

Cork County Council

**Comhairle Chontae Chorcaí**



Expansion and Upgrading of  
Fermoy Sewage Treatment Works  
Environmental Impact Statement  
Non-Technical Summary



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# **SECTION ONE :Introduction to Environmental Impact Assessment :**

## **Non-Technical Summary**

### **1.1 Introduction**

Cork County Council proposes to expand and upgrade the existing Fermoy sewage treatment works. An environmental impact assessment has been completed for the proposed works. This report presents a summary of the findings of the Environment Impact Assessment. It will be made available to the public for a period of one month, so that any person may make submissions and observations in relation to the effects of the proposed development on the environment if they so wish.

The name and address of the competent authority to send the submissions or observations is as follows:

Administration Officer,  
Housing and Sanitary Section,  
Cork County Council,  
Annabella,  
Mallow,  
Co. Cork.

The submissions or observations should be made on the official comment form (found at the end of this report). An envelope containing the comment form should be clearly marked: 'Fermoy Sewage Treatment Works Comment Form'. The latest date for receipt of submissions or observations is October 11<sup>th</sup>, 2000.

### **1.2 Legislation**

The legislation requiring the undertaking of an environmental impact assessment include the following: Local Government (Planning and Development) Acts 1963 to 1990 and Regulations made thereunder, European Community Council Directives 85/337/EEC and European Communities (Environmental Impact Assessment) Regulation, 1989.

### **1.3 Development Plan**

The Development Plan recommends that the existing craft industries are to be maintained and augmented in time by light industry. In order to facilitate these recommendations, lands will require to be serviced for industrial, residential and associated purposes. The drainage of additional wastewaters from these lands will place increased pressure on the already overloaded existing treatment works.

The Development Plan proposes residential areas at different densities in the areas Duntahane, Pike Road and College Road.

## 1.4 Basis of EIS

The EIS for the proposed upgrading and expansion of the wastewater treatment plant at Fermoy has been prepared on the basis of a preferred process design and layout. However, under procurement procedures for the construction of the facility, tenderers are permitted to propose alternative designs and layouts provided that the alternative can provide an equivalent, or better, level of performance as detailed in the written specification for the project.

**It is therefore important to note that the process design and layout of the proposed upgrading and expansion works on which this EIS is based must be taken as indicative only.**

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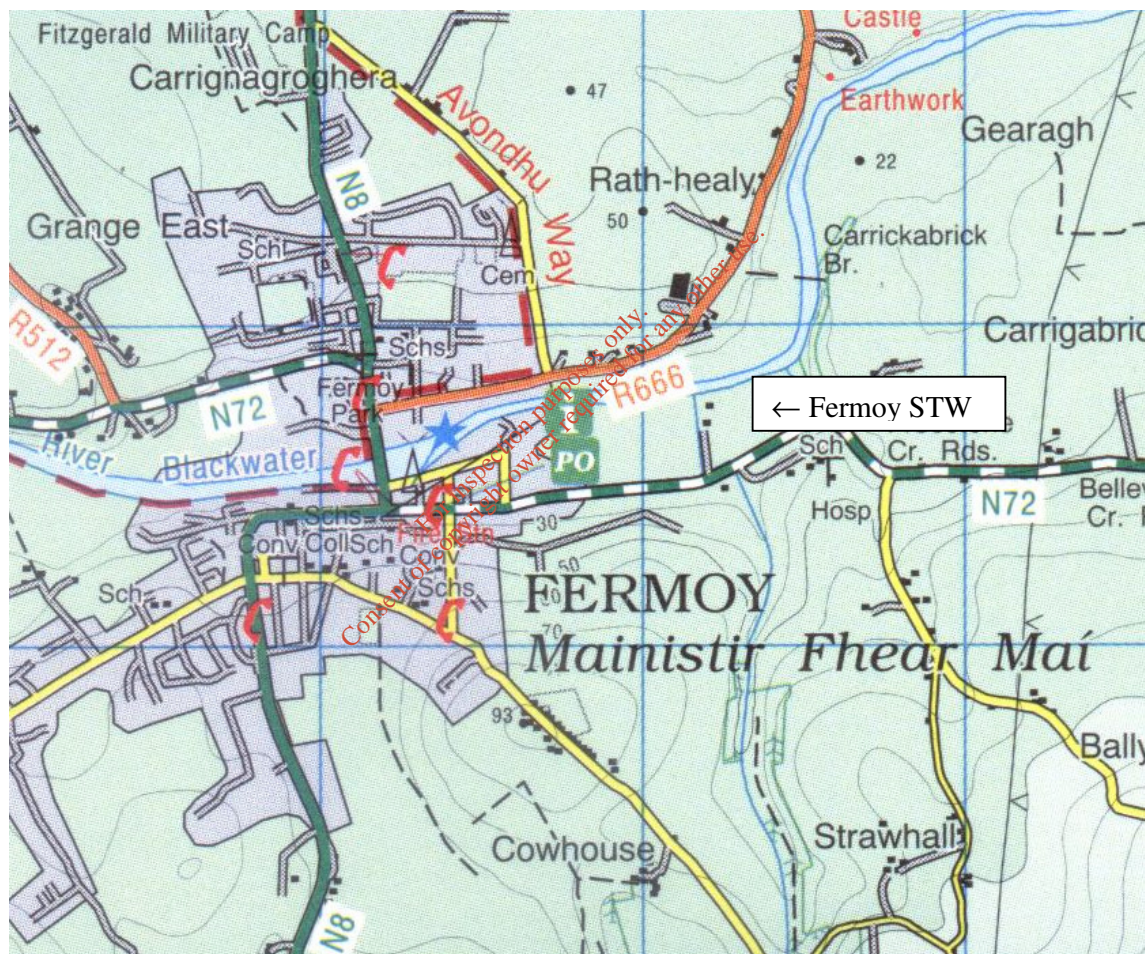
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**Figure 1.1 Geographical Map Fermoy, Co. Cork**

## **SECTION TWO Description of Existing Works**

### **2.1 Site Location**

The site is located east of the town in the Inch on the South Bank of the River. It is accessed via the Court House Road, opposite the Fermoy County Home. It is within the zone described as liable to floods, but the site was raised above flood levels in the original contract in 1986. See Drawing nos. L2 and E2 in Appendix 1 for a location and layout of the exiting Fermoy WWTW.



**Figure 2.1 Fermoy STW Site Location Map**



**Figure 2.2 Aerial Photograph of Fermoy STW viewed looking east**





**Figure 2.3 Aerial Photograph of Fermoy STW viewed looking south**

## 2.2 Loadings

The design *per capita* hydraulic and biological contributions (for an ultimate population equivalent of 9000) were taken as being 250 l/day and 55 g/day respectively. These equate to a total hydraulic and biological loadings of 2,250 m<sup>3</sup>/day and 495 kg/day BOD respectively. The existing plant was installed to handle these loadings.

The current hydraulic and biological loadings have been established as follows:  
Minimum Dry Weather Flow = 3200 m<sup>3</sup>/day; Maximum Flow = 6858 m<sup>3</sup>/day;  
Average Flow = 4170 m<sup>3</sup>/day; Average BOD Concentration = 300 mg/l;  
Average BOD Load = 1250 kg/day.

Note: the term BOD is explained in Section 2.3

## 2.3 Treatment Processes

Various methods of sewage treatment can be considered when designing a wastewater treatment plant. In choosing a treatment method (i.e. a secondary treatment method) items to be considered include: characteristics of the raw sewage, sewage flow, present and future, and the final effluent standard required.

The two main parameters used to measure the efficiency of the treatment processes in removing the pollutant load from the wastewaters are:

1. The Biochemical Oxygen Demand (BOD) which is a measure of the amount of oxygen required to degrade or stabilise the organic pollutants in the wastewater and
2. The Suspended Solids (SS) content is a measure of the amount of particulate matter in the wastewaters.

The individual stages of treatment described briefly below by reference to the existing plant at Fermoy which is a conventional activated sludge installation of its time:

### 2.3.1 Preliminary Treatment

The preliminary treatment (pre-treatment) may be defined as the process or processes that prepare a wastewater to a condition whereby it can be further treated in conventional secondary treatment processes (Kiely, 1997).

The pre-treatment processes which are installed in the Fermoy plant are as follows: maceration of screening in the coming flow; grit removal.

### 2.3.2 Primary Treatment

Primary treatment (also known as sedimentation, clarification or settling) allows the pre-treated wastewater to settle for a period thereby producing two effluent streams - 1) a moderately clarified wastewater stream (BOD concentration reduced by 25%) and 2) a liquid-solid sludge stream. The main objective of primary treatment is to remove part of the loading (gross solids) and to produce an effluent of suitable quality for secondary treatment. Primary treatment is not provided at the existing Fermoy works.

### 2.3.3 Secondary Treatment

Secondary treatment may be defined as the unit process which uses air (or oxygen) to biodegrade the organic material in the primary effluent and converts it into non-polluting end products - e.g. H<sub>2</sub>O, CO<sub>2</sub> and biomass (sludge). The resulting effluent has a reduced BOD concentration. See Figure 2.4 existing clarifier tank, where the most of the settlement of the solids occurs.

The secondary treatment units at Fermoy are as follows: 2 no. oxidation ditch extended aeration tanks (length 65 m, volume 2700 m<sup>3</sup>, 30 hrs detention time); 2 no. secondary clarification tanks (13 m diameter).

### 2.3.4 Tertiary Treatment

With regard to municipal wastewaters, disinfection or polishing of the treated effluent is normally referred to as tertiary treatment. There is no provision at present for tertiary treatment at the Fermoy works.



**Figure 2.4 Existing Clarifier Tank**



**Figure 2.5 Oxidation Ditch**

### **2.3.5 Nutrient Removal**

Nutrient removal refers to the reduction of phosphorous and/or total nitrogen levels. This is required where the receiving water body is deemed sufficiently “sensitive” - *e.g.* waters susceptible to eutrophication.

### **2.3.6 Sludge Treatment and Disposal**

Much of the sludge arising from the secondary clarification process is not returned to the aeration process and so requires disposal. However, given the biological instability of the sludge, it is standard practice to treat this sludge prior to disposal. In the context of sludge arising from the treatment of municipal wastewater various forms of treatment (aerobic and anaerobic digester) are used to stabilise the sludge.

It is common practice to condition the WAS by thickening and dewatering. Sludge thickening dewatering facilities are provided in the Fermoy plant. The sludge is currently used for land injection.

## **2.4 IDENTIFICATION OF DEFICIENCIES**

The following has been identified as the main deficiencies associated with the Fermoy works: There is no provision at present for storage of storm flows greater than the capacity of the submersible pumps. Thus in times of very heavy rainfalls, excess stormwater is discharged directly to the river without screening. The existing oxidation ditch is lacking oxidation capacity. The existing secondary settlement tanks are hydraulically overloaded at times of peak flow and require expansion, i.e. the hydraulic retention times are not sufficient to prevent the escape of flocculent particles in the final effluent. The original design caters for a population equivalent of 9,000 whereas the current contributing domestic p.e. has been estimated as being between 12,000 and 13,000.

## **SECTION THREE :Proposed Upgrading and Expansion of Works**

### **3.1 PREDICTED LOADINGS**

It is suggest a proposed population equivalent of 20,000 based on existing and predicted usage - residential, industrial and commercial/tourism. It is noted that this population equivalent is in excess of the 10,000 threshold for mandatory EIA (see Chapter One).

Assuming a *per capita* contribution of 225 l/day, this p.e. figure implies a design dry weather flow of 4500 m<sup>3</sup>/day.

The biological loading associated with this flow, assuming a *per capita* contribution of 60 g/day, is 1200 kg/day.

### 3.2 REQUIRED EFFLUENT STANDARD

Due to the dilution capacities of the Blackwater River even during dry weather flows (DWF), as examined in section 4.1, it is proposed to treat to the standard proposed under the Urban Wastewater Treatment Regulations. Table 3.1 indicates the available dilutions during DWF .

Stage	Population	Design Flow rate [m <sup>3</sup> /day]	Dilution at DWF 1 in	Allowable Effluent BOD	
				BOD [mg/l]	SS [mg/l]
Original	9,000	2250	138	20	30
Proposed	20,000	4500	69	25	35

**Table 3.1 Effluent Flow Rate v. Allowable Effluent standard**

### 3.3 PROPOSED IMPROVEMENTS TO TREATMENT PROCESSES

See Drawing no. P2 Fermoy Sewage Treatment Works – Proposed Site Layout in Appendix 1.

#### 3.3.1 Preliminary Treatment

New inlet works are proposed comprising of:

- replacement of bar screen and installation of screening removal equipment, consistent with the DoE current guidelines (remove screenings down to 5 mm or perhaps 3 mm in size); replacement of flow measuring equipment, upgrading/replacement of grit trap equipment, installation of safety features including hand-rails, flow balancing tank

Also, this would make the end sludge product more acceptable for disposal on agricultural land.

#### 3.3.2 Primary Treatment (if provided)

Primary treatment could be provided through the construction of 2 no. circular sedimentation tanks. Primary settlement may be provided in the upgrading works, as the facilities to stabilise the primary sludge may also be provided in North Cork.

#### 3.3.3 Secondary Treatment

It is proposed that the existing aeration basin be maintained, but that the aeration system would change from surface rotors to a diffused air system. To allow the aerated effluent to settle, one or two additional secondary clarifiers are proposed. It is to be of similar size to the existing clarifiers and is again to return a portion of the activated sludge to the aeration tank.

#### 3.3.4 Tertiary Treatment

There are no proposals at present to provide disinfection treatment.

### **3.3.5 Nutrient Removal (if provided)**

Some phosphorus removal could be achieved by maintaining the aeration basin with rotor control of the flow, but diverting the influent and return sludge to well upstream of the diffused air supply to cause an anaerobic zone.

### **3.3.6 Sludge Treatment and Disposal**

It is proposed that the sludge de-watering system be upgraded with the addition of a new double belt press, capable of dealing with the total design load. De-watered sludge would be conveyed to the exterior of the building using a screw conveyor. The existing belt presses would be used as a back-up for the new system. For the time being, the present practice of disposal of sludge by landinjection will continue, until an alternative disposal arrangement is put in place in accordance with the County Sludge Management Plan.

### **3.3.7 Telemetry and Security**

It is proposed to retain and repair any defective sections in the existing fence.

## **SECTION FOUR: WATER QUALITY**

### **4.1 Receiving Water Body**

The Blackwater river is designated a Salmonid River under the Freshwater Fish Regulations (S.I. No. 293, 1998). A Draft Water Quality Management Plan for the River Blackwater Catchment was prepared by Cork County Council in 1988. This contains objectives for the prevention and abatement of pollution of the river in accordance with Section 15 of the Water Pollution Act 1977.

Plant records indicate that the quality of effluent discharged meets the standard set down in the Environmental Protection Agency Act, 1992 and (Urban Wastewater) Regulations, 1994. BOD  $\leq$  25 mg/l, SS  $\leq$  35 mg/l, COD  $\leq$  125 mg/l.

### **4.2 Development Features**

One of the main development features regarding water quality is the provision of a storm tanks and proper inlet works. This tank will tend to reduce shock loading on the works. The new screens in the inlet works will remove any plastic material from the incoming sewage and remove the risk of overflows discharged to the river.

### **4.3 Predicted Impacts**

The predicted BOD levels, at 1.4 mg/l, are well below that required by the regulations (maximum of 5 mg/l). These predicted BOD levels are below those recommended by The Royal Commission on Sewage Disposal. They considered that a clean stream would normally have a BOD of 2 mg/l and if the BOD exceeded 4 mg/l, the stream was on the verge of becoming a nuisance. Also recent work has indicated that most rivers can in fact easily assimilate a BOD of 4 mg/l without affecting fishing and water supply requirements. Thus it predicted that the water quality will not suffer, but will be protected by the proposed works.

The predicted minimum dissolved oxygen level is 9.3 mg/l, this is above the stated level of 6 mg/l for designated salmonid rivers.

Overall we conclude that the water quality with respect to oxygen levels will be in keeping with the standards required for the encouragement of the growth of the salmonid populations

#### **4.4 Proposed Mitigation of Impacts**

No further mitigation is deemed to be required.

#### **4.5 Residual Impact**

The increase in population and industry in the Fermoy area will place additional demands on the wastewater treatment facilities in the area and if not provided for could be expected to result in a deterioration of the water quality in the Blackwater River. However, the proposed upgrading and expansion works at the Wastewater Treatment plant are designed to protect the water body downstream of the outfall sufficiently to keep its quality rating around Q4.

### **SECTION FIVE: AIR QUALITY**

#### **5.0 Introduction**

The aspects of the environment, relating to the air, which may be affected by the operation of the sewage treatment works are air quality, noise, and climate. The wastewater treatment plant, while well screened, is located reasonably close to residential housing, and is surrounded by land zoned for residential use.

#### **5.1 Odour**

The main source of odours in the existing plant are the inlet works comminutors, the aeration tank (with surface aerators), the secondary clarifier and the sludge handling and dewatering operations. Bord na Mona have undertaken an odour survey of the existing plant. The results of this survey and their modelling of the odours arising from the existing plant for a range of worst case weather conditions indicate that there is occasionally an odour problem experienced. They have shown in their assessment of odours that the predicted impact of the upgrading and expansion of the works will lead to a considerable improvement in the air quality experienced in and around the site, sufficient to bring the plant's emission to within the accepted standards.

#### **5.2 Aerosols**

The existing surface aerators have the potential to generate aerosol spray or droplets, containing micro-organisms. These tiny microdroplets have the potential of being carried and dispersed by the wind. It is considered that operation of the plant will not generate sufficient aerosol bearing viable microbes to properties outside the site boundary.

#### **5.3 Noise**

Noise can be a source of nuisance and excessive levels of noise can cause deafness to employees, stress and varying community responses. A sewage treatment works operates on a

24 hr basis and, hence, it is a source of some noise at all times. Pumps, motors, compressors and aerators will all generate noise. It is proposed that a rigorous criterion for noise of 45 dB(A) : maximum allowable 15 minute Leq, be adopted at the site boundary due to operations within the site. This is the standard proposed by the EPA. 15 minute Leq refers to an average noise level over a 15 minute period. This level of noise is comparable to a quiet office environment or bird calls.

#### **5.4 Dust**

This refers to the carrying of fine particles by the wind from various sources. These are unlikely to occur in the treatment works, and so dust is not considered a problem at present. Dust is likely to be generated during the construction period by construction traffic on the public roads, and also from within the site itself during the various stages of the construction process. Regular hosing with bowsers along construction haulage routes will mitigate any such problems in dry spells and road sweeping can be done during the construction period at times agreed with the residents in the area to suit their needs.

#### **5.5 Climate**

Due to the small scale of the existing plant, it is very unlikely that the local climate has changed as a result of its construction. Thus the climate is taken as typical for the area's topography.

### **SECTION SIX: SOILS**

All soils not covered by the existing works are at present topsoiled with grass, providing cover from the elements. Old Red Sandstone is the type of rock shown on the GSI map of Ireland's geology for this area.

The proposed development will result in the loss of soil area on the site of no more than 20 %. The topsoil removed for the construction of the various treatment tanks and treatment units will be kept on site for landscaping of the works when construction is complete.

The landscaping of the finished works is always one of the last items of work to be done. Reinstatement of topsoil and grass-seeding will be done in the affected areas. Additional landscaping of shrubs and trees will be provided and the existing dense natural tree boundary will be maintained and enhanced wherever this is required around the entire site boundary.

### **SECTION SEVEN: ECOLOGICAL IMPACTS**

#### **7.1 Land Based Habitats**

Fortunately, due to extensive landscaping the habitat for land based animals is quite stable and healthy. The land based habitat may be disturbed in the area of the works, but once restored properly, the resident species should be resilient enough to recover rapidly. Selective removal of surrounding shrubs will ensure that sufficient cover is retained to shield the existing wildlife populations from the rapidly changed environment. The completed works will provide as much of a stable living environment as the rest of the river bank in the area.

#### **7.2 Aquatic Habitats**

With the near saturation levels of oxygen the fish populations are generally good, but vary with the spawning salmon returning in spring from their seaward travels.



The most significant long-term impact will be the improvement in aquatic habitat to the extent that during the heavy rains, storm water overflow occurrences and volumes will be minimised and the storm overflows that do occur will be screened. The final effluent discharged to the river will meet the discharge criteria laid down in the relevant standards and directives. The quantity of suspended solids will be reduced and the oxygen levels during flood should remain high.

As the bulk of the waste is to remain composed primarily of municipal wastewater and therefore will not contain significant quantities of materials that would be toxic to the flora and fauna of the stream. If the upgrading of the works is not undertaken, the suitability of the aquatic environment for salmonid populations will noticeably decrease. However, with the proposed works, the river has every chance to retain its current status of Q4 and expand its diversity of species. This will lead to less weed and algal growth than existed prior to the works being undertaken.

## **SECTION EIGHT: SOCIO-ECONOMIC IMPACTS**

### **8.1 Land Use**

Adjacent to the existing treatment works, the current land use is agriculture. However this land is zoned as residential and is likely to be developed within the next few years.

### **8.2 Fisheries**

The fishing of these waters is for game only (non-commercial) and is controlled by the local angling clubs.

The benefit of the works to the fisheries will be gradual and lasting. The decrease in competition for dissolved oxygen will tend to encourage fish growth and reproduction. This will concur with the Southern Regional Fisheries Board's charge of protection, conservation and promotion of fisheries. Angling tourism will tend to increase as a result of better fishing and once licensed by the angling clubs will benefit the area and facilitate conservation.

### **8.3 Agriculture**

The scale of agriculture in the area is small, with much of the land being developed for housing sites. The expansion of the treatment works will have no real effect on agriculture in the area.

A side benefit of the increased volumes of sludge produced, is the availability of more sludge for land injection and spreading of sludge as an alternative source of fertiliser. As the expansion of the treatment works will allow for further development, some agricultural lands may be developed for residential purposes if granted planning permission (in accordance with county development plan).

### **8.4 Industry**

Additional industry draining to the works can be accommodated within the serviced areas as set out in the town development plan. In turn the additional industry is likely to stimulate the need for additional housing.

## **8.5 Residential**

In accordance with the development plan for North Cork, the number of houses in the area is set to increase noticeably in the short term. This number has increased significantly over the past 5 years. Expansion of the works will facilitate the development of both proposed local authority housing and zoned private residential areas to proceed in Fermoy.

## **8.6 Recreational and Leisure**

Given that the Blackwater River is not a designated bathing water, the main recreation and leisure related to the proposed works is the amenity value of the river for fishing and walking along the river bank. The use of the river as a visual amenity will be maintained and noticeably improved because of the cleaner effluent discharged with less suspended solids and less storm overflow of solids. The use of the river bank around the site for walking will be enhanced by the upgraded landscaping along the site boundary.

## **8.7 Electricity and Water**

The area is well served with electricity, so that the proposed plant expansion should not put a noticeable increase on the load. The town's water supply was inadequate in terms of storage capacity and the capacity of supply mains. However, the water supply scheme has remedied these problems. A more efficient wastewater plant which consumes less water should help to reduce the demand on the water supply.

## **8.8 Transport**

The number of trucks removing sludge off-site in skips is estimated at between 2 and 3 per week for the existing plant. Due to the proposed increased load to the proposed works, there will be an increased volume of sludge produced. This will result in a minor increase in the volume of traffic disposing of the treated sludge from the site to landspreading/landinjection. The number of trucks removing sludge in skips off-site is expected to rise to 5 or 6 per week. There is no necessity to upgrade the access road or public roads in the vicinity of the works as a result of the upgrading works at the site.

# **SECTION NINE: MATERIAL ASSETS**

## **9.1 Land Ownership and Access**

The treatment works and the land on which it is sited will at all times remain within the ownership of Cork County Council (their heirs or assigns). Access to the site will be the right of the local authority and will be granted to the Contractor at all times during the construction period and process proving period. The local authority is making the anticipated and reasonable use of the land which was the retained for this purpose

## **9.2 Development Potential and Expansion.**

The treatment works will be designed to cater for the envisaged populations well into the 21<sup>st</sup> Century. Depending on changes in technology in the future, the ultimate capacity of the site should be sufficient until the middle of the 21<sup>st</sup> Century.

### **9.3 Sludge**

In line with current practices of waste minimisation and energy efficiency, the sludge produced from wastewater treatment plants is now seen as a potentially useful by-product. The value of the sludge increases with further stabilisation. This further stabilisation does not form part of this project but rather will be addressed on a county wide basis in the short to medium term. These additional treatment facilities may be provided in a designated sludge 'hub' centre in North Cork.

## **SECTION TEN: VISUAL IMPACTS**

### **10.1 Topography**

The land lies close to the Blackwater River and is in a valley sloping down towards the river. The shape of the land will not change significantly with the construction of the proposed works.

### **10.2 Buildings and Landscaping of Works**

The buildings comprise mainly of low steel tanks, together with a brick-clad sludge dewatering building and a single storey administration office. The additional treatment works will comprise either concrete or steel tank type structures, of maximum height above ground level comparable with the existing units. New buildings may be brick or blockwork with traditional tiled pitched roofs or alternatively may be enclosed with coated steel cladding and roofing.

The remaining site is well grassed, and the grassed areas are well maintained. There is a scatter of trees around the site, with a complete ring of dense evergreen trees around the north and west site perimeter just inside the security fence. Additional planting shall be undertaken to blend the new works into the landscape and help retain the overall green appearance of the area. The finished works will remain in harmony with the surrounding terrain and will be well screened from view from locations outside the site by the site boundary plantation.

### **10.3 Light**

As the tanks are partly recessed into the ground, the density of planting is low, and with the small area of buildings, daytime lighting is not a problem. The shadows cast within the site are minimal. The perimeter fence and evergreens cast a very minor shadow around the outside of the site. Night-time lighting is by a means of lamp-standards on the side of the roadways. These lamps are not normally on (except during urgent works and monitoring), so that night-sky light pollution does not tend to occur. No noticeable decrease in daylight shall occur.

## **SECTION ELEVEN: CULTURAL HERITAGE**

As there are no listed sites of archaeological interest or sites of monumental records contained in the site, it is not expected that the proposed works will have any effect on the cultural heritage. If, in the unlikely event, some remains of archaeological interest are exposed, an archaeologist shall inspect the same and the contractor will be required to co-operate with the archaeologist's team in the process of detailed excavation and recording.

## **SECTION TWELVE: CONCLUSION**

### **12.1 Summary of Impacts: interaction of the foregoing**

The impacts on the general environment are predicted to be positive overall with improvement in water quality where this is currently at risk from the discharges from the existing treatment works which is becoming increasingly overloaded.

The adherence to the air quality criteria proposed for the upgraded and expanded works will be a significant improvement on the air quality standards pertaining at the existing plant, thereby protecting the environment outside the treatment plant boundaries.

Depending on the decision taken resulting from the recommendations in the County Cotk Sludge Management Plan the volume of traffic may increase marginally with increasing volumes of sludge produced. The increase will be of the order of approx. two trucks in and out per week. The construction stage will involve short-term impacts caused by increased traffic and traffic disruption.

### **12.2 Recommendations**

The perception of wastewater treatment works might be regarded by some as undesirable with respect to adjacent properties.

To improve this perception, the upgrading of the works will enhance the visual amenity while noise and odour emissions will be contained and controlled within acceptably recognised standards in keeping with the location of the works and the nearby residential housing.

The future of the River Blackwater as a significant water body downstream of the town will be better safeguarded, such that the proposed works should go ahead as a matter of importance.

## **Appendix 1**

### **Drawings**

**L2 Fermoy Sewage Treatment Works - Location Map**

**E2 Fermoy Sewage Treatment Works – Existing Site Layout**

**P2 Fermoy Sewage Treatment Works – Proposed Site Layout**

*For inspection purposes only.  
Consent of copyright owner required for any other use.*

## **Appendix 2**

### **Comment Form**

*For inspection purposes only.  
Consent of copyright owner required for any other use.*

## **Cork County Council**

Comhairle Chontae Chorcaí



### **Expansion and Upgrading of Fermoy Sewage Treatment Works Comment Form**

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For inspection purposes only.

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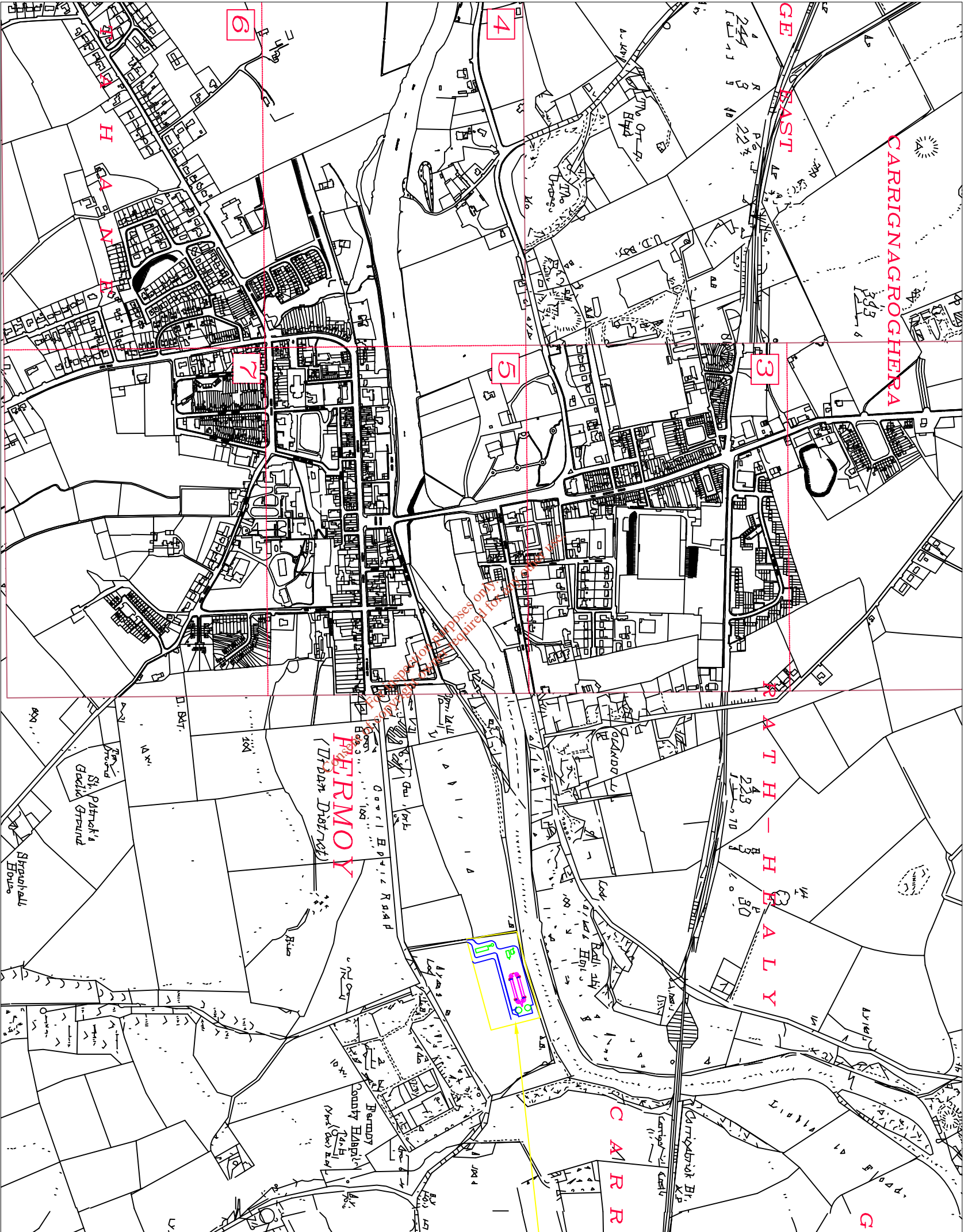
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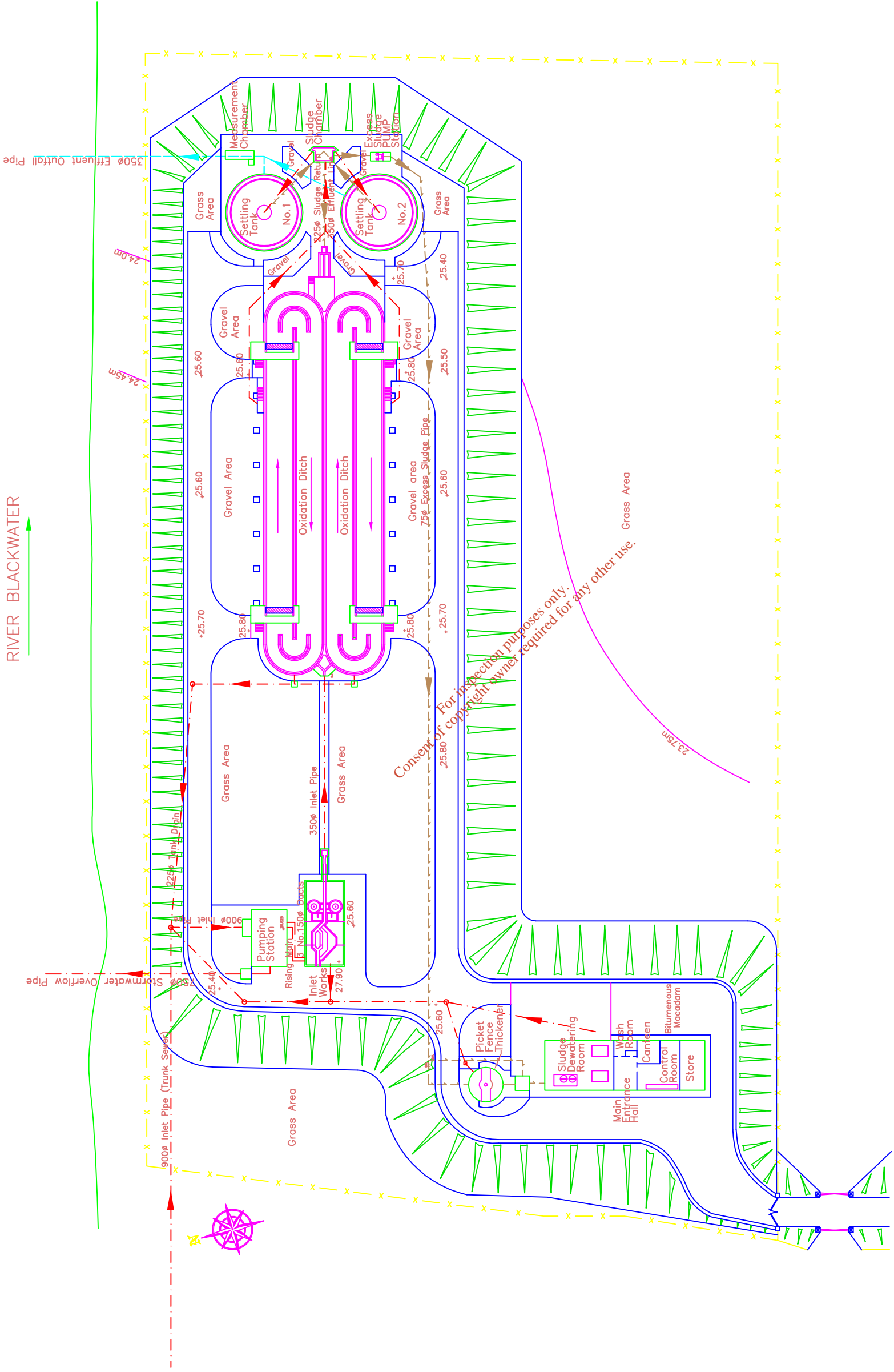


Fermoy Sewage Treatment Plant

L2 Location Map of Fermoy Sewage Treatment Works (Scale 1:10000)



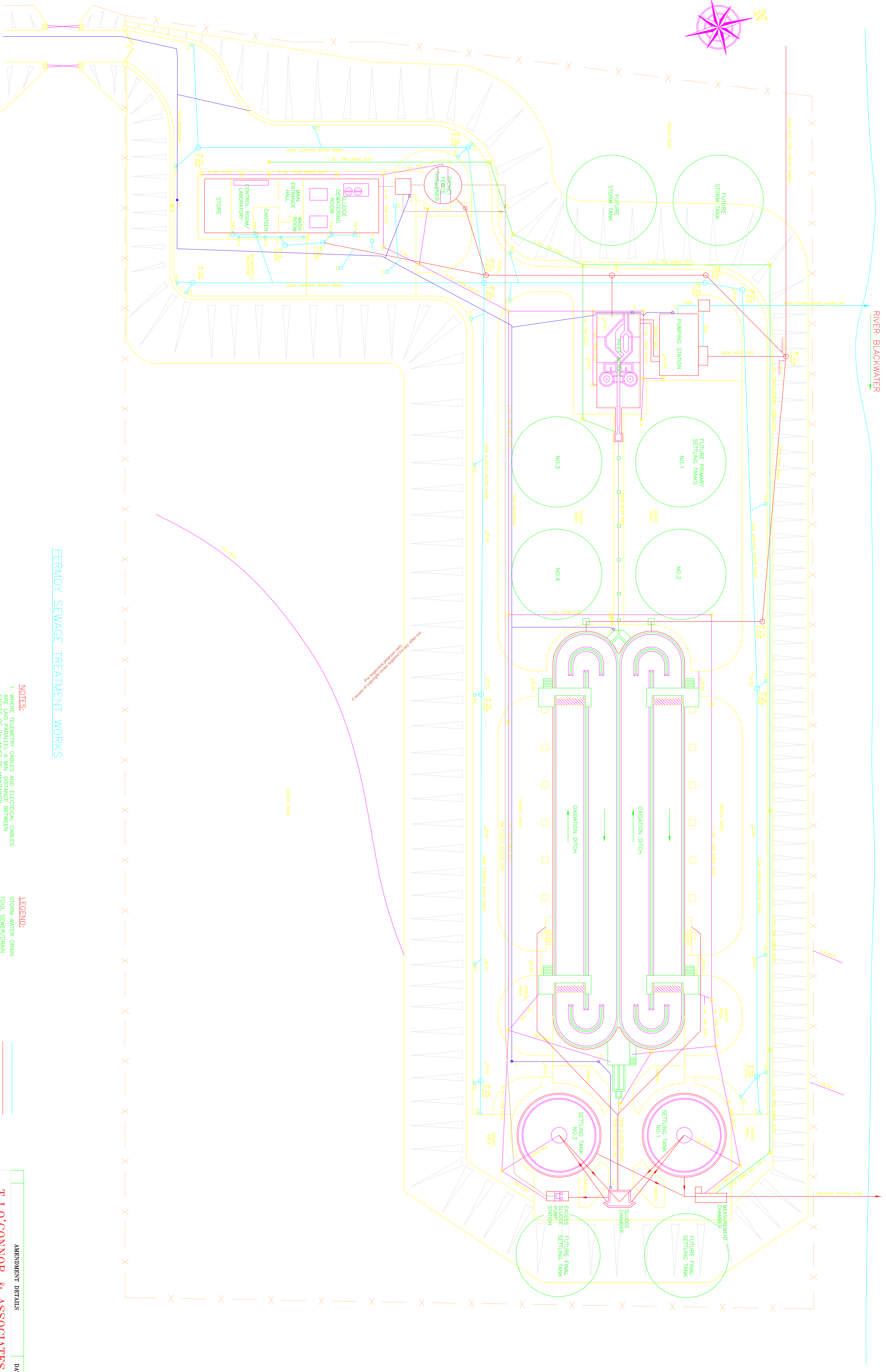
RIVER BLACKWATER



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- LEGEND:**
- FOUL SEWER/ DRAIN
  - EXCESS SLUDGE RISING MAIN
  - OUTFALL PIPE

E2 Fermoyle Sewage Treatment Plant  
—Existing Site Layout (Scale 1:750)

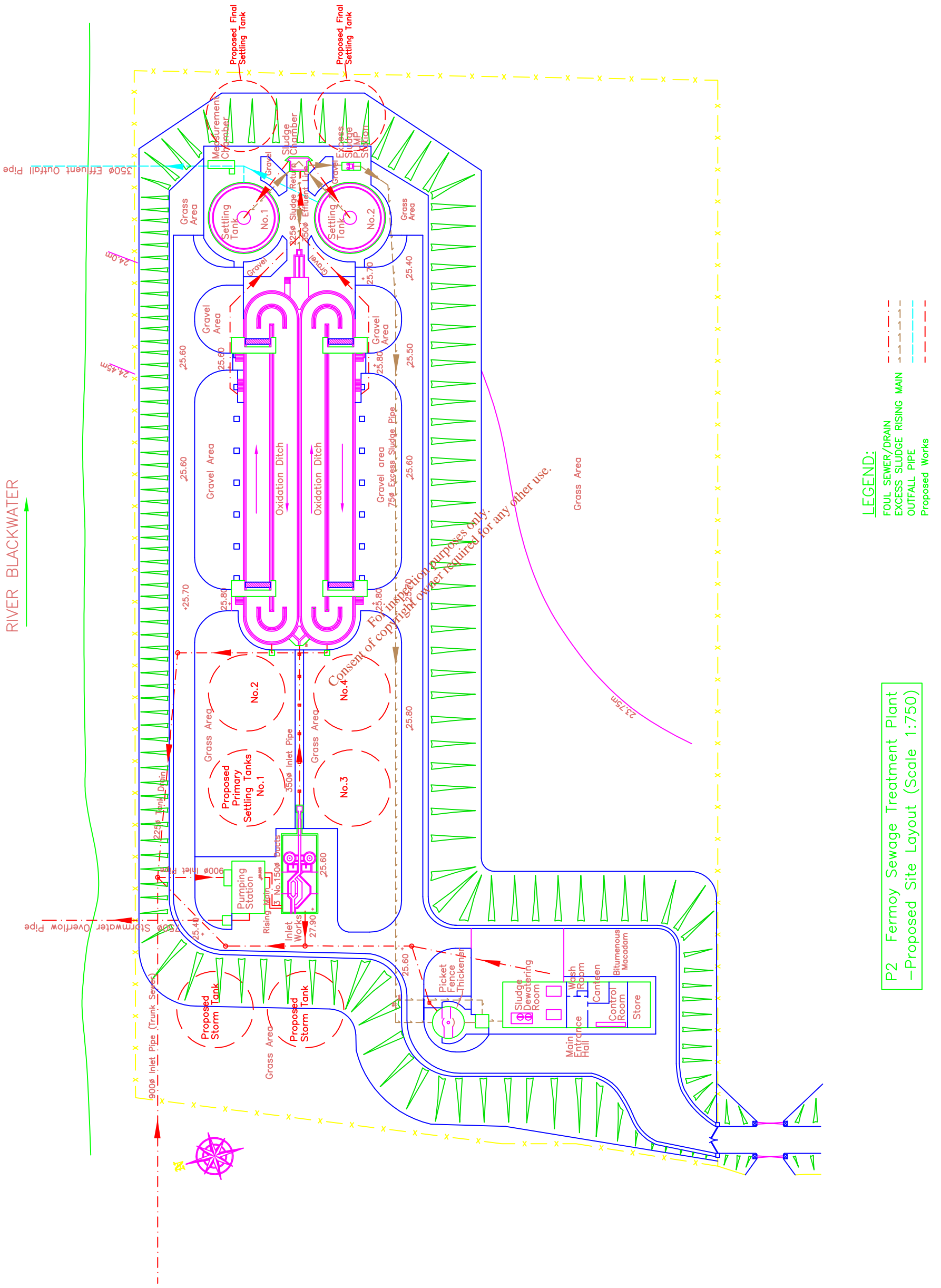


**FERMVOY SEWAGE TREATMENT WORKS**

- NOTES:**
1. WHERE TELEMETRY CABLES AND ELECTRICAL CABLES ARE LAID PARALLEL A MIN. DISTANCE BETWEEN CABLES OF 2m MUST BE MAINTAINED
  2. WHERE TELEMETRY CABLES CROSS ELECTRICAL CABLE, THE CABLES MUST CROSS AT RIGHT ANGLES WHERE POSSIBLE.
  3. ALL CABLE DUCTS TO HAVE DRAWWIRES BETWEEN JUNCTION MANHOLES.

- LEGEND:**
- STORM WATER DRAIN
  - FOUL SEWER/SPRINK
  - ELECTRICAL CABLE DUCT
  - TELEMETRY CABLE DUCT
  - EXCESS SLUDGE RISING MAIN
  - JUNCTION MANHOLES C/W COVER & FRAME
  - ELECTRICAL 1000 x 1000 x 1000 DEEP
  - TELEMETRY 600 x 600 x 1000 DEEP
  - WATER MAIN
  - AIR VALVE
  - STAND PIPE
  - HYDRANT
  - LIGHTING MAST

AMENDMENT DETAILS	DATE
<b>T.J.O'CONNOR &amp; ASSOCIATES</b> CONSULTING ENGINEERS CORRIG HOUSE, CORRIG ROAD, SANDYFORD, DUBLIN 18. Tel: 289 2321 Fax: 289 4541	
CLIENT: <b>CORK COUNTY COUNCIL</b>	
PROJECT: <b>BLARNEY/FERMVOY/MALLOW WWTP</b>	
DRAWING TITLE: <b>SEWAGE TREATMENT WORKS - SITE LAYOUT</b>	
SCALE: 1:200	JOB NO: 9935
DATE: MAY 99	DRAWN BY: J.L.L.G.
	DRAWING NO: E2



**LEGEND:**

- FOUL SEWER/ DRAIN
- EXCESS SLUDGE RISING MAIN
- OUTFALL PIPE
- Proposed Works

P2 Fermoyle Sewage Treatment Plant  
 -Proposed Site Layout (Scale 1:750)