

Cork County Council

Comhairle Chontae Chorcaí



Expansion and Upgrading of
Blarney 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 Blarney 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:

County Secretary,
Cork County Council,
County Hall,
Cork.

The submissions or observations should be made on the official comment form in Appendix 2 (found at the end of this report). An envelope containing the comment form should be clearly marked: 'Blarney Sewage Treatment Works Comment Form'. The latest date for receipt of submissions or observations is May 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 1996 County Development Plan for South Cork identifies the Blarney/Tower area as a twin settlement. In addition, the Development Plan designates the said area as a satellite serving Cork City. Therefore Blarney has considerable capacity for development given its proximity to a large, expanding urban centre such as Cork. Accordingly considerable residential development has occurred in the last two decades.

1.4 Basis of EIS

The EIS for the proposed upgrading and expansion of the wastewater treatment plant at Blarney 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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Figure 1.1 Geographical Map Blarney – Tower, Co. Cork

SECTION TWO Description of Existing Works

2.1 SITE LOCATION

The existing wastewater treatment plant serving both the Tower and Blarney areas is located just off the main road connecting the two populations at Kilnamucky, Blarney, alongside Riverview. Figure 2.1 is a location map, Figure 2.2, 2.3, 2.4 are aerial photographs of the existing works.

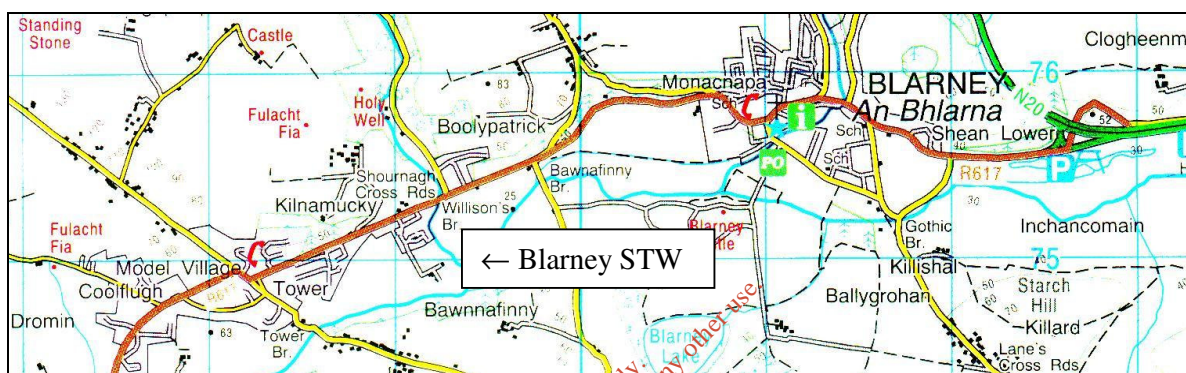


Figure 2.1 Site Location Map



Figure 2.2 Aerial photograph of Blarney STW viewed looking east



Figure 2.3 Aerial photograph of Blarney STW viewed looking north



Figure 2.4 Aerial photograph of Blarney STW viewed looking west

See drawings L1 and E1 in Appendix 1 for a location map and layout of Blarney Sewage Treatment Works.

2.2 LOADINGS

The 1976 Preliminary Report prepared by Cork County Council for the construction of a drainage and treatment scheme suggested the ultimate population equivalent for lands available for development to be 19,000 excluding any industrial contributions. The plant as it currently exists corresponds to stage one of the original proposals and has a capacity to accommodate the wastewater arising from a population equivalent (p.e.) of 6,500

Records of the current hydraulic loading is as follows:

- Minimum Dry Weather Flow = 1,400m³/day;

The existing wastewater treatment plant at Blarney is currently overloaded the influent flow suggests a contributing population equivalent of approaching 8,000

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 Blarney 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 process units which are installed in the Blarney plant are as follows: overflow weir and bar screen and forward feed pumps.

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 Blarney 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.* H₂O, CO₂ and biomass (sludge). The resulting effluent has a reduced BOD concentration.

2.3.4 Tertiary Treatment

With regard to municipal wastewaters, disinfection or polishing of the treated effluent is normally referred to as tertiary treatment.

A form of tertiary treatment system was installed at the Blarney works. This comprised of a spray system which spread the treated effluent over a grassed area on the west side of the treatment works site. This allowed the effluent to percolate down through the soil. However the system fell into disrepair after a few years of operation and has not been used for the past number of years.

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) 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 Blarney plant. The de-watered sludge is then removed off-site by private contractor and disposed of at Rossmore landfill, near Midleton, Co. Cork.

2.4 IDENTIFICATION OF DEFICIENCIES

Vandalism of the works is a regular occurrence. Also flows entering the works contain large quantities of storm water and sludge dewatering operations at the plant result in considerable odour nuisance. Currently the population served is estimated to be close to 8,000 p.e. thereby leading to overloading the works. In order to cope with the existing

overloading and facilitate future developments in the Blarney area, the existing treatment plant will require upgrading and expansion.

SECTION THREE Proposed Upgrading and Expansion of Works

3.1 PREDICTED LOADINGS

Based on the proposals in the County Development Plan for the Blarney area it is proposed that the upgrading and expansion works at the wastewater plant be designed to cater for the following population equivalents:

Phase 1 13,000 p.e. (i.e. 100% increase on the existing capacity)

Phase 2 19,500 p.e.

3.2 REQUIRED EFFLUENT STANDARD

Due to the limited dilution capacities of the Shournagh River it is proposed to improve on the current standard of the effluent discharged as the quantity of effluent increases. Table 3.1 indicates the variation of the allowable effluent BOD as the hydraulic load increases. A *per capita* contribution of 225 l/day has been assumed.

Stage	Design Population	Design Flow rate	Allowable Effluent BOD	
			BOD [mg/l]	SS [mg/l]
		[m ³ /day]		
Existing	6500	1950	25	35
Phase 1	13000	2925	20	30
Phase 2	19500	4388	15	25

Table 3.1 Effluent Flow Rate v. Allowable Effluent standard

3.3 Proposed Improvements to Treatment Processes

See Drawing no P1 in Appendix 1 for an indicative layout of the proposed Blarney STW.

3.3.1 Preliminary Treatment

It is proposed that a new inlet works be provided comprising screening, washing and compacting of the material removed by the screens, grit removal and grit classification to cater for in the preliminary treatment of the influent to the plant. Flow measurement of incoming and forward feed flows would also be provided. It is recommended that suitably sized storm water tanks be provided as a means of flow equalisation.

3.3.2 Primary Treatment

Primary treatment could be provided through the construction of sedimentation tanks. They would normally be designed to remove approx. 30 % of the BOD load and 60 % of TSS load. The settled primary sludge would be pumped on to the Sludge Holding Tank and then eventually on to the de-watering house, after which it may require further stabilisation. However the installation of primary treatment units may not be favoured or proposed by tenderers as the sludge produced at this stage of the treatment process is less stable and requires further treatment.

3.3.3 Secondary Treatment

It is proposed that a second aeration basin of equal capacity to the existing basin be constructed to cater for the phase 1 increases in plant size and that a further aeration basin be constructed at a later stage for the phase 2 flows. Surface mounted aerators, similar to the existing could be utilised or alternatively a diffused air system could be installed. To allow the aerated effluent to settle, another secondary clarifier is proposed.

3.3.4 Tertiary Treatment

It is not intended to restore the spray irrigation system as it exists at the plant at present. In phase 2, an alternative form of tertiary treatment is proposed to further reduce the effluent BOD levels. This treatment may be undertaken via reed bed filtration.

3.3.5 Sludge Treatment and Disposal

It is proposed that the sludge de-watering system be completely upgraded and installed in a new building on the south western area of the site and remote from the administration building. The de-watered sludge would continue to be removed off-site by a private contractor to the council landfill at Rossmore. If primary treatment were to be provided as part of the upgrading works appropriate odour control measures would have to be incorporated to ensure compliance with the criteria specified later in section 5 of the EIS.

3.3.6 Telemetry and Security

It is proposed to retain and to repair any defective sections in the existing fence and to extend the security palisade fencing around the entire site boundary.

3.3.7 Buildings and Accommodation Works

The existing area office at the site is to be relocated in due course to the centre of Blarney to allow for greater accessibility to the public and visitors to the town. In the interim the existing office will be retained at the site until such time as the new offices are provided in the town. The plant store offices will be retained at the works and the existing sludge dewatering building will be converted to a store.

SECTION FOUR WATER QUALITY

4.1 Receiving Water Body

The Shournagh River and its tributaries the Blarney and the Martin are not designated as salmonid waters under the Freshwater Fish Regulations (S.I. No. 293, 1998).

The Water Quality in Ireland 1995-1997 report, EPA rates the water quality of the Shournagh. The assessment of these ratings are: “continuing satisfactory with mostly fair to good ecological quality”. The physico-chemical analysis data available for this river generally show a high percentage saturation of dissolved oxygen (10 mg/l). The river drains into the River Lee near Ballincollig (downstream of Iniscarra Dam).



Figure 4.1 Shournagh River

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 holding tank and proper inlet works. The storm holding tank will tend to reduce the number and volumes of overflows to the river in an average year. The new screens in the inlet works will remove any plastic material from the incoming sewage and remove the risk of these being discharged to the river.

4.3 Predicted Impacts

The predicted BOD levels, at 3.1 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 absolute minimum dissolved oxygen levels are 7.3 mg/l, these are 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

It is proposed to provide tertiary treatment of the treated effluent in phase 2. This treatment may involve the use of reed bed filtration (constructed wetland. This polishing of the effluent would make a substantial difference to the river oxygen levels during drought periods and would ensure that the salmonid regulations are complied with at all times. The reed bed filtration pond, if constructed would be where the existing spray irrigation network is located.

4.5 Residual Impact

The increase in population and industry in the Blarney / Tower 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 Shournagh 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 very well screened, is located reasonably close to residential housing.

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

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 proposed standard in 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 bowzers 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 5 to 10 % (phase 1 and phase 2). 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 Q4-5 and 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 a combination of agriculture and residential housing. This use of the land is to be retained. The impact of the works will be negligible to the suitability for either use.

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 a cheap source of fertiliser. As the expansion of the treatment works will allow for further development, some agricultural lands will become more valuable if granted planning permission (in accordance with county development plan).

8.4 Industry

Most of the industry in Blarney relates to tourism, which is dependent on the cleanliness of the environment visited. 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 South Cork the number of houses in the area is set to increase noticeably in the short term. It has increased slowly over the years and includes new housing constructed in reasonably close proximity to the sewage treatment plant site, this is evident in Figure 6. Expansion of the works will facilitate the development of both proposed local authority housing and zoned private residential areas to proceed in the Blarney.

8.6 Recreational and Leisure

Given that the Shournagh 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 site boundary fences and plantation.

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 restricted in terms of storage capacity and the capacity of supply mains. As the proposed improvement works have been completed the area is now well served with water.

8.8 Transport

As the main Mallow-Cork road bypasses Blarney and Tower, the traffic tends to be mainly local and only a portion is through traffic. The number of trucks removing sludge off-site in skips is estimated at between 2 and 3 per week for the existing plant. As the treatment works is not proposed to be a major collection centre for the treatment of sludge, there should not be a noticeable increase in the volume of traffic disposing of sludge. But because of 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 landfill. The number of trucks removing sludge in skips off-site is expected to rise to 5 per week for phase 1 and eventually to 8 per week for phase 2.

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. However it is proposed to install speed control measures in the form of ramps or similar type devices at a number of locations along the access road and to provide for a dedicated pedestrian crossing point.

8.9 Landfill

The landfill used for the South Cork region is located near Midleton, Co. Cork. Its remaining capacity is at this time unclear, but the cost of landfilling is expected to rise as demand for the space increases, and the cost of land increases.

The disposal to landfill may be acceptable in the short-term but should be reviewed in light of the Councils sludge management plan which is currently being prepared for the treatment of sludge accumulated from around Cork County

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 21st Century. Depending on changes in technology in the future, the ultimate capacity of the site should be sufficient until the middle of the 21st 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 are likely to be provided in a designated 'hub' sludge treatment outside the Blarney area.

SECTION TEN VISUAL IMPACTS

10.1 Topography

The land lies beside the Shournagh River and is on a flat plain adjacent to 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 these 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.

The volume of traffic will 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 Rivers Shournagh and Lee as significant water bodies downstream of the town will be better safeguarded, such that the proposed works should go ahead as a matter of importance.

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Appendix 1

Drawings

L1 Blarney Sewage Treatment Works - Location Map

E1 Blarney Sewage Treatment Works – Existing Site Layout

P1 Blarney Sewage Treatment Works – Proposed Site Layout

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Consent of copyright owner required for any other use.*

Appendix 2

Comment Form

*For inspection purposes only.
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Cork County Council

Comhairle Chontae Chorcai



**Expansion and Upgrading of
Blarney Sewage Treatment Works**

Comment Form

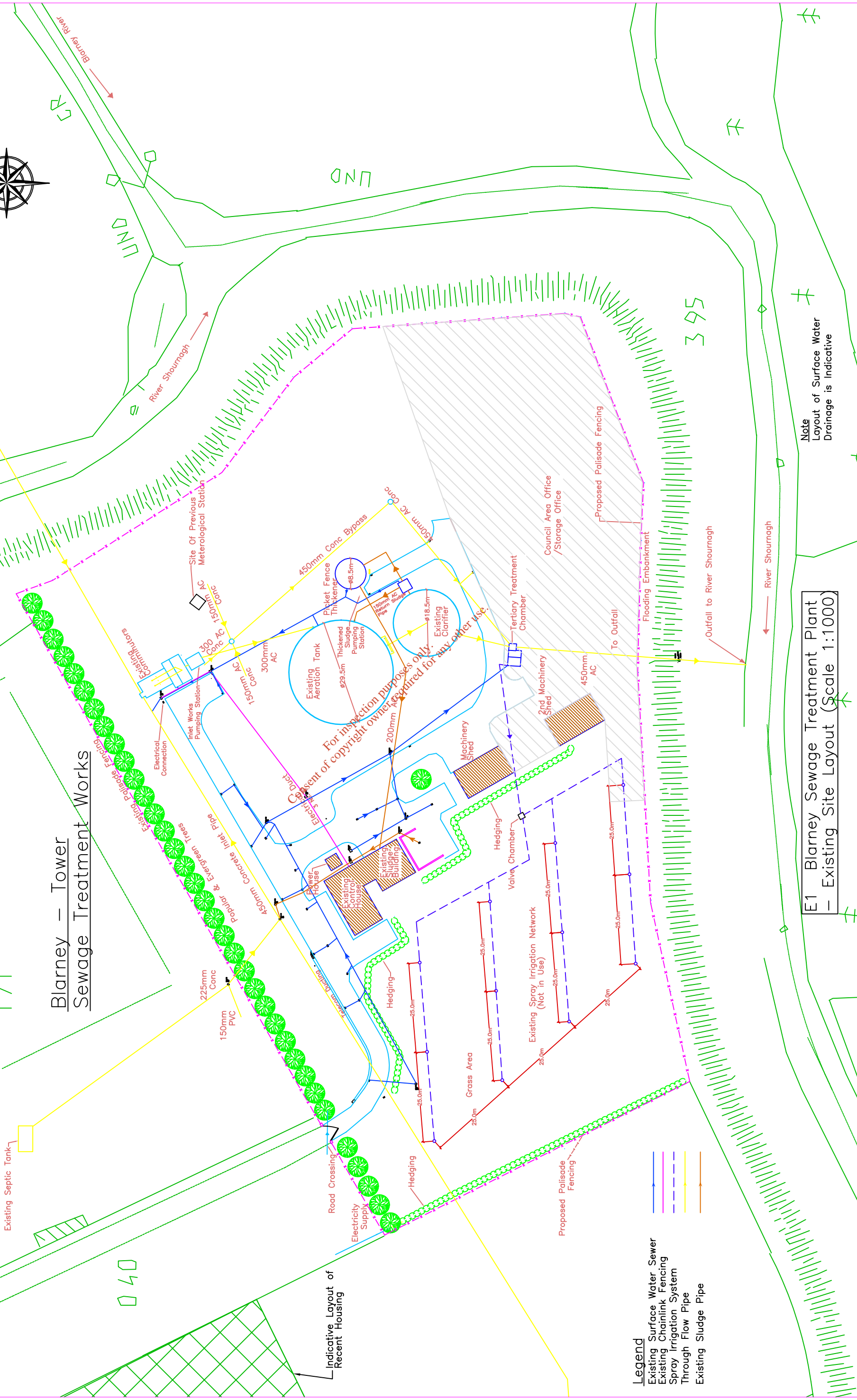
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Blarney - Tower Sewage Treatment Works

177

Existing Septic Tank



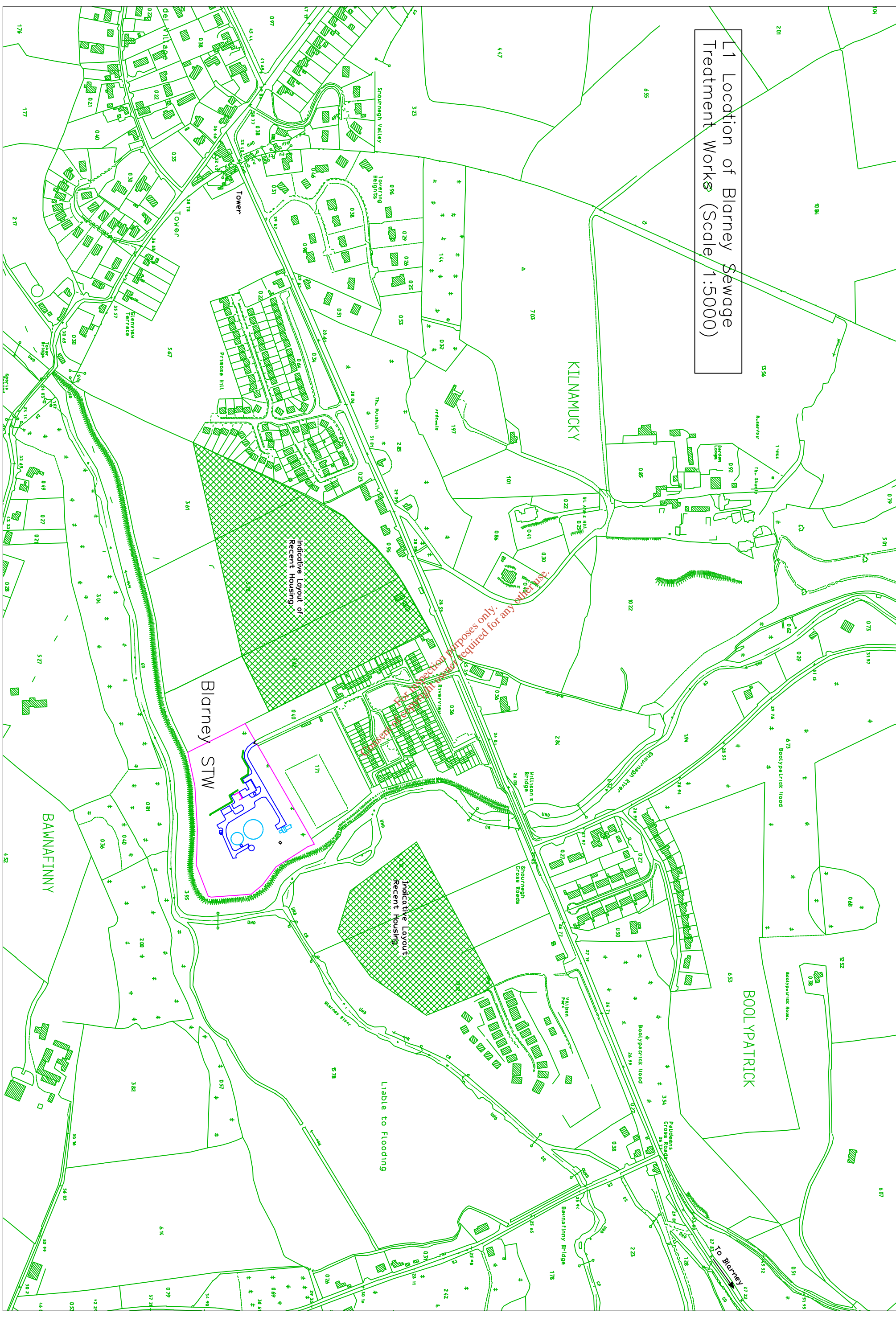
For inspection purposes only.
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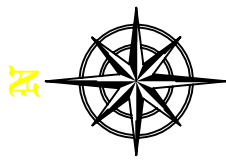
- Legend**
- Existing Surface Water Sewer
 - Existing Chainlink Fencing
 - Spray Irrigation System
 - Through Flow Pipe
 - Existing Sludge Pipe

E1 Blarney Sewage Treatment Plant
— Existing Site Layout (Scale 1:1000)

Note
Layout of Surface Water
Drainage is Indicative

L1 Location of Blarney Sewage Treatment Works (Scale 1:5000)





Blarney - Tower Sewage Treatment Works

171

Existing Septic Tank

040

Indicative Layout of Recent Housing

River Shournagh

Blarney River

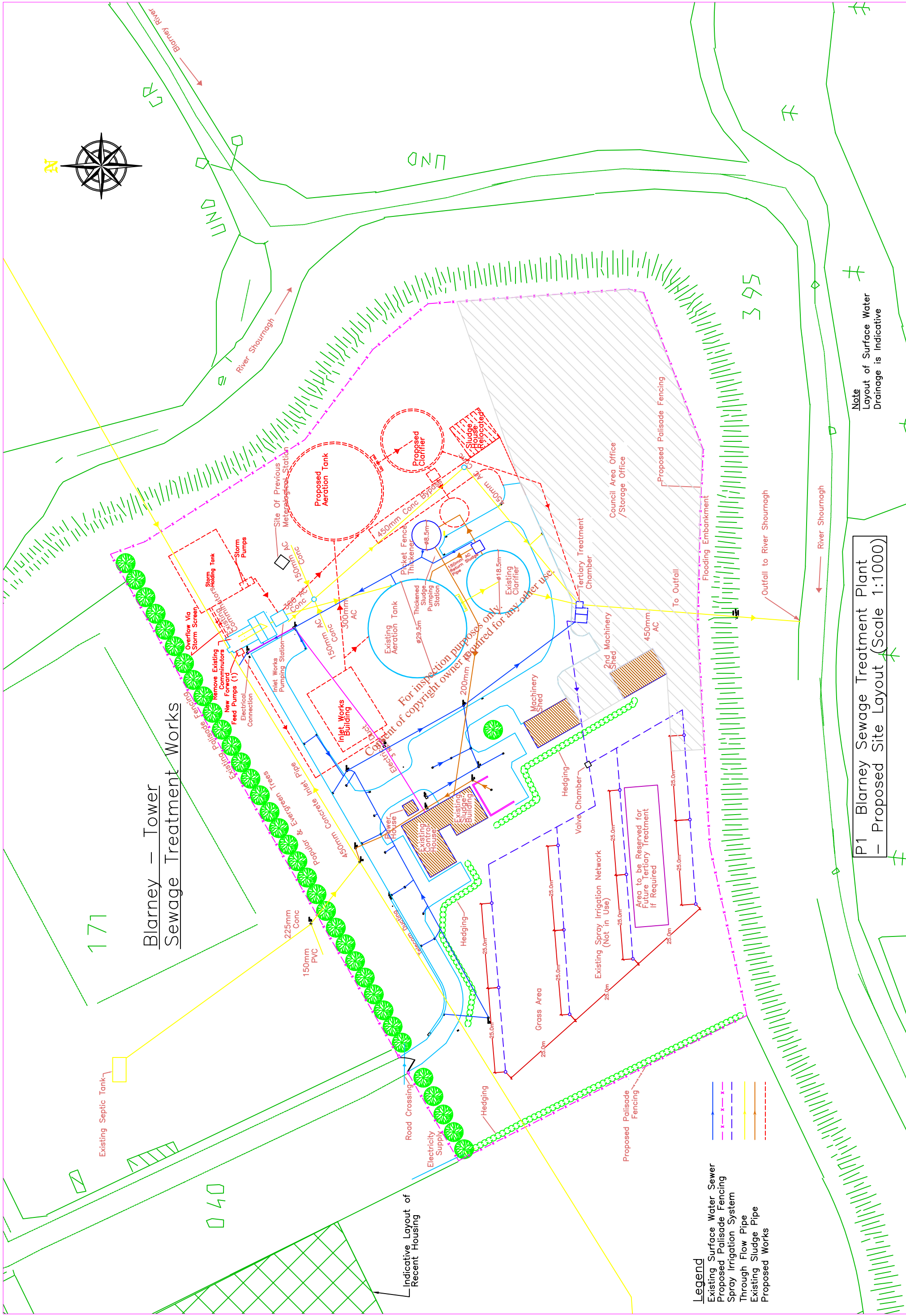
LND

395

Note
Layout of Surface Water Drainage is Indicative

P1 Blarney Sewage Treatment Plant
- Proposed Site Layout (Scale 1:1000)

- Legend**
- Existing Surface Water Sewer
 - Proposed Palisade Fencing
 - Spray Irrigation System
 - Through Flow Pipe
 - Existing Sludge Pipe
 - Proposed Works





Blarney – Tower Sewage Treatment Works

177

Existing Septic Tank

Indicative Layout of Recent Housing

Electricity Supply

Road Crossing

150mm PVC

225mm Conc

450mm Concrete Inlet Pipe

Popular & Evergreen Trees

Existing Palisade Fencing

Electrical Connection

Inlet Works Pumping Station

300mm AC

150mm AC

450mm Conc Bypass

150mm AC

300mm AC

450mm Conc

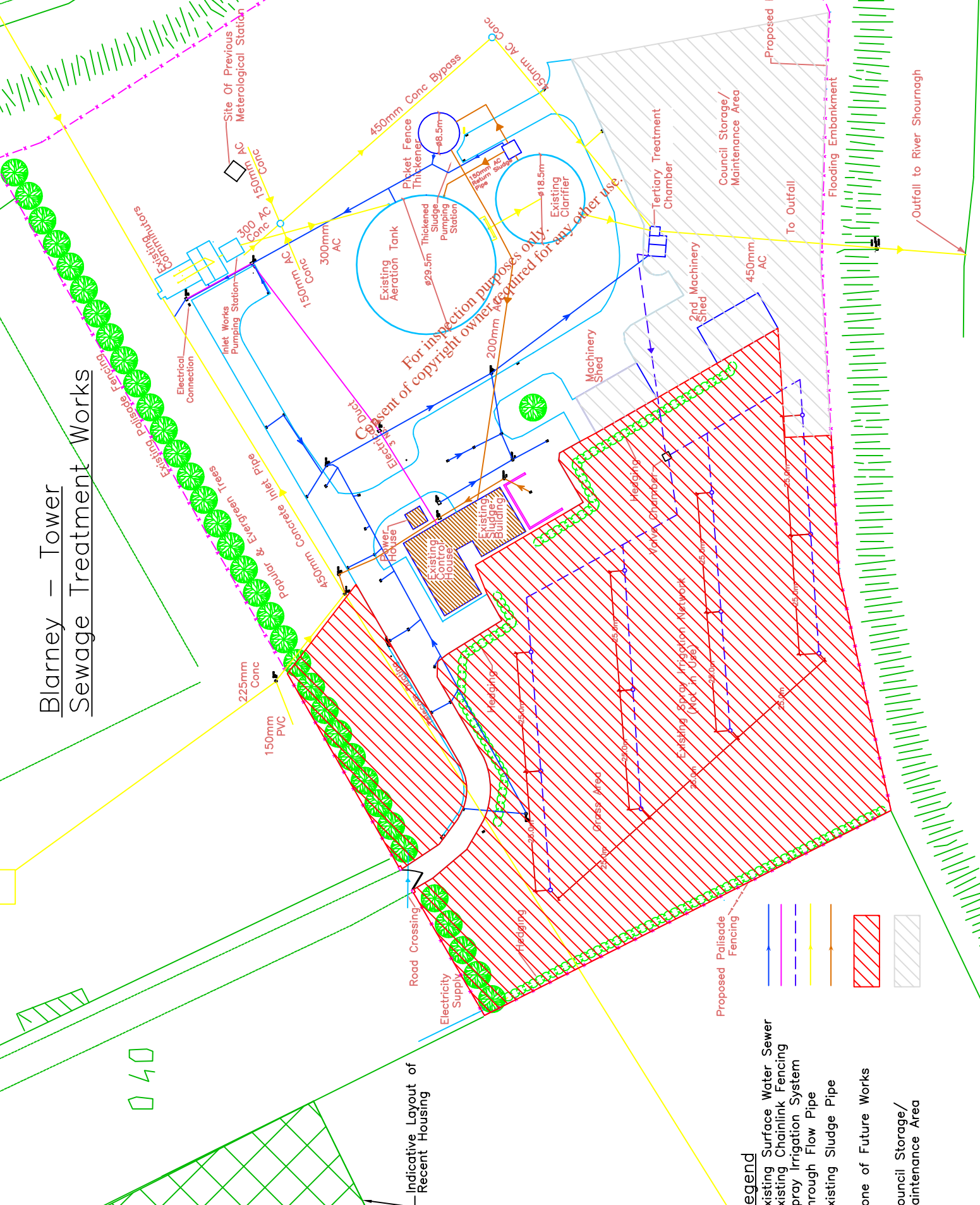
150mm AC

150mm AC

150mm AC

150mm AC

150mm AC



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- Legend**
- Existing Surface Water Sewer
 - Existing Chainlink Fencing
 - Existing Irrigation System
 - Through Flow Pipe
 - Existing Sludge Pipe
 - Zone of Future Works
 - Council Storage/Maintenance Area

Z1 Blarney Sewage Treatment Plant
- Existing Site Layout Showing Zone of Future Works (Scale 1:1000)

Note
Layout of Surface Water Drainage is Indicative