



Youghal Main Drainage Scheme Youghal Urban District Council



ENVIRONMENTAL IMPACT STATEMENT NON-TECHNICAL SUMMARY - VOLUME 1 SEPTEMBER 2001



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YOUGHAL MAIN DRAINAGE SCHEME

ENVIRONMENTAL IMPACT STATEMENT

Volume 1- Non Technical Summary

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1 INTRODUCTION

1.1 Environmental Impact Statement

This Environmental Impact Statement was commissioned by Youghal Urban District Council in June 1999 for the Youghal Main Drainage Scheme, in accordance with the EU Directive on Environmental Impact Assessment (85/337/EEC) and with the requirements of the Environmental Impact Assessment Regulations 1989 to 1998 and the Local Government (Planning and Development) Regulations 1994 to 2000.

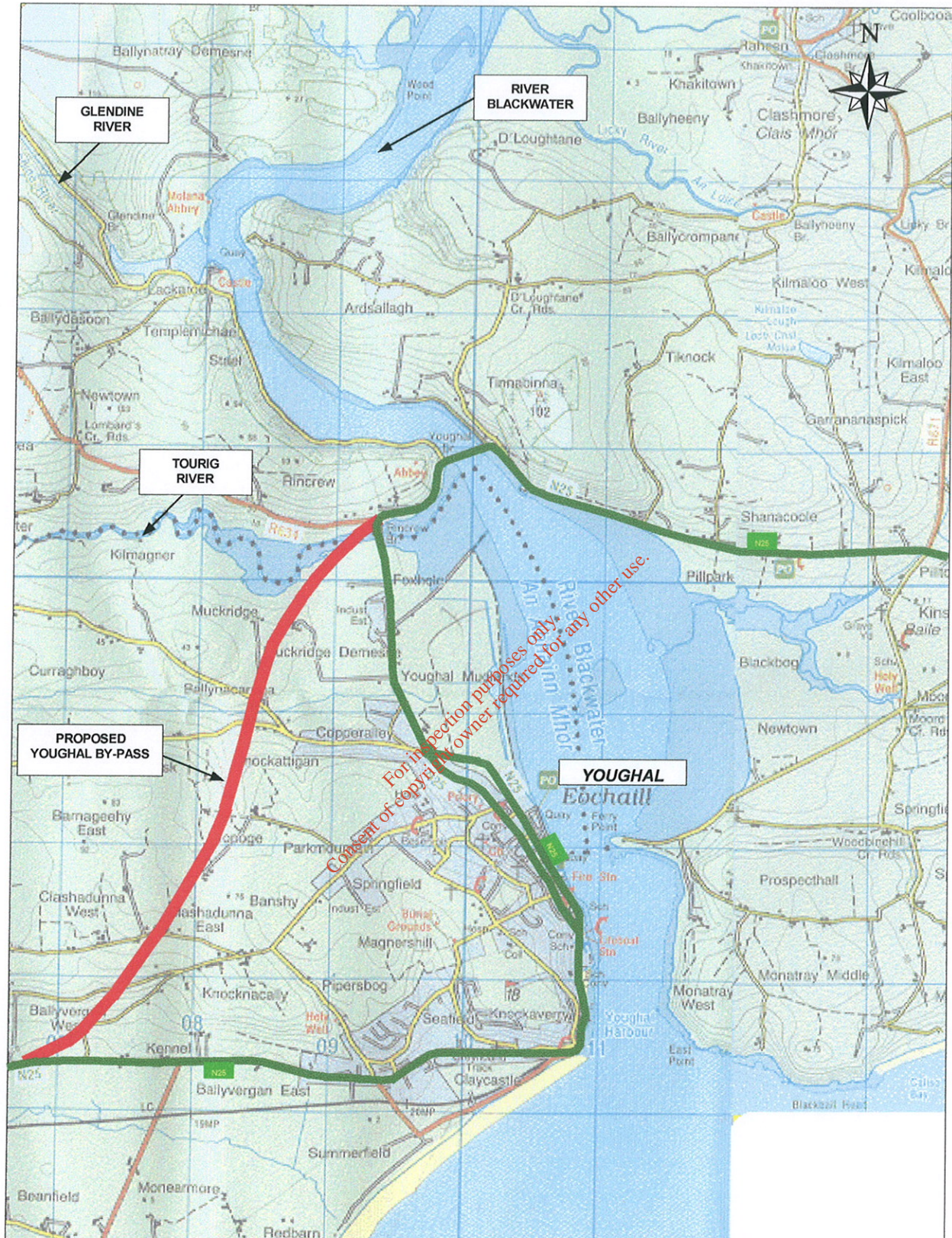
1.2 EIS Publication

Following completion of the E.I.S., a notice will be published in the public press advising that it has been prepared and forwarded to An Bord Pleanála for certification.

Copies of the E.I.S. will be available for inspection during normal office hours by the public, for the period specified in the notice, at Youghal Urban District Council, Town Hall in Youghal.

1.3 Scope of Environmental Impact Statement

Following an environmental appraisal of a number of sites in the vicinity of Youghal, the Mudlands area to the north of the town has been selected as the most suitable for the location of the proposed wastewater treatment works for the town with a discharge of the final treated effluent to the estuary. The scope of this environmental impact statement is to make an assessment under the specialist environmental areas to determine if such a proposal would have a significant adverse impact on the mudlands area or the receiving waters.



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2 DESCRIPTION OF PROPOSED SCHEME AND ALTERNATIVES

2.1 Background to the Scheme

Youghal is located on the main Cork City (51km) to Waterford (72km) road (i.e. the N25) and is a port of considerable antiquity. Youghal Harbour lies approximately 30 km east of Cork Harbour and forms part of the lower estuary of the Blackwater River (Figure 1.1). The harbour and outer bay are popular tourist destinations, particularly during the summer months, and have a high level of recreational fishing, sailing and bathing activity.

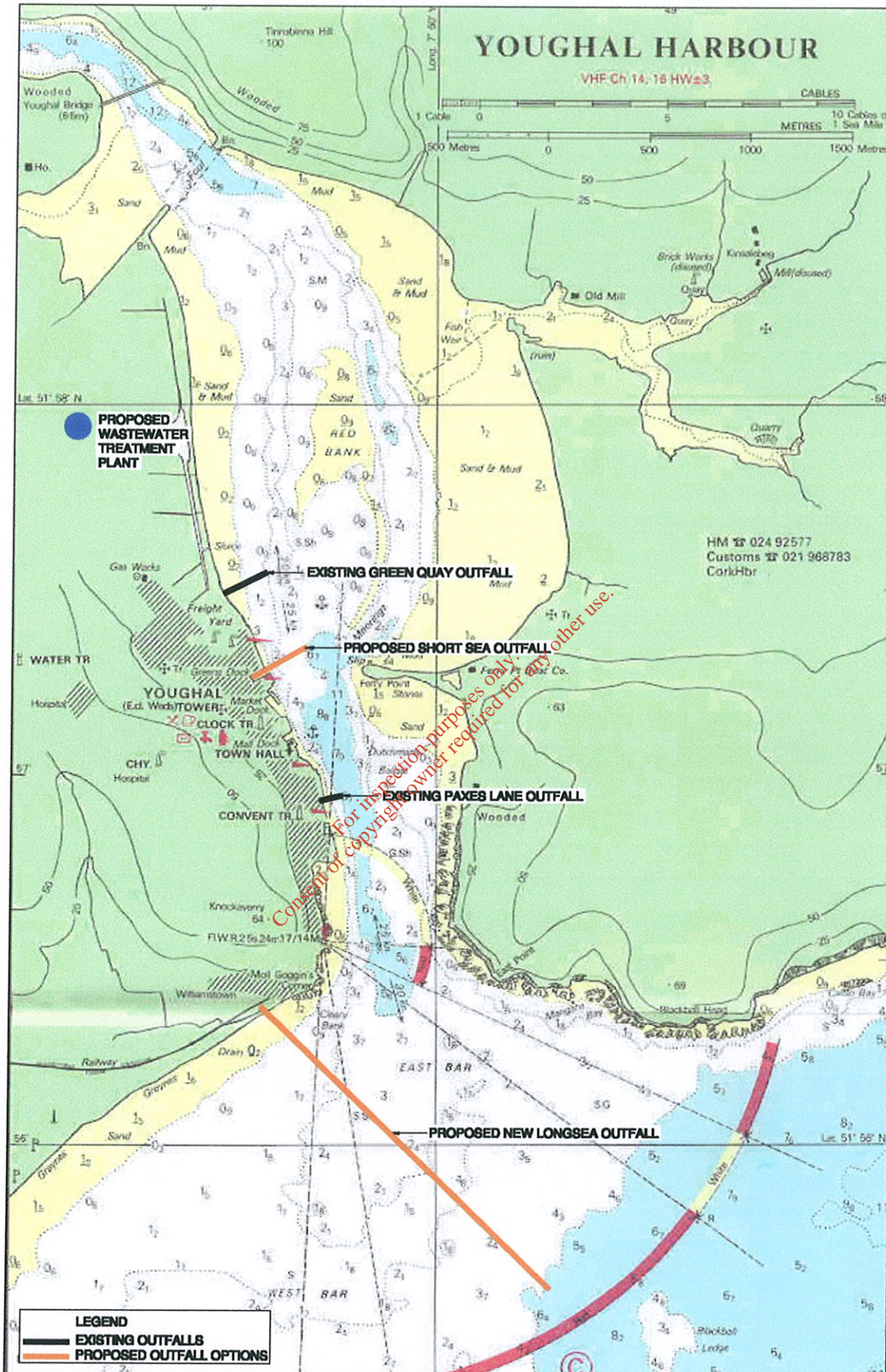
Based on a house count, the current population of Youghal is estimated to be approximately 7,600. There are some small manufacturing industries located in a number of industrial estates in and around the town.

There has been a significant amount of development within this area over the last decade with an emphasis on new apartments which were incentivised by the Government through the tax relief mechanism of the development for Sea Resorts.

Estimates for the preliminary design of wastewater treatment facilities for the area indicate the baseline population to be in the region of 7,600 at present with a total current population equivalent loading of 10,600 p.e. Future growth was estimated based on population growth predicted in the Cork Area Strategic Plan 2001 – 2020 (Draft) and the predicted population equivalent is approximately **20,000** p.e. for the year 2025.

2.2 Need for Scheme

There is currently no wastewater treatment other than a holding tank and comminutors on the Green's Quay and Paxe's Lane outfalls. The municipal untreated raw sewage currently discharges via 2 outfalls; the Green's Quay and Paxe's Lane outfalls. The locations of these outfalls are shown in Figure 1.2. Water quality in the estuary is satisfactory and discharge of raw sewage does not appear to have impaired water quality.



LOCATION OF PROPOSED W.W.T.P., EXISTING & PROPOSED OUTFALLS **FIGURE 1.2**

2.2.1 Water Quality Legislation

There is a significant amount of legislation relating to the protection and improvement of water quality. The legislation as it impacts on wastewater treatment is as follows:

1. Framework Directive (2000/60/EC);
2. Urban Waste Water Treatment Directive (91/271/EEC) as implemented by S.I. No. 254 (2001) Urban Waste Water Treatment Regulations, 2001;
3. Bathing Water Directive (76/160/EEC);
4. Shellfish Directive (79/923/EEC) Shellfish Production Area Directive (91/92/EEC).

The above legislation identifies the need for the provision of a secondary wastewater treatment plant and the specific standards that require to be met with respect to the specified parameters in the relevant receiving waters.

2.3 Proposed Scheme Description

It is recommended that the wastewater treatment works be located in the Mudlands to the north of the town (Figure 1.3). Secondary treatment is proposed with nutrient reduction for nitrogen only as nitrogen is assumed to be the limiting nutrient with a discharge to the estuary at Ferry Point. Provision will be made for phosphorus removal should it be required at a future date if studies indicate that it would be beneficial. This option is considered to be the most environmentally and economically suitable location for the proposed works and outfall discharge location.

Outfall Modelling

Modelling of the discharge of the treated effluent scenarios has been undertaken for the discharge to the estuary. The model demonstrates that the estuary is well mixed and that bacteria concentrations diminish significantly as the harbour entrance at East Point is reached. The model demonstrates that the predicted coliform levels with secondary treatment and without disinfection meet with the bathing water regulation guide values and that the blue flag status of the beaches would not be threatened. This is no more than expected given that the existing untreated sewage discharges to the harbour do not impact on the beaches which have enjoyed blue flag status for a number of years.

The previously designated shellfish production area outside the harbour in Youghal Bay is not impacted on and should the area be redesignated it would meet with the Shellsan standards.

2.3.1 Treatment Processes

There are a number of potential processes which can be utilised to achieve the standards. The following sections set out the various unit treatment processes and the options for the processes with indicative layouts of the various options which may be utilised at procurement stage. The processes may include the following:

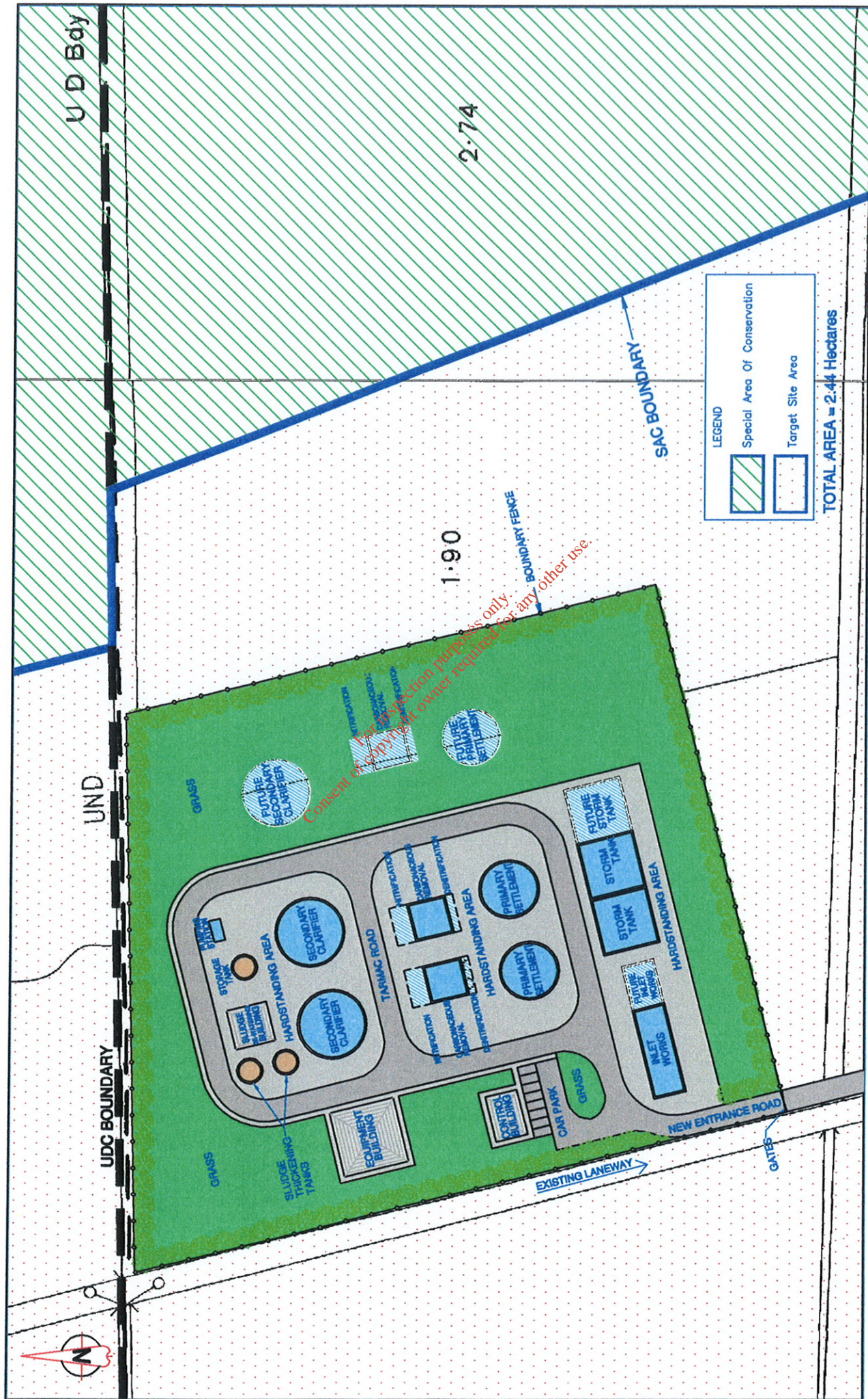
- Preliminary Treatment;
- Primary Treatment;
- Secondary Treatment;
- Disinfection;
- Nutrient Reduction;
- Sludge Treatment;
- Odour Abatement.

It is proposed to provide for meeting the nitrogen (limiting nutrient) standard for the estuary which will require the provision of nitrification and denitrification. Provision will be made for the inclusion of Phosphorus removal if deemed necessary, at a future point in time. Disinfection of the effluent is not proposed at this stage although provision will be made for its inclusion at a later stage if required.

2.3.2 Indicative processes and works layouts

The alternative processes discussed in the above sections have been developed into layouts to provide treatment to sewage from Youghal and the sludge generated on site. The alternative layouts have been undertaken to indicate typical potential solutions to meet the required standards for the recommended location for the works at the Mudlands north of the town.

The processes have been sized to accommodate a proposed population equivalent of 16,000 p.e. in the first phase of the development of the works in two streams of 8,000 p.e. with provision for a third stream to provide capacity of up to 24,000 p.e. to deal with the potential full development of Youghal. A number of technologies and processes were considered as typical solutions to the wastewater treatment process. The conventional activated sludge system is indicated in Figure 1.4.



TYPICAL SITE LAYOUT - (CONVENTIONAL ACTIVATED SLUDGE) FIGURE 1.4

2.4 Alternatives Considered

2.4.1 Wastewater Treatment Works Site Selection

A site selection process was undertaken to determine the most environmentally suitable location for the provision of a wastewater treatment works. A constraints map was undertaken based on broad criteria including ecological and heritage designations, accessibility, proximity to development and the catchment, proximity to potential discharge locations, land ownership and land use zonings. Based on this constraints map, 7 sites were selected for consideration.

The areas in the Mudlands was then subjected to a more detailed environmental impact appraisal where three site options within the area were assessed and which are set out in detail in this statement.

2.4.2 Discharge Location options

Both the long sea outfall to the Youghal bay area and the short sea outfall to the estuary have been considered for the disposal of treated effluent from the proposed wastewater treatment works each with differing effluent quality standards and treatment processes based on the legislative requirements set out above.

3 HUMAN BEINGS

3.1 Existing Environment

There has been a significant amount of development within the Youghal area over the last decade and the baseline population equivalent in the area is likely to be in the region of 7,600. Without development of suitable wastewater treatment facilities, the amenity value and fishing resources could be adversely impacted on through declining water quality as the area becomes more developed.

3.2 Impacts

The scheme will facilitate improved economic and social conditions through:

- *Catering for new residential and industrial developments;*
- *Such developments will be more environmentally sustainable;*
- *Protecting amenity through improved water quality conditions.*

Potential adverse impacts might include

- *Amenity loss due to works;*
- *Construction impacts.*

Hazards for working personnel within the WWTW would involve hygiene and interaction with equipment.

3.3 Mitigation

Health & Safety impacts can be mitigated to a substantial degree.

4 FLORA & FAUNA

4.1 Existing Environment

4.1.1 Habitats

The area is largely artificial in origin having been reclaimed from the estuary with the exception of a portion of Foxhole townland. The site is made up of typical habitats for land that has been reclaimed from an estuary as an intake and is little-managed at present. Its vegetation consists for the most part of common plants though these become more specialised as the salt water is approached to the east. Again, however no rare species were observed. The hedges represent high species diversity with those present on each side of the access laneway being the richest. The following are the habitats present: Wet grassland, Dry grassland, Hedgerows and Drainage ditches.

4.1.2 Fauna

The area has a reduced mammal fauna because of the prevailing damp conditions. The frog is likely to occur around the lane area and breed in transitory puddles and ditches. The mudlands are occasionally used for feeding by waders. The pond there provides regular feeding for little egret, heron, red-breasted merganser, teal (seen on this visit) and a few other duck. No fauna of nature conservation importance were found in the area.

None of the study area is included in the candidate Special Area of Conservation which is based on the estuary, taking in the saline lake beside the seawall and the adjacent fields. Adjacent land, outside the seawall is part of the Blackwater Estuary SPA.

No habitats or species listed in the Annexes of these Directives occur in the study area with the exception of the common frog (Annex V – Habitats Directive) and there are no plant species present that are included in the Flora Protection Order 1999. However the otter (Annex II – Habitats Directive) and black-tailed godwit (Annex II/2 – Birds Directive) occur on adjacent land. These three species are included in the Irish Red Data Book 2 (Whilde, 1993).

4.2 Impacts

The physical presence of the proposed WWTW will have very little effect on the ecological value of the area. Provided there is no impact on the SAC area it should not be a significant impact.

4.3 Mitigation Measures

- The construction of the WWTW and associated pipe-laying should be designed to remove as few hedges as possible. In particular the laneway from the southern end should be retained in its present form and a new access shall be provided. The lane could in time form an attractive walking route, parallel to the sea wall.
- During the construction phase, sedimentation of drainage ditches shall be avoided with suitable mitigation measures in place.
- All vehicular traffic shall avoid the vicinity of the SAC boundary to restrict to a minimum the potential inflow of sediment or oil.
- The land based pipeline from the WWTW should avoid the SAC.

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5 MARINE ECOLOGY

5.1 Existing Environment

The focus of this study is on the proposed outfall to Ferry Point in the Estuary. Twenty biotopes (habitats and species assemblages) were recorded from the littoral survey. Seaweed species were prolific in the area, while a large number of molluscs and polychaetes were found in sedimentary biotopes. Patches of mussels were also present at various locations.

The seaweed recorded is commonly found along the Irish coast and no species or habitats of conservation importance were recorded.

Youghal Harbour used to be a shellfish production area, although harvesting has not been undertaken for a number of years. It has not been a designated shellfish production area in the regulations. Bacteriological levels in mussels collected in the estuary were assessed. The DoMNR reports shellfish beds in Youghal Harbour. However, dredging surveys carried out for the current study found few mussels in the estuary. Faecal coliform levels were low in the sample collected in the mussels.

5.2 Impacts

Habitat will be lost in the short term during the construction of a trench for laying the outfall pipe. The loss of habitat is likely to be temporary as the trench will be back filled. The loss of species due to loss of feeding and spawning grounds is likely to be negligible due to the small area of seabed likely to be impacted on in relation to the wide area of similar habitat available in the area.

Long term positive impacts from the wastewater treatment works are predicted to occur from the outfall discharge into the Blackwater estuary through an improvement in water quality in the estuary over time.

5.3 Mitigation

- Construction should be carried out over periods of slack tide to minimise the dispersion and removal of material from the area.
- In order to reduce the area of habitat and number of species lost, it is recommended that the area impacted upon be kept to a minimum along the route of the outfall.
- Habitats disturbed during the construction process should be restored as close as possible to their previous status after construction by replacing sediment in dredged locations.

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6 SOILS, SEDIMENTS AND GEOLOGY

6.1 Existing Environment

Marine Sediment in Youghal harbour consists predominantly of sand with a large proportion of this sand being muddy sand. Sediment represents fine sand and silt portions. This is normal for estuaries which are low energy environments and fine sediment is deposited from rivers. Metal concentrations were found to be low in all samples.

The bedrock geology in the Youghal area consists of Carboniferous and Devonian limestones, sandstones and mudstones. The superficial soil deposits consist primarily of estuarine deposits associated with the rivers Blackwater and Tourig. These deposits consist of normally consolidated estuarine and marine sediments.

The thickness of the estuarine deposits can be expected to vary over the mudflats with the deeper deposits being located adjacent to the river.

6.2 Impacts

The proposed WWTW will not have a significant impact on marine sediments. There is no significant impact on the soils due to the proposed WWTW.

6.3 Mitigation

- The area of seabed disturbed and dredged during construction of the outfall should be minimised to reduce short-term impacts from the release of contaminants and increased turbidity.
- Spoil generation from construction of bored piles can be mitigated by reuse of the excavated materials on site for landscaping.

7 WATER

7.1 Existing Environment

7.1.1 General Water Quality

The EPA have reported (Water Quality in Ireland 1995-1997) on estuarine and coastal water quality on a number of estuaries including the Blackwater at Youghal. Generally satisfactory water conditions have persisted over the period.

Just outside the harbour along the western shoreline there is a large beach, known as Youghal Main Beach and Claycastle Beach, which are designated bathing areas under the Bathing Water Regulations. The beach has been awarded Blue Flag Beach status. The beach was also awarded Blue Flag status for the past number of years.

7.1.2 Nutrient Levels

Nutrient inputs to the estuary are dominated by riverine flows. Industrial loads in Youghal are low and are considered unlikely to contribute to the nutrient budget of the estuary (Marine Institute, 1999). In 1997, the Munster Blackwater was reported to have exported the highest load of ortho-phosphorus of all Irish rivers. The export load of oxidised nitrogen was found to be the fifth highest in the country in 1997.

The EPA found other water quality parameters to be satisfactory although autumn chlorophyll levels were slightly elevated in the upper part of the estuary in the November 1994 survey.

An assessment was undertaken by the EPA on behalf of the DoELG of the trophic status of a number of estuaries and bays around Irish coastal waters including the Blackwater estuary. The assessment was based mainly on data collected between 1995 and 1999.

The criteria for Dissolved Inorganic Nitrogen (>1.4 mg/l) is exceeded but the phosphorus criterion is not (>60 ug/l). The criteria for chlorophyll are also exceeded and the Dissolved Oxygen is reaching the criteria. The area is therefore considered to be potentially eutrophic.

The Blackwater Estuary has recently been designated as a “sensitive area” under the 2001 Urban Wastewater Treatment Regulations (S.I. No. 254). Under these regulations nutrient reduction is required.

7.1.3 Limiting Nutrient

Nitrogen is normally the limiting nutrient in saline coastal waters while Phosphorus is normally the limiting nutrient in freshwaters. This is borne out by the analysis in the trophic assessment where the Nitrogen criterion has been exceeded while the phosphorus criterion has not. Nitrogen is therefore considered to be the limiting nutrient.

7.2 Impacts

7.2.1 Biological and Nutrient Water quality

The proposed WWTW will lead to an improvement in harbour water quality. The estuary has a tendency toward eutrophication and has recently been designated as a sensitive area. The discharge from the works could lead to enhanced nutrient levels in the harbour with possible adverse impacts.

The proposed WWTW will involve secondary treatment and due to the potential for eutrophication will also include nutrient removal. This will lead to significant reductions in BOD, COD, suspended solids and nutrients, achieving the emission limit values set down in the legislation. It is proposed that the WWTW would reduce nitrogen, the assumed limiting nutrient, with the provision for phosphorus removal if deemed to be required, by further monitoring of the estuary.

7.2.2 Bacteriological Water Quality Modelling

A CORMIX model was undertaken for bacteriological water quality assessment. This model predicted dispersion and dilution of faecal coliform bacteria concentrations discharged in an effluent plume from the two existing outfalls.

This model predicts a significant reduction in faecal coliform levels in the harbour from the proposed outfall at Ferry Point even with an increase in loading to 20,000 population equivalent.

From the model results it is concluded that the proposed discharge from the WWTW will improve bacteriological water quality in the harbour although not meeting bathing or shellfish (shellsan) standards. The designated beach is located outside the estuary and the new discharge situation will not adversely affect the Blue Flag status of the beach.

The Shellsan Conditional Water Quality Standard for the previously designated area in Youghal Bay outside the estuary (Knockadoon to Knockaverry) is also being met.

7.3 Mitigation

The WWTW will be designed to provide secondary treatment of the wastewater to comply with the biological, physiochemical, chemical and bacteriological standards set down in the UWWT Regulations 2001 and for designated Bathing Waters and Shellfish areas.

8 AIR

8.1 Odour

The baseline odour levels were recorded during a survey of the site on three separate days. The baseline levels recorded during the surveys of 14 July and 22 August were significantly higher than typical rural open-air background levels and in general that as one travels further downwind (south) of the landfill the odour concentration decreased. The landfill site, agriculture and the tidal mudflats are the main sources of odour in the area. However, the area generally is not the subject of complaint due to odours in this area. This would suggest that the odours measured are likely to be agricultural or due to the mudflats which are not of a nuisance type. Surveys taken on 15 August indicate much lower and more typical odour levels in the area.

8.1.1 Impacts

The major odour sources at WWTW's are the inlet works, primary treatment processes, biofiltration processes and sludge handling processes.

A computer model was used to model dispersion of odour for the proposed development. An indicative proposal using a conventional activated sludge system was modelled, providing a worst case scenario. For dispersion modelling purposes, the overall odour emission from the Youghal WWTW was allocated to the main sources. The odour emission rates from the odour treatment units were based on an assumed 90% odour removal from the treated air. Due to the remoteness of the site the predicted odour does not impact on local residences.

8.1.2 Mitigation

It is proposed to adopt the Dutch standard for the mitigation of odour from the proposed wastewater treatment works. The standard is for 2ou/m³ with a non-exceedance of 98% at the boundary of the site. These standards will be sufficient to ensure that local residences will not be significantly adversely impacted on by odour from the proposed WWTW.

8.2 Noise

8.2.1 Existing Environment

Noise measurements were made during the daytime and night-time periods, at six locations. In general the dominant noise source at the measured locations is road traffic noise from the N25.

8.2.2 Impacts

Predicted noise levels for the proposed WWTW were based on indicative proposals based on the conventional activated sludge system. Noise levels were measured at an existing secondary WWTW in Greystones, Co. Wicklow which can be regarded as a typical modern secondary wastewater treatment plant. Generally the most dominant noise sources on site were from the plant rooms.

There is likely to be some increase in noise levels during the construction phase. Piling operations would be likely to cause the greatest impact. It is anticipated that 100 construction vehicles will visit and leave the site per day during construction. There would therefore be a slight impact as a result of construction noise traffic.

8.2.3 Mitigation Measures

Noise from operational activities on the proposed waste water treatment plant will be minimised during the design phase, by careful selection of plant and equipment. It is proposed that the operational noise levels LAeq will not exceed 55 dB(A) for daytime and 45 dB(A) for night-time outside the boundary of the site.

Construction noise and vibration can be limited through application of the recommendations in BS5228.

9 CLIMATE

9.1 Impacts

The proposed WWTW will not have an impact on climate.

9.2 Mitigation Measures

No mitigation measures are required.

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10 LANDSCAPE & VISUAL

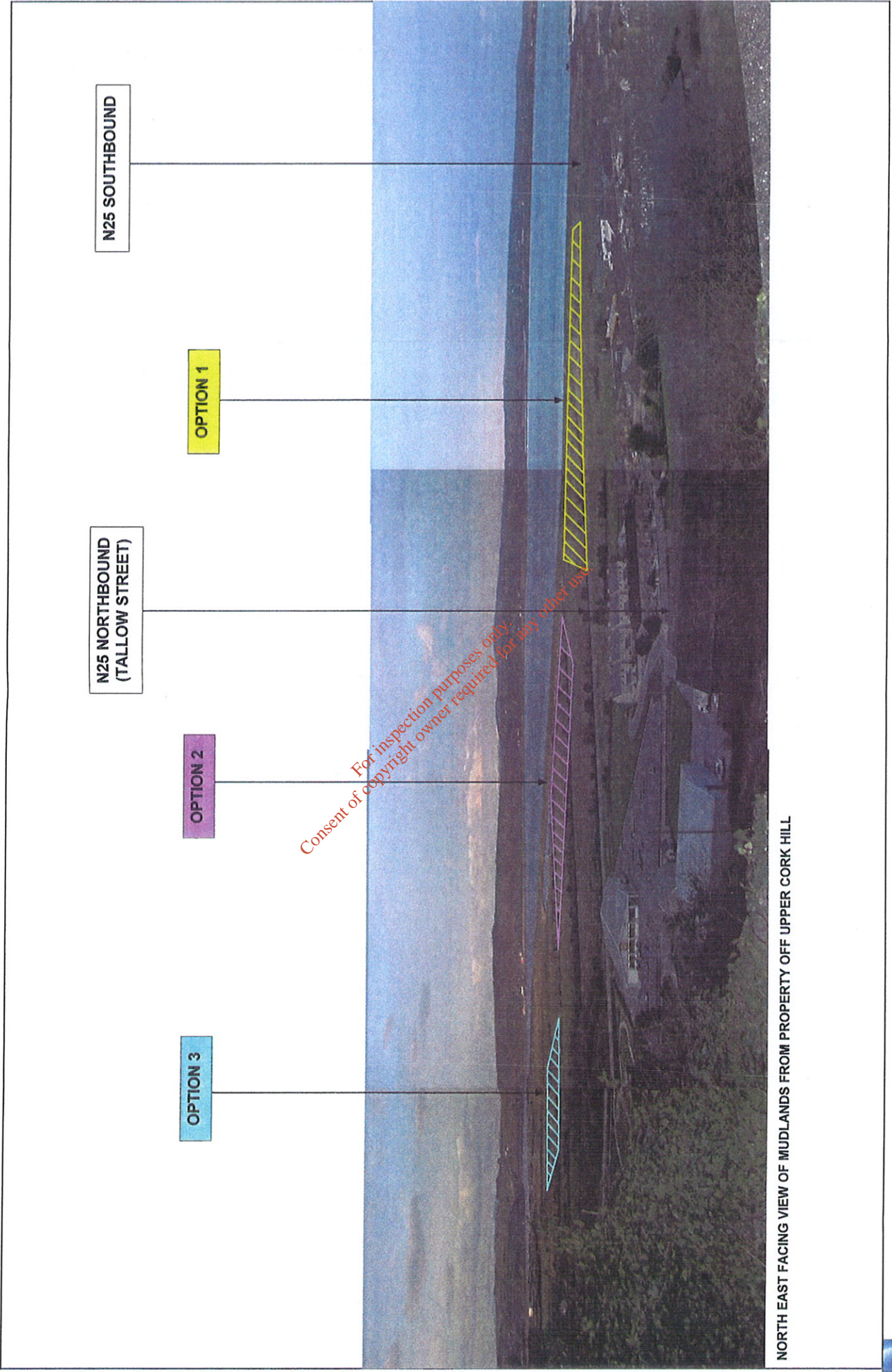
10.1 Existing Environment

Due to the relatively open and flat nature of the Mudlands and the undulating landscape enclosing the site on the northern, western and eastern sides, the Visual Envelope of the Mudlands is extensive. However, roadside vegetation and mature hedgerows within the site limit views from certain locations. The Visual Envelope extends from properties in Dominic Collins Place to the south, Upper Cork Hill to the south west and Greenloyne, Copperalley, Muckridge Demesne and Foxhole to the west. The general visibility of the Mudlands is summarised in Figure 1.5.

10.2 Identification of Impacts

It is proposed that construction of the Plant will take place within the site and all storage of materials will be contained within the site boundary. The construction will require the creation of a new access road along the western boundary of two fields and removal of grass covering the site. During the construction process it is likely that temporary flood lighting will be required to improve visibility. The lighting columns and lamps will be visible and when in use will be a source of visual intrusion. The proposed components of the Plant, in particular the Equipment building between 5-8m in height, will be visible over the existing mature hedgerow to the west and will cause some visual intrusion against the scenic backdrop of the hills on the eastern side of the estuary. Users of the Public Right of Way (seawall) located some 200m from the eastern boundary of the site, will have short distant open views of the development.

Properties to the south will have middle distant views of the site. However views from these properties will be partly screened by the N25 which is on a raised embankment approx. 3m above the existing site. Due to the distance separating the site from these properties only the tallest elements i.e. the buildings of the site, will be visible. The resulting impact will be negative and low.



NORTH EAST FACING VIEW OF MUDLANDS FROM PROPERTY OFF UPPER CORK HILL

Properties and community facilities on the east facing hillsides overlooking the site off Upper Cork will not benefit from the screening properties of the existing hedgerows or the N25 although from a distance and the visual impact will also be negative and low.

10.3 Mitigation

10.3.1 Construction Phase

- Early positioning of the permanent earth bunds with advance planting;
- Control of night time lighting using lighting baffles;
- Minimising height of temporary buildings;
- Minimising disruption to existing vegetation;
- Careful positioning of construction plant; and
- Control of dust using waters spray techniques.

10.3.2 Operational Phase

- Careful use of materials (matt finish and non-reflective) for the Equipment and the Control/Administration buildings and individual components of the Plant.
- Indigenous wetland type planting with a high screening content on 2m high earth mounds surrounding the plant will reduce visibility from properties on surrounding flat land.
- Due to the large number of properties overlooking the site it is also proposed to include widespreading tree planting within the grounds of the WWTP to reduce the visibility of the individual elements of the Plant.

11 MATERIAL ASSETS

11.1 Land Use

There will be some loss of amenity at the proposed location of the wastewater treatment plant in the Mudlands. The area has been designated as Open Space in the Development Plan. However the Development plan has made special provision for the location of the works in the area “if studies indicate it to be the most suitable site”.

11.2 Fisheries

The area of Youghal harbour is a popular area for fishing including drift net salmon fishing and shellfishing has declined over the last number of years but may well be taken up again. The impacts of the scheme will be to improve water quality generally from the current situation in the harbour and hence will be beneficial to this sector.

Impacts during construction of the outfall will include disruption to fishing activities in the area but which will not be significant due to relatively short length of pipe. The discharge point of the outfall will have to be marked with a buoy, to avoid damage to the diffuser by anchors.

11.3 Agriculture

Impacts on agriculture will be minimal although the current land use, which is grazing, will be lost. The works itself will not impact on agriculture.

11.4 Industry

The proposed works will provide essential infrastructure for the sustainable development of industry in the town.

11.5 Residential

The proposed works will provide for the growth of sustainable residential development in the town.

11.6 Recreation / Leisure

There will be a small adverse impact due to loss of amenity land to the site of the works. The impacts on the popular bathing areas will also be marginally improved although bathing water standards as set out in the legislation are not proposed to be met in the estuary as the areas are not designated. However there would be positive impacts on water based leisure in the area including boating and fishing.

11.7 Electricity & Water

The proposed works will require a significant power input and will need to be drawn from the local electricity power grid. Provision will need to be made in the grid for the provision of power to the site and carried to site in an overground or underground cable system. There will be no significant impact on the water supply other than to provide domestic and washwater requirements on the site.

11.8 Transport

Private transport will be required to draw the dewatered sludge from site to a treatment centre. Transport will also be required for the delivery of chemicals to the site.

There will also be some impact on the shipping in the area during the construction of the outfall although this will be limited. Mitigation measures will include limiting times of construction to facilitate shipping deliveries to Green's Quay.

12 CULTURAL HERITAGE

12.1 Existing Environment

A survey of the archaeological environment was undertaken within c.1km of the Mudlands Area.

12.2 Impacts

There are no known archaeological sites within the area; given how recently the area was reclaimed this is not surprising. Therefore, the archaeological implications for the development of a treatment plant within the mudlands are minimal.

12.3 Mitigation Measures

The development does not appear to impact on any known archaeological sites. However given the nature of their proposed siting, archaeological monitoring of ground works is recommended as coastal or estuarine archaeological features may be revealed during development. An intertidal survey of the area will be undertaken to ascertain if the outfall pipes will interfere with any previously unrecorded features.

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13 TRAFFIC

13.1 Existing Environment

The N25 forms a border to the area to the west and south over approximately 2 km. The N25 is the National Primary Route that links Cork to Waterford and Rosslare. This route takes traffic through the old narrow streets of Youghal which operates on a one-way system to improve traffic flow.

Traffic Flow data for the relevant sections of the N25 adjacent to Youghal was obtained from the NRA with traffic on the N25 varying from 9,500 vehicles to 11,000 per day.

13.2 Impacts

The proposed Wastewater Treatment Works will not have any significant adverse traffic impact on the surrounding road network.

The expected construction period is 12 to 18 months. Construction is expected to commence in 2003. It is expected that during the peak construction period, a two-way construction traffic daily volume of 150 vehicles will be generated. It is assumed that the peak construction period will occur in 2004 and background traffic volumes take into account the expected 65% reduction in traffic due to the proposed opening of the Youghal by-pass in 2003. The construction traffic impacts are the more onerous in the scheme but will not be significant as good access is available from the road network particularly with the opening of the bypass.

13.3 Mitigation Measures

1. Hard-stand parking areas should be provided within the site for all construction parking;
2. The routing of construction vehicles will be agreed in the contract documents. This will include the restriction of construction traffic from travelling through the town and directed to use the by pass which will be open in 2003.
3. Traffic control during the construction of the works will be in accordance with the NRA and Cork County Council guidelines.
4. All necessary construction warning signs and permanent vehicle wheel wash facilities be provided prior to the commencement of construction.
5. The new entrance arrangement will have to incorporate road markings and signage as required by Cork County Council.

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14 IMPACTS DURING CONSTRUCTION

14.1 Advance Work for Utilities

There may be work required to be carried out by the utilities in rescheduling and relocating their services. Advance works, moving and re-siting E.S.B. power cables would be carried out before the main Civil Contractor can carry out any works in the vicinity of these cables. Close liaison with all the Statutory Bodies will be required throughout the Contract.

14.2 Traffic Management

Traffic management is a very important aspect in the planning of the construction of the scheme. All traffic management measures will be required to be in compliance with the “Guidelines for Traffic Control at Rural Roadworks”.

14.3 Effects on Human Beings

Occupiers of properties in close proximity to the proposed works will be subject to some nuisance resulting from construction activity. This nuisance may consist of noise, vibration, mud or dust. Noise levels and vibration will, in general, be very intermittent and the occupiers will be kept informed on programmes and progress. Contract documents will clearly specify that the Contractor undertaking the construction of the works will be obliged to take specific noise abatement measures and comply with the recommendations of BS 5228.

Ground vibration from construction work would not be expected to cause undue disturbance or structural damage. The Contractor will be expected to limit vibrations, measured as peak particle velocity, at any dwelling or other building, to less than 3mm/s for vibration from mechanical plant activity and 10mm/s from use of explosives.

14.4 Working Hours

Normal working hours will be 0700-1900 hours Monday to Friday and 0800-1630 hours on Saturday.

The same proviso applies to night and Sunday working. Night is defined as 1900-0700 hours. When overtime and shift working is permitted, the hauling of spoil and delivery of materials outside normal working hours is prohibited. No work may be carried out on Sundays or Public Holidays outside of 0900 and 1600 hours, except in the case of emergencies.

14.5 Emergency Works

Emergency work will include the replacement of warning lights, signs and other safety items on public roads, the repair of damaged fences, repair of water supplies or other services which have been interrupted, repair to any damaged temporary works and all repair work associated with working on public roads.

14.6 Site Compounds

One of the most important factors relating to the Environmental Impact of the various constructional activities for the proposed scheme is the location of site compounds. In general these will be located where open ground with good road access is available in close proximity to the major construction works.

14.7 Effects on Fauna and Flora

The Contractor will be required to control the growth and spread of weeds on the site of his works whether noxious, injurious to agriculture or otherwise, for the period of the works including the maintenance period.

14.8 Effects on Soils

There will be no activities on the site which are a source of contamination of soils by movement through the soils under certain climatic conditions.

14.9 Watercourses

The contractor will be instructed to ensure that care be taken to prevent the silting up, the erosion of the beds, or the pollution of the water in any stream or watercourse in the vicinity of the works.

14.10 Effects on Air

Construction activities have the potential to cause the formulation/accumulation and airborne pollution of dust, particularly during the earth-moving phase. Properly designed and recognised methods of controlling and damping down dust will be in operation during the course of the contract and strict enforcement of these regulations will be carried out.

14.11 Effect on Landscape

During the construction period there will be some visual impact as construction work proceeds. The extent of the visual intrusion will fluctuate according as the location and type of activity being undertaken varies.

14.12 Effect on Material Assets

Potential impacts of the construction phase on property in general may include:-

- *Disruption to access.*
- *General nuisance arising from encroachment onto property.*
- *Temporary disruption to services (water, electricity, telephones, etc.).*

14.13 Effects on Cultural Heritage

The report on Archaeology deals with all matters pertaining to the impact on archaeology including those arising during the construction phase. This provides that during the construction phase an Archaeologist will be retained during soil stripping along the length of the route of the outfall and where warranted, provision will be made for full excavation of any archaeologically significant material uncovered.

14.14 Work Affecting Carriageways and Footways

Before commencing construction at any part of the works which will involve interference with the existing carriageway or footway, the Local Authority will be consulted on the proposed commencement date of these works, the area of the carriageway or footway to be occupied and duration, and the proposed methods of construction, in order to minimise inconvenience to the public.

14.15 Private and Publicly Owned Services

Prior to the diversion or relocation of any service, discussions will be held with the owner of the said service to reach agreement in relation to the planning and carrying out of the diversion or relocation works. A primary objective will be to keep disruption of services to a minimum.

14.16 Impacts on Estuary

The short sea outfall pipe is proposed to be approximately 300m long. The outfall will be trenched into the riverbed to prevent damage from ships' anchors etc. The major impact of these works will be the increased turbidity caused by the disturbance of sediments by trenching. Scour may occur within the river system causing the trench backfill to be eroded.

15 INTERACTION OF ENVIRONMENTAL IMPACT

15.1 Human Beings

All the effects of a development impact on human beings, be it directly or indirectly and therefore interactions between all the issues discussed. Where there are significant impacts mitigation has been developed.

15.2 Mitigation

It is considered that the mitigation measures for each of the individual impacts will ensure that there are no significant cumulative impacts.

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16 SUMMARY

A summary of environmental impacts and mitigation measures is provided in Table 16.1.

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Table 16.1 – Youghal Main Drainage Scheme - Environmental Impacts

DESCRIPTION				EVALUATION		
Description	Character	Magnitude & Duration	Significance	Consequences	Mitigation	
Human Beings (Ch. 3)	Health & Safety	Short-term	Permanent	<ul style="list-style-type: none"> accidents during operation of plant. Infection with pathogenic organism Training & personal protective equipment such as gloves & clothing. 	Compliance with Safety, Health & Welfare requirements, Training & Safe System of Work.	
		Long-term		Removal of habitat	Retain hedgerows where possible. Impacts will be least at Site Option 3.	
Terrestrial Flora & Fauna (Ch. 4)	Habitats	1	Slight			
		2	Permanent	Significant	Alteration of drainage and damage to habitat in SAC if pipeline built here.	Avoid routing pipeline through SAC.
		3	Short-term	Slight	Disturbance to birds during construction phase	Limit zone of disturbance
		4	Short-term	Slight	Sedimentation of drainage ditches	Avoid.
Marine Ecology (Ch. 5)	Habitats	1	Short-term	Slight	Habitat loss during construction of pipeline.	Restoration of habitat
		2	Short-term	Slight	Loss of feeding and spawning grounds and disturbance of epifauna.	Minimise area of seabed impacted.
		3	Short-term	Slight	Sedimentation causing smothering and reduction of light for flora.	Minimise area of seabed impacted.
		4	Long-term	significant	Contamination of shellfish beds in vicinity of outfall.	Locate outfall away from shellfish beds.
		5	Long-term	Significant	Improvement of overall estuary water quality thus reducing levels of bacteria in shellfish in the estuary	
Soils & Geology (Ch. 6)	Sediment	1	Short term	Slight	Construction Phase may cause release of contaminants	Reduce area of impact Excavation of trenches for outfall at low tide to reduce turbidity.
		Long-term	Moderate	Removal & destruction of soils in the WWTW Site foundation.	Rock armour protection to prevent scour around pipeline.	
		Short-term	Slight	Spoil generation	Use spoil generated for landscaping. No preference between site options	

DESCRIPTION				EVALUATION	
Description	Character	Magnitude & Duration	Significance	Consequences	Mitigation
Water (Ch.7)	Water Quality	1 Long-term	Significant	Improvement in water quality	Nutrient removal (nitrogen) to reduce eutrophication and preservation of designated shellfish and bathing waters.
Air (Ch. 8)	Odour Emissions	1 Long term	Slight	Collection & treatment to 200/m ³ at site limit for 98 % on -exceedance	Cover & house primary odour sources & use of treatment technologies
	Noise	2 Long-term	Imperceptible	Maximum level below ambient background noise levels.	Good design layout.
		3 Short-term	Slight	<ul style="list-style-type: none"> ▪ Piling operations during construction works. ▪ Traffic during construction phase. 	<ul style="list-style-type: none"> ▪ Limit hours of noisy activities. ▪ Monitor levels during critical receivers and at noise sensitive locations.
Climate (Ch. 9)	Atmosphere	1 None	None	None	None
Landscape/ Visual (Ch. 10)	Visual Intrusion	1 Long-term	Significant	<ul style="list-style-type: none"> ▪ Visual Intrusion 	<ul style="list-style-type: none"> ▪ Additional screen planting. ▪ Careful selection of Building Materials
Material Assets (Ch. 11)	Land Use	1 Permanent	Slight	Loss of agricultural land and habitats	Limit area of impact
	Transport	2 Permanent	Slight	Impacts on boating activities if outfall near anchorage point.	<ul style="list-style-type: none"> ▪ Build outfall below the surface. ▪ Avoid anchorage point.
	Fisheries	3 Permanent	Significant	Improvement in water quality	<ul style="list-style-type: none"> ▪ none
	Agriculture	4 Permanent	Slight	Loss of land	<ul style="list-style-type: none"> ▪ none
	Industry	5 Permanent	Significant	Provide for sustainable development	<ul style="list-style-type: none"> ▪ none
	Residential	6 Permanent	Significant	Provide for sustainable development	<ul style="list-style-type: none"> ▪ none
	Power and Water	7 Permanent	Slight	Provide power from grid; small water demand	<ul style="list-style-type: none"> ▪ none
	Recreation/Leisure	8 Permanent	Significant	Improved water quality	<ul style="list-style-type: none"> ▪ none

DESCRIPTION			EVALUATION		
Description	Character	Magnitude & Duration	Consequences	Mitigation	
Cultural Heritage (Ch.12)	Archaeology	1 Long-term	Neutral	None required	
		2 Long-term	Significant	<ul style="list-style-type: none"> Where possible, lay pipelines on the foreshore. Conduct Archaeological monitoring during pipe-laying 	
Construction (Ch. 14)		Short term			
	Health & Safety		Slight	Secure sites, S.I.138 Compliance	
	Traffic		Slight	Accidents and congestion	Locally minor, Traffic Management Plans
	Waste Disposal		Slight		C/D Waste to Approved Sites
	Marine Sites		Moderate	Local Disruption/Turbidity/Amenity Loss	
	Air Emissions		Moderate /significant	Nuisance	Limit Noise/Vibrations BS 5228
	Water Emissions		Minor	pollution	Specify Sedimentation before discharge
	Flora/Fauna		Minor	Local Impact from Construction Sites Local Disturbance of Sites/foreshore	Reinstate site Additional landscape
Traffic (Ch. 13)		1 Long-term 2 Short-term	Imperceptible Slight	None required. <ul style="list-style-type: none"> Traffic control in accordance with NRA and Co. Co. guidelines. Erect necessary signage. 	
					Traffic during operation of the WWTW. Traffic generated during construction phase