

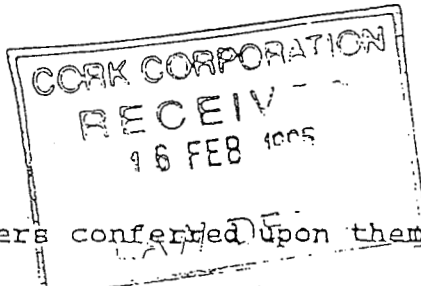
CORK COUNTY COUNCIL

LOCAL GOVERNMENT (PLANNING & DEVELOPMENT) ACTS, 1963-1993

NOTIFICATION OF DECISION TO REFUSE TO GRANT PERMISSION

Reference No. in Planning Register
S/94/27 City Engineers Office
City Hall, Cork.
16 FEB 1995
RECEIVED

CORK CORPORATION
City Hall,
Cork.



In pursuance of the powers conferred upon them by the above mentioned Acts the Council of the County of Cork have by Order dated 15 FEB 1995 decided to REFUSE to grant PERMISSION for the development of land namely;

Construction of an urban wastewater treatment plant & landscaped public amenity & for associated development works.

AT: CARRIGRENAN, LITTLE ISLAND.

in accordance with the plans and particulars submitted by the applicant

On: 26/08/94

And as amended by revised documentation on 06/10/94

for the reasons set out in the Schedule attached hereto.

An appeal against a decision of the Planning Authority may be made to An Bord Pleanála by any person before the EXPIRATION of the period of ONE MONTH beginning on the day of the giving (i.e. Date of Order) of the decision of the Planning Authority. (SEE NOTES ATTACHED)

Planning Department,
County Hall,
Cork.

Signed on behalf of the said Council

O. O'Donovan

15 FEB 1995

DATE:

SEE NOTES ATTACHED

To	Denis McCarthy	
Company	Cork Corporation	
From	Planning	
Company	CCS	
Tel No.		No. of Pages 1

FAX
Print-Fax Note
1995

AN BORD PLEANÁLA

LOCAL GOVERNMENT (PLANNING AND DEVELOPMENT) ACTS, 1963 TO 1993

County Cork

Planning Register Reference Number: S/94/2700

APPEAL by Little Island Community Association Limited care of Henry P.F. Donegan and Son of 74 South Mall, Cork and by the Lord Mayor, Aldermen and Burgesses of Cork of City Hall, Cork against the decision made on the 15th day of February, 1995 by the Council of the County of Cork to refuse permission to the said Lord Mayor, Aldermen and Burgesses for development comprising the erection of an urban waste water treatment plant and landscaped public amenity together with associated development works consisting of (1) the construction of a site access road at Courtstown Industrial Estate, Courtstown, Little Island; (2) installation of a twin drainage pipeline river crossing in Lough Mahon from Cork County Borough boundary at Lakeland Strand to Carrigrenan; (3) installation of a pumped twin drainage pipeline from Romayn's Court, Monfieldstown, to Cork County Borough boundary at Douglas estuary bridge crossing; (4) the installation of an outfall pipeline from Carrigrenan to a diffuser system located off Marino Point in Lough Mahon, at Carrigrenan, Little Island, County Cork in accordance with plans and particulars lodged with the said Council:

DECISION: Pursuant to the Local Government (Planning and Development) Acts, 1963 to 1993, it is hereby decided, for the reason set out in the First Schedule hereto, to grant permission for the said development in accordance with the said plans and particulars, subject to the conditions specified in the Second Schedule hereto, the reasons for the imposition of the said conditions being as set out in the said Second Schedule and the said permission is hereby granted subject to the said conditions.

FIRST SCHEDULE

Having regard to:

- (a) the industrial land use zoning of the site and the industrial nature of the proposed development which would facilitate future development,
- (b) the requirement of secondary treatment and relevance to the Greater Cork Area of EC Directive 91/271 on Urban Wastewater Treatment,
- (c) the isolated nature of the site and the degree of separation of the proposed treatment plant site from properties in the vicinity.

00.

FIRST SCHEDULE (CONTD.)

- (d) the proposed ameliorative measures to reduce significant environmental impacts,
- (e) the low level of traffic generation, and
- (f) the interests of the common good,

it is considered that, subject to compliance with the conditions set out in the Second Schedule, the proposed development would be consistent with the strategic planning objectives for the Cork Harbour area, would not seriously injure the amenities of properties in the vicinity and would be acceptable in terms of traffic safety and convenience. It is considered, therefore, that the proposed development would be in accordance with the proper planning and development of the area.

SECOND SCHEDULE

1. The proposed development shall be carried out, completed and operated in accordance with the details, plans and specifications submitted to the planning authority and the ameliorative measures proposed in the Environmental Impact Statement and Addendum thereto, except as may otherwise be required by the conditions of this Schedule. In the event of alternative equivalent or superior ameliorative measures being proposed, these measures shall be agreed with the planning authority or, in default of agreement, shall be determined by An Bord Pleanála.

Reason: To clarify the subject and requirements of this permission and to secure a satisfactory standard of development in order to protect the amenities of the area.

2. This permission shall have effect for a period of 15 years from the date of this Order.

Reason: To take account of the nature and extent and phasing requirements of the proposed development.

3. The total dust emissions arising from on-site operations, including construction phase, shall not, when measured as deposition of insoluble particulate matter at the boundary of the site, cause dust deposition to exceed 130 milligrams per square metre per day, averaged over 30 consecutive operational days of the development.

Reason: To protect the amenities of properties in the vicinity of the site.

aa.

SECOND SCHEDULE (CONTD.)

- 4.
- (1) The rated sound level, at the boundary of the site, shall not exceed 45 dB(A) (15 minute Leq) between 2000 hours and 0800 hours.
 - (2) The rated sound level, at the boundary of the site, shall not exceed 55 dB(A) (15 minute Leq) between 0800 hours and 2000 hours. This constraint shall not apply to the construction phase of the proposed development.
 - (3) Construction works at the site shall be limited to between 0800 hours and 2000 hours Monday to Friday inclusive and 0800 hours to 1600 hours on Saturday.
 - (4) All sound measurements shall be carried out in accordance with ISO Recommendations R 1996, "Assessment of Noise with Respect to Community Response" as amended by ISO Recommendations R 1996/1, 2 and 3, "Description and Measurement of Environmental Noise", as appropriate.

Reason: To protect the amenities of properties in the vicinity of the site.

- 5.
- The overall scheme for the proposed public amenity park, the establishment of the wild flower meadow and wetland area and the protection of trees, flora, fauna, manmade artefacts and features shall be in accordance with the protective measures specified in the Environmental Impact Statement Addendum. The developer shall notify the Office of Public Works at least one month prior to commencement of development in order to facilitate the protection of natural and manmade features of importance on the site. A Management Programme shall be submitted to Cork County Council for agreement prior to the commencement of development.

Reason: To preserve and protect the amenities of the area.

- 6.
- The landscape plan shall be submitted to and agreed with Cork County Council prior to the commencement of development, shall be implemented in accordance with a phased programme and completed within twelve months of commissioning of the plant. In particular, the programme shall provide that -
- (a) The effective landscaping of the upper slopes of the north-facing hillside of the site shall be included in Phase 1 of the programme which phase shall be implemented within twelve months of the completion of the initial large scale excavation works on the site.

SECOND SCHEDULE (CONTD.)

- (b) The proposed amenity walkway shall be provided and opened to public use within 12 months of commissioning of the treatment plant.
- (c) The public road boundary wall/fence along the north of the site shall be repaired/rebuilt to the satisfaction of Cork County Council.

Reason: To preserve and protect the amenities of the area.

7. Access arrangements shall be in accordance with the requirements of Cork County Council. Allowances shall be made on-site for provision of an adequate turning head to the satisfaction of Cork County Council, which shall be provided at the developer's expense.

Reason: In the interest of traffic safety and convenience.

8. In relation to potential odour, dust and noise nuisance, a public complaints procedure shall be established by the developer to the satisfaction of Cork County Council.

In this regard, any complaints made shall be recorded in a report book which shall be kept on site and shall be made available, on request, to any officer of Cork County Council who is authorised for this purpose. The name of the complainant, date, time and duration of complaint and wind speed and direction shall be recorded in the report book.

Reason: To provide for the protection of the residential and recreational amenities of the area and in the interest of public health.



Ann C. Quinn

Member of An Bord Pleanála duly
authorised to authenticate the
seal of the Board.

Dated this 11th day of July, 1995.

SCHEDULE

Reference No. in Planning
Register: 94/2700

Reason

(1)
The proposed development would contravene materially an objective in the Cork County Development Plan to reserve the site in question for large scale, port dependent industry.

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CORK CORPORATION
CORK MAIN DRAINAGE SCHEME
WASTEWATER COLLECTION
TREATMENT AND DISPOSAL

ENVIRONMENTAL IMPACT STATEMENT

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December 1999

Cork Main Drainage Scheme
Environmental Impact Statement

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NON TECHNICAL SUMMARY

NON - TECHNICAL SUMMARY

Introduction

The proposed Cork Main Drainage Scheme involves the construction and operation of a new wastewater treatment plant with associated collection mains and a new treated effluent outfall to provide Cork City and its environs (including Tramore Valley and Little Island) with appropriate primary and secondary wastewater treatment capabilities. Facilities will also be provided for the handling, treatment, and ultimate disposal of stormwater and sewage sludge.

The Environmental Impact Statement (EIS) has been prepared under the following general headings:

- Project Description.
- Emissions to the Environment.
- Alternatives Considered..
- Receiving Environment.
- Environmental Impacts.
- Impact Amelioration.

The EIS is primarily concerned with predicting the potential environmental impacts of construction and operation of the proposed project and identifying effective ameliorative measures to reduce potential adverse environmental impacts.

This Non - Technical Summary identifies and briefly addresses each of the aforementioned topics.

Project Description

The Cork Main Drainage scheme embraces the City, Tramore Valley and Glanmire/Little Island Sewerage Schemes, and it is also recommended that industrial wastewaters be incorporated in the Scheme to ensure a common discharge standard for all wastewater discharging to the estuary upstream of Marino Point. Having considered the various

alternatives the preferred scheme for a collection system, wastewater treatment plant and outfall for the scheme is as described hereunder.

- Cork Main Drainage Scheme

- Construction of Interceptor Sewer No. 4 as envisaged in the 1965 Preliminary Report.
- Collection of all wastewaters at present discharging downstream of the Custom House in an integrated system. This system will include inverted siphons to convey wastewaters from the North side and Centre Island to a 3.0m diameter trunk sewer which will be laid along Victoria Road and Monahan Road to the Atlantic Pond.
- Construction of a Central Pumping Station at Atlantic Pond and twin 1500mm diameter rising mains from this to a header chamber at Mahon.
- Construction of minor pumping stations and upgrading of existing stations in the Blackrock, Mahon and Besborough areas to link these drainage systems to the main scheme.
- Construction of lateral sewers in these areas, and in the Centre Park Road area and connection of existing systems in Boreenmanagh Road, Beaumont and Blackrock to the trunk sewer.

Tramore Valley

- Modifications to the existing pumping station at Ronayne's Court and the laying of twin 800mm diameter rising main from this to the header chamber at Mahon.
- Alterations to existing facilities (head manhole, tidal tanks and pipework) at Ronayne's Court to fit in with the new proposals.

City and Tramore Valley Combined

- Construction of the header chamber at Mahon.
- Construction of a pressure sewer from this header chamber

across Lough Mahon to the proposed treatment plant site at Carrigrenan. This twin sewer will be 1950mm diameter on land at Mahon, and 1800mm diameter under Lough Mahon.

Glanmire/Little Island

- Construction of pumping stations at Wallingstown, Flaxfort and Courtstown to link existing discharges to the proposed treatment plant. Associated with these stations will be the construction of pipelines (sewers and rising mains).
- Utilisation of existing pumping facilities in the Glanmire/Little Island Sewerage Scheme to transmit wastewaters in this scheme to the Main Drainage Scheme.

Wastewater Treatment Plant

- Construction of the wastewater treatment plant at Carrigrenan will incorporate the following facilities:
 - Screening, grit and grease removal.
 - Storm water treatment and disposal facilities.
 - Primary and secondary treatment for carbon removal (BOD/COD)
 - Sludge treatment including stabilisation, thickening, mechanical dewatering and treatment in the form of thermal drying for easy disposal of a dry granulated end product which is clean, pasteurised, odourless and easy to handle and store.
- Extension of the access road from Courtstown Industrial Estate to the Carrigrenan Site.

Outfall

- Construction of an 1800mm diameter gravity outfall sewer from the site at Carrigrenan to the outfall discharge point at Marino Point.
- Construction of a diffuser at the end of this pipeline to ensure satisfactory dispersion of the treated wastewater.

Emissions to the Environment

Currently, six major outfalls discharge wastewater into the River Lee and Lough Mahon. These are identified as Penrose Quay (City North), Kennedy Quay (City South), Tramore Valley, Glanmire/Little Island, IDA Industrial Estate/Little Island, and Courtstown Industrial Estate/Little Island. Under the proposed sewerage scheme, each of these discharge outfalls would be intercepted, and the wastewater would be transported to the treatment plant at Carrigrenan for treatment prior to discharge at Marino Point.

Future emissions of the wastewater treatment plant will meet conventional effluent standards of 20 mg/l BOD, and 30 mg/l of Suspended Solids.

The effluent recipient water in the Lee Estuary has not yet been designated as a 'Sensitive' or 'Less Sensitive' area by the Department of the Environment in accordance with the terms of the EC Directive on Urban Wastewater Treatment (91/27/EEC). Therefore nutrient removal (nitrogen and phosphorus) is not required at present. However, this situation may change in the future. The proposed Wastewater Treatment Plant is designed to allow easy retro-fitting of nutrient removal facilities at a later stage if required.

The present industrial BOD and Suspended Solids loadings as determined from a comprehensive wastewater survey, are 4,583 kg/day and 2,769 kg/day, respectively.

The results of an assessment of the impacts of storm water discharge from existing overflows show that, by incorporating some modifications to 3 no. S O chambers, no adverse impact on the recipient waters will occur due to discharges from all the storm overflow chambers.

All storm water collected will be transported to the treatment plant. The system will involve storm water separation at two locations on the main wastewater stream through the plant i.e. immediately downstream of the grit and grease removal tanks, and downstream of primary settlement.

Odour control is one of the more important aspects of the entire Cork Main Drainage Scheme. Air quality dispersion modelling to assess the potential for significant odour emissions and identify mitigation measures, was carried out.

Based on the findings of the air quality dispersion modelling, the treatment plant is not anticipated to result in significant odour-related problems. Areas susceptible to possible odour emissions will be covered/housed and the extracted gases conveyed to odour removal facilities prior to discharge to the atmosphere.

Noise emissions resulting from construction activities (e.g. equipment, trucks, blasting, trenching, etc.) will be minor and short-term in duration. Any noise impacts will be minimised by permitting construction only during daytime hours. All trucks, equipment, and machinery will be maintained and installed with mufflers where appropriate to limit noise emissions. Noise emissions from operation of the wastewater treatment plant are not anticipated to result in significant noise impacts.

Based on the assessment/evaluation of various sludge treatment and disposal options, the thermal drying system for advanced sludge treatment is the preferred option in the Cork Main Drainage Scheme.

For the Cork Main Drainage Scheme, an estimated 18m³/d of product (16.7 t/d at 93% TS) would be produced at design loading. This product would be stabilised and pasteurised, i.e. free from pathogens and parasites. Ultimate disposal options include use as a soil conditioner for golf courses and municipal parks, landscaping, and land restoration—assuming the heavy metal content is within allowable limits, and/or landfilling.

Alternatives Considered

A total of twelve treatment options were assessed and evaluated from engineering, economic and environmental standpoints.

The result of this assessment revealed two viable treatment options for the scheme referred to as Scheme A and Scheme B.

Scheme A: Cork City and Tramore Valley would be combined in one treatment plant (Plant A1) and Glanmire/Little Island (including the industries) would be combined into a second treatment plant (Plant A2).

Scheme B: Cork City, Tramore Valley, and Glanmire/Little Island, including the industries, would be combined in one treatment plant (Plant B).

The design effluent standard to be adopted, regardless of the specific treatment plant, is 20mg/l BOD, 100mg/l COD and 30 mg/l Suspended Solid, as necessary at present to satisfy the requirements of the EC Directive on Urban Wastewater Treatment (91/271/EEC).

For the purpose of a relative comparison between the two schemes (A and B), the design/unit processes and the mechanical components of the treatment plant remain the same in principle.

From an environmental standpoint, the critical factor in evaluating the potential environmental impacts from options A and B is the fact that for Option A, two plants would be required rather than only one, as in Option B. It is environmentally preferable to utilise this one site rather than impacting two distinct areas.

The possible disposal routes for sludge disposal may be summarised as follows:

- **Disposal to Sea**
- **Disposal to Landfill**
- **Disposal to Land**

An assessment of these options revealed that in the case of the Cork Main Drainage Scheme, advanced sludge treatment options will have to be evaluated. The principal forms of advanced sludge treatment are:

- **Composting**
- **Drying**
- **Incineration**
- **Wet Air Oxidation (High Pressure)**
- **Pyrolysis**

Based on an environmental and engineering evaluation of these options, the thermal drying option was determined to be the most favourable option for the Cork City Main Drainage Scheme.

The principal objectives of the storm water handling and disposal strategy, as applied to the Cork Main Drainage Scheme, are to optimise the level of on-site storm water treatment and to maximise the quantity of storm water which can be returned to the plant for full biological treatment when capacity becomes available.

This will result in the quality of the combined discharge from the wastewater treatment plant complying with the requirements of the EC Directive on Urban Wastewater (91/271/EC).

A total of 12 sites were identified as possible locations for a wastewater treatment plant. These are spread around the Lough Mahon and Upper Harbour areas, five being located on the north side and seven on the south side.

Two possible locations for an outfall discharge point have been taken into consideration:

- Lough Mahon.
- Marino Point.

In general, alternatives that avoid disturbances to natural ecosystems, cultural resources, aesthetic values, and the marine environment, while at the same time resulting in effective flushing and dispersion of wastewater best meet the overall objectives from an environmental standpoint.

An assessment of the various site options revealed a number of viable treatment plant sites, namely:

- Site No. 1 Little Island (Castleview)
- Site No. 3 Little Island (Mitsui)
- Site No. 4 Little Island (Carrigrenan)
- Site No. 7 Mahon
- Site No. 7A Lakeland Strand
- Site No. 8 Hop Island East
- Site No. 9 Ringmahon

The options were then subjected to an Engineering, Economic and Environmental Appraisal, the result of which clearly showed that two options only (Mahon and Carrigrenan) could be seriously considered as a suitable location for a wastewater treatment plant of the size and scale required for this scheme.

A more comprehensive evaluation of these two options was then carried out and this resulted in the selection of Carrigrenan as the preferred site location for the wastewater treatment plant because of its environmental advantages and because the location promotes the concept of sustainable development as recommended in the LUTS Plan and Review.

The results of the assessment of the alternative outfall location clearly shows Marino Point as the preferred option. This was verified by the results obtained from mathematical model simulations of the proposed discharge to the harbour.

Receiving Environment

The townland of Carrigrenan covers an area of approximately 32 hectares at the southern tip of Little Island. The land use is currently farmland but also includes two dwellings, Carrigrenan House and Tower View Cottage.

Carrigrenan House and Tower View Cottage are located within the site. Approximately 12 dwellings are located on the opposite side of the roadway at the northern boundary of the site near Clashavodig. The northernmost unit of the treatment plant is located more than 200m from these habitable dwellings.

The Population Equivalent (PE) of the proposed drainage area is 321,566. Of this total, Cork City and Tramore Valley account for 278,533 PE and Glanmire/Little Island accounts for 43,033 PE. To account for current population, projected population increases, and industrial effluent loadings, the design loadings of the treatment plant will accommodate a total of 448,350 PE, with 381,366 PE attributable to Cork City and Tramore Valley, and 66,983 PE to Glanmire/Little Island.

Access to the Carrigrenan site will be via an extension of the industrial estate road from its present terminus in Courtstown Industrial Estate, approximately 1km to Carrigrenan. Currently the traffic volume in the direct vicinity of the site is low.

To provide a recent account of existing conditions in the Harbour, a survey of the littoral, sublittoral, and planktonic communities was carried out in Sept. 1991. Other ecological surveys of the project vicinity were also conducted in the Autumn of 1991 in support of the Environmental Impact Study for the South Ring Road Stage VI and River Lee Tunnel (Resource and Environmental Management Unit {REMU} 1991b; REMU 1991b; and Goodwillie 1991).

According to the National Soil Survey Ireland, Soil Association 13 occurs in the Cork synclinal valley, including the Mahon area and Little Island. The principal soil of this association is a well drained acid brown earth (70%), which has a sandy loam texture. Clay and silt contents are 15% and 25%, respectively.

Cork Harbour is one of the largest estuaries in the country and consists of two main sections; the upper harbour, which is composed of the outer Lee Estuary and Lough Mahon, and the lower harbour. The two sections are connected by an east and west channel. The waters of the lower harbour are well mixed and have salinities characteristic of coastal marine waters, whereas salinities in the upper harbour are more typical of an estuary.

Ambient air quality in upper Cork Harbour generally is good. Chemical and pharmaceutical manufacturing facilities located in the industrial estates on Little Island have relatively small industrial emissions.

The nearest noise-sensitive areas to the proposed wastewater treatment plant site are residences located over 200m from the nearest unit of treatment plant, to the north of the site. In addition, golfers on the golf course to the north of the site would be considered temporary noise-sensitive receptors but, of course, would only be present during daylight hours.

Ambient odours in the project vicinity include hydrocarbon emissions from internal combustion engines (particularly from diesel-driven vehicles), which are most noticeable in Cork City and along major roads. Burning of coal in fireplaces and furnaces also produces widespread

sulphurous odours, most noticeable during cold periods.

The character of the Carrigrenan site is defined by a rolling topography and a mixture of vegetation types and habitats, and provides aesthetically pleasing views to the west and southwest. Within the boundaries of the site are the remains of Carrigrenan House, which are surrounded and sheltered by mature vegetation. The predominant topographic feature of the site is a hillock approx. 22m in elevation that allows views of Cork Harbour in all directions.

The proposed treatment plant will include the site currently occupied by Carrigrenan House, an abandoned 19th. century farmhouse and associated outbuilding. This site is not included in the County Cork *Sites and Monuments Record* or in "*Cork and County Cork in the 20th. Century*" due to its relatively recent age. Cultural resources of this sort are common in the region and generally not considered of major cultural importance.

No known archaeological sites, monuments or historic structures will be directly impacted (i.e. removed) by the collection mains or outfall main.

In general, the identification of specific material assets is open to interpretation, and there is little consensus on components of the environment that may be regarded by society as being of value for production, development, maintenance, recreation, and well-being. For the purpose of the proposed Cork Main Drainage Scheme, significant material assets include sustainable development and severance.

Environmental Impacts

Construction and operation of the treatment plant will result in a change in the existing use of the Carrigrenan townland site. The entire 32 ha. will not be directly affected because the northern portion of the site affected by spring tides (approx. 7 ha) and the 22m hillock at the extreme southern tip of the site will remain undeveloped. However, approximately 20 ha. of the site will be permanently converted to use as an urban wastewater treatment location.

From a land-use perspective, the construction and operation of the treatment plant will not impact the future use of either the Harbour Point Golf Course or the Little Island Golf Course. In addition, it will not adversely affect the operation of industrial or manufacturing uses in Little

Island.

The construction of the proposed collection mains will result in temporary disturbances to land uses directly traversed (i.e. roads, railway walk through Mahon, mudflats), but these disturbances will cease with the termination of construction and subsequent restoration activities. Operation of the collection mains will not affect land use or land use patterns except that future permanent structures (i.e. houses, buildings) will not be permitted directly above the mains for obvious safety and maintenance reasons.

Construction and operation of pumping stations will have a minimal affect on land use.

Construction and operation of the proposed outfall main from the Carrigrenan site to the outfall at Marino Point will not affect land use given the current route of the main east of the man-made quay along the southern boundary of the site.

The construction and operation of the proposed Cork City Main Drainage Scheme will not result in any significant impacts to current population or projected population growth patterns for Cork City, Cork County, or Little Island. The Treatment plant has been designed to accommodate a population equivalent of 448,350 which will account for population growth for the next 30 years.

Construction and operation of the proposed treatment plant will result in adverse impacts to the approximately 12 residential dwellings located within 250m of the proposed plant and to new residential construction in the area. These impacts would likely include a reduction of new home construction in the immediate vicinity due to a reduced desirability to live in close proximity to a treatment plant. It should be noted, however, that residential land use in general on Little Island is currently affected by the predominance of significant industry and manufacturing uses there. In addition, it should be noted that new residential construction on Little Island is not entirely consistent with the County Development Plan and the LUTS Study, which call for encouraging industrial use and developments on Little Island.

Construction of the treatment plant will require that Tower View Cottage be purchased from its current owner and be demolished. As such, the proposed action will result in the direct loss of one active residence.

Construction and operation of the collection mains, pumping stations and treated effluent outfall will not impact population or housing resources.

Construction and operation of the Main Drainage Scheme is not anticipated to result in any significant adverse impacts to recreational activities or opportunities in the Cork area including Fota Island.

Construction of the treatment plant at the Carrigrenan site will result in an increase in traffic in the vicinity of the site as a result of construction workers and construction vehicles (i.e. trucks, graders, etc) accessing the site. Access to the site will be via an extension of the existing road from the Courtstown Industrial Estate southward to Carrigrenan. As existing traffic levels are low, the increase in vehicular traffic due to construction will likely be significant, but short-term in duration.

Traffic flow will be particularly heavy in the morning (8am to 9am) from the Industrial Estate Road south to Carrigrenan and in the late afternoon (5pm to 6pm) from Carrigrenan north to the Industrial Estate Road.

Space will be adequate for construction workers to park automobiles on the Carrigrenan site so as not to block the road or restrict access to the existing houses. The parking area should accommodate one vehicle per worker.

Actual traffic flow per day to and from the treatment plant after construction is estimated to be 11 automobiles for workers and an estimated 2 heavy vehicles for sludge/grit/screening transportation off site, and sufficient parking area to accommodate these vehicles on the Carrigrenan site is provided.

Construction of the collection mains will result in traffic-related impacts to existing roadways that will severely limit vehicle access. In some instances, a road may be closed to allow for safe and efficient construction. In all cases where vehicle access will be restricted or prohibited, detour routes will be clearly marked.

Construction in roadways will be temporary, and following surface restoration, vehicle movement will not be affected. Specific roads to be impacted, appropriate detour routes, and a projected timeframe for construction in these areas will be developed during the final design phase.

Operation of the plant will produce sludge residue (from the thermal drying process) and also screenings and grit which will need to be removed. It is estimated that approximately 18m^3 per day of sludge product (16.7 t/d at 93% TS), $4/5\text{m}^3$ grit screenings and $4/5\text{m}^3$ grit would need to be disposed of off site. This volume would be removed every one to two days by 2 no. trucks. As such, operation of the plant will result in some increase in large truck traffic on Little Island. This increased volume is not significant given the existing industries and associated truck traffic on Little Island.

The design of the Treatment Plant incorporates a number of streams operating in parallel through the modular type plant layout. Facilities for diverting flows from the various treatment units will be provided to effect ease of maintenance and to facilitate isolation of any integral unit should breakdown occur without impairing the overall treatment efficiency. In addition a loop power supply will be provided and this combined with the power generation plant on site will eliminate the effects of a power outage.

Construction and operation of the treatment plant will not affect shipping or harbour activities. The location and operation of the treated effluent outfall diffuser at Marino Point will not affect shipping or dredging activities.

Construction and operation of the proposed facilities will result in both long- and short-term minor impacts to terrestrial flora and fauna. Construction of the proposed treatment plant will require the permanent removal of approx. 20 ha. of native vegetation at the proposed treatment plant site. This impact will be relatively minor due to the previously altered nature of the existing plant communities (active pastureland, hedgerows, and ornamental trees) and the relative abundance of similar habitat in the general vicinity of the treatment works site. The proposed facility will be configured and sited so as to minimise clearing of large trees near the southern end of the site. In addition, woody hedgerows bordering the site will be retained to the degree possible to minimise ecological and aesthetic impacts. Following construction of the treatment plant, open spaces remaining within the site will be revegetated with grass, consequently, a significant portion of the present grassland will be functionally replaced. A Landscaping Plan has been prepared for display purposes.

Construction of the proposed wastewater transmission mains will have

minor temporary effects on terrestrial vegetation. Most of the mains will follow existing roads and wayleaves and will not require clearing of vegetation. Where mains traverse early successional fields and hedgerows on Little Island and Mahon, approximately 3.0 ha. of vegetation will be removed. Because of the local predominance of these types of vegetational communities, impacts to flora will be minor. In addition, the vegetation will be allowed to revert to its original condition following construction.

Implementation of the proposed Cork Main Drainage Scheme will have short-term minor adverse effects and long-term beneficial effects on marine flora and fauna.

The cessation of untreated wastewater discharge from the outfalls at Penrose and Kennedy's Quays and Tramore Valley will have long-term beneficial impacts on the marine flora and fauna of lower River Lee and Lough Mahon. Improvements to water quality resulting from the cessation of untreated effluent discharge will promote a more diversified and productive benthic community, which in turn will increase the carrying capacity of the upper harbour for benthic feeding fauna, including waterfowl, and fish. In addition to improving water quality in upper Cork Harbour, the proposed discharge of secondarily treated wastewater will not significantly degrade the quality of water in West Passage or lower Cork Harbour.

Grading, trenching, excavation, blasting, and backfilling during construction of the proposed facilities will disturb soil strata. However, many of the areas traversed by the proposed sewer lines consist of fill material that has covered the original soil strata. No soil-dependent land uses, such as croplands and pastureland, will be traversed by the sewer lines. Consequently, trenching and backfilling during the installation of pipelines will not have any significant impact on soils.

Construction of the proposed wastewater treatment plant will require extensive grading of the Carrigrenan site to achieve necessary elevations and even contours. This disturbance to previously undisturbed soils will adversely impact soil productivity. However, since the proposed action will permanently convert the present agricultural grazing land use to an industrial/utility use, this impact to soils is inconsequential.

Construction of the land-based components of the scheme may result

in some temporary degradation to Cork Harbour water quality in the immediate vicinity of the construction activities. This impact would be caused primarily by overland storm water flow transporting disturbed soil particles into adjacent receiving waters. This impact would be minimised by implementation of sedimentation and erosion-control measures and limited to the period of construction. Groundwater resources are not expected to be affected by the proposed action.

Construction of the submarine portions of the wastewater transmission main and the treated effluent outfall main will require dredging of approx. 3.5km of the foreshore and harbour bottom within Lough Mahon. Dredging operations will cause temporary minor impacts to water quality, primarily from the suspension of disturbed sediments into the water column.

In general, impacts of the proposed project on air quality will be short-term and minor.

Construction of the proposed treatment plant, pumping stations and collection sewers will cause temporary, localised increases in the ambient sound environment. The specific impact will depend on the method of construction and the equipment used.

Noise generated by operation of the proposed facility will be limited to that emanating from the wastewater treatment plant at Carrigrenan. No State or international (including European Community) statutory limits for environmental noise emissions are currently in effect. However, ISO Standard 1996-1982 provides guidelines for evaluating noise based on the acceptability of absolute levels. Because noise emissions from the treatment facility will be continuous, night-time limits (which are more restrictive than daytime limits) should be used as the appropriate noise criteria for evaluating potential impacts to noise sensitive receptors.

Odours associated with the proposed project will be primarily those produced by operation of the wastewater treatment plant. Although hydrocarbon emissions from operation of construction equipment will create some odours, these will be temporary and localised. Such odours are common in the project area.

The main factors affecting the potential impact of odours emanating from the proposed treatment plant are the proximity of people and climatic conditions. Residents at Clashavodig and golfers represent the closest

receptors.

The potential impact from odours associated with operation of the treatment plant will be temporary and infrequent, occurring only during stable weather conditions. Odour impacts from the pumping stations will be minimal.

The existing topography of the Carrigrenan site will be significantly altered as a result of the cutting and filling required to provide appropriate elevations to allow gravity flow of wastewater through the plant and to the outfall. The site, which is currently rolling in nature, will be graded to provide a more linear slope. The 22m hillock located at the southern tip of the site will, however, remain intact.

The overall effect of the required regrading is that the site will have a more uniform slope. The site will slope away from the residential homes along the access road north of the site, toward the south-southeast.

The location of the pumping stations will have a minimal affect on the topography.

Construction and operation of the treatment plant will result in the demolition of the ruins of Carrigrenan House and associated outbuildings, but this is not considered significant due to the condition of the structures, their age, and lack of cultural heritage significance. Due to its proximity to the proposed treatment plant, Tower View Cottage would also be purchased from its current owner and likely demolished.

The stone tower located along the rocky shoreline at the extreme western point of the site near the access road will not be affected because no permanent land disturbance or structure will be located within 50m of it.

Construction and operation of the treatment plant at Carrigrenan will not result in any impacts to man-made features in the vicinity (i.e. Little Island) that would negatively affect the landscape of the area.

The most significant visual impacts will be adjacent to the treatment plant. In particular, those residences located along the northern side of the access road will have their existing views altered. It should be noted, however, that much of the view into the site from along this road

will be limited by the height and density of the existing flora along the wall/hedgerow on the southern side of this road and preservation of the existing high ground level at the Treatment Plant screening line on the northern side of the site. While these will continue to provide a visual buffer to much of this area, views of the treatment plant cannot be completely avoided.

Review of County Cork records for cultural resources has revealed 19 known significant cultural resources in the general vicinity of the proposed Cork Main Drainage Scheme. However, no known significant cultural heritage resources will be directly affected by construction or operation of the proposed facilities.

A key objective to promoting sustainable development is to locate the treatment plant as far downstream of the city as possible so that a larger area can benefit by connecting proposed developments to the scheme and so the plant will not impact proposed developments in the more heavily developed areas (i.e. Cork, Mahon, Douglas, Blackrock). The location of the treatment plant at the Carrigrenan site effectively does locate the plant as far downstream of the potential catchment area and away from proposed developments, as possible, thereby satisfying this objective.

Location of the treatment plant at Carrigrenan is seen as contributing to the potential development in Little Island and Carrigtwohill while at the same time not affecting proposed developments in Mahon or Cork City.

Construction of the wastewater treatment plant will not result in significant long-term severance impacts in the vicinity of Carrigrenan Point. Although public access to the plant will not be permitted without proper authorisation, public access to the shoreline will continue to be unrestricted.

Impact Amelioration

As with any project of this scope and magnitude, environmental impacts will result. These impacts can typically vary from insignificant to highly significant, and from short-term to long-term. In addition, some impacts cannot be entirely evaluated until construction or operation of the project is ongoing. Nearly all impacts can, however, be mitigated through the implementation of effective ameliorative measures.

Implementation of the following ameliorative measures which are outlined fully in Section 7 of this EIS, emphasises the commitment of the Local authority to minimising any negative impacts.

- No permanent element of the treatment plant will be located less than 200 metres from the nearest residence.
- Public access to the entire shoreline area around Carrigrenan Point will be retained for public recreational purposes.
- An adequate parking area will be provided on the Carrigrenan site to accommodate construction workers so that vehicles do not block or restrict access to the existing houses.
- Impacts to terrestrial flora and fauna will be ameliorated by minimising the area and duration of disturbance, maintaining as much vegetation as possible in the project area.
- Retaining the maximum amount of vegetative cover possible, and completing construction activities in a timely manner.
- A vegetation buffer will be planted along the perimeter of the treatment plant site to serve both as a visual buffer and provide a travel corridor for small mammals that may continue to use the site.
- Impacts to estuarine flora and fauna will be largely ameliorated by a combination of timing restrictions, minimisation of disturbed area, and implementation of environmentally sound construction practices.
- Construction in the foreshore will be completed as promptly as possible and the areas of disturbance restored to original contours to promote recolonisation of disturbed areas. Shingle cobbles, and boulders will be replaced to approximate preconstruction conditions in order to provide attachment sites for epiphytes and epifauna.
- Potential long-term impacts to estuarine benthos in the vicinity of the effluent outfall will be ameliorated by installation of a diffuser structure or structures that will facilitate energy dissipation and dispersion and natural assimilation of the effluent.

- Localised impacts to estuarine flora and fauna resulting from treated effluent discharge will be largely ameliorated by the high quality of treatment that the wastewater will receive. These localised impacts will be compensated for by widespread improvement in habitat quality for the cessation of untreated wastewater discharges to other areas of upper Cork Harbour.
- Potential soil erosion will be minimised by ensuring that all ground disturbances or excavations are completed and revegetated as soon as practical. Erosion-control measures during construction will include use of hay bales and silt curtains placed so as to reduce the potential for sediments to be carried off site or into Lough Mahon.
- All facilities will be constructed such that they will reduce potential impacts to air quality and noise ambience. Noise impacts will be minimised by limiting construction activities to the daytime, when people are less sensitive to noise intrusion.
- Noise impacts will also be mitigated by providing acoustic hoods on exposed motors, and by planting a heavy evergreen vegetation barrier as close to the noise sources as possible, which measures, combined with the normal attenuation of sound with distance, will ensure that noise levels will be minimised.
- The screening plant, screenings treatment, grit treatment and sludge dewatering/thermal drying will be housed and all sludge thickening/holding tanks including sedimentation tanks will be covered. The positively extracted air/gases will be treated in biological scrubbers (bioscrubbers) prior to discharge to the atmosphere.
- The 22m hillock at the southern tip of the site will be retained.
- Tanks where possible will be constructed substantially below ground level which will allow the ground level to appear more naturally sloped and the tanks to appear less visibly obtrusive.
- Appropriate landscaping will be utilised around the perimeter of the site and around all buildings and structures for which landscaping would not affect the proper operation and maintenance of the specific facility. Native plant species that are

suitable to provide appropriate visual buffering of structures will be used to the maximum extent practicable. Such landscaping will be determined during the final design phase.

- No construction activities or ground disturbances will occur within 50m of the tower or shell midden located along the western side of the site or the area at the southern tip of the site where a shell midden may possibly be located. These areas will be protected by flagging a 50m boundary around each site.
- Although the Carrigrenan house is not considered unique or highly significant, a comprehensive photographic record of the farm house and outbuildings will be carried out prior to its demolition.
- To promote sustainable development throughout the Cork City area, the Local Authority will give due consideration to including other areas (i.e. Carrigtwohill) that express an interest in joining into the scheme in order to promote further growth and development.
- To avoid severance of the shoreline around Carrigrenan Point, access will be permitted along the shore only. Access will not be permitted through the site for obvious operational and security reasons.

The Local Authority will ensure that, during the design and construction stage, appropriate arrangements will be put into place to secure adequate implementation of the ameliorative measures described above.

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Chapter 1

INTRODUCTION

CHAPTER 1

INTRODUCTION

Cork Corporation propose to construct a new Urban Wastewater Treatment Plant with associated collection mains and a new treated effluent outfall to provide Cork City and its environs (including Tramore Valley and Glanmire/Little Island) with appropriate primary and secondary wastewater treatment capabilities. Facilities will also be provided for the handling, treatment, and ultimate disposal of stormwater and sludge in compliance with the European Community EC Directive 91/271/EEC.

The proposed wastewater treatment plant will exceed the size threshold as outlined in the 1st Schedule of Article 24 of SI 349/1989. Therefore an Environmental Impact Statement (EIS) in accordance with these regulations and SI 25 of 1990 is required.

SI 349 of 1989 Regulations give effect to the EC Directive 85/337/EEC concerning Environmental Impact Assessment.

E G Pettit & Co. Consulting Engineers were commissioned to undertake the Environmental Impact Study and the preparation of the Statement. This Statement has been prepared in accordance with the requirements of the above Regulations and Directive.

Ecology and Environment Ltd., Springville House, Blackrock Road, Cork (Principal Representative Mr. Dan Castle) acted as Sub-Consultants for the Study.

In addition to work carried out by E G Pettit & Co. and Ecology and Environment Ltd., Contributions to this Statement were made by the following:-

- Development of Mathematical Model for the River Lee & Cork Harbour - Professor J P O' Kane, Department of Civil and Environmental Engineering, UCC.
- Air quality dispersion modelling - Mr. M. Bailey of Envirocon Ltd.

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Chapter 2

DESCRIPTION OF THE PROJECT

CHAPTER 2

Description of the Project

This section of the EIS is intended to provide an overview of the proposed Cork Main Drainage Scheme. Section 2.1 addresses the purpose and need for the project. Section 2.2 describes the proposed project facilities, design, and layout and describes specific components of the scheme.

2.1 Purpose and Need

The treatment of wastewaters from Cork City and its environs is mandated by EC Directive on Urban Wastewater Treatment 91/271/EEC, which requires that secondary treatment be provided for all wastewater discharges to estuarine waters from a population equivalent of 2,000 or more. In accordance with EC Directive 91/271/EEC, the proposed Cork Main Drainage Scheme will comply with this EC Directive by providing primary and secondary treatment of wastewaters for BOD/COD and Suspended Solids removal but compliance with any other pollution parameters is not required at this time. While the effluent standards as set by this Directive, are BOD 25 mg/l, suspended solids 35 mg/l, the proposed scheme has been designed to meet the conventional effluent standard of 20 mg/l BOD and 30 mg/l of Suspended Solids as generally adopted in Ireland.

2.2 Project Facilities, Design, and Layout

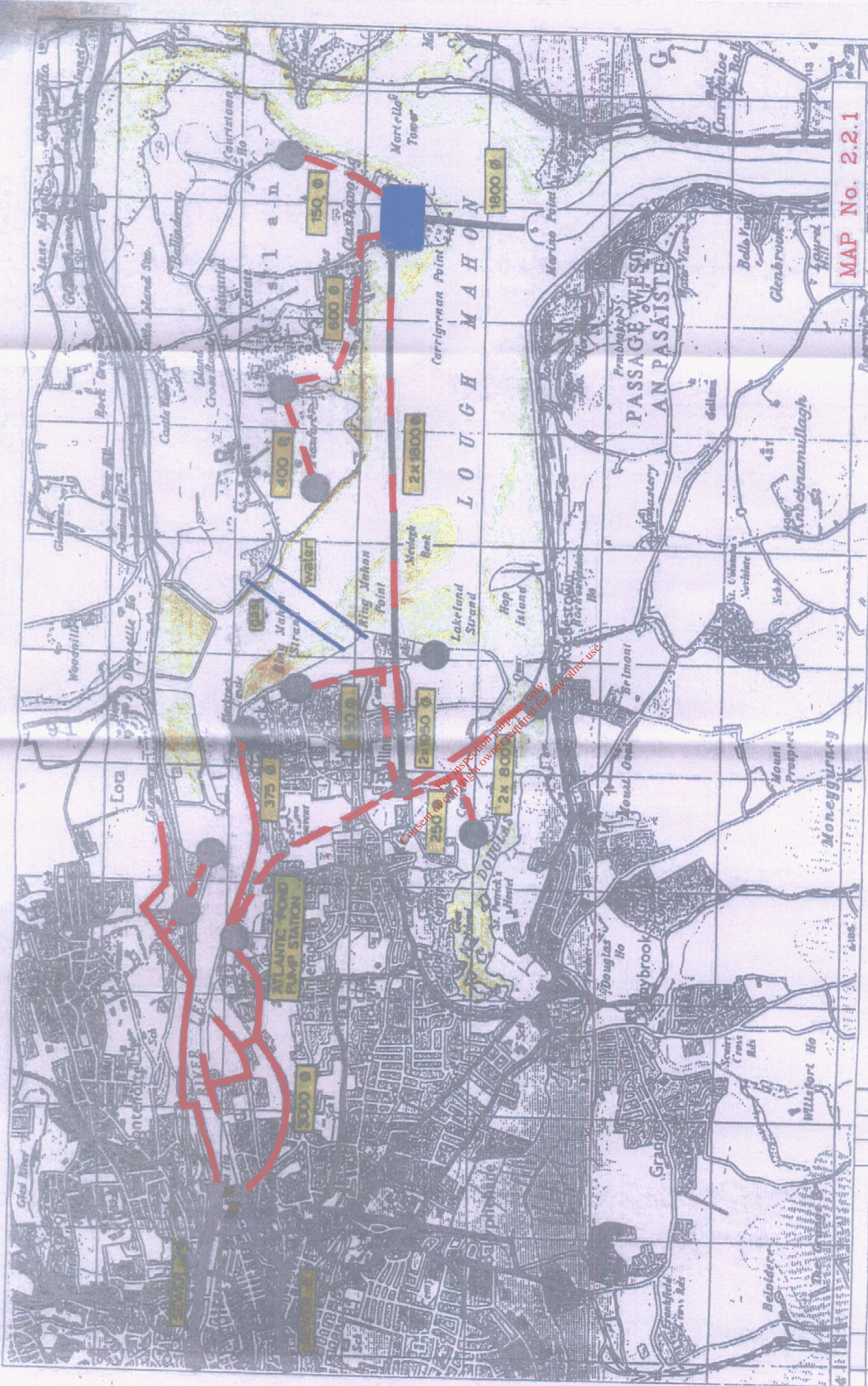
The proposed scheme is illustrated in Map No. 2.2.1. The following provides a description of the proposed project.

2.2.1 Project Elements

For descriptive and analytical purposes, the Cork Main Drainage Scheme has been organised into four main elements: the Treatment Plant Site, the Collection System, the Treatment System, and the Outfall. This section summarises each of the components of the proposed scheme.

In the design of the proposed scheme, the principal elements considered were:

- The determination of the most suitable location of an outfall point.
- The determination of the most suitable site for a treatment plant, bearing in mind the engineering, economical, and environmental factors to be considered.



MAP No. 2.2.1

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CORK CORPORATION
CORK MAIN DRAINAGE SCHEME
 PRELIMINARY REPORT

DATE: 1992
 SCALE: 1:1000
 SHEET NO: 2.2.1 OF 3

LEGEND

- EXISTING GRAVITY SEWER
- GRAVITY SEWER
- RISING MAIN
- BYPASS
- GRAVITY OUTFALL SEWER
- PUMPED OUTFALL MAIN
- HEAD CHAMBER
- PRESSURE SEWER
- WASTEWATER TREATMENT PLANT
- PUMP STATION

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0	DEC 92					