Sludge Hubs & Satellites - County Kerry Sludge Management Plan

The 2003 Sludge Management Plan proposed the following Hubs and associated Satellite plants in County Kerry:

**Table 5: Hubs & Satellites – Sludge Management Plan**

| Hub Region/Town | Region 16 Tralee | | Region 17 Killarney | Region 17 A Waterville/Cahersiveen |
|---|---|---|---|---|
| 37 Locations | Abbeydorney | Castlemaine | Fieries | Cahersiveen |
| | Annascaul | Causeway | Glenbeigh | Dungegan/ B'skelligs |
| | Ardfert | Dingle | Gneeveguilla | Knightstown |
| | Ballybunnion | Duagh | Kenmare** | Portmagee |
| | Ballyduff | Fenit | Kilgarvan | Sneem |
| | Ballyferriter | Knocknagashel | Killarney | Waterville |
| | Ballyheigue | Listowel** | Killorglin** | |
| | Ballylongford | Lixnaw | Milltown | |
| | Brosna | Moyvane | Rathmore | |
| | Castleisland** | Tarbert | Rossbeigh | |
| | | Tralee | | |

****Satellite Plants**

Subsequent to the identification of the Settlement Strategy for the 90 locations under the County Kerry Development Plan 2003-2009, planning for wastewater and sludge infrastructure must now include the following additional settlements that have not been considered in the formulation of the 2003 Sludge Management Plan:



**Table 6: Additional Settlements**

| Hub Region/Town | Region 16 Tralee | | Region 17 Killarney | Region 17 A Waterville/Cahersiveen |
|---|---|---|---|---|
| 53 Locations | Asdee | Fahamore | Ballyhar | Bunane |
| | Aughacasla | Feohanagh | Barraduff | Caherdaniel |
| | Ballydavid | Finuge | Beaufort | Castlecove |
| | Ballyfinnane | Inch | Cromane | Chapeltown |
| | Ballymac/Clogher | Kilfenora | Currow | Glen |
| | Boolteens/Keel | Kilflynn | Faha/Listry | Kells |
| | Brandon | Kilmoyley | Farranfore | Mastergeehy |
| | Camp | Knockanure | Glencar | Reenard |
| | Cashen | Lispole | Glenflesk | Tahilla |
| | Castlegregory | Lisselton | Kilcummin | |
| | Cloghane | Lyrecrompane | Kilgobnet | |
| | Cordal | Murreagh | Lauragh | |
| | Currans | Spa | Scartaglen | |
| | Dunquin | Stradbally | Templenoe | |
| | | Ventry | Tuosist | |
| | | | | |
| | | | | |

## 2.10 County Kerry Sludge Management Plan - Delivery

Current DoEHLG policy requires that, where viable, solutions to sludge management issues should be procured as part of a Public-Private Partnership where the actual technology and techniques will be determined during procurement.

The DoEHLG have now requested Kerry County Council to prepare a report detailing proposals to implement the *Sludge Management Plan* with an outline of the preferred implementation route.

## 2.11 Employment & Economic Activity

While the 2003-2009 County Kerry Development Plan acknowledges that Ireland has experienced unprecedented economic growth of 10.1% per annum in the period 1997-2001, it also notes that, in common with other peripheral counties and regions, County Kerry has not benefited from the growth in prosperity and employment to the same extent as the Greater Dublin Area and other major urban centres across Ireland.

In addressing the issue of regional imbalance in economic growth, the importance of spatial planning has been recognised by the Irish Government in the publication of the National Development Plan and National Spatial Strategy that defines areas of the country in terms of social, economic & spatial relationships rather than administrative boundaries. A designated Development Corridor has been identified for Tralee-Killarney to create a critical mass in size, concentration and characteristics of population to support sufficient levels of services and facilities that will attract economic activity.

The 2003-2009 County Development Plan presents the following objectives to facilitate the establishment of the Development Corridor and related development activity:

- Support the economic growth of existing towns and villages in accordance with the Settlement Strategy.
- Zone lands for economic development in the towns and villages throughout the County in accordance with the Settlement Strategy.
- Diversify the economy including that of rural areas by promoting knowledge-based industries, innovation, telecommunications, research & development, precision engineering, agriculture and tourism employment.
- Identify lands in key strategic locations that may be suitable for specific sectors.
- Identify sufficient and suitable lands for development of enterprise/ industrial uses throughout the County by identifying suitable sites in towns & villages in the zoning provisions of local and village plans.
- Identify enterprise/ industrial/ services sites in smaller settlements through the zoning of lands in local area plans.
- Identify sufficient and suitable lands at key locations within the Tralee/ Killarney/ Castleisland development corridor for industrial/ enterprise use. The Development Plan notes that, given the significant potential of airport associated development, a site in the region of 50 Hectares will be required.
- Make provision for office development in towns throughout the County and for Office Parks within or in the environs of towns in the Tralee/ Killarney/ Castleisland Development Corridor.

## 2.12 Social Housing

In its role as a Housing Authority, Kerry County Council provides dwellings for households in need of accommodation and which are unable to provide such accommodation through their own resources. In the provision of housing, the Council proposes to actively pursue the widest geographical dispersal throughout the County including small settlements and nodes thereby sustaining rural populations and assisting development which will retain and strengthen the fabric of these communities.

The *2003-2009 County Development Plan* includes the following objectives in the Housing Strategy:

- To actively participate in the housing sector through the provision of infrastructure and serviced land for social, voluntary and private housing.
- To facilitate the housing needs of people in their local communities through actively providing/assisting the provision of housing in centres identified in the Settlement Strategy.
- To identify and acquire lands at all levels of the settlement hierarchy for social housing.

The *Development Plan* notes that, at the end of 2001, lands in the ownership of the Council for housing purposes were as follows:

**Table 7: Acquired lands for Social Housing**

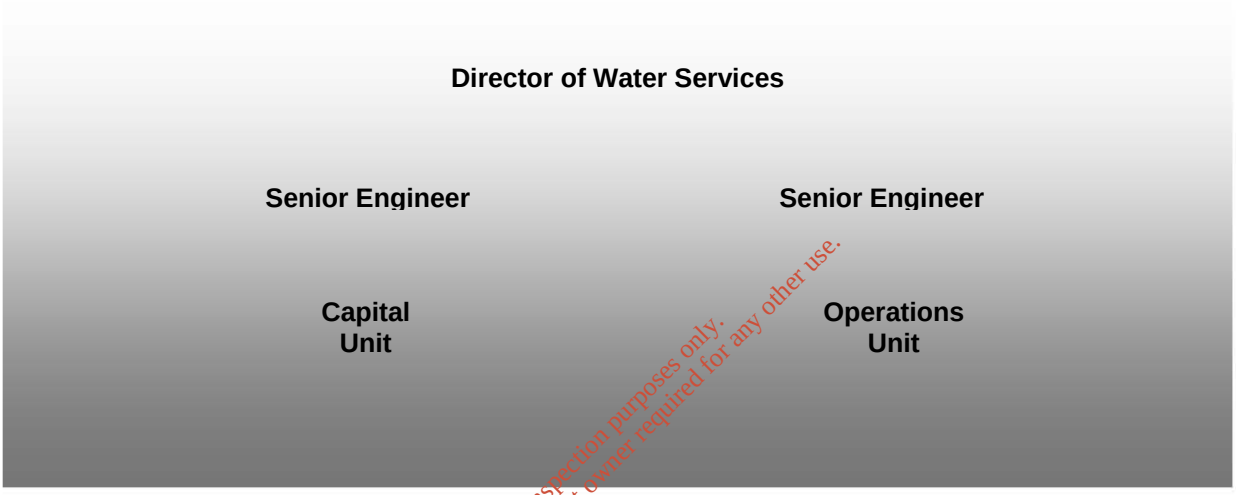
| Location/Townland | Areas of Land in Ownership (Acres) |
|---|---|
| Abbeydorney | 0.71 |
| Annascaul | 1.1 |
| Annascaul Brackloon | 4.1 |
| Ardfert | 9.6 |
| Ardfert, Farranwilliam | 8.6 |
| Ballinskelligs, Dungegan | 0.5 |
| Ballybunnion | 2.5 |
| Ballybunnion | 11.8 |
| Ballyferriter | 1.6 |
| Ballylongford | 1.4 |
| Brosna | 3.1 |
| Caherciveen | 0.5 |
| Caherciveen, Castlequin | 9.1 |
| Caherciveen, Reenrusheen | 2.6 |
| Castleisland | 4.6 |
| Castleisland, Meanus | 5.5 |
| Causeway | 2.0 |
| Dingle, Grove | 6.3 |
| Farranfore | 19.3 |
| Firies | 0.6 |
| Kenmare Community School | 1.3 |
| Kenmare, Gortamullen | 16.8 |
| Kilgarvan, Churchground | 0.1 |
| Killorglin | 1.1 |
| Killorglin, Bansha | 3.6 |
| Knocknagashel | 1.1 |
| Knocknagashel | 2.6 |
| Listowel, Ballygologue | 5.7 |
| Listowel, Ballygologue | 4.1 |
| Lixnaw | 6.9 |
| Milltown | 3.8 |
| Moyvane | 3.3 |
| Portmagee | .75 |
| Rathmore | 2.4 |
| Tarbert, Kilpadogue | 2.5 |
| Valentia | 2.1 |
| Waterville | 1.4 |

## 2.13 Water Services Unit - Kerry County Council

Prior to 2004, the senior management structure of the Kerry County Council Water Services Unit comprised one Senior Engineer who held responsibility for both the Capital Unit and the Operation Unit reporting to the Director of Environment and Water Services.

In recognition that the provision and maintenance of adequate water services infrastructure is a key requirement for the continuation of economic and social development of the County and in recognition of the increased activity in investment programmes, Kerry County Council revised this management structure in 2004 by the creation of a special Directorate for Water Services and the division of the Capital Unit and the Operations Unit under the management of 2 Senior Engineers.

**Fig 3: 2005 Water Services Structure**






The detailed organisational staff structure in the Water Services Capital and Operations Units are as shown on Fig. 4 and Fig. 5 respectively.

In accordance with the Section 83 of the Local Government Act, on 1st January 2004, Kerry County Council took charge of the operation of all water and wastewater treatment plants in the 3 Town council areas. These included:

- Listowel Wastewater Treatment Plant
- Tralee Wastewater Treatment Plant
- Killarney Wastewater Treatment Plant
- Listowel Water Treatment Plant

Kerry County Council have entered into a 3-year temporary arrangement with the 3 Town Councils whereby the Town Councils will perform, on behalf of Kerry County Council, the functions associated with the operation of the water and wastewater networks within the respective Town Council areas. Upon completion of this 3-year agreement, Kerry County Council will take over full responsibility for the operation and maintenance of these networks.

**Fig 4. Water Services Operations – 2005 Organisational Chart**

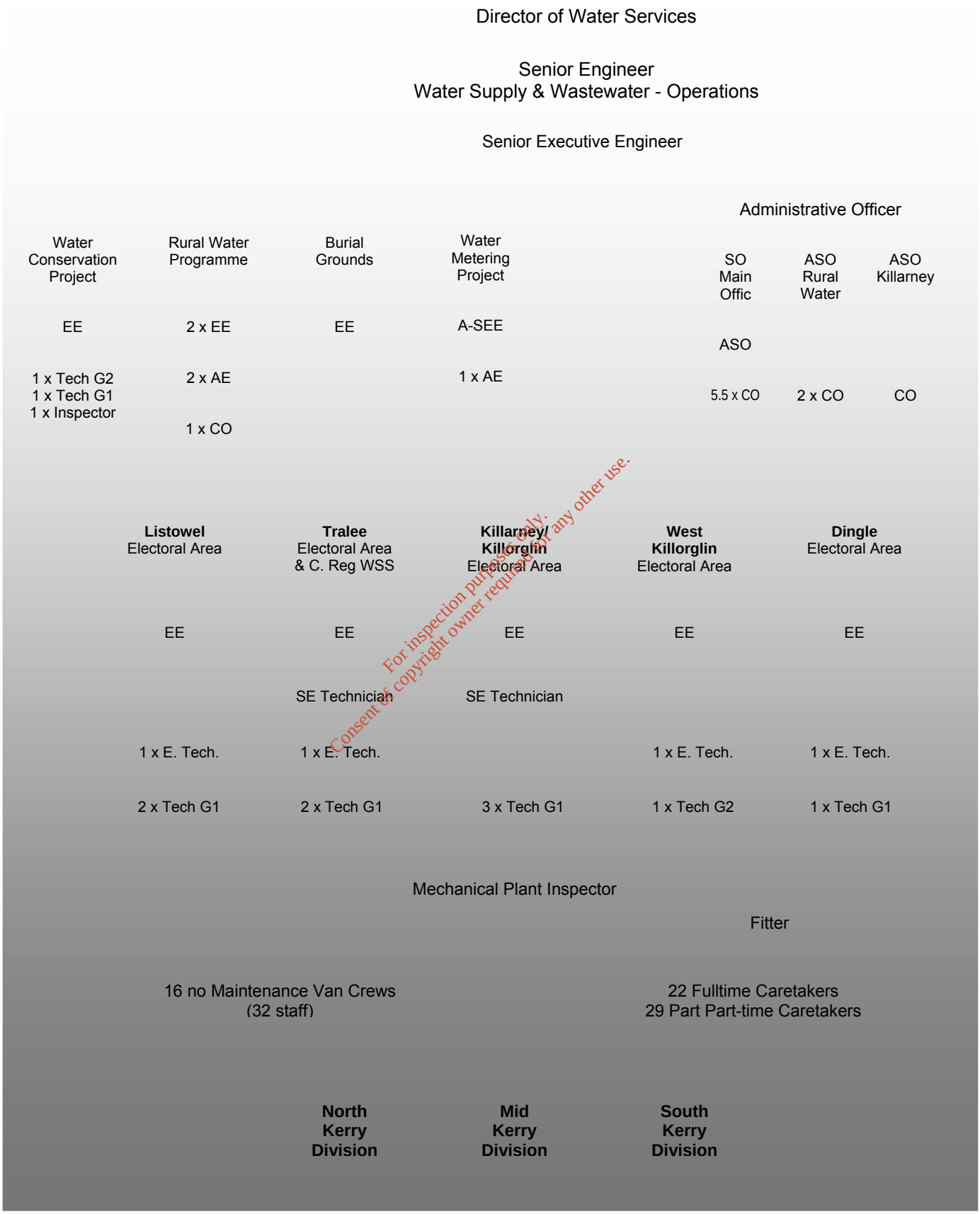
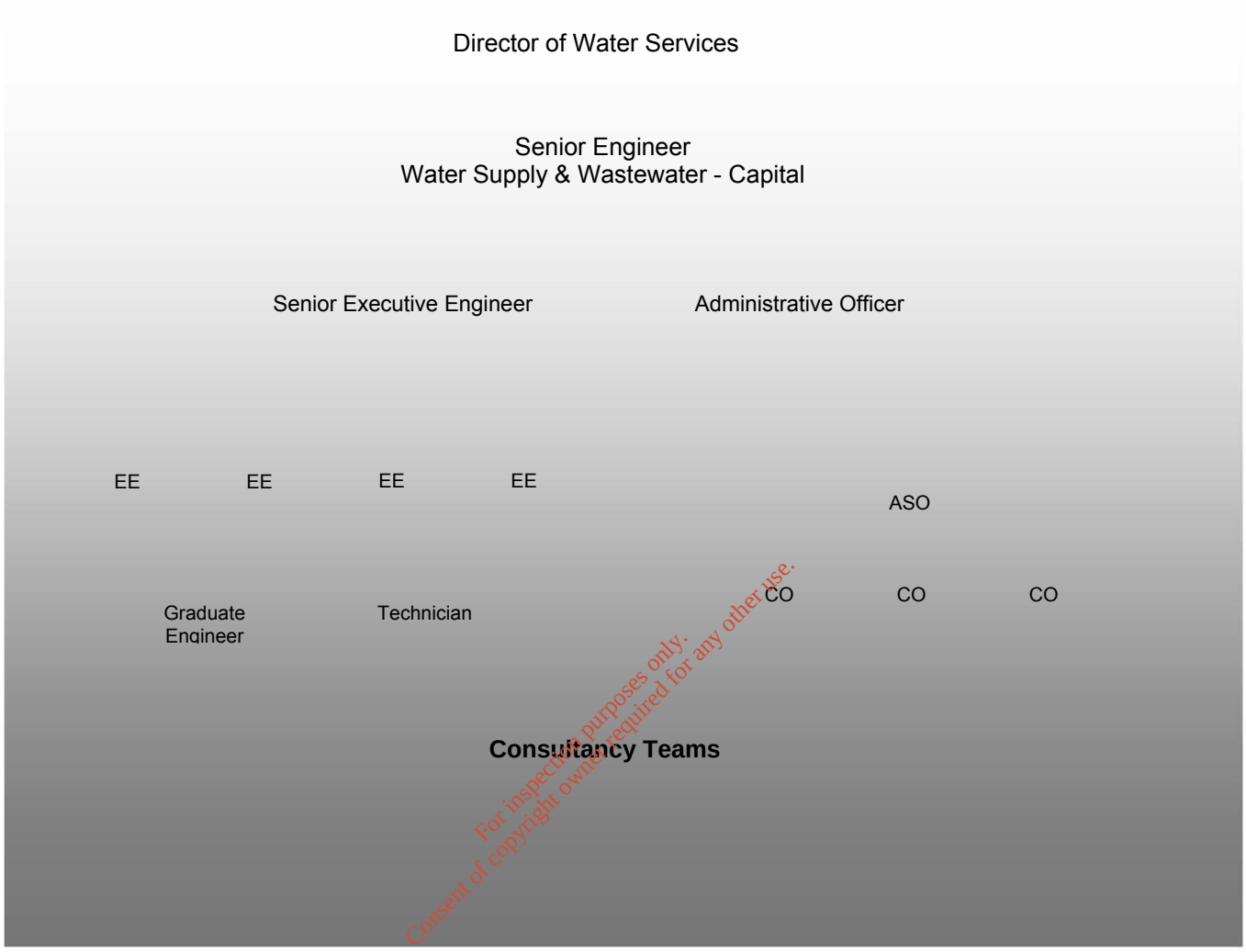


**Fig 5. Water Services Capital – 2005 Organisational Chart**



## 2.14 Water Services Operations Unit

The Water Services Operations Unit currently hold responsibility for a broad range of areas which may be briefly summarised as follows:

### 2.14.1 Public Water Supplies

- With an annual budget of €5.9m., Kerry County Council produce approx. 35 million m3 of potable water annually to 41,000 customers across 70 public water supply schemes. The current water supply connection fee is 750 Euro.

- Annual income from drinking water charges amounts to €5.2m., 36% of which arises from the drinking water supplied to the 3 Town Councils in Tralee, Killarney and Listowel.

- Full-time and part-time caretakers are employed to maintain individual schemes while maintenance crews are employed to carry out improvement works and attend emergencies.

- A total of 800 new water supply connections are completed annually by direct labour crews operating under a €0.65m. budget.

- A Minor Improvement Programme provides an annual budget of €0.5m. funded from Development Levies for the improvement of the water supply infrastructure.

- Arising out of the Government Water Pricing Policy Framework, whereby all non-domestic customers are to be metered by the end of 2006, a special Metering Project Unit was established in 2004. This unit is to be funded by local resources and ultimately through commercial water charges by means of metering of the non-domestic sector to be introduced in 2005.

- Special crews are to be introduced in 2005 to cater for intensification of Water Conservation and increased activity in Water Connections.

- The *Water Quality Study* proposes an investment of €24.3m to remedy urgent water quality issues in public water supplies throughout the County. It is envisaged that a strategy study of extensive technical analysis and assessment of PPP and bundling options will be undertaken in 2005 to formulate a Water Supplies Strategy for Delivery, of similar scope to the current Wastewater Strategy for Delivery.



### 2.14.2 Rural Water Programme

The County has a total of 291 Group Water Supplies, 175 of which have been taken over by the Council.

The activities handled by the Operations Unit include:

- Construction Grants for Group Water and Sewerage Schemes
- Subsidy Grants for Group Water Supply Schemes
- Refurbishment of Group Schemes prior to takeover by Council
- Grant for Individual Domestic Water Supply

### 2.14.3 Public Wastewater Schemes

- With an annual budget of €3.6m, the Operations Unit operate and maintain 36 wastewater schemes.
- The operating costs of 27 smaller wastewater schemes amounts to €0.44m. while the operating costs of the 9 modern schemes amounts to €1.2m. (Ballybunnion, Cahersiveen, Castleisland, Dingle, Kenmare, Killorglin, Rathmore, Farranfore, Ballyheigue, Killarney)
- While Wastewater Services income is estimated at €1.76m., it is intended that, from 2005, in accordance with the National Water Pricing Framework, the true cost of the wastewater service will be charged to commercial customers on a water-in/water-out basis.
- It is proposed to introduce a charge of €1,500 for a 100mm. sewer connection in 2005.

### 2.14.4 Public Conveniences

- The Unit is responsible for the management of 29 Public Conveniences under an annual budget of €0.4m.

### 2.14.5 Burial Grounds

- The unit is responsible for the management of 137 No Burial Grounds under an annual budget of €0.57m.

## 2.15 Development Levies

Kerry County Council is required under DoEHLG Accounting Regulations to credit income from Development Levies to the Capital Account and to adopt accrual accounting for capital expenditure such as the provision of water services and roads infrastructure which will facilitate development.

In February 2004, Kerry County Council made a Development Contribution Scheme, with effect from the 17th February, 2004 as shown on **Table 8**. Similar Schemes have been adopted in the 3 Town Council areas in Tralee, Killarney and Listowel.

**Table 8: Kerry Development Levies**

| Development Class | Water | Sewerage | Roads |
|---|---|---|---|
| Private Dwellings (*per dwelling unit*) (Note A) | € 1265 | € 2535 | |
| Guesthouses/Nursing Homes (Note A) | € 190 per bedroom | € 60 per bedroom | |
| Guesthouses/Nursing Homes incorporating a Private Dwelling | Charge for Guesthouses/ Nursing Homes as outlined above plus a charge of € 1140 | | |
| Holiday/Commercial Apartments (*per unit*) (Note A) | € 1265 | € 2535 | |
| Hotels/Hotel Extensions (Note A) | € 190 per bedroom | € 60 per bedroom | |
| | € 25 per sq. m. for bars, commercial areas & function rooms | | |
| Bars & Discos | € 25 per sq. m. | | |
| Restaurants including Hotel Restaurant | € 12.50 per sq. m. | | |
| Industrial Premises/Factories/Offices | € 12.50 per sq. m. | | |
| Low Intensity Industrial Units or Low Intensity Warehouses | € 1265 | | |
| Caravan Parks (Note A) | € 760 | € 505 | |
| | Plus € 63 per caravan pitch | | |
| Shortfall in On-Site Car Parking provided | | | € 1265 |
| Leisure Facilities | € 4.40 per sq. m. | | |
| Land Use for the winning and working of materials (in excess of 10,000 tonne per annum) (Note B) | | | 15 cents per $m^3$ |



***Note A***: Where a development is not connected to a public water supply or a public sewer, the relevant development charge will not apply for the provision of such service.

***Note B***: Development Charge applies to extracted quantity measured per annum in excess of 10,000 tonne.

A Special Development Contribution Development, in accordance with Section 48 (2) (c) and Section 48 (12) of the Planning and Development Act 2000, will be required in respect of the following developments:-

(i) development consisting of a change of use which is likely to substantially increase the demand for water, or increase the amount of effluent, or adversely change the nature of the effluent, based on the specific nature of the change of use, and

(ii) development, which of its nature requires specific road improvement or other public infrastructural development, in whole or as part to cover such work.

Similar Development Levy Schemes have been implemented in the Town Council areas of Tralee, Killarney and Listowel.

## 2.16 Public Private Partnership

The DoEHLG are committed to using the Public Private Partnership approach to deliver a significant change in the nature of infrastructure provision and operation in Ireland. It is considered that Public Private Partnerships offer a long term, sustainable approach to improving infrastructure, enhancing the value derived from government assets and making better use of public money, while at the same time allowing the Public Sector to retain control of core areas of responsibility.

Current DoEHLG policy requires that a Public Private Partnership approach should be adopted wherever it will accelerate the implementation of a particular project and represent better value for money over the full life cycle of the project. The DoEHLG recommend that the most appropriate form of PPP (DB, DBO, DBOF) should be adopted having regard to the particular circumstances of the individual project.

The DoEHLG currently favors a Design/Build/Operate approach for the provision and operation of treatment elements of water services infrastructure, with the following potential advantages:-

1) A performance specification would produce a better process solution with improved guarantee of operational performance and the opportunity to implement performance-based payments.

2) The use of long term contracts, where bidders are required to focus on the whole life-cycle cost of projects and not just on the upfront capital costs, can lead to more innovative designs with lower life-cycle costs and higher maintenance and operational standards.

3) Innovative solutions, perhaps using newer technologies would emerge, which would not be tendered as alternatives under conventional procedures or which would not be considered compliant with contract specification under conventional procedures.

4) DBO may have advantages in meeting statutory compliance in respect of environmental standards or drinking water standards in medium to long term operation.

5) There would be a better allocation of risk in particular with regard to responsibility for process design, performance guarantees and liability etc.

6) DBO would offer advantages in particular with regard to reliability of equipment and robustness of the process design, etc and would offer advantages for ongoing maintenance of the plant and equipment.

7) DBO would allow a faster project delivery than conventional procurement having regard to realistic timescales for tender document preparation and approval, tender assessment and approval, contract negotiations, construction period etc.

8) DBO would be likely to be more economically advantageous and provide better value for money, in particular over the lifecycle of the works and provide a greater certainty in construction and operational cost estimates.

Current DoHELG documentation on PPP projects in the water services sector recommends that, for existing treatment plants in both water and wastewater facilities, consideration should be given to long-term operational contracts where contract periods of greater than 5 years and up to 20 years plus may be considered for the operation, maintenance and possible capital replacement of such plants. In the case of small water and wastewater treatment works, bundling of projects under a single DBO contract is suggested, where bundles are formulated to contain a sufficient number of plants to make the rates offered by private sector service providers for the operation of the plants attractive to Local Authorities.

DoEHLG documentation notes that, while the use of DBO contracts for water and wastewater treatment plants may be expected to offer significant advantages over conventional tendering, conventional tendering procedures should continue to be used for new networks, extensions to networks and storage/attenuation projects.

## 2.17 Public Private Partnership Assessment

In accordance with The DoEHLG *Policy Framework for Public Private Partnership Projects in the Water Services Sector,* a Public Private Partnership Assessment Report is the recommended framework to determine:

- whether or not to proceed with specific elements of the project by means of PPP or conventional routes.
- the form of PPP e.g. DB/DBO/DBOF.
- the allocation of risk proposed between the public and private sectors and who should have responsibility for securing the necessary statutory approvals.
- the procurement procedure to be used.

The required structure and content of the Public Private Partnership Assessment Report, as described in the DoEHLG documentation on PPP projects, will include the following sections:

- Executive Summary and Main Conclusions
- Introduction and Scope of the Assessment
- Initial Output Specification
- Preliminary Risk Assessment
- Legal Viability Assessment
- Stakeholder Consultation
- Value for Money (VFM) Assessment
- Bankability Assessment
- Procurement Options Selection - Main Findings



Reference should be made to DoEHLG publications for detailed requirements of the above.

## 2.18 Public Sector Benchmark (PSB)

The Public Private Partnership Assessment Report is required to include a Public Sector Benchmark (PSB) Assessment in accordance with Circular L5/06 and the accompanying Guidance Note – "System for the Assessment and Review of PPP's within the Water and Wastewater Sector".

The PSB Assessment provides a comprehensive and detailed risk-adjusted costing of the project elements using conventional procurement over the whole life of the project.

## 2.19 PPP Documentation

The Department of Environment, Heritage and Local Government have addressed the issue of Procurement by Design/Build and Design/Build/Operate in the following Documents:

- Guidance Document for the Procurement of Small Water Services Schemes – Parts A & B (DoHELG 2003)
- Circular L3/99, Water Services Investment Programme, Procurement through the use of Design/Build (DB) and Design/Build/Operate (DBO) Contracts. Interim Arrangements.
- Circular L9/99, Sludge Management
- PPP in the Water Services – Technical Note No. 2 – Preparing a PPP Assessment Report (August 2001) – Published by the Water Services Section and PPP Unit of the DoHELH.
- "Framework for Public Private Partnerships" (May 2001) developed by the Public-Private Advisory Group on PPP
- The Price Water Coopers - "A Policy Framework for Public Private Partnerships in the Water Services Sector" - (issued by Circular L10/01 replacing Circular L3/99)
- "A Policy Framework for Public Private Partnership Projects: A Report to the Department of the Environment and Local Government by Price Water Coopers et al (May, 2000) , including "Price Water Cooperhouse Guidance Notes" as follows:

    1. ***Introduction to Public Private Partnerships***
    2. ***Financial Context***
    3. ***Legal Context***
    4. ***Public Private Partnership Assessment***
    5. ***Statutory Process Assessment***
    6. ***Procurement Procedure Selection***
    7. ***Project Management***
    8. ***Stakeholder Consultation***
    9. ***Procurement Management***
    10. ***Output Specifications***
    11. ***Risk Assessment***
    12. ***Payment Mechanisms***
    13. ***Key Contractual Issues***
    14. ***Accounting Treatment***
    15. ***Contract and Performance Management***



The above documents propose that, under Public Private Partnership arrangements, private sector contractors become long term providers of services rather than simply upfront asset builders, combining the responsibilities of designing, building, operating, maintaining and possibly financing assets in order to deliver the services needed by the public sector. As a result, central and local government agencies become increasingly involved as regulators and focus resources on service planning, performance monitoring and contract enforcement rather than on the direct management and delivery of the services.

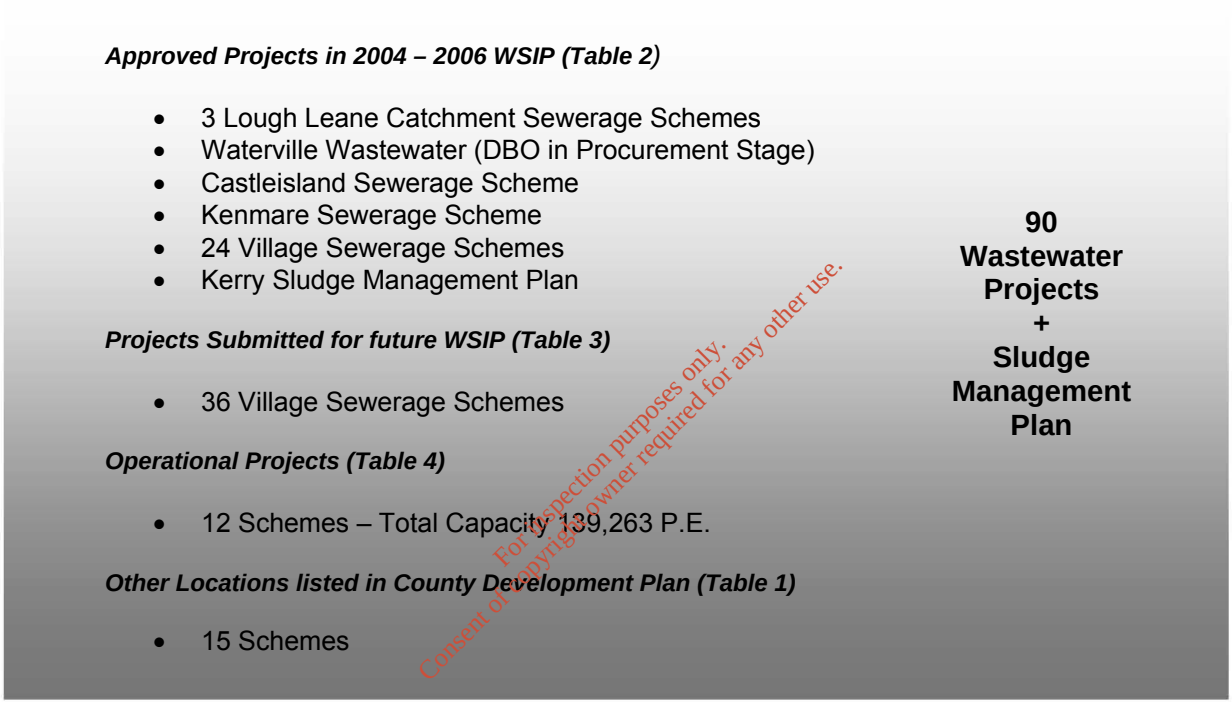
# Chapter 3 – Strategy for Delivery - Concept

## 3.0 County Kerry Wastewater Infrastructure

As detailed in Chapter 2, the 2003-2009 County Kerry Development Plan proposes that Kerry County Council should provide the required infrastructure to support and facilitate the residential, economic and social development of 90 towns, villages and development nodes throughout the County.

The Water Services Capital Unit is required to ensure the delivery of the required wastewater infrastructure in the 90 towns, villages which are summarised as follows:

**Fig 6. 90 Wastewater Projects Summary**






In consideration of the extensive scale and complex nature of the proposed new/upgraded schemes and the geographically and technically diverse level of infrastructure that is required, Kerry County Council have proposed that the execution of the proposed works under the traditional one-by-one project approach will not be cost effective and is unlikely to achieve the required efficiency in the various processes of approvals, planning, design, procurement and construction.

In response to the need to deliver the required major investment programme in a cost effective and efficient manner, it is proposed that the delivery of the proposed infrastructure will be advanced under a single integrated project – *The County Kerry Wastewater & Sludge Project*.

**3.0 County Kerry Wastewater Infrastructure** (continued)

It is envisaged that the benefits of this approach will be:

- Formulation of an agreed and integrated strategy to achieve an effective and integrated programme of delivery of the required infrastructure.

- Identification of an agreed expenditure profile over the delivery period to allow both the DoEHLG and Kerry County Council to make provisions for the extensive investment programme and to formulate appropriate funding & polluter pays strategies.

- Optimisation of solution of the diverse and complex issues of planning and statutory procedures and maximisation of cost-benefit of both planning and construction phases through economy of scale.

- Identification and planning for the necessary project management structures at both technical & administrative levels that will be required in both DoEHLG and Kerry County Council to achieve efficient delivery of the required infrastructure.

- Maximisation of the potential benefits of the Public Private Partnership procurement options by creation of appropriate bulked projects to maximise private sector interest and competition.

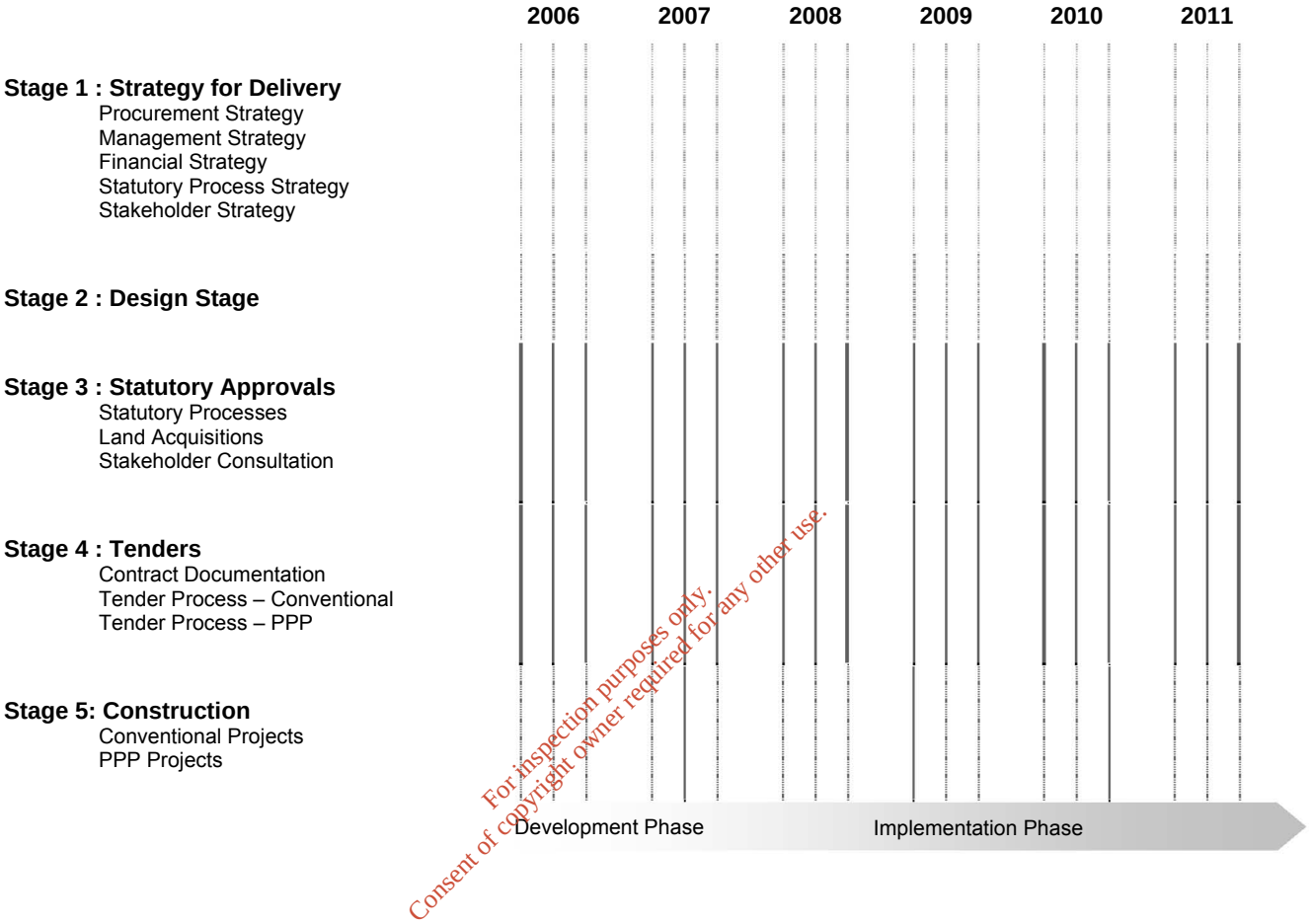
- Identification of the optimum operational and management structure for the future extensive wastewater service in County Kerry with specific examination of the potential of Public Private Partnerships for both new and existing wastewater treatment plants.

- Introduction of best practice parameters for construction and operation that will improve the quality, performance and efficiency of the service, optimise management and operational structures to create a performance culture that eliminates unnecessary bureaucracy and provides structures for ongoing performance review and benchmark assessment.

### 3.1 The County Kerry Wastewater & Sludge Project

The Project Plan for the *County Kerry Wastewater & Sludge Project* identifies 5 major stages with the key elements of each stage and the allocated timescale as identified Fig.7 below.

**Fig. 7 : Project Plan – County Kerry Wastewater & Sludge Project**






In accordance with current DoEHLG policy, the Project Plan facilitates the formulation of a solution involving Public Private Partnership to Design/Build and/or Design/Build/Operate the wastewater treatment plants. The Project Plan also facilitates the *bundling* of traditional procurement of treatment and pipelaying works in accordance with appropriate technical or operational parameters to achieve the necessary economies of scale in all planning, approvals, financing, design, tendering and construction stages to facilitate delivery within the required deadlines.

### 3.2 Stage 1 - Strategy for Delivery

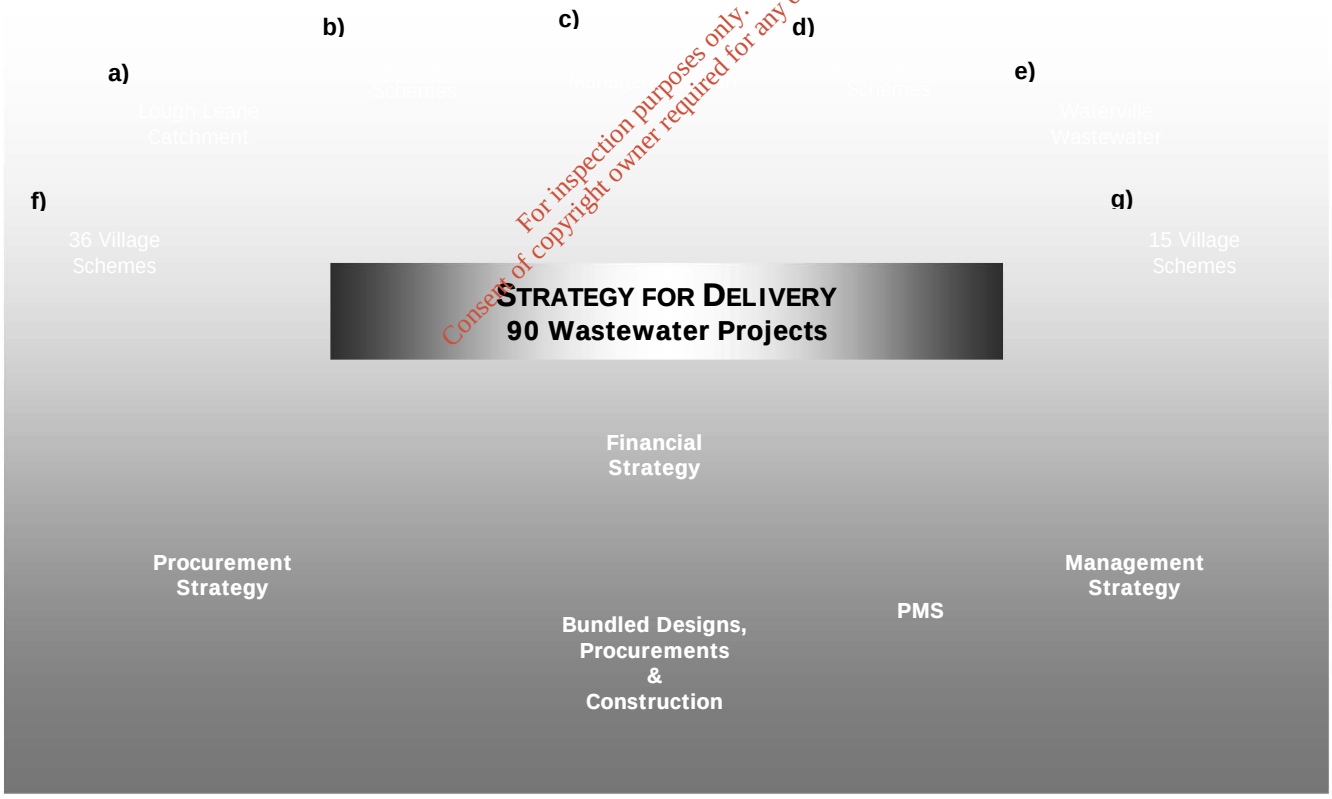
It is proposed that the Strategy for Delivery will examine the full extent of existing and proposed wastewater infrastructure in County Kerry and present options and recommendations on the following major issues:

- Procurement Strategy
- Statutory Process Strategy
- Stakeholder Strategy
- Financial Strategy
- Project Management Strategy

The Strategy for Delivery will be required to identify, assimilate and collate technical and operational parameters on the following 90 projects:

a) Lough Leane Catchment Sewerage Schemes
b) 24 Village Sewerage Schemes (Table 2)
c) Kerry Sludge Management Plan
d) 12 Operational Schemes (Table 4)
e) Waterville Sewerage Scheme (Currently at Contract Document Stage)
f) 36 Village Sewerage Schemes (Table 3)
g) 15 Village Sewerage Schemes (County Development Plan)

**Fig 8: Project Plan - County Kerry Wastewater & Sludge Project**






The 24 projects referred to in **b)** above include proposed projects in the villages of **Firies**, **Milltown and Beaufort** for which Kerry County Council completed Preliminary Reports in 2004/2005.

# Chapter 4 – Strategy for Delivery - Advance Study

## 4.0 General

As described in Chapter 3, Kerry County Council propose to address the procurement, management and operation of new and upgraded wastewater infrastructure in 90 towns, villages and development nodes throughout the County under the *County Kerry Wastewater & Sludge Project*.

While the county-wide delivery of the wastewater infrastructure will be achieved in accordance with the Strategy for Delivery, Kerry County Council have identified a list of village locations for which the provision of wastewater infrastructure has been prioritised.

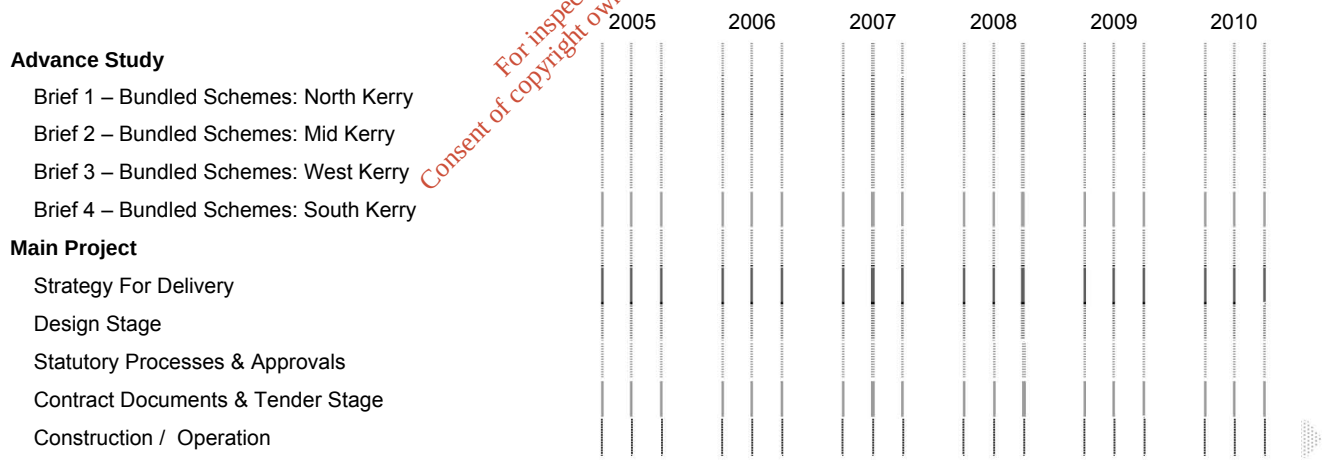
In the interest of facilitating the advancement of the delivery of the wastewater infrastructure at the priority locations, an **Advance Study** has been progressed in parallel with the Strategy for Delivery requiring the preparation of a set of **Preliminary Reports for 28 Villages,** to be procured under 4 separate appointments as follows:

- Brief 1 North Kerry - 7 Nr. Villages
- Brief 2 Mid Kerry - 7 Nr. Villages
- Brief 3 West Kerry - 7 Nr. Villages
- Brief 4 South Kerry - 7 Nr. Villages

Each Brief requires the identification of wastewater infrastructure at the specified locations and includes the identification of Development Boundaries, the preparation of a schedule of land acquisitions and wayleave agreements and the securing of planning and all other statutory processes.



**Fig. 9 : Project Plan – County Kerry Wastewater & Sludge Project**



## 4.1 Extent of Advance Study

The **Advance Study** is to be awarded under 4 separate contracts, each of which will be required to independently deliver the specified 7 Preliminary Reports and associated services. Each Preliminary Report will present the optimum technical solution to the wastewater infrastructure that is required at the specified locations to cater for existing and future development and to achieve the appropriate treatment standards and effluent discharge standards in accordance with national legislation and in accordance with the requirements of local discharge and water quality protection conditions.

The 4 Appointments, addressing the existing and future requirements at 28 village/small town locations in the general North, Mid, West and South Kerry areas are as listed on Table 9.

**Table 9. – 28 Villages**

| Project | Village Location | Estimated Existing Agglomeration | Existing Infrastructure |
|---|---|---|---|
| **Appointment No 1 North Kerry** | Tarbert | 1,400 | Overloaded |
| | Ballylongford | 950 | Overloaded |
| | Asdee | 170 | None |
| | Cashen | 120 | None |
| | Ballyduff | 850 | Overloaded |
| | Finuge | 320 | None |
| | Lixnaw | 1,000 | Overloaded |
| **Appointment No 2 Mid Kerry** | Abbeydorney | 437 | Overloaded |
| | Kilflynn | 170 | Overloaded |
| | Ardfert | 1,100 | Overloaded |
| | Fenit | 1,000 | Overloaded |
| | Spa | 424 | None |
| | Currow | 360 | None |
| | Scartaglen | 350 | None |
| **Appointment No 3 West Kerry** | Brandon | 200 | None |
| | Castlegregory | 582 | Overloaded |
| | Aughacasla | 200 | None |
| | Annascaul | 634 | Overloaded |
| | Boolteens | 170 | None |
| | Castlemaine | 565 | Overloaded |
| | Cromane | 200 | None |
| **Appointment No 4 South Kerry** | Glenbeigh | 2,000 | Overloaded |
| | Chapeltown | 300 | None |
| | The Glen | 75 | None |
| | Caherdaniel | 300 | None |
| | Sneem | 950 | Overloaded |
| | Kilgarvan | 311 | Overloaded |
| | Glenflesk | 100 | None |



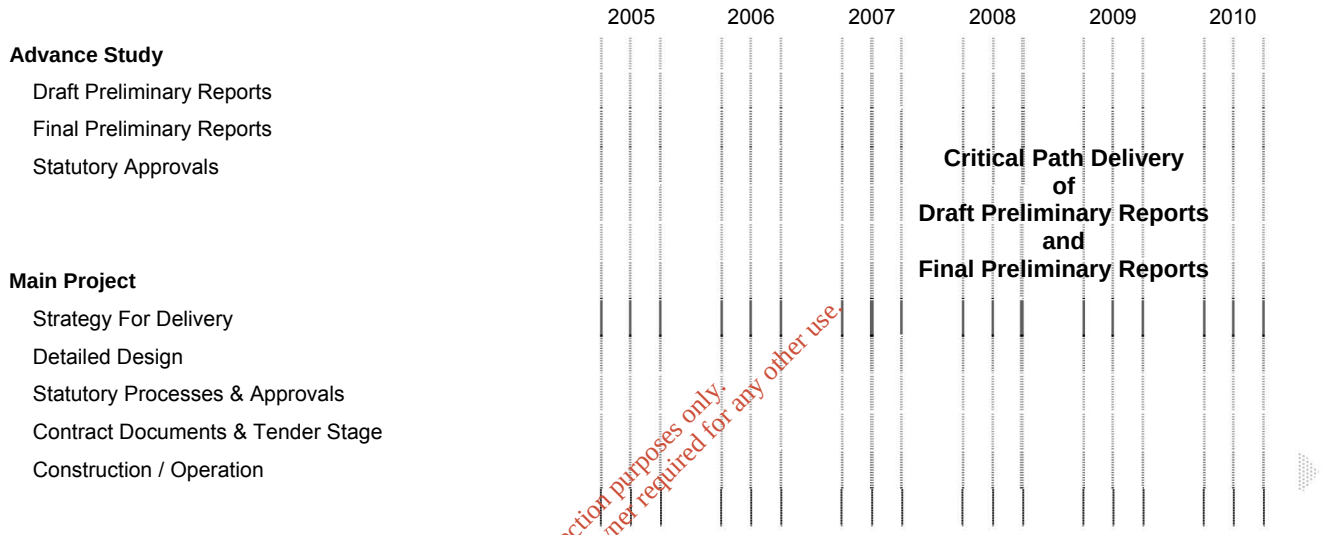
The above projects have been simply bundled, for the purpose of the Advance Study, on the basis of geographical location.

## 4.2 Preliminary Report – Delivery Schedules

The key delivery dates specified in the Advance Study are:

- Draft Preliminary Reports to be delivered within **6 months** from the date of the award of the contract.
- Final Preliminary Reports to be completed and delivered within **9 months** from the date of the award of the contract.

**Fig 10: Critical Paths – Advance Study**






In recognition of the short timescale available for the preparation of the 28 Draft Preliminary Reports, the Advance Study has been structured as 4 separate Appointments to facilitate delivery within the required timescales.

## 4.3 Advance Study – Key Deliverables

The Project Brief of the Advance Study requires the preparation of 28 Preliminary Reports including the following key deliverables:

a) Identification of the scale, density, location and phasing of future development through the preparation of Development Boundary Maps for each location in agreement and in conjunction with the Forward Planning Unit of Kerry County Council.

b) Identification of existing and future wastewater loadings and the required treatment standards and discharge locations, with phasing where appropriate.

c) Technical assessment of the existing and/or proposed receiving waters to ensure that the receiving waters will meet the relevant local and/or national water quality objectives or statutory requirements.

d) Technical survey and assessment of existing storm water and wastewater infrastructure at the 28 locations and formulation of phased proposals for the provision of upgraded or new wastewater infrastructure to serve the future needs in the area.

e) Detailed estimates for the capital, operational and maintenance costs of the recommended solutions, relevant alternatives and phased proposals.

f) Water Pricing Policy Report with analysis on supply/demand on the wastewater treatment plants and marginal costs entailed in the collection, pumping, treatment and sludge disposal to non-domestic loads and future domestic loads.

g) Preparation of Lands and Wayleave schedules and drawings for Phase 1 works at priority locations.

h) Undertaking of land acquisition and wayleave negotiations for Phase 1 works at priority locations.

i) Proposals on management/operation requirements of the completed projects and costs based on manpower, skills, materials, related costs etc. for each scheme.

j) Identification of a schedule of all statutory and other approvals that may be required in the construction of Phase 1 of the proposed works at each village location.



## 4.4 Public Private Assessment Policy Reports

As it is proposed that the 28 Preliminary Reports that are to be prepared under the Advance Study will be incorporated into the *Procurement Strategy* to be prepared under the Strategy for Delivery of the *County Kerry Wastewater & Sludge Project*, the preparation of Public Private Assessment Policy Reports are not a requirement of the Preliminary Reports prepared under the Advance Study.

# Chapter 5 - Strategy for Delivery - Technical Assessments

## 5.0 General

The Consultant/Consortium appointed to the current study will be required to formulate an integrated strategy for the procurement, delivery, financing and operation of wastewater infrastructure at 90 towns, villages and development nodes throughout County Kerry as listed on **Table 1**.

In the formulation of the Strategy for Delivery the Consultant/Consortium will be required to undertake Technical Assessments at each of the 90 settlements to establish a phased and integrated framework for the provision of the wastewater & sludge infrastructure throughout County Kerry. The nature and extent of the Technical Assessment that will be necessary at each settlement will vary in accordance with the status of existing and proposed development of the wastewater infrastructure in each settlement.

To assist in the identification of the inputs and outputs that will be required from the Consultant/Consortium in the preparation of technical assessments, the 90 settlements have been classified into **7 Categories** as listed in **Table 10**.

**Table 10 : 90 Settlements : 7 Categories**

| Category | No. of Settlements | Description |
|---|---|---|
| **A** | 1 | Contract Documents were completed in 2005 for the Waterville Wastewater Scheme, involving the construction of a new wastewater network and treatment plant. DBO procurement is proposed with a 2-year Commission/Operate phase to facilitate the integration of the project into the county-wide Operate Strategy to be identified under the Strategy for Delivery. It is expected that the Tender Process will be completed in 2006 and that the plant will be operational in 2007. |
| **B** | 5 | Preliminary Reports prepared by Kerry County Council that present preliminary technical solutions with phasing and estimated costs for each of the 5 locations. The solutions that have been identified have not taken into consideration the optimum technologies or management structures that may be more appropriate for the county-wide strategy. It is expected that these 5 projects will progress to Construction Stage in 2006. |
| **C** | 28 | Preliminary Reports prepared under the Advance Study will present preliminary technical solutions with phasing and estimated costs for each of the 28 locations. The solutions that will be identified will not have taken into consideration the optimum technologies or management structures that may be more appropriate for the county-wide strategy. A development programme for these projects will be identified under the Strategy for Delivery. |
| **D** | 12 | 12 existing town wastewater schemes throughout County Kerry |
| **E** | 17 | 17 existing settlements where existing wastewater infrastructure is overloaded or requires expansion/upgrading. |
| **F** | 12 | No wastewater infrastructure currently exists at these settlements and they have been included in the Kerry County Council Assessment of Needs 2003 and submitted to the DoEHLG for inclusion in a future WSIP. |
| **G** | 15 | No wastewater infrastructure currently exists at these settlements and, while the 2003-2009 County Development Plan includes the 15 settlements in the Settlement Strategy, they have not been included in the Kerry County Council Assessment of Needs 2003. |
| ***Total*** | ***90*** | |

The specific settlements which fall within each of the above classifications and the status of the wastewater infrastructure at each settlement is summarised on **Table 11.**

**Table 11 : Status of 90 Settlements**

| Category | Settlement Name | Estimated Existing Agglomeration (P.E) | Existing Infrastructure | | |
|---|---|---|---|---|---|
| | | | Treatment Design Capacity (P.E.) | Approx. Networks Km. | Other Comment |
| **A** (1) | Waterville | 1,926 | 500 | 5.17 | Proposed scheme at Contract Document Approval Stage |
| **B** (5) | Barraduff | 250 | None | None | No Existing Infrastructure |
| | Beaufort | 350 | None | None | No Existing Infrastructure |
| | Fieries | 750 | 100 | 0.94 | Overloaded |
| | Kilcummin | 399 | None | None | No Existing Infrastructure |
| | Milltown | 1,474 | 370 | 3.60 | Overloaded |
| **C** (28) | Tarbert | 1,400 | 710 | 5.76 | Overloaded |
| | Ballylongford | 950 | None | 3.59 | Overloaded |
| | Asdee | 170 | None | None | No Existing Infrastructure |
| | Cashen | 120 | None | None | No Existing Infrastructure |
| | Ballyduff | 850 | 300 | 4.10 | Overloaded |
| | Finuge | 320 | None | None | No Existing Infrastructure |
| | Lixnaw | 1,000 | 300 | 2.93 | Overloaded |
| | Abbeydorney | 437 | 350 | 2.04 | Overloaded |
| | Kilflynn | 170 | 150 | 1.17 | Overloaded |
| | Ardfert | 1,100 | 450 | 5.54 | Overloaded |
| | Fenit | 1,000 | 400 | 8.04 | Overloaded |
| | Spa | 424 | None | None | No Existing Infrastructure |
| | Currow | 360 | None | None | No Existing Infrastructure |
| | Scartaglen | 350 | None | None | No Existing Infrastructure |
| | Brandon | 200 | None | None | No Existing Infrastructure |
| | Castlegregory | 582 | 300 | 2.84 | Overloaded |
| | Aughacasla | 200 | None | None | No Existing Infrastructure |
| | Annascaul | 634 | 250 | 2.20 | Overloaded |
| | Boolteens | 170 | None | None | No Existing Infrastructure |
| | Castlemaine | 565 | 250 | 4.59 | Overloaded |
| | Cromane | 200 | None | None | No Existing Infrastructure |
| | Glenbeigh | 2,000 | 500 | 3.41 | Overloaded |
| | Chapeltown | 300 | None | None | No Existing Infrastructure |
| | The Glen | 75 | None | None | No Existing Infrastructure |
| | Caherdaniel | 300 | None | None | No Existing Infrastructure |
| | Sneem | 950 | 500 | 2.55 | Overloaded |
| | Kilgarvan | 311 | 200 | 2.16 | Overloaded |
| | Glenflesk | 100 | None | None | No Existing Infrastructure |

**Table 11 : Status of 90 Settlements**

| Category | Settlement Name | Estimated Existing Agglomeration (P.E) | Existing Infrastructure | | |
|---|---|---|---|---|---|
| | | | Treatment Design Capacity (P.E.) | Approx. Networks Km. | Other Comment |
| D (12) | Ballybunnion | 3,003 | 8,180 | 2.70 | Commissioned 1992 |
| | Ballyheigue | 832 | 4,534 | 23.20 | Commissioned 2003 |
| | Cahersiveen | 1,621 | 5,000 | 13.79 | Commissioned 1995 |
| | Castleisland | 4,353 | 6,000 | 11.30 | Commissioned 1992 Preliminary Report prepared in 2001 proposing further expansion of networks and treatment. |
| | Dingle | 4,820 | 8,600 | 13.14 | Commissioned 1995 |
| | Farranfore | 167 | 550 | 1.99 | Commissioned 2004 |
| | Kenmare | 7,600 | 3,500 | 16.77 | Commissioned 1995 Overloaded |
| | Killarney/Fossa | 20,000 | 42,000 | 77.00 | Upgraded 1998 Expansion required to accommodate expansion of town boundaries. |
| | Killorglin | 5,982 | 5,000 | 22.77 | Commissioned 1995 |
| | Listowel | 6,621 | 12,500 | 23.41 | Commissioned 1987 Nutrient Reduction to be installed 2006 |
| | Rathmore | 503 | 1,750 | 5.36 | Constructed 1950's Upgraded 2001 |
| | Tralee | 13,467 | 40,300 | 122.89 | Commissioned 1998 Nutrient Reduction to be installed 2006 |
| E (17) | Ballydavid | 136 | 150 | 0.75 | Constructed 1970's. Septic Tank |
| | Ballyferriter | 544 | 500 | 4.00 | Imhoff Tank, Overloaded |
| | Brosna | 373 | 250 | 1.78 | Imhoff Tank, Overloaded |
| | Causeway | 703 | 250 | 3.00 | Imhoff Tank & Percolating Filters, Overloaded |
| | Cloghane | 276 | none | 0.3 | No infrastructure Untreated discharge to Brandon Bay. |
| | Duagh | 348 | 250 | 1.40 | Imhoff Tank, Overloaded |
| | Dungeagan / Ballinskelligs | 690 | 300 | 4.0 | Septic Tank, Overloaded |
| | Feohanagh | 152 | 100 | 1.2 | Septic Tank, Overloaded |
| | Gneeveguilla | 325 | 550 | 2.5 | Extended Aeration System |
| | Kilfenora | 195 | 90 | 1.0 | Septic Tank, Overloaded |
| | Knightstown | 795 | 800 | 4.5 | Septic Tank |
| | Knocknagoshel | 294 | 200 | 2.0 | Septic Tank, Overloaded |
| | Moyvane (Newtown Sandes) | 717 | 450 | 2.5 | Imhoff Tank, Klargester, Sludge Vermicompostor, Overloaded |
| | Murreagh | 265 | 140 | 1.7 | Septic Tank, Overloaded |
| | Portmagee | 382 | 140 | 1.4 | Septic Tank, Overloaded |
| | Rossbeigh | 291 | 200 | 0.8 | Septic Tank, Overloaded |
| | Ventry | 239 | 200 | 0.9 | Septic Tank, Overloaded |

**Table 11 : Status of 90 Settlements**

| Category | Settlement Name | Estimated Existing Agglomeration (P.E) | Existing Infrastructure | | |
|---|---|---|---|---|---|
| | | | Treatment Design Capacity (P.E.) | Approx. Networks Km. | Other Comment |
| F (12) | Camp | <300 | None | None | -- |
| | Castlecove | <150 | None | None | -- |
| | Currans | <150 | None | None | -- |
| | Dunquin | <300 | None | None | -- |
| | Inch | <200 | None | None | -- |
| | Kells | <200 | None | None | -- |
| | Knockanure | <200 | None | None | -- |
| | Lauragh | <200 | None | None | -- |
| | Lispole | <200 | None | None | -- |
| | Lisselton | <200 | None | None | -- |
| | Templenoe | <150 | None | None | -- |
| | Tuosist | <150 | None | None | -- |
| G (15) | Ballyfinnane | <200 | None | None | -- |
| | Ballyhar | <100 | None | None | -- |
| | Ballymac/ Clogher | <300 | None | None | -- |
| | Bunane | <100 | None | None | -- |
| | Cordal | <200 | None | None | -- |
| | Faha/Listry | <150 | None | None | -- |
| | Fahamore | <200 | None | None | -- |
| | Glencar | <150 | None | None | -- |
| | Kilgobnet | <200 | None | None | -- |
| | Kilmoyley | <300 | None | None | -- |
| | Lyrecrompane | <150 | None | None | -- |
| | Mastergeehy | <150 | None | None | -- |
| | Reenard | <200 | None | None | -- |
| | Stradbally | <200 | None | None | -- |
| | Tahilla | <150 | None | None | -- |

## 5.1 Forward Planning

### 5.1.1 Forward Planning - Status

As part of the *Strategy for Delivery*, the Technical Assessments will identify the location, extent, scale, and phasing of future development that is to be serviced in the design and phasing of the wastewater projects at the 90 settlements. In accomplishing this work the Consultant/Consortium shall refer to the existing Local Area Plans where available, and for other settlements, shall prepare Development Boundary Maps as defined in Section 5.1.2.

In accordance with the advance-planning approach that has been emphasised in the Planning & Development Act 2000, Kerry County Council has initiated a programme of preparation of Local Area Plans for the towns and villages in the County. However, due to resource limitations, is not envisaged that the completion of all of these plans will be achieved prior to the commencement of, or during, the preparation of the Strategy for Delivery. A summary of the status of the Forward Planning at the various settlements is presented on **Table 12**.

**Table 12: Status of Forward Planning**

| Category | Status of Forward Planning |
|---|---|
| **A, B and C.** | As part of the preparation of Preliminary Reports for these settlements in 2004-2006, Forward Planning, for a 20 year period, was prepared identifying the extent and phasing of future development at the **34 settlements** listed under Categories A, B and C. |
| **D** | Forward Planning, for a 6-year period, identifying the extent (not phasing) of future development has been identified in the form of Local Area Plans, Town Development Plans, Masterplan Plans and Other Plans at the **6 settlements** :<br>• Castleisland<br>• Kenmare<br>• Killarney<br>• Killorglin<br>• Listowel<br>• Tralee.<br><br>Forward Planning is not available for the **6 settlements**:<br>• Ballybunnion<br>• Ballyheigue<br>• Cahersiveen<br>• Dingle<br>• Farranfore<br>• Rathmore |
| **E** | Forward Planning is not available for the **17 settlements** listed under Category E. |
| **F.** | Forward Planning is not available for the **12 settlements** listed under Categories F. |
| **G.** | Forward Planning is not available for the **15 settlements** listed under Categories G. |

5.1.1 Forward Planning – Status (Continued)

Table 12 shows that, while Forward Planning data providing the extent and phasing of 20-year projected development will be available to the Consultant/Consortium at **34 Settlements**, further forward planning work is required to identify 20-year extents and phasing of projected development at the following **56 settlements**:

- **12 Settlements – Category D**
- **17 Settlements – Category E**
- **12 Settlements – Categories F**
- **15 Settlements – Categories G**

The 20 year extents and phasing of projected development at these 56 settlements shall be identified as described in Paragraphs 5.1.2.

5.1.2 Forward Planning – Category D, E, F & G

In the absence of complete Forward Planning (extent & phasing) at **56 settlements** listed under Categories D,E,F & G, the scale and phasing of future wastewater infrastructure at these settlements shall be based on Development Boundary Maps to be prepared under the Strategy for Delivery.

The preparation of Development Boundary Maps will involve the following:

a) Review of existing developments and planning applications that have been granted by Kerry County Council or are under examination.

b) Liaison with and taking instruction from Kerry County Council Forward Planning Unit on the scale and density of development envisaged at the listed settlements and quantification of future growth in terms of the type, scale, density and location of development anticipated for each settlement.

c) Preparation of development boundaries for each settlement having regard to existing zonings and plans if any, existing plannings, environmental and development constraints, natural drainage boundaries, etc.

d) Identification of the appropriate phasing of development for each settlement.

e) Submission of the Development Boundary Maps to Kerry County Council Forward Planning Department for comment, refinement and agreement.

The completed Development Boundary Maps will form the basis for an assessment of the scale, nature, density, location and phasing of the wastewater infrastructure at each settlement.

## 5.2 Technical Assessments

The purpose of the Technical Assessments at the 90 settlements is to inform the Consultant/Consortium in the formulation of the various elements of the Strategy for Delivery. In the development of a cost- effective Strategy for Delivery, it is important therefore to ensure that the Technical Assessments are formulated to an *appropriate* level of detail to serve their intended purpose.

To assist the Consultant/Consortium in determining the scope, inputs and outputs of the Technical Assessments, the Technical Assessments are described under the following headings:

- Inputs Required
- Outputs Required
- Appropriate Technical Detail

### 5.2.1 Technical Assessments – Inputs Required

In the preparation of Technical Assessments on existing and future wastewater infrastructure, the Consultant/Consortium will be required to undertake research, studies and liaison in the development of the optimum technical solutions including:

- Integration of existing Preliminary Reports & Contract Documents where available and appropriate.
- Incorporation of all local, Irish and EU wastewater, sludge and environmental Legislation and Reports in the identification of future requirements and standards that will define the infrastructure to be provided.
- Appropriate on-site inspections, surveys, research and desk-studies into operational, management, environmental and developmental issues.
- Liaison with Kerry County Council operational and management staff, Consultants, Contractors, etc. as appropriate in the identification of operational issues, maintenance routines, infrastructure capacities, deficiencies, etc.
- Analysis of Kerry County Council operational and management structures and the identification of appropriate phased strengthening of or modifications to these structures to reflect the significant development of the infrastructure.
- Liaison with Kerry County Council Forward Planning Unit in identification of existing and future development and appropriate phasing of infrastructure at the various settlements.
- Identification of capital, operational and maintenance cost estimates using appropriate unit-cost methodologies, identifying alternatives and appropriate phasing.
- Assessment of the role of Public Private Partnerships in the delivery of the optimum solutions with reference to national and international experience.
- Identification of best practice parameters for construction and operation to improve and measure operational and management performance and efficiency.

## 5.2.1 Technical Assessments – Inputs Required (Continued)

The level of inputs required at each settlement will vary in accordance with the Category within which the settlement falls. The minimum level of inputs required for each Category shall be deemed to include, and shall not be limited to, those indicated in **Table 13**.

**Table 13 : Technical Assessments - Inputs**

| Settlement Category | No Of Settlements | Review Existing PR | Review Existing CD | Site Visit & Assessment | Consultation with Operators/Caretakers | Prepare Development Boundary Maps & Phasing | Identification of Design Population & Phasing | Consultation with Forward Planning | Collection Systems | Effluent Standards & Disposal | Treatment Works | Sludge | Statutory Processes | Update and/or Prepare Cost Estimates | Review//Identify Phasing |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A** | 1 | ● | ● | ● | ● | | | ● | | | | | | ● | ● |
| **B** | 5 | ● | ● | ● | ● | | | ● | | | | | | ● | ● |
| **C** | 28 | ● | | ● | ● | | | ● | | | | | | ● | ● |
| **D** | 12 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **E** | 17 | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **F** | 12 | | | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **G** | 15 | | | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

### 5.2.2 Technical Assessments –Outputs Required

The output from the Technical Assessments should present the technical analysis, solutions and options to an appropriate extent and level of detail for each settlement. The required outputs should be seen as the inputs to the various strategies to be developed and should include, but not be limited to, the following:

- The scale, nature and phasing of the wastewater and sludge infrastructure that is required to accommodate existing and future development at each settlement
- The county-wide technical solution for sludge treatment and disposal with a phased implementation programme that is integrated with the phased development of wastewater infrastructure at the various settlements.
- The strategic technical function of wastewater infrastructure at each settlement in the county-wide wastewater and sludge strategy and phased implementation programme.
- Capital and Operational cost estimates for the existing and proposed county wastewater and sludge infrastructure with an expenditure profile to reflect an appropriate and achievable phased development programme.
- The appropriate phased construction programme for existing and proposed wastewater and sludge infrastructure.
- Water Charging Pricing Policy Report with strategic marginal costs analysis on phased development of the wastewater & sludge infrastructure with respect to non domestic loads, in accordance with Circulars L16/02 on Consolidation of Water Services Pricing Policy and all relevant Circulars.
- A schedule and programme of detailed technical studies or other actions that are recommended to be undertaken to progress the Strategy for Delivery to the Design, Procurement, Construction and Operate Stages.

### 5.2.3 Technical Assessments – Appropriate Technical Detail

In determining the *appropriate* level of technical research to be undertaken and the *appropriate* level of technical detail to be presented in the Technical Assessments, the Consultant/Consortium should take particular note that the sole purpose of the Technical Assessments is to inform the Strategy for Delivery in the formulation of the various components of the Strategy for Delivery. In this regard, it should be particularly noted that Kerry County Council do not anticipate that the Technical Assessments will be referenced for any other purpose.

The Technical Assessments should be based on an *appropriate* level of technical research and should be presented at an *appropriate* level of technical detail to facilitate the identification of the scale, nature, phasing and estimated costs of the required infrastructure.

It is anticipated that the Technical Assessments would involve the following levels of technical research and level of detail:

Wastewater Networks & Loadings

- technical research to identify (in settlements where networks currently exist) the merits or otherwise of existing trunk foul and surface water networks on the basis of site inspection, operational history and desk-studies.

- technical detail to present the phased development of the foul and surface trunk networks to cater for future development on the basis of desk-study and framework methodologies.

- technical detail to identify cost estimates of the phased development of the networks on the basis of appropriate unit cost methodologies.

Treatment Plants

- technical research to identify (in settlements where treatment currently exists) the merits or otherwise of existing treatment systems and discharge location on the basis of site inspections, operational history and desk-studies having regard to future phased loading and discharge standards.

- technical detail to identify the appropriate technology and phased development of the treatment infrastructure at the 90 settlements to cater for future loadings of wastewater and sludge having regard to existing and/or proposed discharge locations and water quality standards to be achieved.

- technical detail to identify cost estimates of the phased development of the treatment infrastructure, including sludge and discharge arrangements, on the basis of unit cost methodologies.

Where framework and unit-cost methodologies are adopted, these should be documented and should be based on experience gained on similar infrastructure under similar conditions.

## 5.3 General Requirements – Technical Assessments

Technical Assessments shall be prepared and presented in accordance with the following general requirements:

a) Where options are available, the preferred solution shall be identified and clearly presented having considered the best technical and the most cost beneficial solution. When considering alternative options, unit cost per head of population, per house and per hectare of serviced and serviceable lands shall be taken into consideration and presented.

b) Calculations relating to design populations and loadings shall take into account the latest Census figures and any other relevant predicted future trends and developments.

c) The level of treatment required will depend to a large extent on the proposed discharge point(s) and the appropriate discharge standards shall be established prior to discharge to the receiving waters.

d) Treatment proposals shall examine and report on the need to provide disinfection and nutrient reduction as part of the treatment process prior to discharge.

e) Preliminary calculations shall be presented for the treatment process design and sludge treatment & reuse/disposal options.

f) Proposals for upgrading existing networks and proposals for new networks shall provide for foul sewage and storm drainage collection systems as separate systems to the greatest extent practicable.

g) Options for the logical phasing of the construction of the project shall be examined and cost estimates shall be presented to show the costs of each phase separately.

h) Cost estimates shall include design, construction, supervision, legal, operating costs and maintenance costs for the options considered.

i) Summaries of design calculations shall clearly show why the preferred recommended collection, treatment and disposal options are chosen.

j) Final recommendations shall be based on the most economic solution and shall have undergone the application of Value Engineering Principals in order to ensure cost effectiveness in all cases.

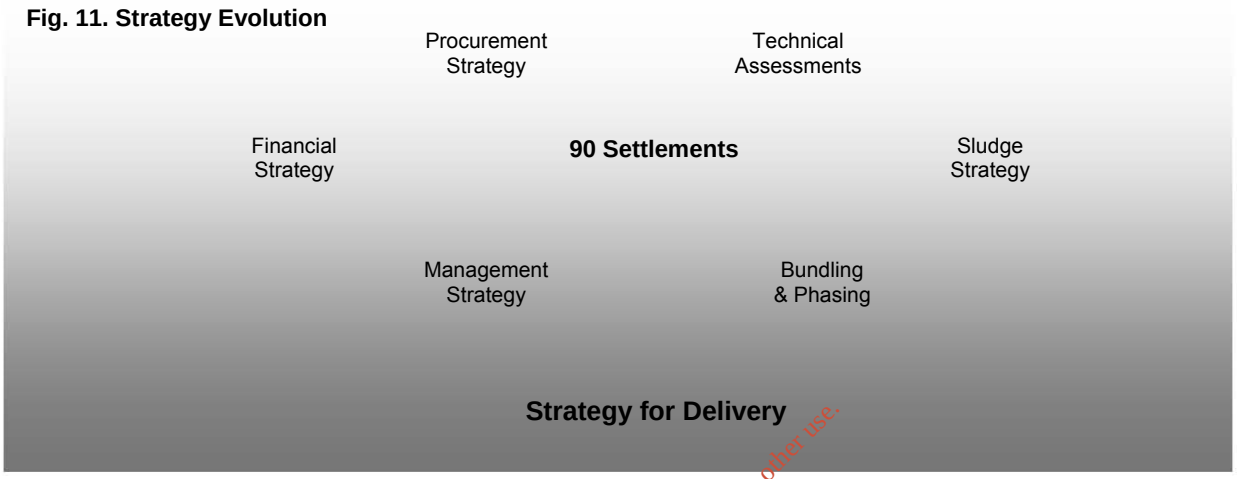
k) Statutory requirements of any proposed solution shall be reviewed in relation to planning, general legislation, land acquisition, environmental impact and any other relevant legislation or statutory requirement.

l) A prioritised and costed programme of works shall be identified for implementation in order to satisfy the project objectives and a full breakdown of costs shall be identified relative to the various output recommendations.

### 5.4 Technical Assessments & Strategy Evolution

It should be noted that the identification of the phased development of the wastewater infrastructure at each settlement will require iterative inputs and re-assessment according as the various elements of the Strategy for Delivery are formulated and according as the optimum strategic solution evolves having regard to the strategic role of each treatment plant in the integrated county-wide strategy and taking into account the appropriate bundling and Design/Build/Operate solutions to provide cost effective delivery.

**Fig. 11. Strategy Evolution**






### 5.5 Normal Services

The following items shall be deemed to fall under the heading of “Normal Services” not subject to additional payment by the client:

a) Specialist hydrogeological advice and services.

b) Use of computers and other forms of modern technology.

c) Independent checking of calculations.

d) Liaison with the Local Authority on existing and proposed infrastructure.

e) Liaison with other Agencies, Consultants, Advisors, Local Authorities, Utilities Providers and Statutory Bodies where appropriate.

f) Delivery of all completed reports and drawings in a digital format conforming with Kerry County Council IT policies ( i.e. Microsoft Word, Excel, Access, AutoCad and Mapinfo formats).

### 5.6 Design Parameters

All recommendations arising out of Technical Assessments shall present the basic design parameters that have been adopted and shall be in compliance with the normal parameters recommended by the DOEHLG or Kerry County Council unless particular circumstances dictate that other parameters are appropriate.

## 5.7 Strategic Environmental Assessment (SEA)

In parallel with the Technical assessments and the evolving technical solution, the Consultants appointed shall undertake a Strategic Environmental Assessment in accordance with the requirements of the (SEA) Directive 2001/42/EC and the prescribed environmental authorities in Ireland:

- Environmental Protection Agency
- Department of Environment, Heritage and Local Government
- Department of Communications, Marine and Natural Resources.

The Strategic Environmental Assessment was transposed into Irish law by Regulations SI 435 and SI436 of 2004. The objective of the Directive is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of specified plans and programmes with a view to promoting sustainable development.

## 5.8 Information to be Submitted

It is anticipated that a key element in the preparation of the Technical Assessments/SEA to an *appropriate* level of technical detail will be the component of the Consultant/Consortium Team that can contribute significant experience *and judgment* in the development of wastewater infrastructure.

To assist in the final selection of the Consultant/Consortium for the project, all Tender Proposals shall include a *short* description of the proposed approach to be adopted in the development of the Technical Assessments/SEA taking 3 sample settlements of varying scales as follows:

- Listowel (Category D)
- Duagh (Category E)
- Lisselton (Category F)



The short description of the proposed approach should strive to display that the approach is considered to be at an *appropriate* level of technical detail and should display the availability and application of appropriate framework and unit cost methodologies.

All Tender Proposals shall also present the input in man-hours that has been allocated in the development of Technical Assessments/SEA at each of the 7 Categories to display the scale of input that has been allocated in the areas of:

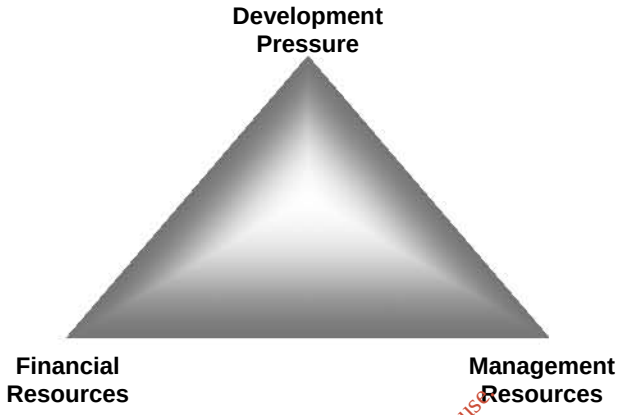
a) Identification of extent and phasing of future development.
b) Undertaking of technical research.
c) Identification and presentation of proposed technical solution.

The above information will be taken into consideration in the Tender Award Criteria in the assessment of the professional *experience and judgment* of the project team and in the assessment of the *appropriate* scale and level of detail required in the preparation of the Technical Assessments to support of a cost-effective formulation of the Strategy for Delivery.

# Chapter 6 – Strategy for Delivery

## 6.0 Strategy for Delivery

The Strategy for Delivery shall formulate and present various options that may be available and shall recommend the optimum strategy for the delivery of the wastewater infrastructure in County Kerry having considered all constraints and conflicts that may be identified in project delivery, project financing and project management.






It is anticipated that the Strategy for Delivery will formulate distinct sets of strategies, that will be fully integrated within each other, in the following structure:

- ***Procurement Strategy***
- ***Management Strategy***
- ***Financial Strategy***
- ***Statutory Process Strategy***
- ***Stakeholder Strategy***

While the general issues and concepts, which are to be considered and addressed in the formulation of the above strategies, are discussed in this Chapter, the full extent of issues will only become apparent according as the technical, management and operational opportunities, risks and constraints of the project are examined in detail in the formulation of the Strategy for Delivery.

**6.0 Strategy for Delivery** (Continued)

It is envisaged that the Strategy for Delivery will be formulated through an iterative progression of the various issues and strategy elements to be considered whereby a logical, viable and achievable programme of works will be formulated to deliver the required projects in the required order of priority, within appropriate timeframe to accommodate and encourage development while also accommodating and/or exploiting all financial, operational, resource and other constraints and/or opportunities.

An indicative flowchart of the iterative progression that is envisaged is presented in Fig 12.

**Fig 12. – Strategy for Delivery Iterations**

## 6.1 Procurement Strategy

The scope of the Procurement Strategy shall encompass the 3 stages of:

- ***Design Stage***
- ***Construction Stage***
- ***Operation Stage***


The Procurement Strategy shall identify options and formulate proposals and recommendations on the following key issues for each of the 3 stages of procurement (i.e. Design, Construction and Operation) :

- *Procurement Routes*
- *Project Bundling & Integration of Sludge Management*
- *Procurement Procedures*



### 6.1.1 Procurement Routes

The main Procurement Routes that are likely to be considered in the strategy are:

- *Public Private Partnership Procurement*
- *Conventional Procurement*

The Procurement Strategy shall formulate a decision process that presents the optimum Procurement Route to be adopted by Kerry County Council in the procurement of the service in the 3 stages of Design, Construction and Operation. **One of the key outcomes of this decision process will be the extent to which Kerry County Council should continue in the conventional role of operator of the wastewater service and, in particular, of existing and new wastewater treatment plants.**

In accordance with The DoEHLG *Policy Framework for Public Private Partnership Projects in the Water Services Sector,* a Public Private Partnership Assessment Report is the appropriate framework for this decision process, leading to the point where a decision is clear on the favored Procurement Routes to be followed in advancing the Design, Construction and Operate elements of the Project.

6.1.1 Procurement Routes (continued)

The Public Private Partnership Assessment Report shall examine the potential role for a Public Private Partnership (PPP) for selected elements of the proposed infrastructure to achieve improved value for money compared with conventional procurement. The Public Private Partnership Assessment Report shall include a Public Sector Benchmark Assessment in accordance with DEHLG Circular L5/06.

The PPP Assessment shall determine:

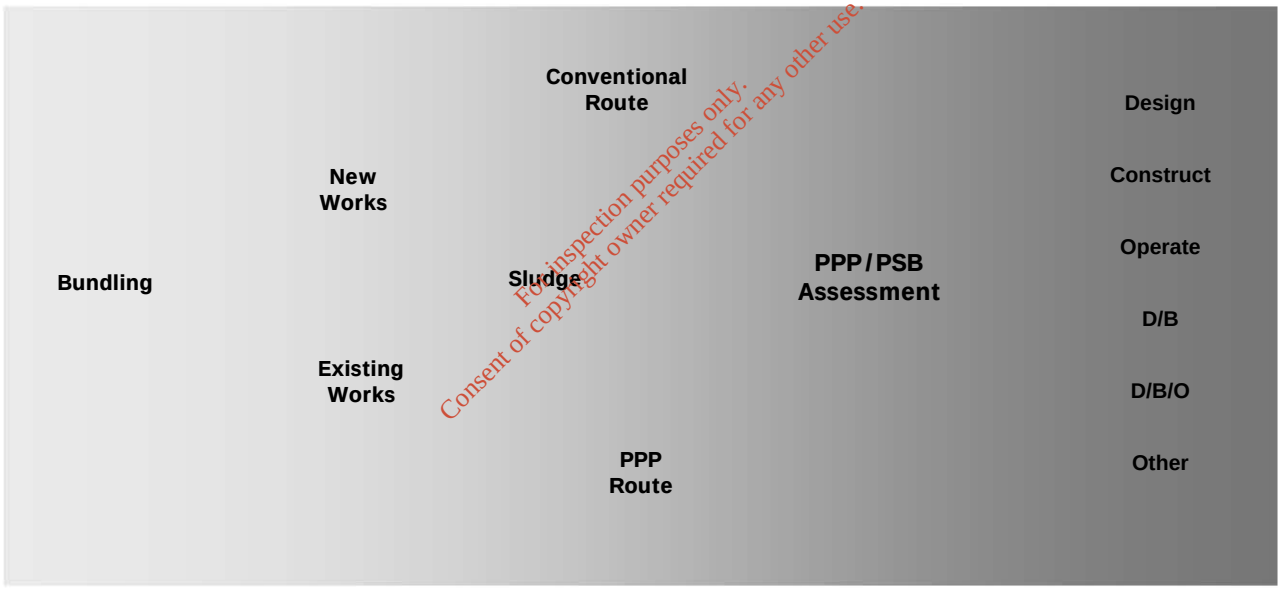
- the specific elements of the project to be progressed by means of:

*a) Public Private Partnership Procurement Route*
*b) Conventional Procurement Route*
*c) Combination of PPP and Conventional Procurement Routes.*

- the form of Public Private Partnership Route (if any) e.g. DB/DBO/DBOF.

- the allocation of risk proposed between the public and private sectors and who should have responsibility for securing the necessary statutory approvals.

- the Procurement Procedure to be used.






In cases where the recommended solution includes a PPP Procurement Route, the PPP Assessment shall also undertake an initial market sounding to obtain the views of potential private sector contractors on the portfolio of projects that are proposed for procurement as PPP. The initial market sounding should consider the strength of the private sector market, the private sectors scope for achieving economies, and its relevant expertise. The PPP Assessment should assess and report on the likely level of interest in the market, the capability of the market to undertake the proposed range of projects and the long term stability of the market with respect to any proposed operational element.

### 6.1.2 Project Bundling & Integration of Sludge Management

It is anticipated that the delivery of the proposed scale of investment in wastewater infrastructure in County Kerry will require the bundling of projects at the design, construction and operational stages to achieve the necessary economy of scale and to provide optimum efficiencies in the management, procurement and operational stages. It is anticipated that such a bundling solution will be prudent for any combination of Procurement Routes that may be recommended.

The Procurement Strategy shall identify and assess all available options and recommend the optimum strategy for appropriate bundling having regard to the technical and financial logistics and constraints at the various stages of the project i.e. design, procurement, construction, operation, funding etc.. In the preparation of the Procurement Strategy, an integrated proposal shall be prepared on sludge management that will entail a review of the 2003 County Sludge Management Plan to accommodate the full extent and technical nature of the proposed wastewater infrastructure and shall present recommendations and costings on appropriate sludge treatment technologies, transport, disposal and disposal outlets while taking into account appropriate regional Sludge Strategies.

The Procurement Strategy shall include a report on market soundings to indicate that the proposed bundling strategy is in line with market expectations in relation to the scale, nature, timescale and any other key component of the bundling solutions. The bundling solution shall be extended to and shall integrate with the Procurement Stage (i.e. Design, Construct and Operate stages) in the identification of the necessary resources and management skills that will be required by Kerry County Council and the DoEHLG in the financing and effective management of the projects.

### 6.1.3 Procurement Procedures

Appropriate Procurement Procedures shall be identified for the 3 stages of :

- design stages (i.e. detailed designs, contract documentation, specification and bill of quantities)
- construction stages
- operation stages



The appropriate and optimum Procurement Procedure will be dependent on:

- Procurement Route that is recommended.
- PPP option recommended (if any).
- European Union and Irish procurement laws and/or regulations.
- specific characteristics of the project.
- potential to transfer statutory process risk.
- value for money that may be gained or lost as a result of the Procurement Procedure adopted.

The Procurement Strategy shall identify available options and present and recommend the optimum Procurement Procedure for the various elements and stages of the proposed project including recommendations on:

- Overall Timescale/Programme & Key Dates
- Advertising
- Pre-Qualification
- Tenders
- Tender Evaluation & Award Criteria
- Contract Award and remedies
- All other key procurement activities

## 6.2 Management Strategy

Kerry County Council recognise that the implementation of the *County Kerry Wastewater & Sludge Project* will require additional technical, operational and administrative skills and expertise and will require a significant level of proactive management on the interface between the Council, specialist Consultants, Advisers, DoEHLG and the Contractors to ensure that the projects are delivered to the project timescales and budgets and in accordance with the requirements to be defined in the various Contracts and Output Specifications.

The project management experience gained by Kerry County Council in the conventional procurement of wastewater infrastructure projects covers procedures and organisation to take individual projects through the planning, design, procurement and construction stages before handing it over to Council operational staff to operate the service. In consideration of the scale of the infrastructure to be delivered and the likely range of Procurement Routes to be adopted, the *County Kerry Wastewater and Sludge Project* will require the introduction of new project management structures in Kerry County Council to achieve the desired outcome. In particular, Kerry County Council recognise that one of the key issues in relation to the contract and performance management of Public Private Partnership projects will be the need for effective structures and personnel within Kerry County Council to ensure that projects are managed effectively and that services are delivered to the required standard throughout the contract period.

The Management Strategy shall present options and recommendations on the 2 major management stages that are envisaged:

- **Development Stage**: dealing with the development of the projects up to and including contract award, generally along the lines of conventional project management but with additional expertise in the nature of Public Private Partnership where this forms part of the recommended solution.

- **Implementation Stage:** dealing with the procedures and organisation required (starting from the date of contract award) to oversee the construction, commissioning and operation of the asset for both conventional and PPP Procurement Routes.



The Strategy for Delivery shall recognise that a significant degree of overlap will exist between Development Stage and Implementation Stage and the Management Strategy should be formulated to optimise skills and experience that will be established by providing for the evolution of Kerry County Council personnel from the Development Stage to the Implementation Stage.

The Strategy for Delivery shall present options and recommended solutions for staffing, skills, experience, expertise, advisors, roles and logistics of the Development and Implementation Management Teams while providing for the desired continuity of support structures between the stages. The Development and Implementation Management structures shall be identified for the appropriate mix of conventional and PPP Procurement Routes as may be identified in the Strategy for Delivery and should identify the change in focus that will be demanded in a PPP solution where the emphasis will be on quality assurance, spot checking and monitoring performance.

In formulation of the Management Strategy, the Consultant shall take into account the existing fundamental and extensive integration of water supply and wastewater management and operational structures in Kerry County Council and the need to maintain an efficient and viable management structure in water supplies. The Consultant shall also note the forthcoming *Water Supplies Strategic Study*, that will identify a parallel strategy for delivery for water supplies in County Kerry, and shall identify issues arising from the Strategy for Delivery that should be taken into consideration in the formulation of the *Water Supplies Strategic Study*.

**6.2 Management Strategy** (continued)

The Management Strategy shall present the following:

- Assessment of the existing management, technical, administrative and operational staffing structure and reporting hierarchy that is currently in place in both the Operations and Capital Water Services Units of Kerry County Council. (Fig. 4. and Fig. 5)

- Options and recommended optimum structures for effective management, technical, administrative and operational staffing structures in the Water Services Capital Unit having regard to the skills required, the Procurement Routes and Programme for Delivery that is proposed and the nature and scale of the contracts to be delivered.

- Options and recommended optimum structures for effective management, technical, administrative and operational staffing structures in the Water Services Operations Unit having regard to the Procurement Routes and Programme for Delivery that is proposed and the nature and scale of the services to be delivered with particular reference to operational stage lifecycle in the case of both PPP and conventional Procurement Routes.

- All other management, technical, administrative and operational staff costs that may be required e.g. internal and external legal, financial, technical experts, staff from other sections of Kerry County Council, Process Auditor as required by Department of Finance, external stakeholders & regulators, etc.

- All appropriate office accommodation structures and locations, with particular recommendations for headquarter offices, sub-office and/or area-office floor space and locations of operational depots, stores etc. as may be required in the effective and efficient delivery of the services.

- Financial expenditure and income profile having regard to the phased development programme as proposed in the Strategy for Delivery. Cost estimates should include and identify all management, technical, administrative and operational staff, training costs, communications technologies, office costs, transport costs and all other costs that may be incurred in the delivery of the service in accordance with the recommendations of the Strategy for Delivery.



The Management Strategy shall be formulated with reference to best practice in other similar organisations and Local Authorities and shall identify new operational and management structures and procedures that will be customer-driven rather than provider focused and that will facilitate:

- improved quality, performance and efficiency of the service.

- optimised management and operational structures with clear reporting, communications and decision-making arrangements.

- introduction of a performance culture by establishing measurable targets.

- elimination of unnecessary bureaucracy and excessive monitoring arrangements.

- ongoing performance review and benchmark assessment.

## 6.3 Financial Strategy

The majority of funding for the capital element of infrastructure development works is currently met by Capital Grants through the DoEHLG from Exchequer or EU funds. Local Authorities are required to identify and secure funding to cover the balance of capital costs as well as the operational and maintenance costs.

The Financial Strategy will be required to formulate the financial methodology whereby the required infrastructure is financially viable and will be required to identify the sources of expenditure & income and a satisfactory expenditure/income balance throughout the planning, procurement, construction and operation phases of the various elements of the project.

The Financial Strategy will be required to identify and formulate the financial profiles for the following:

Expenditure

- Project Management - Design, Procurement & Construction Stages
- Land Acquisition & Wayleaves
- Design & Other Fees
- Planning, EIS etc.
- Construction Costs & Marginal Costs
- Project Management - Operation Stage
- Operational Costs & Service Performance Payments
- Indexation
- All other costs as may be identified.
- Capital & Operational Unit Costs (per head of population, per house and per hectare of serviced and serviceable land).

Income

- Grants – All Sources
- Private finance (as may be determined by PPP Strategy)
- Development Levies
- Special Infrastructural Levies
- User Charging
- Loans
- All other income sources as may be identified and may be appropriate



The Financial Strategy shall be integrated with and shall inform the Programme for Delivery in the formulation of a financially and logically viable Strategy for Delivery. In the formulation of the financial options and in the selection of the optimum Financial Strategy the Consultant shall undertake particular liaison and shall reach full agreement on any proposed financial strategy with the following:

- DoEHLG.
- Kerry County Council – Director of Water Services.
- Kerry County Council - Head of Finance.
- Kerry County Council - Director of Planning.

## 6.4 Statutory Process Strategy

Traditionally, Kerry County Council has borne the risks associated with undertaking the statutory process for major infrastructural projects which would typically include the following:

- EIS
- Wayleaves
- Land acquisition
- Compulsory Purchases
- Foreshore Licenses
- Discharge Licenses
- Planning Permissions & Part 8 Planning
- Waste Disposal Licenses

Public Private Partnerships may provide the opportunity for Kerry County Council to transfer some or all of statutory process risk to the private sector and one of the key decisions to be made during the course of preparation of the Procurement Strategy is whether there is scope for allocating some statutory risk to the private sector.

In a Public Private Partnership Project, two options are possible for delivery of statutory approvals:

Statutory process retained by the Kerry County Council:

The public sector carries out the planning and statutory processes in advance of the tender process. With this option, statutory process is completed with the benefit that there is certainty as regards the conditions to be applied to the project and timescale risk is managed by Kerry County Council. On the other hand, this certainty involves definition of project characteristics which tend to limit the flexibility afforded to tenderers in developing innovative solutions.

Transfer of statutory process risk to the Private Sector:

Tenders are invited for a project in advance of statutory process, with tenderers ultimately responsible for securing statutory approval if selected. In this scenario, a key issue is whether the Contractor has the capacity to manage statutory process risk effectively in order to deliver value for money. A key consideration in transferring statutory process risk will be whether the Contractor has the necessary flexibility to offer the most appropriate and cost effective solutions.



The Strategy for Delivery shall undertake an assessment of the potential for transfer of statutory process risk to the private sector with a particular emphasis on achieving improvement in value for money and shall:

- Identify all statutory process activities and risks.
- Allocate statutory process activities and risks.
- Assess the impacts on the proposed allocations on project cost and timescale.
- Identify options for involving the private sector in statutory processes and select the preferred option.

## 6.5 Stakeholder Strategy

Kerry County Council acknowledge the importance of giving appropriate consideration to the statutory rights and legitimate economic interests of stakeholders in any project.

In the event that the Strategy for Delivery includes a PPP involvement, it is proposed to adopt an approach involving extensive consultation and open communications with all stakeholders at the earliest opportunity, the key elements of which will ensure that:

- The maximum level of information possible is made available to the relevant stakeholders in an accessible form and within a properly understood and consistently applied framework.
- The relevant stakeholders are informed of the existence of a Public Private Partnership project as soon as it is proposed.
- Systems are put in place at a local level to ensure that stakeholders are kept informed of significant developments throughout the process.

It is anticipated that consultation will be undertaken with all interests and stakeholders such as:

- Employees
- Trade Unions or other Employee Representatives
- General Public
- Service Users and their Representatives/Associations/Lobby Groups
- Community Served
- Elected Public Representatives



The Stakeholder Strategy shall:

- Identify all stakeholders
- Identify legal or other rights of stakeholders
- Identify impacts on stakeholders
- Propose mitigations for any impacts
- Prepare a Communications Plan setting out the processes and timetable by which key project stakeholders will be consulted.

While the primary aim of the above consultations will be the resolution of stakeholder issues, these consultations will also assist in identification of other issues that may need to be highlighted in any potential contract where such issues may impact on the construction and/or operation costs of the project. Such costs and implications should be fully integrated in the decision making process in the formulation of the overall Strategy for Delivery.

## 6.6 Review of Documents/Reports and Proposals

In the preparation of the Technical Assessments, Development Boundary Maps and the Strategy for Delivery the successful Consultant will be required to assimilate requirements and proposals contained within a broad range of local, national and technical documents including:

Local Documents

- Kerry County Development Plan 2003 - 2009.
- Town Development Plans for Tralee, Killarney & Listowel
- Development Contribution Schemes as adopted in all Local Authorities in the County.
- Phosphorous Measures Report (Kerry County Council).
- Kerry County Sludge Management Plan.
- Other Studies, Reports and Recommendations relating to planning, wastewater infrastructure, environment, industry and employment in the County.

National and EU Documents

All current Acts, Regulations, Circulars and EU Legislation that may be relevant to:

- wastewater and sludge infrastructure, treatment systems and waste disposal.
- planning, heritage, archaeology, fisheries, foreshores, marine and environmental protection.
- Water Framework policies, pricing policies and polluter pays principles.
- Health & Safety.
- Procurement & Public Private Partnerships.
- Employment and Employee Rights, Industrial Relations
- All matters arising out of Common Law.

All current National Reports, Circulars, Advisory Notes that may be relevant to:

- wastewater and sludge infrastructure, pricing policies, polluter pays, Public Private Partnerships.

Technical Documents

All current design standards, relevant Irish and International Standards, DOEHLG circulars and Technical Papers related to:

- Wastewater treatment plant design.
- Sewer, overflow, pumping plant, etc. design.
- Sludge treatment, transport, reuse and disposal.

## 6.7 Liaison & Consultations

In the preparation of the Technical Assessments, Development Boundary Maps and the Strategy for Delivery the successful Consultant will be required to liaise with the Contracting Authority Engineer and his representatives on all aspects of the project and will be required to consult with and seek approval where necessary of all other interested parties including:

- Kerry County Council, Tralee Town Council, Killarney Town Council and Listowel Town Council Planning Departments in relation to the future development of the County and Town Councils and in relation to the identification of identification and appropriate phasing of wastewater infrastructure in line with anticipated development.
- The Directors of Services for other Services of the Council (Fire Services, Housing, Community and Enterprise, Finance - including Head of Information Technology) and their representatives on all aspects of the project relevant to their particular Services
- EPA, An Taisce, Fisheries Boards, Nature Conservation Groups, Angling Clubs and all other interested bodies as may be required in the formulation of the Strategy for Delivery.
- Department of the Environment, Heritage and Local Government including National Parks & Wildlife Service with regard to the potential impact of any proposed works on Flora & Fauna and on National Heritage Areas and Special Areas of Conservation.
- Department of Communications, Marine and Natural Resources.
- The Office of Public Works.
- The Health Authority.
- Iarnród Eireann.
- The Local Government Computer Services Board
- All other Agencies, Consultants, Advisors, Local Authorities, Utilities Providers and Statutory Bodies where appropriate.
- Water Services staff at management, operational, maintenance levels in the identification of the status of existing assets and issues to be considered in the overall strategy.
- Staff, staff representatives and staff unions in relation to any proposed impacts on staff levels, duties, reporting arrangements and structures.
- DoEHLG, Department of Finance and Kerry County Council Head of Finance in relation to any research data and proposals and options to be presented in the formulation of the Financial Strategy.

Drafts and frameworks of all documents shall be presented for comment/discussion at formal discussion meetings during the course of preparation of the Technical Assessments, Development Boundary Maps and the Strategy for Delivery. Drafts of the final document shall be presented prior to completion and agreement of the Final Draft and preparation of the completed Report.

## 6.8 Strategy for Delivery – Preparation & Submission

On appointment, the Consultant shall prepare and agree with Kerry County Council a detailed programme for the execution of the study and component activities. The programme shall include a list of staff assigned to the project. Specialist staff nominated shall be subject to the approval of Kerry County Council.

The Draft Strategy for Delivery shall be submitted to Kerry County Council within **6 months** from the date of the award of the contract.

The final Strategy for Delivery shall be completed and submitted within **1 month** after Kerry County Council returns its comments on the Draft Strategy.

# Chapter 7 – Procurement Process

## 7.1 Procurement Process

The appointment of an Economic Operator for a Public Service Contract (Wastewater) is defined by:

- **Classical Directive** – 2004/18/EC as amended by Commission Directive 2005/51/EC and Commission Regulation (EC) No 1564/2005.
- **National Procurement Rules** as set out in the "Green Book" and a number of listed Government Circulars.




As the outcome of the current study is likely to include options involving DBO solutions, the tender procedures for the appointment of the Economic Operator will be undertaken in accordance with **Directive 2004/18/EC** in association with the National Procurement Rules (**Restricted Procedure)**.

.

Figure 13, overleaf, indicates the procurement flowchart in accordance with EU Directive, the key stages of which are:

a) Receipt of Requests to Participate
b) Issue of Contract Information Note
c) Receipt of Expressions of Interest
d) Pre-Qualification
e) Issue of Project Brief & Invitation to Submit Tender Proposals
f) Receipt of Tender Proposals
g) Tender Assessment & Interview
h) Contract Award

**Fig. 13 - EU Procurement Flowchart**

## 7.2 Contract Notice

The Contract Notice was published on the following media on **7th July 2006**:

- The Irish Government Public Sector Procurement Opportunities website (http://www.etenders.gov.ie)

The Contract Information Note was issued to all Applicants who submitted a Request to Participate. Economic Operators who submitted an Expression of Interest have been pre-qualified on the basis on information submitted.

## 7.3 Tender Proposals

Tender Proposals from shortlisted Candidates should not exceed 40 No. A4 pages, while supporting information may be annexed up to a maximum of 30 No. additional pages. **Six copies** of all submission material should be submitted.

Tender Proposals should present the following:

a) Summary details of Company Profile and/or Consortium or Joint Venture, if relevant.

b) Details of company management and relevant experience and experience of any proposed partner companies and/or sub-consultants or sub-contractors.

c) Outline Methodology for undertaking the project with particular reference to the information required under Paragraph 5.8.

d) Details of proposed Project Team, including CV's and current work loads, including demonstration of competence to act as Project Supervisor (Design Stage).

e) Details of specialist expertise required in the following areas:

(i) Strategic Development, Management & Operation of Public Utilities
(ii) Wastewater Infrastructure Planning & Design
(iii) Public Private Partnership, DBO etc.

f) Quality Control Procedures.

g) Outline Programme for delivery of services

h) Indicative Fee proposal and details of methodology to be used in fee calculation.

i) The consultants' assumptions of input from the Client.

j) Update of the personal, professional or other status of the Economic Operator as documented in the Expression of Interest.

**Or**

Confirmation that no variation has occurred to the personal, professional or other status of the Economic Operator as documented in the Expression of Interest.

## 7.4 The Fee Proposal

The Fee Proposal shall be in the form of a lump sum fixed fee inclusive of V.A.T. and shall be detailed in the format indicated on Table 14:

**Table 14 – Indicative Fixed Fee Proposal**

| Item | Indicative Fixed Fee |
|---|---|
| 1. Strategy for Delivery Report | |
| 2. Procurement Strategy (Including PPP & PSB Assessment) | |
| 3. Management Strategy | |
| 4. Financial Strategy (including Water Pricing Policy Report) | |
| 5. Statutory Process Strategy | |
| 6. Stakeholder Strategy | |
| 7. Technical Assessments – Category A Settlements | |
| 8. Technical Assessments – Category B Settlements | |
| 9. Technical Assessments – Category C Settlements | |
| 10. Technical Assessments – Category D Settlements | |
| 11. Technical Assessments – Category E Settlements | |
| 12. Technical Assessments – Category F Settlements | |
| 13. Technical Assessments – Category G Settlements | |
| 14. Strategic Environmental Assessment (SEA) | |
| 15. Development Boundary Maps & Phasing – 90 Settlements | |
| 16. PCS Support | |
| 17. Monthly Client Meetings & Interim Reports | |
| **Sub-Total** | |
| 18. Estimate of Subsistence & Travel Expenses | |
| 19. Printing of all literature, draft and final reports, colour prints, drawings, etc. | |
| 20. Supply of all documents, reports and drawings and in the approved digital formats. | |
| **Sub-Total** | |
| Add VAT | |
| **Indicative Fixed Fee** | |



It should be noted that Tender Proposals shall also:

a) provide a breakdown of the project team's input in person hours related to specific items 1-17 above.

b) provide a proposal with regard to stage payments to be made, if any.

c) include a statement of items not covered by the fixed fee proposal, if any, with a statement of the basis on which any such items are to be charged.

For the purpose of fees and expenses, all staff will be deemed to be based within Ireland and expenses shall be reimbursable only for expenses incurred within Ireland.

## 7.5 Pre Award Interviews

Tenderers will be required to attend at interview to discuss and elaborate on the key elements of the Tender Proposal.

In relation to the interviews Tenderers should note:

- interviews will consist of a 15 minute presentation followed by a question & answer period for clarification of issues from both the client and consultant perspectives.
- only appropriate management or senior technical staff that will be directly involved in the project should attend at interviews.
- candidates should submit 4 copies of all proposed presentation material a minimum of 1 week in advance of the interview date.

## 7.6 Contract Award Criteria

The Contract Award shall be made to the Most Economically Advantageous Tender from the point of view of the Contracting Authority, based on the following Award Criteria:

**Table 15 – Contract Award Criteria & Weightings**

| Award Criteria | Relative Weightings |
|---|---|
| Project management and organisational skills | 100 |
| Qualifications and relevant experience of the proposed project team to undertake the duties outlined in the Project Brief. | 150 |
| Ability to achieve cost effective solutions | 175 |
| Methodology and meeting clients' needs | 125 |
| Programme of works | 100 |
| Availability of resources and current workload | 100 |
| Quality Control Procedures | 50 |
| Fee Proposal | 175 |
| Methodology used in determination of the Fee Proposal | 25 |
| **Total** | **1,000** |



The Marks awarded for the Award Criteria shall be allocated following detailed assessment of Expressions of Interest, Tender Proposals and following Pre-Award Interviews with Tenderers.

## 7.7 Shortlisting and Contract Award

The Contracting Authority has established a qualified Selection Board to:

- undertake an assessment of all Expressions of Interest.
- shortlist applicants based on submissions of Expression of Interest.
- undertake assessment of Tender Proposals and interviews with tendering candidates.
- prepare a Report on Tender Submissions and recommendation for contract award.

The Contracting Authority does not bind itself to accept the offer with the lowest Tender Price or any offer, and will not pay any compensation whatsoever in connection with either accepted or rejected proposals and tenders.

## 7.8 Communications

All correspondence in relation to the Contract shall be in the English or Irish language or be accompanied by an English or Irish translation. All communications and submissions shall be directed, in writing, to:

**Administrative Officer,**
**Kerry County Council,**
**Water Services Capital Unit,**
**Maine Street,**
**Tralee, Co. Kerry,**
**Ireland.**
**Phone: 066-7162050**
**Fax: 066-7162051**
**Email: watercapital@kerrycoco.ie**



In the interest of equality of information, verbal communications cannot be entertained and replies will only be given to written communications. Such written replies will be given on the understanding that the full text of both the initial request and subsequent reply will be issued to all candidates. Replies to all individual communications will be issued as soon as possible following receipt.

To allow adequate time for processing, the latest date for receipt of queries from candidates in connection with the project is:

**6th October 2006**

All queries made and resulting replies will be circulated (by e-mail) to all Candidates, in confidence.

### 7.9 Tender Proposals

**Six copies** of Tender Proposals and supporting documentation should be submitted in a sealed envelope.

Tender Proposals shall be addressed to:

**Senior Executive Officer, Corporate Services,**
**Kerry County Council,**
**County Buildings,**
**Tralee,**
**Co. Kerry,**
**Ireland.**

Language in which Tender Proposals to be drawn up:

**English.**

Tender Proposals shall be endorsed:

**COUNTY KERRY WASTEWATER & SLUDGE PROJECT –STRATEGY FOR DELIVERY**

Deadline for receipt of Tender Proposals:

**4.00 p.m. on 20th October 2006.**



### 7.10 Opening of Tender Proposals & Late Submissions

The date and time of receipt of all submissions will be stamped on receipt. All submissions will be opened by authorised officers of the Contracting Authority as soon as possible after the relevant latest date for submission. Submissions received after the specified latest date & time cannot be included in further evaluation and will be returned to the candidate.

# Chapter 8 – General Brief Conditions

## 8.1 Terms of Appointment

The appointment shall be for the duration specified in the contract notices.

Where a group or consortium submits a proposal a lead consultant must be nominated who shall be fully responsible for providing the services required by this brief. All members of the group shall be jointly and severally liable to Kerry County Council for the completion of the contract.

This brief together with the letter of appointment and Manager's Order shall constitute a binding contract between the contracting authority and the consultant who is appointed.

The appointment shall be for the services described in this brief only and the Contracting Authority reserves the right to engage other consultants for additional services in connection with the Project if it so wishes.

All sums due to the Lead Consultant on foot of this appointment shall be paid within forty days of the submission of a correct invoice. All matters relating to fees and expenses shall only be transacted through the Lead Consultant.

## 8.2 Terms of Engagement

The fees for the Strategy for Delivery will be negotiated with the successful Consultant based on the Indicative Fee Proposal submitted and shall be a fixed fee.

If fee agreement cannot be reached, negotiations with that service provider will cease and not be re-opened. The agreed Fee Proposal will establish a Budget for the Scheme, which is subject to the approval of the Department of the Environment, Heritage and Local Government.



## 8.3 Termination of Appointment

The Contracting Authority shall be entitled to terminate the appointment at any time without notice subject only to full payment being made for services performed up to the date of termination.

## 8.4 Extension of Appointment

In the event that the Kerry County Council exercise its option to appoint the consultant to subsequent phases of the project, a detailed design brief will be prepared by Kerry County Council and issued to the Consultant. A fee proposal shall be submitted for the subsequent phase(s) in the form of a lump sum, insofar as possible, having regard to the nature of the service to be provided. The lump sum shall be apportioned to indicate the costs of the various elements of the appointment. An estimate of expenses likely to be incurred is also to be given as well as the basis for charging for services not included in the lump sum. The fee proposal should also give a breakdown of the Project Team's input in person hours for the services required and related to specific outputs. Only expenses that are necessarily incurred and fully justified will be recouped.

Kerry County Council is not obliged to extend the Consultants appointment to subsequent phases after the Strategy for Delivery, even if negotiations are entered into for these subsequent phases. Any extension of the Consulting Engineer's Appointment shall be subject to the prior approval of the Department of the Environment, Heritage and Local Government.

## 8.5 Project Meetings

The parties shall meet together with such frequency as may be deemed necessary by the Contracting Authority for the purposes of monitoring the progress of the Project. The successful candidate will also be required to attend and report progress at regular Steering Group Meetings between Kerry County Council and the DoEHLG.

The successful Candidate will be required to coordinate and present material at all consultation meetings and the costs of attendance and reporting should be included in the tender submission.



## 8.6 Dispute Resolution

In the event of any dispute arising with regard to this service contract which the parties fail to settle, the dispute shall firstly be referred to Conciliation for resolution. Should a settlement not be reached at Conciliation, the dispute shall be referred to Arbitration. Arbitration shall in this instance mean the Arbitration Procedure, 1987, as published by the Institution of Engineers of Ireland or any amendment or modification thereof being in force at the time of the appointment of the Arbitrator. Should the parties fail to agree on an Arbitrator, the President for the time being of the Institute of Arbitrators shall be requested to nominate an Arbitrator.

## 8.7 Sub-Contracting

Except where otherwise provided by the Contract the successful Candidate shall not sub-contract any part of the Project without the prior consent of the Contracting Authority.

The successful Candidate shall be responsible for the acts, defaults and negligence of any Sub-Contractor, his agents, servants or workmen as fully as if they were the acts, defaults or negligence of the successful Candidate, his agents, servants or workmen.

## 8.8 Changes in Costs due to Statutory and Other Regulations

If the cost to the successful Candidate of performing his obligations under the Contract shall be increased or reduced by reason of the making after the date of the Tender of any law or of any order, regulation or bye-law, in so far as could have been reasonably unforeseen, having the force of law that shall affect the Candidate in the performance of his obligations under the Contract, the amount of such increase or reduction shall be added to or deducted from the Contract Price as the case may be.

## 8.9 Ambiguity, Discrepancy, Error, Omission

The Candidate shall immediately notify the Contracting Authority of any ambiguity, discrepancy, error or omission in the contract documentation. The Contracting Authority shall, upon receipt of such notification, notify all Candidates of his ruling in respect of any such ambiguity, discrepancy, error or omission. Such ruling shall be issued in writing by the Contracting Authority and shall form part of the contract documents.

## 8.10 Conflict of Interest

Any conflict of interest or potential conflict of interest must be fully disclosed to the contracting authority in making the submission. Any registerable interest involving the Client's Representative and the Elected Members of the contracting authority, the Minister for the Environment and Local Government, Members of the Oireachtas or employees of the contracting authority or of the Department of the Environment and Local Government or their relatives must be fully disclosed in making the firm's submission or, in the event of this information only coming to the firms' notice after the submission of a proposal and prior to the award of the contract, should be communicated to the contracting authority immediately upon such information becoming known.

The terms 'registerable interest' and 'relative' shall be interpreted as per section 2 of the Ethics in Public Office Act, 1994.

## 8.11 Freedom of Information

Candidates should indicate the information which they consider to be commercially sensitive and which they wish to be kept confidential in any replies to Freedom of Information requests. Candidates should note that each FOI request will be considered individually and that the decision to release information rests with the Deciding Officer in the Contracting Authority and ultimately (under external review) with the Information Commission.



## 8.12 Confidentiality

The Contracting Authority undertakes to use its best endeavours to hold confidential any information provided in the proposal submitted, subject to the Contracting Authority's obligations under law, including the Freedom of Information Act, 1997. If a candidate considers that any of the information submitted in the proposal should not be disclosed because of its sensitivity, this should be stated with the reasons for considering it sensitive. The Contracting Authority will then consult with the candidate in considering any request received under the Freedom of Information Act, 1997 before replying to such a request.

All candidates shall keep confidential any information obtained pursuant to this Contract from the Contracting Authority and shall not divulge same to any third party without the consent in writing of the Client. All candidates shall only divulge confidential information to those of the Candidate's employees as are directly involved or engaged for the purposes of the Contract and who need to know the same and will ensure that such employees are aware of and comply with these obligations as to confidentiality. All Candidates shall ensure that any of his sub-contractors or suppliers are bound by the requirements of this Clause.

## 8.13 Publicity

Candidates should note that the Contracting Authority may make public the amount of all Indicative and Tender Prices and will publish the name of the successful Candidate. If a Candidate does not wish such details to be released, he should notify his objection and reasons with his Submission Proposal.

## 8.14 Value Added Tax

All prices and indicative prices quoted shall separately identify the amount of Value Added Tax applicable. In cases where the Candidate is not resident in the Republic of Ireland, he shall state the procedures and technicalities of VAT payments proposed to be adopted in the event that he is awarded the Contract.

## 8.15 Currency

All prices and indicative prices quoted and all other sums leading to and including the Fee Proposal shall be in Euro and shall be completed to two decimal places.

## 8.16 Tax Clearance Certificate

In the case of a Candidates resident in the Republic of Ireland it shall be a pre-condition of an award of contract that the Candidate, and all the proposed Sub-Consultants, shall within a stated period produce a current Tax Clearance Certificate or a Sub-Contractors C2 Certificate.

Non-resident Candidates, and their proposed Sub-Consultants will require a statement from the Revenue Commissioners of the Republic of Ireland that they are satisfied as to the suitability for tax purposes of the Candidate to be awarded a contract.

The Consultant and all sub-consultants (domestic or otherwise) shall continue to hold, in good standing, current issues of all such certificates for the duration of the term of employment and until final payment has been made.



## 8.17 Pension, Sick Pay etc.

It will be a condition of the award of this Contract that the successful Candidate and all sub-contractors (domestic or otherwise) appointed by him will be required to provide evidence of membership of a Pension and Sick Pay Scheme to the satisfaction of the Contracting Authority prior to the signing of a Contract.

## 8.18 Withholding Tax

Under the Finance Act, 1987 withholding tax must be deducted from payments for professional services. This tax will be deducted from payments made to the firm awarded the contract and will be remitted to the Revenue Commissioners.

## 8.19 Ownership of Documents and Copyright

All documents prepared by the Client's Representative on foot of this appointment and submitted to the Contracting Authority will be considered the property of the Contracting Authority and may be used by the Contracting Authority at any time, including for other projects, without prior approval of the Client's Representative.

## 8.20 Professional Indemnity Insurance

The firm to whom the contract is awarded must have professional indemnity insurance cover with a reputable insurance company to a value determined as adequate by Kerry County Council but in no way less than the minimum level of cover recommended by Department Circular IPPP1/04, issued on July 27th 2004. The minimum level of Professional Indemnity Insurance required in this case is **€6.35m**.

## 8.21 Other Insurances

The successful Candidate shall be liable for and shall indemnify the Contracting Authority against;

a) any liability, loss, claim or proceedings in respect of any injury or damage whatsoever to any property real or personal insofar as any such injury or damage arises out of or in the course of or by reason of the execution of the Contract and provided that any such injury or damage is due to any negligence omission or default of the Candidate, his servants or agents or any Sub-Contractor, his servants or agents – whether or not also partly due to the negligence omission or default of the Contracting Authority or of any person for whom the Contracting Authority is responsible.

b) any liability, loss, claim or proceedings whatsoever arising under any statute or at common law in respect of personal injury to or disease contracted by or the death of any person whomsoever arising out of or in the course of or caused by the execution of the Contract unless solely due to any act or neglect of the Contracting Authority or of any person for whom the Contracting Authority is responsible.

The firm to whom the contract is awarded must present evidence of Public Liability insurance cover to the value of ***€6.4m.*** and Employers Liability insurance of ***€12.6m.*** with a reputable insurance company.



**---------- END ----------**

# APPENDIX A

## Location Map

| Land Use | Units | Parking Space |
|---|---|---|
| Clinics, Surgeries | Per Staff member<br>And per Consultancy room | 1<br>4 |
| Schools | Staff member<br>Bus set down / 200 pupils<br>Car set down/ 30 pupils | 1<br>2<br>1 |
| Offices | 100 sq. m. | 3 |
| Shops, retail stores etc. | 100 sq. m. | 5 |
| Banks and libraries | 100 sq. m. | 4 |
| Hotels and guesthouses | Double bedroom or two single bedrooms | 1 |
| Bars, Lounges and Function Rooms (including hotel facilities) | 10 sq. m. (public area) | 2 |
| Restaurants, Cafés (including hotel facilities) | 10 sq. m. (dining area) | 2 |
| Church, cinema, theatre | 3 seats | 2 |
| Dance Hall, Private Dance Club | 10 sq. m. (dance floor and sitting space) | 1 |
| Manufacturing Industry | 100 sq. m. | 3 |
| Warehousing | 100 sq. m. | 2 |
| Golf, Pitch and Putt | Hole<br>And per staff member | 3<br>1 |
| Sports Ground / Club | Per pitch | 25 |
| Funeral Homes | | 60 |
| Nursing Homes | Per Bed space | 1 |
| Childcare facilities | Per 4 children<br>And<br>Per staff member | 1<br><br>1 |
| Playgrounds | Per 40 m2 | 1 |

TABLE 3: RECOMMENDED WASTEWATER LOADING RATES FROM COMMERCIAL PREMISES

| Situation | Source | Flow litres/day per person | $BOD_5$ grams/day per person |
|---|---|---|---|
| Industrial | Office and/or factory without canteen | 30 | 20 |
| | Office and/or factory with canteen | 60 | 30 |
| | Open industrial site e.g. quarry (excluding canteen) | 40 | 25 |
| Schools | Non-residential with cooking on-site | 60 | 30 |
| | Non-residential with no canteen | 40 | 20 |
| | Boarding school: | | |
| | (I) residents | 180 | 60 |
| | (II) day staff (includes mid-day meal) | 60 | 30 |
| Hotels | Guests | 250 | 75 |
| | Guests (no meals) | 180 | 45 |
| | Resident staff | 180 | 60 |
| | Day staff | 60 | 30 |
| | Conference | 40 | 20 |
| | Restaurant full meals: | | |
| | (I) luxury catering | 25 | 25 |
| | (II) prepared catering | 15 | 15 |
| | (III) snack bars | 10 | 10 |
| | (IV) function rooms incl. Buffets | 10 | 10 |
| | (V) fast food | 10 | 10 |
| Pubs and clubs | Residents | 200 | 60 |
| | Day staff | 60 | 30 |
| | Bar drinkers | 10 | 10 |
| | Bar meals | 10 | 10 |
| Amenity sites | Restaurants | 15 | 15 |
| | Function rooms | 10 | 10 |
| | Toilet blocks (per use) | 5 | 10 |
| | Toilet Blocks (long stay car parks) | 10 | 15 |
| | Golf clubs | 20 | 10 |
| | Squash, with club house | 25 | 15 |
| | Swimming | 10 | 10 |
| | Football Club | 30 | 20 |
| | Caravan Sites | | |
| | (I) Touring | 50 | 35 |
| | (II) Static not serviced | 75 | 35 |
| | (III) Static fully serviced | 150 | 55 |
| | (IV) Tent sites | 50 | 35 |
| Hospitals | Residential elderly people | 250 | 60 |
| | Residential elderly people plus nursing | 300 | 65 |
| | Nursing homes (convalescent) | 350 | 75 |