

4 HUMAN BEINGS

4.1 INTRODUCTION

This section of the Environmental Impact Statement (EIS) describes the potential impacts of the proposed Bandon Flood Relief Scheme (FRS) on human beings and has been completed in accordance with the guidance set out by the Environmental Protection Agency in 'Guidelines on Information to be contained in Environmental Impact Statements' (EPA, 2000).

One of the principle concerns in the development process is that people, as individuals or communities, should experience no diminution in their quality of life from the direct or indirect impacts arising from the construction and operation of a development or project. Ultimately, all the impacts of a development impinge on human beings, directly and indirectly, positively and negatively. The key issues examined in this section of the EIS include population, employment and economic activity, land-use, residential amenity, facilities and services, tourism, and health and safety.

Reference is also made, in this chapter, to nuisance impacts on human beings that are dealt with in other sections of this EIS such as flooding from Chapter 7 - Hydrology and Hydrogeology; dust and noise from Chapter 8 - Air and Climate; and traffic from Chapter 11 - Material Assets.

4.2 METHODOLOGY

The following sources of information and literature pertinent to the area were utilised in the preparation of this section:

- Interim Bandon Electoral Area Local Area Plan, August 2011
- Cork County Development Plan, 2009; Cork Area Strategic Plan (Update) 2008
- Regional Planning Guidelines for the South West Region 2010
- Census of Ireland 2002, 2006 (www.cso.ie)
- Preliminary 2011 Census Data (www.cso.ie)
- Cork County Council Website
- Local Websites www.bandon.ie and www.mytown.ie
- *The economic impact of salmon angling in the SW of Ireland*. Buck., P.J. South Western Regional Fisheries Board

The study included an examination of the population and employment characteristics of the area. As only preliminary data is currently available from the most recent census (2011), the majority of information was sourced from the previous census, the Census of Ireland 2006, and from the CSO website. However relevant preliminary data available from the 2011 census was also consulted.

Census information is divided into State, Provincial, County, Major Town and District Electoral Division (DED or ED) level, but may not be available for all levels. For the purposes of this section of the EIS, data for the lowest district level was used wherever possible.

4.3 HUMAN BEINGS IN THE EXISTING ENVIRONMENT

4.3.1 Study Area

4.3.1.1 Definition of Study Area

The Study Area for the purpose of the Environmental Impact Assessment (EIA) of the proposed Flood Relief Scheme consists of the channel, floodplain and immediate surrounding areas of the River Bandon extending along the main channel of the river. However, in order to make inferences about the population

and other statistics in the vicinity of the proposed development site, the Study Area for the Human Beings section of the EIA was defined in terms of the relevant Electoral Divisions. The Study Area for the EIS lies within several electoral divisions, as shown in Figure 4.1. It has been decided to define the Study Area for the Human Beings Section of this EIS as all those EDs, in which the EIS Study Area is located. This area forms the natural hinterland of Bandon Town and is relatively homogenous in terms of land-cover and land-use.

4.3.1.2 Settlements and Planning Policy

The major settlements within the Study Area include Bandon and Innishannon. Bandon is identified as a Main Settlement within the Interim Bandon Electoral Area Local Area Plan (LAP). It is also considered a 'Ring Town' in the Cork County Development Plan 2009 overall strategy. Bandon is located 30km west of Cork City and is an important gateway to West Cork in addition to providing services to a wider hinterland. Innishannon is designated as a key village within the Interim LAP. The village is located approximately 6km to the east of Bandon, on the National Secondary Road, the N71. The Bandon River flows to the immediate south of the village, forming a natural boundary.

According to the Interim Local Area Plan for Bandon Electoral Area the Vision for Bandon is as follows:

'The strategic aims for Bandon are to encourage continued growth and expansion of its employment and service functions so that it can continue to act as a gateway to West Cork. It is also important that the town centre continues to develop as the primary location for retail and services development and that the infrastructure is delivered which is required for the town.'

The vision for Innishannon is to 'encourage the consolidation of the village within its rural setting, and to promote sympathetic development in tandem with the provision of services. One of the key considerations for the future development of the village is the provision of wastewater treatment facilities.'

In the period 2002 – 2006 the Bandon Electoral Area grew from 23,956 to 27,208; an increase of 13.6%. Bandon, the largest town in the area, experienced positive population growth of 12.8% (from 5,161 to 5,822 persons), although the population within Innishannon (also within the Flood Relief Study Area) remained static within the same period.

Overall, the Cork Area Strategic Plan Update (2006 to 2020) proposes an increase in the population of the Electoral Area of 12%. Bandon will continue as the largest settlement, with a proposed increase of population by 26% (7,379 persons in 2020). The growth for surrounding areas, including Innishannon, is estimated at 7.5%.

Seventeen areas have been proposed as zoning for residential development in the Interim Local Area Plan for the Bandon Area, which has yet to be approved. These areas have been based on the following rationale (extract from Interim LAP):

'During the period 2001-2010 An Post GeoDirectory estimates that the growth in houses in Bandon was about 893. This growth seems to have been relatively steady of the 10 year period. In June 2007 an amendment to the 2005 local area plan was adopted by Cork County Council and an additional 24 hectares was made available for residential development. The Outline Strategy document set the new house construction target to 2020 for Bandon at 1485 units. It is noteworthy that there are in the region of 784 units with planning permission on existing zoned lands, about 354 units which are already built 2006-2010 about 90 vacant units and 24 units under construction in the town.'

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MAP TITLE: **Constraints Study Area**

MAP NO.: **Figure 2.1**

SCALE: **1:50,000**

PROJECT TITLE: **100735 - Bandon River (Bandon) Drainage Scheme**

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Map Legend

 Constraints Study Area



Taking into account of all of these units which are either permitted or committed, the balance which this local area plan needs to accommodate in order to achieve the population targets for Bandon is 233 houses. Additional land is not required to accommodate the 233 units required to achieve the 2020 target, there is a requirement for additional lands to be identified to help address the need to regulate development in the villages and rural areas of the CASP Ring, in line with the CASP Update.'

The population of Innishannon remained relatively static during the last census period (2002 – 2006). The Interim LAP proposes that this may have been likely due to infrastructure deficiencies. The Interim LAP information about housing in Innishannon is as follows:

'Estimates from An Post GeoDirectory Data measuring postal addresses and occupied houses indicate that Innishannon grew from 213 houses in 2001 to 300 houses in 2010, which is an increase of 87 units. Most of these houses were developed after 2005.

Innishannon's attractive townscape and heritage, broad range of services and ease of access has made it a popular location for new development. Aside from a mature estate of 6 detached houses almost all the other estates including Ard Aoibhinn, Barr na Claise, and The Spires are under construction, bringing the total number of units under construction to about 14. Currently, it is estimated that there are about 30 vacant dwellings in the settlement'.

4.3.2 Population

4.3.2.1 Population Trends

The total Study Area for this section of the EIA, as described in Section 4.3.1 above, has a combined population of 11,030 persons and comprises a total land area of 14,687 hectares or 146.87 square kilometres according to the CSO Census of the Population 2006. Data from the 2011 data indicates a population of 12,304 within the Study Area. Population statistics for the State, County Cork and the Study Area have been obtained from the Central Statistics Office (CSO) and are presented in Table 4.1. Data for Cork County comprises figures from County Cork excluding Cork City.

Area	Population				% Population Change		
	1996	2002	2006	2011*	1996 - 2002	2002 - 2006	2006 - 2011*
State	3,626,087	3,917,203	4,239,848	4,581,269	8.0%	8.2%	8.2%
County Cork	293,323	324,767	361,877	399,216	10.7%	11.4%	10.5%
Study Area	9,152	10,094	11,030	12,304	10.3%	9.3%	11.6%

Table 4.1 Population Statistics 1996 – 2011 (Source: CSO)

*Preliminary data only

The population of Ireland increased by 8.2% in the four years between the 2002 and the 2006 Censuses, which equates to an approximate two per cent growth per annum on average. During this time, the population of Co. Cork increased at a slightly higher rate of 11.4%, while that of the Study Area increased by 9.3%. The majority of the population increase within the Study Area took place within the Leighmoney ED, which experienced a 25.3% growth in population between 2002 and 2006. The population of the Bandon ED grew by 9.1% during the same period.

Based on the census data from 2011, the population of the Study Area increased by 11.6% between 2006 and 2011, which is higher than both the State and County increases at 8.2% and 10.5% respectively. The percentage population increase within the Kilbrogan ED was the most marked at over 30%. By contrast Ballymodan ED experienced a percentage population increase of approximately 5% in the same period.

4.3.2.2 Population Density

The population densities recorded within the State, County Cork and the Study Area during 2006 and 2011 are shown in Table 4.2 below.

Area	Population Density (persons per square kilometre) 2006	Population Density (persons per square kilometre) 2011
State	60.4	65.3
County Cork	48.5	53.5
Study Area	75.1	83.8

Table 4.2 Population Density in 2006 and 2011 (Source: CSO)

The population density of the Study Area recorded during the 2006 Census was 75.1 persons per square kilometre, which is significantly higher than that recorded at County level. The population density figure for the Study Area is however skewed by the inclusion of the Bandon ED within the Study Area. The population density within this ED was 2151.25 persons per square kilometre whereas those recorded within the Brinny and Knockroe EDs for example were only 29.8 and 29.3 persons per square kilometre respectively. Population density figures from the findings of the 2011 Census show similar increases in population density at national, county and Study Area level. The relatively high population density of the Study Area compared to the national and county figure, is influenced by the elevated density of Bandon Town, which is the largest settlement included within the Study Area.

4.3.2.3 Household Statistics

The number of households and average household size recorded within the State and County Cork during the 2002 and 2006 Censuses are shown in Table 4.3. Data was not available from the 2011 Census in relation to household statistics.

Area	2002		2006	
	No. Households	Average Size (persons)	No. Households	Average Size (persons)
State	1,287,958	2.94	1,469,521	2.81
County Cork	105,248	3.02	123,295	2.88
Study Area	3,289	3.00	3,782	3.25

Table 4.3 Number of Households and Average Household Size 2002 – 2006 (Source:CSO)

In general, the figures in Table 4.3 show that while the number of households at a national and county level continued to increase over the 2002 and 2006 period, the average number of people per household

has decreased, i.e. there are more households but less people per house. By contrast, in the Study Area both the number of households and the average household size had increased. In addition, while the average household size recorded within the Study Area during the 2002 Census was comparable with that recorded at State and County level, the 2006 figures demonstrated an higher average household size in this area. This may be due to a surge in construction of residential estates populated by young families locally.

4.3.2.3.1 Age Structure

Table 4.4 and Figure 4.2 show the percentage of the population within different age groups as defined by the Central Statistics Office during the 2002 Census. Data for 2006 and 2011 was unavailable.

Area	Age Category				
	0-14	15-24	25-44	45-64	65+
State	827,428	641,522	1,180,259	831,993	436,001
County Cork	72,697	48,318	98,227	70,185	35,346
Study Area	2,254	1,583	2,964	2,180	1,113

Table 4.4 Population per Age Category in 2002 (Source: CSO)

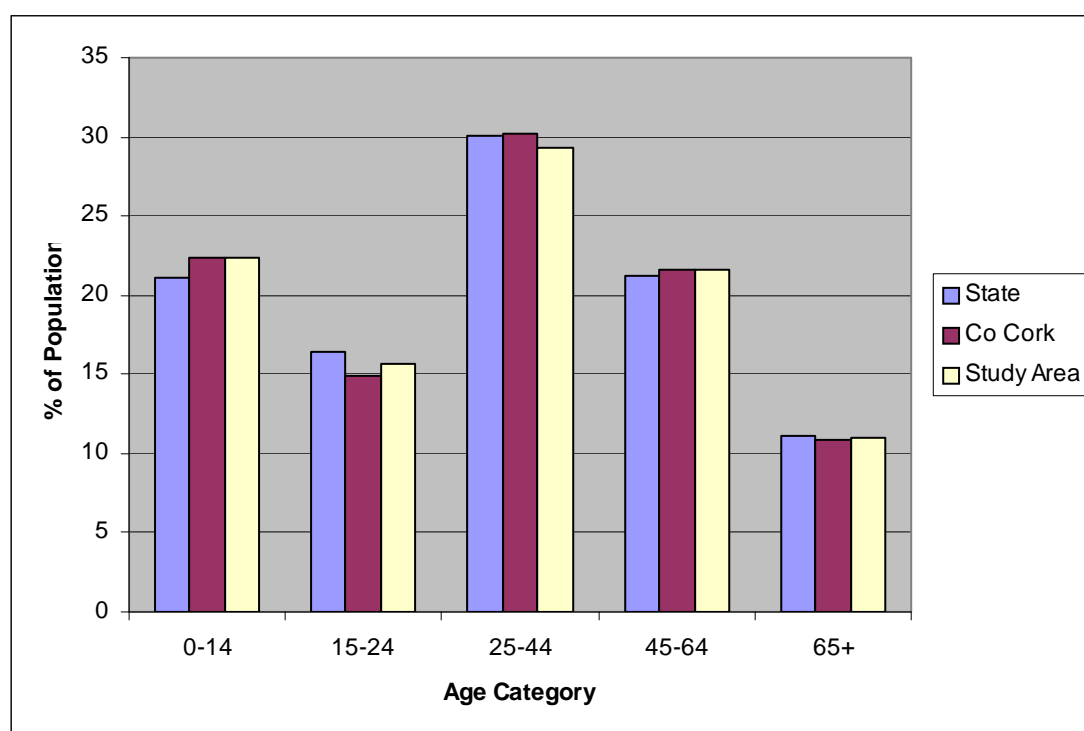


Figure 4.2 Population per Age Category in 2002 (Source: CSO)

The proportion of the Study Area population within most age categories is similar to those recorded for the County and national population, indicating that population trends within the Study Area are in broad agreement with those on a county and national level.

4.3.3 Current Economic Activity

4.3.3.1 Sources of Employment

Bandon Town is designated as a district employment centre in the County Development Plan 2009. The primary type of employment provided in Innishannon is service based employment. Main employers in the Electoral Area include the Eli Lilly Pharmaceutical Plant in Dunderrow, the Laragh IDA Estate near Bandon, Henry Good Millers in Kinsale and the agri-food based employers in Bandon, Bandon Co-op, Anglo Irish Beef Processors and the local mart. In addition, within Bandon and Innishannon, a large proportion of employment is generated from the tourist and services industry.

As part of the County Development Plan strategy for delivery of new jobs, the number of jobs in the Bandon Electoral Area is envisaged to increase by up to 1,000. About 20% of the new jobs (including jobs in the leisure and tourism sector) are likely to be in rural locations rather than the main urban areas. The CASP Update estimates an additional job target of 500 jobs in Bandon Town (increase of 500 based on baseline 2006 figure of 3,897).

In relation to zoning for industry and employment, the Interim LAP states that:

'In previous plans there were 29ha of land zoned for employment uses in the environs of Bandon. By 2008 when the area was surveyed again a total of 2 hectares had been taken up leaving a remainder of 27ha to achieve the 500 increase in jobs to 2020. The availability and suitability of the current land supply to accommodate the proposed employment growth is reviewed in this plan and this will also include the identification of additional (new) zoned lands for employment uses. In addition, the ability of the town centre to accommodate further expansion and regeneration will also be considered in line with the overall strategy for the settlement'

Provision has been made for industrial uses and business uses. On the northern side of the town, provision has been made for the expansion of an existing area of food related industry. Provision has also been made for the development of an extension to the Donpack Business Park to the east of the town and in addition the site designated for office based industry has been retained to the north of the relief road.'

In relation to retail, according to the Interim LAP:

'Bandon town is identified as a ring town in the retail hierarchy supporting 2,315m² of convenience goods floorspace. The town also supports 6,715m² of comparison goods floorspace. Any further major comparison development should be located within or adjoining the town centre in order to ensure that the current retail services are supported providing a critical mass to the centre of the town. In the event that such a proposal came forward, the town centre would be the preferred location. In addition, the Retail Strategy states that significant regeneration measures are required in Bandon in order to help attract new investment in the town.'

While it is intended that the town centre will continue to be the principal focus for retail and commercial activity, provision has been made for modest extensions to the four main established primarily commercial areas outside the town centre. Provision has also been included in these zones for the development of a new hotel.

4.3.3.1.1 Proposed Employment

It is estimated that the proposed Bandon Flood Relief Scheme will provide employment for approximately 30 people during the construction phase, which is expected to be approximately 24 months in duration. It is likely that at least some prospective employees will be sourced from the local area, therefore benefitting the local economy and skill base to some extent. There will also be indirect employment during

both the construction phase of the proposed development such as hauliers and waste contractors among others.

4.3.3.2 Economic Status of the Study Area

The labour force consists of those who are able to work, i.e. those who are aged 15+, out of full-time education and not performing duties that prevent them from working. In 2006, there were 2,109,498 persons in the labour force in Ireland. Table 4.5 shows the percentage of the total population aged 15+ who were in the labour force during the 2006 Census. This figure is further broken down into the percentages that were at work, seeking first time employment or unemployed. It also shows the percentage of the total population aged 15+ who were not in the labour force, i.e. those who were students, retired, unable to work or performing home duties.

Status		State	County	Study Area
% of population aged 15+ who are in the labour force		62.5%	62.7%	61.3%
% of which are:	At work	91.5%	94.1%	92.8%
	<i>First time job seeker</i>	1.4%	1.0%	1.6%
	<i>Unemployed</i>	7.1%	4.9%	5.5%
% of population aged 15+ who are not in the labour force		37.5%	37.3%	38.7%
% of which are:	Student	27.6%	26.6%	26.7%
	Home duties	30.6%	34.0%	35.1%
	Retired	29.9%	28.7%	26.5%
	Unable to work	10.9%	9.8%	11.1%
	Other	1.0%	0.9%	0.6%

Table 4.5 Economic Status of the Total Population Aged 15+ in 2006 (Source: CSO)

During the 2006 Census, over 90% of those recorded as being in the labour force at State, County and Study Area level were in employment. In assessing the 2006 Census economic status data, the significant rise in unemployment that has taken place nationally since 2006 must be taken into consideration. In December 2006, the live register figure for County Cork was 15,208 persons. By December 2011, this figure had increased to 43,651 persons. A similar trend is evident from live register figures for Bandon Town, which had risen from 500 to 1,506 in the same period. While the live register cannot be used to determine the unemployment rate, it does give an idea of how the unemployment rate has increased in County Cork and Bandon town since the 2006 Census.

Of those who were not in the labour force during the 2006 Census, the highest percentage of the Study Area population were those undertaking home duties. The percentage of those within the Study Area categorised as Students reflected national and county figures.

4.3.3.3 Employment by Socio-economic Group

Socio-economic grouping divides the population into categories depending on the level of skill or educational attainment required. The 'Higher Professional' category includes scientists, engineers, solicitors, town planners and psychologists. The 'Lower Professional' category includes teachers, lab technicians, nurses, journalists, actors and driving instructors. Skilled occupations are divided into manual skilled, such as bricklayers and building contractors; semi-skilled, e.g. roofers and gardeners; and unskilled, which includes construction labourers, refuse collectors and window cleaners. Figure 4.3 shows the percentages of those employed in each socio-economic group in the State, County Cork and the Study Area during 2006.

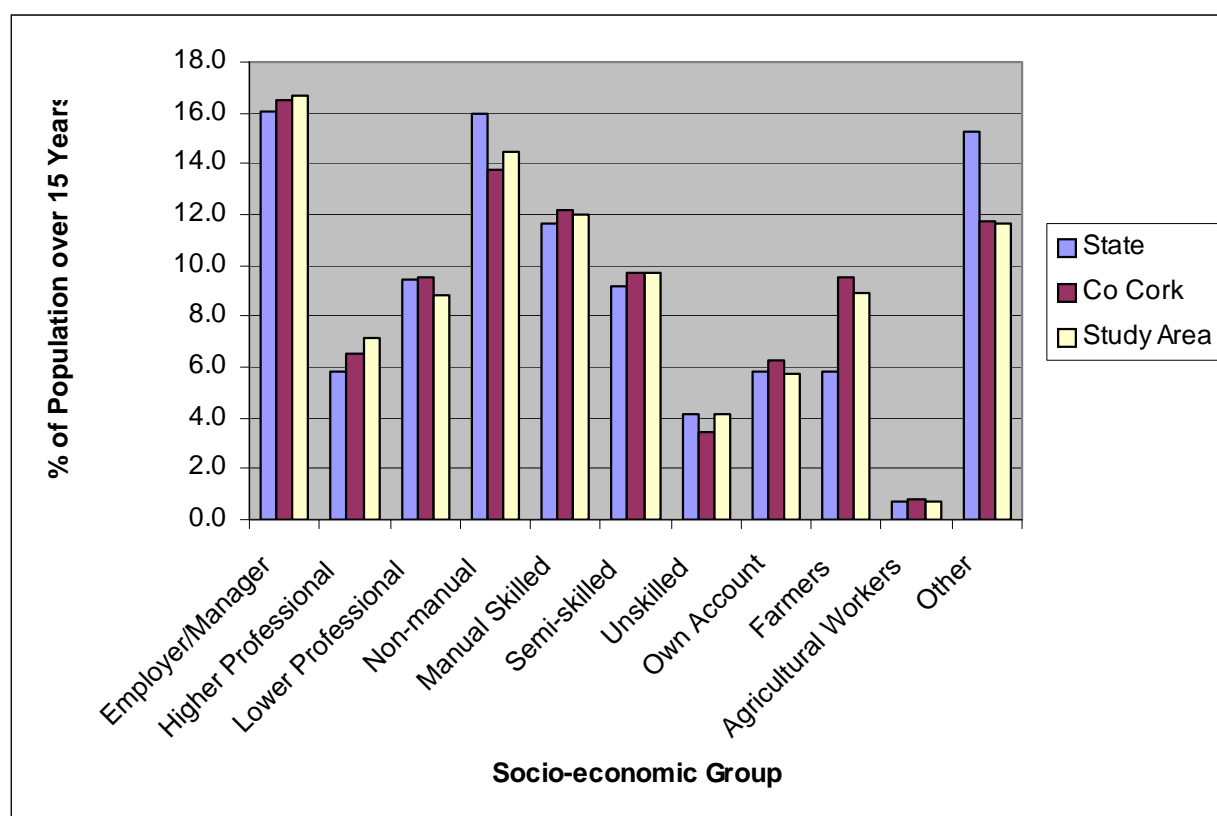


Figure 4.3 Employment by Socio-Economic Group in 2006 (Source: CSO)

The highest level of employment within the Study Area was recorded in the Employer/Manager category. Approximately 16.7% of those employed within the Study Area form part of this category, compared to 16.5% of the County population and 16% of the national population. The Study Area and County population also show a higher proportion as working within the Agricultural Worker category, compared to the levels recorded at national level. After Farming, the next highest levels of employment within the Study Area were in the Non-manual and the Manual Skilled sectors.

The CSO figures for socio-economic grouping have a limitation of including the entire population, rather than just those who are in the labour force. It is likely that this is what gives rise to the high proportion of the population shown to be in the Other category in Figure 4.3.

Bandon is the main centre of employment in the area. A large portion of the population of the Study Area may commute to here for work purposes. Cork City is approximately 24 kilometres from Bandon and it is likely that residents of the Study Area may travel to the greater Cork City area to work.

4.3.3.4 IPPC Licensed Facilities

The EPA licenses large-scale industrial and agricultural activities under the Integrated Pollution Prevention Control Directive. The following facilities within the Study Area are listed on the EPA website as licensed. Some facilities downstream of the Study Area at Kinsale have also been included in list.

Facility	Address	Activity Category
Schering-Plough (Brinny) Company	Brinny, Inishannon, Co. Cork	Manufacture of pesticides, pharmaceutical or veterinary products and their intermediates. The use of a chemical or biological process for the production of basic pharmaceutical products.
Eli-Lilly S.A. Irish Branch	Dunderrow, Kinsale, Co. Cork	Manufacture of pesticides, pharmaceutical or veterinary products and their intermediates The use of a chemical or biological process for the production of basic pharmaceutical products.
AIBP Limited	Kilbrogan, Bandon, Co. Cork	The slaughter of animals in installations where daily capacity exceeds 1500 units
Acorn Environmental Ltd.	Glasslyn Road, Ballylangley, Bandon, Co. Cork	The manufacture of inorganic chemicals
Oldpark Pigs Ltd.	Oldpark, Templemartin, Bandon, Co. Cork	The rearing of pigs in installations, whether within the same complex, where the capacity exceeds 1,000 units on gley soils or 3,000 units on other soils.
ITW Ireland	Farm Lane, Rathvallikeen, Kinsale, Co. Cork	The manufacture or use of coating materials in processes with a capacity to make or use at least 10 tonnes per year of organic solvents and powder coating manufacture with a capacity to produce at least 50 tonnes per year.
Mr. Derek Good	Ardnaclug, Innishannon, Co. Cork, Cork.	The rearing of poultry in installations, whether within the same complex or within 100 metres of the same complex, where the capacity exceeds 40,000 places.
Mr Nigel Sweetnam	Knockduff, Kinsale, County Cork, Cork.	The rearing of poultry in installations, whether within the same complex or within 100 metres of the same complex, where the capacity exceeds 40,000 places.

Table 4.6 IPPC Licenced Facilities in vicinity of Study Area

4.3.4 Landuse

The total area of farmland within the Study Area measures approximately 12,224 hectares or 83.2% of the Study Area, according to the CSO Census of Agriculture 2006. There are 350 farms located within the Study Area, with an average farm size of 34.9 hectares. This is slightly smaller than the 37.4 hectare average farm size for County Cork. Within the Study Area, farming employs 714 people, and the majority of farms are family-owned and run. Table 4.6 shows the breakdown of farmed lands within the Study Area. Pasture forms the largest proportion of farmland, followed by silage. Preliminary results are available from the 2010 CSO Census of Agriculture. No data is available, however, at ED level. The

average farm size in County Cork has increased in the period between the 2006 and 2010 censuses from 37.4 hectares to 38.1. Nationally, the preliminary figures show a corresponding increase in farm size (4%) and decrease in number of farms of 1.2%.

Characteristic	Value
Size of Study Area	14,687 ha
Total Area Farmed within Study Area	12,224 ha
Farmland as % of Study Area	83.2%
Breakdown of Farmed Land (ha)	
Total Cereals	1,243
Other Non-Cereal Crops	229
Total Pasture	5,676
Total Silage	3,736
Rough Grazing	63
Total Hay	153
Total Crops, Fruit & Horticulture	614

Table 4.7 Farm Size and Classification within the Study Area in 2000 (Source: CSO)

4.3.5 Tourism

Tourism is one of the major contributors to the national economy and is a significant source of full time and seasonal employment. During 2009 (the latest period for which finalised Fáilte Ireland figures are available), total tourism revenue generated in Ireland was €5.3 billion, a decrease of almost 19% from €6.3 billion in 2008. Between 2008 and 2009, the number of overseas tourists to visit Ireland decreased by 12%, from 7.4 million to 6.6 million. Preliminary figures for 2010 indicate a further decrease in overall tourism revenue to €4.7 billion, a decrease of 11.5% from 2009. According to Fáilte Ireland, the fall in tourist numbers in recent years is due to the global downturn and unfavourable exchange rates with the euro.

During 2009, a total of 8.34 million trips were taken within the Republic of Ireland by Irish residents, with an associated expenditure of €1.4 billion. This represents a decrease in domestic tourism expenditure of 10.7%, although the number of domestic trips remained the same. Preliminary data from 2010 indicates a decrease in the number of domestic trips by Irish residents from 8.34 million to 8 million trips with an associated drop in revenue of 10.7% (€1.3 billion) (Source: Fáilte Ireland)

Ireland is divided into seven tourism regions. The South West Region, in which the Study Area is located, comprises Counties Cork and Kerry. During 2009, the South West Region benefited from 18.4% of the total number of tourists to the country and 21.2% of the total tourism income generated in Ireland for that year. The total revenue generated by tourism in the South West Region in 2009 was approximately €1 billion, which was the highest for any region outside Dublin. Preliminary findings for 2010, suggest that the southwest was visited by 25% of all overseas visitors to Ireland in 2010 and that revenue generated in the South-west by overseas visitors accounted for 18.4% of the total for Ireland in 2010 (Table 4.8). The South West region was surpassed only by the Dublin region, which was visited by 59% of all overseas

visitors to Ireland in the same period and accounted for 37.8% of overall revenue generated by overseas visitors.

	2009		Preliminary 2010	
County	No. of Overseas Visitors [000s]	Revenue Generated by Overseas Visitors (€m)	No. of Overseas Visitors [000s]	Revenue Generated by Overseas Visitors (€m)
Cork	1,001	438	966	352
Kerry	784	190	751	154

Table 4.8 Overseas Tourism in South-west Region during 2009 and 2010 (Source: Fáilte Ireland)

The Irish tourism and hospitality industry employed an estimated 177,935 people in 2010. All sectors of this industry experienced a decline in employment levels in 2010. After Dublin, tourism enterprises in the South West region comprised the most significant employer in the tourism sector, employing 20% of those employed in the tourism and hospitality trade in Ireland.

Table 4.9 provides Fáilte Ireland figures showing the type of activities that overseas tourists engaged in and a break down of the percentages that undertook each activity for the period from 1999 to 2009. From these figures it can be seen that Historical/cultural visits form the majority of all activities enjoyed in Ireland but with other activities including visiting gardens, hiking/walking, golf, fishing, cycling and equestrian pursuits and also significant activities in terms of tourism.

Holiday - Activities Engaged in (%)	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Fishing	4	4	3	1	2	2	2	3	3	3	3
Equestrian Pursuits	2	2	1	1	1	1	1	1	1	1	1
Golf	6	7	4	2	3	3	3	5	4	3	3
Cycling	3	3	2	3	3	2	1	2	3	2	2
Hiking/Walking	9	7	5	5	4	6	7	9	17	11	20
Historical/Cultural visits	43	53	52	42	44	54	56	67	74	67	73
Visits to gardens	11	17	12	9	9	12	12	18	21	23	33

Table 4.9 Activities undertaken by overseas visitors whilst visiting Ireland (%)

Fáilte Ireland data relating to the times of year that overseas tourists visit Ireland indicates that the peak season is July and August with less activity in the months of May, June and September and relatively low visitor activity during the winter autumn, winter and early spring months (October – April).

4.3.5.1 Angling Tourism

In 2009, an estimated 132,000 overseas visitors engaged in angling in Ireland spending an estimate €105 million. The majority of anglers visiting Ireland in 2009 were from Britain and Mainland Europe, contributing 45% each to the total volume of visiting anglers to Ireland in that year. Most anglers surveyed by Bord Fáilte in 2009 did not specify the type of angling engaged in, but 14% stated that they had engaged in game angling, while visiting the country. The highest proportion of visitors engaging in angling visited Ireland in July and similar figures were recorded through the May to September period inclusive. The lowest numbers of angling overseas visitors in 2009 were recorded in the period from January to March.

The South West region appeared to be the most popular with those engaging in angling while visiting Ireland with 49% of all respondents in 2009 having visited this region. A total of 45% of all nights spent in Ireland by those overseas visitors engaging in angling in 2009 were spent in the South West region, compared with 16% of nights in the West region, the next most popular region. 42% of those overseas visitors to Ireland engaging in angling in Ireland went fishing in the South West region, making this region the most popular for angling nationally, with the West region following at 25%. A total of 78% of overseas anglers surveyed stated that they were either very satisfied or satisfied with the angling on their trip, with only 7% expressing dissatisfaction with the angling product in Ireland.

Preliminary data for 2010 shows that an estimated 123,000 overseas visitors engaged in angling while in Ireland in 2010, representing 2.1% of all overseas visitors during that year.

Data on tourism angling in the Southwest (source publication: The Economic Impact of Salmon Angling in the SW of Ireland by P.J. Buck, Southwestern Regional Fisheries Board) indicates that the SW region takes approximately 16% of the national salmon rod catch each year, second only to the NW region (39%). Estimates of the value generated from salmon angling tourism angling vary, but figures of €65.8 million and €11 million have been cited from various studies (GENISIS, 2005 and INDECON, 2003 respectively).

Angling is an important tourist attraction in the Bandon area. The Bandon River rises in the mountains north-west of Dunmanway, and enters the sea at the estuary near Kinsale. The river provides good fishing for Salmon, Sea Trout and Brown Trout. Much of the Salmon angling on the Bandon River is privately owned or controlled by groups of angling interests such as the Bandon Angling Association. The Bandon River is also renowned as a Sea Trout fishery with good runs of Sea Trout are usually found in the July and August periods. Sea Trout angling is confined to the area from Innishannon upstream as far as Bandon. Brown Trout angling is available throughout the Bandon River system but average fish size is generally small. The best of the Brown Trout fishing is usually in the Bandon area. (Source: <http://www.discoverireland.ie>).

The Inland Fisheries Ireland (www.ifi.ie) describe the Bandon River as follows:

'This large river drains a catchment of 235 square miles beginning in the Shehy Mountains of West Cork and ending up in Kinsale Harbour. The salmon fishing on this river extends from Innishannon up to Togher Castle..... All legal angling methods are allowed depending on the rules for the particular fisheries. Some stretches are fly only.'

It has an estimated catch of 1300 Salmon and a similar catch of Sea-Trout per year.

4.3.5.2 Other Local Tourist Attractions

The Bandon Local Area Plan – Nov 2010 describes tourism in Bandon as follows:

'Tourism is a significant industry in the Bandon Electoral Area as it includes a large amount of attractive coastline and estuary, which contain features of historical, cultural and natural significance, popular with visitors. Kinsale attracts significant visitor numbers and contains some specific coastal, maritime and historic tourist attractions. Similarly, on the coast Garrettstown/Garylucas, Oysterhaven and the Old Head area provide attractions for daytrippers, long stay tourists, water-based activities and leisure breaks. The attractive coastline and beaches in the area which have features of historical, cultural and natural significance also provide opportunities for shore angling, deep-sea fishing and walks'. Kilmacsimon Quay, on the shores of the Bandon River Estuary is also an important attraction for tourist and leisure breaks'.

The Local Area Plan covers a wider area than the Study Area itself and primarily focuses on the coast as a tourist destination. However the towns, villages and river within the Study Area provide a base for a number of activities that are significant tourist attractions.

Bandon is located on the National Secondary Road, the N71, which is the main tourist gateway to West Cork and therefore experiences significant passing tourist traffic. Bandon Town has an 18 hole golf course and Pitch and Putt is available in the local area.

4.3.6 Social Consideration

4.3.6.1 Education

The following extracts are taken from the Interim Bandon Local Area Plan (August 2011).

'There are 4 Primary schools in Bandon, Scoil Padraig Naofa (boys), Presentation Primary School (girls), Gaelscoil Droichead na Bandan (mixed) and Bandon Bridge National School catering for a combined student population of over 650 pupils.

There are four secondary schools catering for Bandon and its local catchment, Hamilton High School (boys), St. Brogans College (mixed), Colaiste na Toirbhirte (girls), and Bandon Grammar School (mixed).

The primary school in Inishannon, Scoil Eoin, is a co educational mixed school with 270 children and a staff comprising of 14 teachers, special needs assistants and other ancillary staff.'

4.3.6.2 Sports and Recreation

There are a number of sports clubs in Bandon; the local GAA club have playing pitches and changing facilities to the southwest of the Town Centre. Bandon AFC has two large size soccer pitches and smaller soccer pitch which is flood lit on the former pitch and putt course to the north of the town. Bandon RFC facilities (including pavilion and 3 full sized pitches) are located at Old Chapel, approximately one mile outside Bandon. Bandon Golf Club is located on the Castlebernard Estate and is an 18-hole golf course. Bandon Lawn Tennis Club has 3 all weather courts and a club house and is located to the west of the town. There is also a very active Athletics Club in the town.

In addition to the facilities mentioned above there are a number of angling clubs in the area, Game Protection Association, pitch and putt facilities, a walking club and a rowing club at Kilmacsimon.

The County Council operates a library service in Bandon town.

4.3.6.3 Local Amenities

The Interim Bandon LAP outlines the proposals for public amenity space in the town:

'There are three main designated areas of open space for active and informal public recreation in Bandon. The largest and most important in terms of the town's setting and amenity value are the areas north and south of the River Bandon to the west of the town centre. A number of pedestrian walkways have also been proposed; again the most notable of these is the pedestrian walkway along the Bandon River which is intended to connect to the town centre and the third designated area. Some of these walks have been developed and the local area plan will seek to enhance and extend these walks where possible.'

An additional pedestrian bridging point has been identified in the Bandon Action Programme (2008) from the Glasslinn Road to Watergate Street and this is also included in the zoning map for this settlement. Two public civic spaces have also been identified as having the potential to provide better amenities in the town. These are the Shambles areas to the north of the town centre and Ballymodan Place to the south of the town. The proposals for these spaces include the provision of tree planting, specialised paving treatment, signage, seating and protective bollards.

Castlebernard Estate – wooded estate predominantly used by Bandon Golf Club and there is potential to expand this use and create new opportunities for outdoor recreation. There is also some potential to restore the historic house with potential for commercial use such as a hotel. Estate is also recognised for its local walking routes, some of which are included in this plan.'

4.3.7 Health and Safety

Bandon has a long history of serious flood events, which pose a risk to the health and safety of residents and visitors present at any particular time. Major recent flood events have been recorded in 1975, 1978, 1982, 1986, 1988 and 2009 and less severe flood events have occurred in Bandon in 2004, 2005, 2006 and 2011. As described below in Section 1.4.1, in the current situation, a substantial health and safety risk exists with regard to the flooding of residences and commercial premises in Bandon Town. Currently 151 residences and 201 commercial properties are at risk of flooding, as well as housing for the elderly, the Garda station, infrastructure such as the N71 National Primary Road and the R586 Regional Road, the telephone exchange and the Wastewater Treatment Plant.

4.4 LIKELY AND SIGNIFICANT IMPACTS ON HUMAN BEINGS AND ASSOCIATED MITIGATION MEASURES

This section deals with the impacts of the proposed development on the population of the Study Area with regard to population, employment and economic activity, land use, services and tourism. As well as these the health and safety, dust, noise and traffic impacts will be dealt with. Noise and traffic impacts will be dealt with in more detail in Chapters 8 and 11 respectively.

4.4.1 'Do-Nothing' Scenario

The following 'Do-Nothing' impacts on human beings have been identified in the Flood Risk report conducted by WYG for the purposes of this project:

- 151 residences and 201 commercial properties, housing for the elderly, the Garda station and the park at Glaslinn Park would be at risk
- There would be a public health risk from potential flooding of the Wastewater Treatment Plant and nearby petrol station
- Protected structures such as Bandon Bridge, the old town walls and buildings on South Main Street would be at risk, with knock-on effects on tourism, local amenity and local identity.
- The density of the economic risk in Bandon Town would be in the region of €600/1,000m²

- There would be a risk to important transport routes such as the N71 National Primary Road (Cork-Clonakilty-West Cork) and the R586 Regional Road (Cork-Dunmanway-West Cork).
- There would be a risk to the telecommunications network as the telephone exchange would be at risk.

4.4.2 Construction Phase

4.4.2.1 Traffic

Construction Traffic Movement - *Temporary Slight Negative Impact*

The construction phase of the Bandon Flood Relief Scheme will have a temporary impact on traffic volumes in Bandon town and its environs due to the increase in additional traffic movements associated with the removal of material from the river bed during the dredging process. However, taking into account the large numbers of vehicles using the road network in and in the vicinity of Bandon, it is unlikely that traffic generated during the construction phase will have a significant impact on traffic flow in the town. It is not anticipated that the construction traffic will significantly affect the flow of traffic through Bandon town.

Mitigation Measures:

A Traffic Management Plan based on industry standards will be put in operation during the construction phase to reduce any disruption to road users. All traffic management measures will be designed in accordance with the '*Guidance for the Control and Management of Traffic at Roadworks – Second Edition*'.

Residual Impact:

The Traffic Management Plan will ensure the impact of traffic disruption resulting from the works is minimised.

Bridge Closure - *Temporary Significant Negative Impact*

The underpinning works proposed to Bandon Bridge have the potential to cause the largest impact on traffic, as the bridge may be closed to heavy goods vehicles for a period of up to 3 months, with bridge closures for all vehicles for shorter periods of time. Any closure of Bandon Bridge will cause significant disruption to traffic flow in the town as the traffic will need to be diverted to either Innishannon Bridge (6.6km to the north east) or the bridge at Carhoon (5.7km south west). The total length of this diversion would be approximately 13km with an estimated travel time of 20 minutes.

Localised traffic disruptions are also likely to occur at locations of proposed works on, or in the immediate vicinity of the road network such as the localised raising of the N71, replacement of existing flood defence infrastructure and upgrading of existing culverts.

Mitigation Measures:

The Bandon Bridge closures should be timed to minimise the impact to the flow of traffic and if possible work should be carried out at night or on weekends to reduce the associated impact. Consultation should be undertaken with all relevant stakeholders concerning optimal closure times and residents should be notified in a timely manner of all closures.

The localised traffic disruptions as a result of other proposed works throughout the scheme will be mitigated through the use of industry standard traffic management measures. These traffic management measures should be designed in accordance with the 'Guidance for the Control and Management of Traffic at Roadworks – Second Edition'.

Residual Impacts: Temporary Moderate Negative Impact

Provided the mitigation measures above are implemented, the impacts of the bridge closure on traffic will be minimised.

Condition of Road Network - Temporary Slight Negative Impact:

Sustained use of heavy plant and vehicles on the local road network, particularly during the dredging phase, when material will be removed off-site, may also have a damaging effect on the condition of road surfaces along haul routes.

Mitigation Measures:

The contractor will be responsible for the maintenance of roads used as haul routes for the purposes of the flood relief works. All road surfaces will be reinstated on completion of the works.

Residual Impact: None

There will be no residual impact once the reinstatement works are complete.

4.4.2.2 Impact on Economic Activity

Short-term Slight Negative Impact

There is potential for some disruption to economic activity during the construction phase of the flood relief scheme as traffic and access issues and elevated noise and dust levels may impinge on local businesses.

Mitigation Measures:

A traffic management plan will be prepared and implemented for the duration of the works in order to ensure that any impacts on traffic mobility are minimised. In addition, works will be limited to normal working hours (08.00 to 18.00 Monday to Friday) with an extension in the summer months (07.00 – 21.00 Monday to Saturday). An Environmental Management Plan will be implemented during the construction phase to ensure that environmental nuisances relating to the works are minimised. This will include measures to avoid and reduce noise and dust.

Residual Impact :

The implementation of a Traffic Management Plan and Environmental Management Plan to reduce traffic and environmental nuisance impacts on the receiving environment during the construction phase will minimise the impact on local businesses.

4.4.2.3 Nuisance – Noise, Dust & Vibration

Short-term Slight Negative Impact

During the construction phase of the flood relief scheme, there are likely to be elevated levels of noise, dust & vibration at times, which may constitute a nuisance to local inhabitants and visitors to the town at times during this period. Elements of the project likely to generate elevated noise levels include the in-stream works, which will include sheet piling, rock breaking and use of heavy plant and general increased traffic movements as materials and plant are moved to and from the working area.

According to the noise and vibration study conducted for the purposes of this EIS, the likely short term impacts of dredging activities, earthen embankment construction, construction traffic on the local noise and vibration environment will not be significant. The likely impact of reinforced concrete wall construction in terms of noise and vibration is expected to be mostly insignificant with a temporary slight impact at semi-detached dwellings on Casement Road.

The majority of construction activities are not expected to generate perceptible vibrations at the nearby noise sensitive locations. The exception to this will be sheet piling and rock-breaking. Provided the 'press-in' method of piling is employed at all piling locations, the likely impact of vibration from the flood relief construction works on the local environment would not be significant.

Further Information on noise and vibration impacts is available in Chapter 8 of this EIS.

Mitigation Measures:

In order to sufficiently ameliorate the likely noise and vibration impacts from the proposed works, a schedule of noise control measures has been formulated for the construction phase.

Reference will be made to BS 5228-1: 2009: *Code of Practice for Noise and Vibration Control on Construction and Open Sites: Noise*, which offers detailed guidance on the control of noise & vibration from construction activities. Specific mitigation measures are set out in chapter 8.

A dust minimisation plan will be formulated for the construction phase of the project, the details of which are provided in Chapter 8.

Residual Impact: Negligible

Negligible residual impact is anticipated.

4.4.2.4 Amenity

Short-term Moderate Negative Impact

During the periods of in-stream works, there will be a significant impact on local amenities related to the use of the Bandon River. Anglers are the main users of the river amenity, though the visual amenity of the river as well as riverside walks for residents and visitors alike is also of importance to the town. Although in-stream works will be restricted to two five month periods from May to September inclusive, these months coincide with the period of peak amenity usage of the river. Loss of recreational amenity will be limited to the area to be dredged and the area immediately downstream of these works. However as water quality is likely to be adversely affected in the construction phase of the scheme, diminution of the amenity value of the river will occur downstream of the working area also during the construction phase. In addition, the proposed works have the potential to impact negatively on the resident fish stocks and potentially hinder the migration of fish. Indirect impacts may include the smothering of downstream spawning beds and fish gills with suspended solids. The hindrance of migrating fish has the potential to impact on salmonid populations throughout the entire Bandon catchment and therefore impact angling not only in the works areas but also on a wider scale.

Mitigation Measures:

Works will be designed to minimise impacts upon the amenity value of the study area during the construction period. Mitigation will include measures to minimise pollution of the river, minimise impacts on fish, limit working hours and prevent un-necessary damage to bankside habitats. Full details of this mitigation is provided in Chapter 5.

Residual Impacts:

Although upstream stretches of the River Bandon will remain unaffected by the works and impacts on the water quality of the river downstream of the works will be minimised through implementation of mitigation measures, the amenity value of the River Bandon will be inaccessible to the public within much of the study area for the duration of the works. Therefore the nature of the impact will remain moderate within and downstream of the works area for residents and visitors during the construction phase of the scheme.

4.4.2.5 Employment**Short-term Moderate Positive Impact**

It is estimated that approximately 30 people will be employed directly during the construction phase of the proposed development, which is expected to be of two year's duration.

4.4.2.6 Tourism**Potential Short Term Minor Negative Impact**

Whilst the proposed works will have little impact on many sectors of the tourism industry in Bandon, Angling forms a large part of the industry in the town and is likely to be affected by the proposed works. Therefore it is possible that the tourism sector in Bandon will experience a temporary adverse impact during the construction phase as two periods of in-stream works during the summer months will coincide with the peak visitor season. The angling amenity within the works area will be reduced during the two periods of in-stream works proposed and impacts on water quality downstream may affect fisheries further downstream in the catchment. This is of particular significance to the Sea Trout angling, which only occurs locally between Inishannon and Bandon Town. Angling in areas upstream of Bandon Town and elsewhere in the catchment is unlikely to be affected by the proposed works and thus the impact is considered to be relatively minor. Potential increases in noise and dust levels, traffic issues and temporary impacts on visual amenity related to the works are also likely to deter and/or disturb visitors during the construction phase.

Mitigation Measures:

The mitigation outlined in section 4.4.2.4. above is designed to minimise the impacts on the amenity value of the river and applies equally to the value of the river as a tourism amenity.

Traffic management and environmental management plans will be implemented and will reduce the impact of increased traffic, noise and dust levels. Alternative recreational amenity upstream of the works area will be promoted to tourists visiting the area.

Residual Impacts:

Although upstream stretches of the River Bandon will remain unaffected by the works and impacts on the water quality of the river downstream of the works will be minimised through implementation of mitigation

measures, the amenity value of the River Bandon within sections of the work area will be diminished for tourists for the duration of the works. Therefore the nature of the impact on tourism overall will remain minor during the construction phase of the scheme.

4.4.3 Operational Phase

4.4.3.1 Health and Safety

Long-term Significant Positive Impact

Flooding poses a risk to human health and safety. The OPW document 'The Planning System and Flood Risk Management: Guidelines for Planning Authorities' (OPW, 2009) states that flooding can cause physical injury, illness and loss of life. Deep, fast flowing or rapidly rising flood waters can be particularly dangerous, with increased risk if the floodwater is carrying debris. Some of these impacts may be immediate, the most significant being drowning or physical injury due to being swept away by floods. Floodwater contaminated by sewage or other pollutants (e.g. chemicals stored in garages or commercial properties) can potentially cause illness, either directly as a result of contact with the polluted floodwater or indirectly as a result of sediments left behind. Flood water may also hide other hazards for wading pedestrians, such as manhole openings where the covers have been lifted by flood flows.

The impact on people and communities as a result of the stress and trauma of being flooded, or even of being under the threat of flooding, can be immense. Long-term impacts can arise due to chronic illnesses and the stress associated with being flooded and the lengthy recovery process. The ability of people to respond and recover from a flood can vary. Vulnerable people, such as those who are old, disabled or have a long-term illness, are less able to cope with floods than others. Some people may have difficulty in replacing household items damaged in a flood and may lack the financial means to recover and maintain acceptable living conditions after a flood.

4.4.3.2 Angling

Long-term Moderate Negative Impact

The works involved in the proposed flood relief scheme have the potential to significantly reduce good fishery habitat diversity within the works area in the long-term, including exceptional salmonid spawning and nursery habitat within the river channel. This has the potential to result in a Long Term significant impact on angling on the Bandon River in the long-term. Ongoing maintenance associated with the proposed scheme will involve the removal of deposited material and could potentially result in disturbance of resident fish populations both directly and indirectly. The works will however be much smaller in scale than the original dredging works and will not significantly impact on the fisheries amenity.

Mitigation:

- A river rehabilitation programme has been included in the design of the scheme. This will include the provision of a defined flow path with varying gradients, pools and riffles. Gravels boulders and rocks will be replaced into the drained channel to provide cover for fish and habitat for invertebrates. The stretch of river will be monitored following completion of the works and where possible additional features will be included to improve the angling amenity. Full details of mitigation proposals are provided in Chapter 5.

Residual Impact

With the proposed mitigation in place and with careful monitoring and overseeing of the construction of the mitigation features the proposed, this section of river has the potential to remain as a productive angling reach despite the reduction in the gradient of the river.

4.4.3.3 Local Economy and Tourism

Long-term Significant Positive Impact

The flood relief scheme will provide increased protection to commercial premises and businesses in Bandon Town from flooding. This will constitute a long-term positive effect on the local economy. Any negative impact on the fishery value will be confined to the relatively short reach of the works area and this will be ameliorated through mitigation within the dredge design.