

Arklow Wastewater Treatment Plant Project

Planning Report



Planning Report

Permission for a Proposed Wastewater Treatment Plant, Interceptor Sewers, Storm Water Overflow and Stormwater Storage Tank, Outfall Pipelines and an Upgrade to Existing Revetment in the townlands of Arklow, Tinahask Lower and Ferrybank, Arklow Town, Co. Wicklow

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1.0 Introduction

1.1 Application for Permission – Strategic Infrastructure Development

This Planning Report has been prepared by O'Connor Whelan Limited in association with Irish Water, Arup and Byrne Looby PH McCarthy Consulting Engineers, on behalf of Irish Water, Colvill House, 24-26 Talbot Street, Dublin 1.

It outlines the supporting case for an application for permission for the Arklow Wastewater Treatment Plant project (the proposed development). The proposed development will consist of the development of a new wastewater treatment plant (WwTP), interceptor sewers including storm water overflows (SWOs) and stormwater storage, sea outfall pipelines (long sea outfall and SWO at WwTP), and an upgrade to a section of the coastal revetment in the townlands of Arklow, Tinahask Lower and Ferrybank, Arklow Town, Co. Wicklow.

The planning application is being made directly to An Bord Pleanála as a Strategic Infrastructure development in accordance with Section 37E of the Planning & Development Act 2000, as amended. The planning application is being made directly to the Board as the proposed wastewater treatment plant with a 36,000 Population Equivalent (PE) is defined as Strategic Infrastructure in the Seventh Schedule of the Act:

“A waste water treatment plant with a capacity greater than a population equivalent of 10,000 and, for the purpose of this provision, population equivalent shall be determined in accordance with Article 2, point 6, of Council Directive 91/271/EEC³.”

1.2 Consent of Owner

As the proposed development is the subject of a CPO process, consent of various landowners (including Wicklow County Council) is not required.

1.3 Pre-Application Consultations

Extensive consultation has been undertaken with An Bord Pleanála (the consenting authority) as part of the formal pre-application consultation process for the proposed development.

Irish Water submitted a letter to An Bord Pleanála on 24 July 2015 requesting to enter into pre-application consultation to determine if the proposed development is 'Strategic Infrastructure Development' in accordance with the Seventh Schedule of the Planning and Development Act, 2000, as amended.

Seven pre-application consultation meetings were subsequently held with An Bord Pleanála on the following dates:

- 27 August 2015;
- 30 November 2015;
- 11 February 2016;
- 6 May 2016;
- 9 November 2016;
- 28 September 2017; and
- 6 March 2018.

The records of each of these meetings are available on the An Bord Pleanála website.

Following these meetings, on 23 May 2018, An Bord Pleanála confirmed that the proposed development is 'Strategic Infrastructure Development' in accordance with the Seventh Schedule of the Planning and Development Act, 2000, as amended.

There was extensive consultation with Wicklow County Council. A number of specific meetings and discussions took place between members of the project team and Wicklow County Council to discuss specific issues during the design development. In particular, members of the design team met with Wicklow County Council Planning and Roads Departments to discuss the design development.

Three periods of non-statutory public consultation were undertaken by Irish Water to engage with relevant stakeholders in relation to the proposed development. These public consultation periods occurred on the following dates:

- 15 Oct 2014 – 12 Dec 2014;
- 15 May 2015 – 10 July 2015; and
- 11 Oct 2017 – 15 Nov 2017.

The purpose was to invite feedback from statutory bodies, interested parties and the general public on the proposed development. A suite of material providing up-to-date information on the proposed development was created for each consultation period and made available on the project website throughout the consultation period and thereafter. Additionally, drop-in information events were held in Arklow Town during each consultation period and press releases were also issued through the local media in order to raise awareness of the consultation process.

Summary reports were prepared following each consultation period and were published by Irish Water¹.

¹ Irish Water webpage (Arklow: Public participation: Available from: <https://www.water.ie/projects-plans/arklow-wwtp/environment-planning/>

2.0 Development Description²

2.1 Context

Wastewater in Arklow is currently collected and foul flows are discharged (untreated), through 19 existing discrete overflows and/or outfalls to the Avoca River. To ensure compliance with the Urban Waste Water Treatment Directive, it is necessary to appropriately treat wastewater from Arklow, prior to discharge to a waterbody. The proposed development is designed to address this deficiency by providing an effective wastewater collection network, treatment capacity and suitable outfalls that can provide for Arklow town now and into the future.

The proposed development would improve water quality in the Avoca River and provide adequate treatment capacity to support further development in Arklow town which is constrained by the lack of adequate wastewater treatment. All existing outfalls that currently discharge to the Avoca River would be intercepted by a new interceptor sewer network, provided to the north and south of the river channel, and would convey wastewater to a proposed Wastewater Treatment Plant (WwTP) for treatment. This would eliminate, in so far as possible, the current practice of discharging untreated wastewater to the Avoca River.

2.2 Description of the Development

In summary, the key aspects of the proposed development are:

- A Wastewater Treatment Plant (WwTP) at the Old Wallboard site, on Mill Road, Ferrybank, including associated long sea outfall and storm water overflow (SWO) and works to the existing coastal revetment adjoining the site.
- Proposed Interceptor Sewers north and south of the Avoca River (including a tunnelled sewer crossing of the Avoca River and adjoining Storm Water Overflow [SWO]).
- A Storm Water Overflow (SWO) and Stormwater Storage Tank located in the north-east corner of 'the Alps', adjoining the Avoca River, in the townland of Arklow.
- Work / temporary construction compounds and roads.

² A detailed description of the entire proposal is provided in chapter 4 of the Environmental Impact Assessment Report which accompanies the planning application. This section is intended to provide an overview of the key features of the proposal.

2.2.1 Waste Water Treatment Plant

The Waste Water Treatment Plant (WwTP) at the Old Wallboard site, on Mill Road, will comprise the following works:

- A wastewater treatment facility with a 36,000 Population Equivalent (PE) treatment capacity, with preliminary and secondary treatment processes, stormwater storage and storm water overflow (SWO), including inter alia the following:
 - An Inlet Works Building (ca. 2448 sq m gross floor area (gfa)); the building will have a maximum height of ca. 16.5 m;
 - A Process Building (ca. 2576 sq m gfa), containing a number of photovoltaic (PV) panels on its roof and located at the southern end of the site. The building will have a maximum height of ca. 14.5m. Treated effluent flows will be discharged to the Irish Sea from the Process Building via a long sea outfall;
 - A Sludge Tank Enclosure (ca. 867 sq m gfa). The enclosure will have a maximum height of ca. 8.5m. An Odour Control Unit (OCU) will be located within the Sludge Tank Enclosure;
 - An Administration Building (ca. 174 sq m gfa), located at the site entrance on Mill Road. The building will have a maximum height of ca. 10.1m;
- Provision of a ca. 3,150 m³ stormwater holding tank within the Inlet Works Building of the proposed WwTP;
- Provision of a storm water overflow (SWO) to discharge excess flows from the stormwater holding tank and to act as an emergency relief for excess storm flows in the sewered catchment, discharging to the Irish Sea (through the toe of the revetment). The overflow will be screened and fitted with appropriate non-return valves;
- 2 No. vent stacks at the Inlet Works Building and at the Process Building respectively, extending ca. 1m higher than the building structures (the overall height of the vent stacks would be ca. 17.5m (stack at Inlet Works Building) and ca. 15.5 m (stack at Process Building) respectively);
- Vehicular and pedestrian access to the WwTP via a security gate from the existing entrance on Mill Road;
- Landscaping and ancillary works including an area of ca. 0.34 hectares at the northern end of the site, between Mill Road and the coastal revetment which will become part of the public realm.
- Boundary fence, ca. 2.1m high surrounding the site.
- Provision of the following infrastructure to serve the WwTP:
 - ca. 20 car parking spaces;
 - Loading bays;
 - Internal circulation roads and associated hard standing;
 - Site lighting;
 - all ancillary connections to electricity, telecommunications and water supply networks and site drainage;
- Upgrade of a section of the coastal revetment over a distance of approximately 360m along the coastal side of the Old Wallboard site boundary.

The revetment crest height will be ca. 7.5mOD and will have a crest width ranging from ca. 9m to 10.1m. The total revetment width (from landward toe to seaward toe) will be approximately 50m.

- 1 No. temporary construction compound to be located within the Old Wallboard site including associated site works, access to public roads, associated 2.4m high boundary in the form of hoarding or fencing and associated ancillary staff facilities and parking.

2.2.2 Proposed Outfall Pipelines

- A long sea outfall extending ca. 930m in length from the site boundary, for treated effluent discharge, located north of the northern Arklow harbour pier, with associated diffusers (up to 6 no.) and appropriate aids to navigation. This outfall will cross under the upgraded coastal revetment and discharge into the Irish Sea;
- Provision of a storm water overflow (SWO) as detailed under the WwTP above.

2.2.3 Proposed Interceptor Sewers

- Provision of approximately 1.1km of sewer on the southern side of the Avoca River between River Walk and South Quay (of which approximately 300m would be in the river channel). This involves open cut excavation along the land based sections on River Walk, an open cut excavation along the river based sections from River Walk to South Green along South Quay passing under Arklow Bridge (a protected structure: RPS A26)) and a tunnelled section from South Green to Harbour Road prior to crossing the Avoca River;
- Underpinning works to abutments and adjacent bridge pier at South Quay end of Arklow Bridge (a protected structure: RPS A26) to facilitate interceptor sewer construction through southernmost bridge arch;
- Lowering of the river bed under a second bridge arch at South Quay end of Arklow Bridge (a protected structure: RPS A26) by approximately 1m which will involve removal of the existing scour protection slab, the construction of a new scour protection slab at the new bed level, underpinning of the adjacent bridge piers and associated ancillary works;
- Provision of a storm water overflow (SWO) located at a new manhole chamber adjacent to South Quay/Harbour Road with a discharge point to the Avoca River Estuary. The overflow will be screened and fitted with appropriate non-return valves;
- Provision of approximately 120m of tunnelled sewer crossing under the Avoca River from the South Quay to Mill Road;
- Provision of approximately 800m of tunnelled sewer on the northern side of the Avoca River along North Quay and extending as far as the inlet works building in the WwTP;
- A temporary construction working area corridor, ranging in width from approximately 10-20m along the route of the proposed Interceptor Sewers, associated tunnel shafts and temporary works compounds.

This temporary corridor also provides the contractor with flexibility for minor pipeline alignment changes within the planning boundary, if necessitated during the construction stage;

- A temporary road to the north of the WwTP site between Seaview Avenue and Mill Road, including associated site works and associated ca. 2.4 m high boundary in the form of hoarding or fencing;
- Diversion of flows from the existing sewer network along both the southern and northern sides of the river channel on completion of the new WwTP;
- Provision of manholes and service shafts along the route of the new interceptor sewers;
- Provision of 12 No. vent stacks along the length of the northern and southern interceptor sewers for ventilation at each of the tunnel shafts. The height of the vent stacks would be approximately 7.6m above ground level; and
- 1 No. temporary construction compound to be located on South Quay, including associated site works, access to public roads, associated 2.4m high boundary in the form of hoarding or fencing and associated ancillary staff facilities and parking.

2.2.4 Proposed Storm Water Overflow (SWO) and Stormwater Storage Tank

The works associated with the Storm Water Overflow (SWO) and Stormwater Storage Tank include an upgrade of the existing Storm Water Overflow (SWO), located in the north-east corner of 'the Alps', adjacent to River Walk and the Avoca River to include:

- Provision of an online underground storage tank structure (approximately 400 m³);
- Raising of existing ground profile by approximately 1m to accommodate the tank structure and landscaped to provide vehicular access;
- Provision of a gabion retaining wall (approximately 40m in length and up to 1.8m in height) to the toe of existing embankment in the area between the tank and site access;
- Diversion of existing foul sewers to enable construction of the proposed storage tank;
- Provision of new manholes and associated pipeline to collect downstream flows from the new storage tank and existing sewer to connect to new interceptor sewer;
- Existing concrete box culvert which discharges to the Avoca River to remain, provision of new overflow pipe with screen from storage tank to box culvert;
- Installation of fence (ca. 2.4m high) to secure the storage tank and facilitate ongoing maintenance and operation;
- Provision of new vehicular access to facilitate maintenance;
- Provision of power supply/control panel (in a kiosk approximately 2m x 1m x 1.8m high); and
- Installation of water supply hose reel (in kiosk approximately 1m x 1m x 1.5m high) to allow wash down of overflow screen/chamber floor within the storage tank.

All associated and ancillary development relating to the WwTP, interceptor sewers, SWO and stormwater storage at the Alps and the outfall pipelines (long sea outfall and SWO), including works comprising or relating to permanent and temporary construction and excavation, abandonment of short sections of existing sewers (and infilling with concrete), site boundaries and landscape reinstatement works as well as all ancillary connections to electricity, telecommunications and water supply networks and site drainage are included as part of the planning application.

2.2.5 Procurement Strategy

The proposed development is likely to be procured as a Design and Build type project, with the contractor responsible for the detailed design and construction. A detailed specimen design has been prepared for the purposes of the Environmental Impact Assessment (EIA) Report, which allows the reasonable worst case to be assessed.

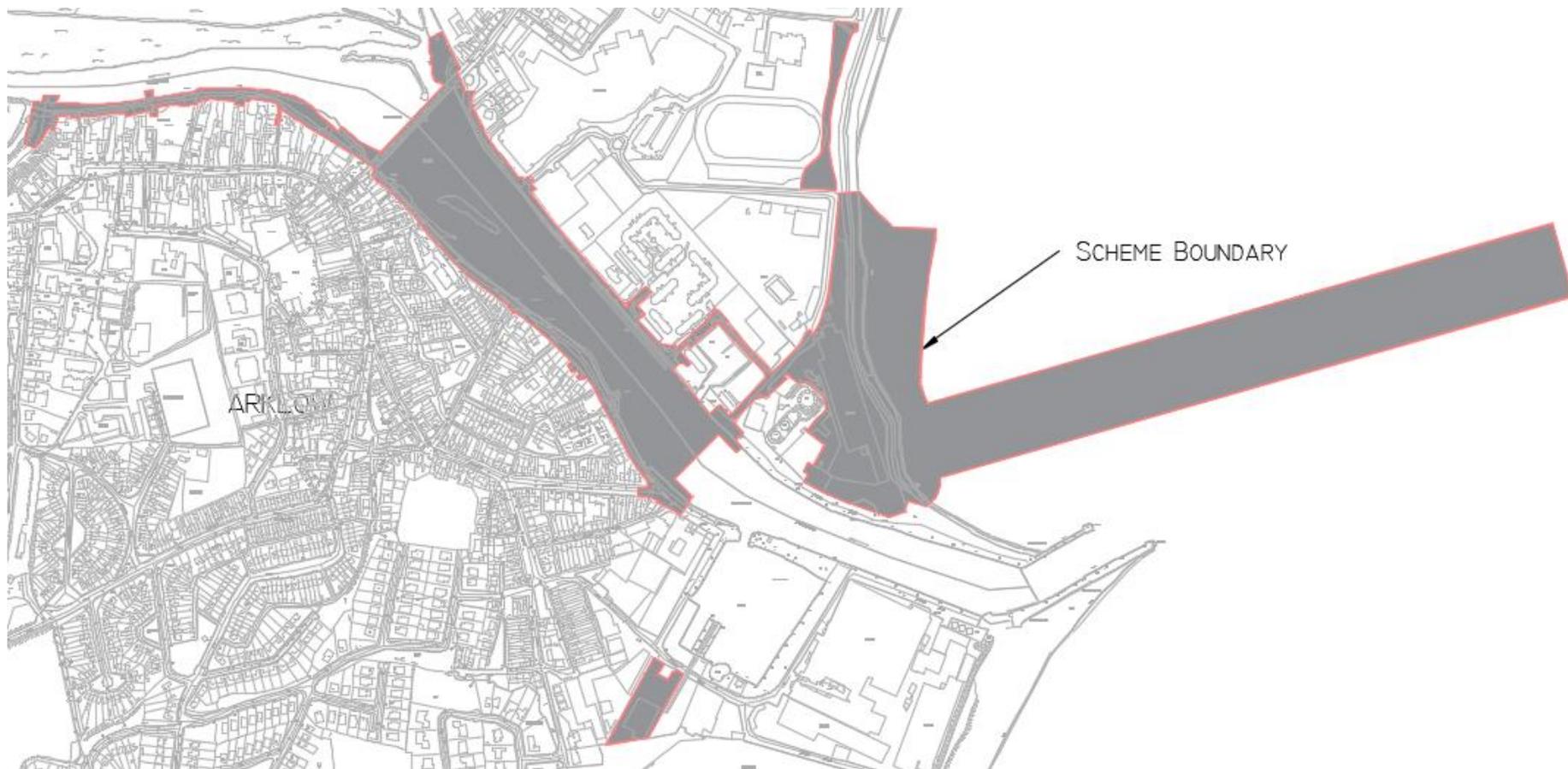


Figure 1.1: Site Location (for illustrative purposes only)

2.3 Design Concept

2.3.1 Architecture

The majority of the works associated with the proposed development will be underground. The WwTP, will however, be a visible structure adjacent to the Irish Sea.

The Old Wallboard site at Ferrybank (i.e. the WwTP site) has a long history as an industrial site, and the existing structures that have stood on the site have formed a key part of the urban memory and character of Arklow town. This part of the town is currently characterised by the remnants of this industrial history - sheds, tanks and silos which stand apart from one another on the site, separated by yards and scrub.

Its setting, between the river and the sea, and close to the new developments along the banks of the Avoca River mean that this area could accommodate larger, more urban structures offering places to live and to work in the future. This potential is expressly set out in the waterfront zoning of this area in the Arklow LAP – a zoning that encompasses a wide range of uses that requires:

“Any new developments in the Waterfront Zone to meet a high standard of design that respects the unique historical, environmental, visual and recreational amenities of the area”.

In understanding this context, the proposed development may be thought of as more than just necessary infrastructure as it presents an opportunity to make a civic structure that would positively contribute to the visual environment in Arklow town whilst delivering those environmental and social benefits associated with providing wastewater treatment to the local community.

The architectural approach has informed the shaping of the massing and appearance of each of the buildings. The design team has collaborated throughout and the result has been an integrated approach in which operational aspects and architectural approaches have been united throughout the design development. There is a clear lineage (from Victorian times to today) of infrastructure which perform as civic structures, and it is in this tradition that the project architects have iteratively designed the proposed development based on comments received during the public consultation and meetings with stakeholders including Wicklow County Council and An Bord Pleanála.

The project architects have sought to design the WwTP to acknowledge this industrial history whilst emphasising the transition of the site to support the future development of Arklow and form a part of the town’s growing civic landscape. An iterative, critical and robust design process has resulted in the design which acknowledges this hybrid connection and is therefore rooted in the logic of the plant function and with cognisance of its role as civic infrastructure.

The site layout and landscaping is cognisant of those concepts and the customary approach for arranging the site into disaggregated sheds and tanks was not applied to the proposed development. The approach has been to stack and arrange the elements of the WwTP into stand-alone compact structures.

The design of the buildings presents a more coherent form and scale that allows the proposed development to set the tone for other future developments in Arklow town. The buildings are more responsive to human scale than elements of the existing site (i.e. the conventional industrial structures). The buildings are arranged so that they would conceal the car parking areas between them and to facilitate soft landscaping around the entire perimeter so that this can form a further positive contribution to the broader landscape character in Arklow town.

Form and Massing

The architecture of the proposed development is anticipated to become an important part of Arklow's visual character given the prominent location between the Avoca River and the Irish Sea.

The Inlet Works building is the tallest of the proposed buildings, however at 16.5m above ground level, it is ca. 13m lower than the highest point of the existing building structures. A vent stack would be incorporated on the Inlet Works building and on the Process building extending 1m higher than the building structures.

The massing of the Inlet Works building has been designed to maintain a shoulder which reinforces the planning objectives that this area is to be developed at a greater density and urban form. Further, this massing echoes the presence of the tall flank of the existing wallboard factory, close to Mill Road, although the structure would be set back so that it is less visible than the existing structure is in the surrounding area. In the lee of this structure the hard landscaping would be screened from view from the surrounding areas. To the north-eastern end, the longer, lower form of the Process building would house a number of photovoltaic (PV) panels on its roof. The administration building, located to the south of the site would adjoin the entry roadway and therefore would mark the transition to the entrance to the WwTP from Mill Road.

The boundary to Mill Road would be set back along the entire frontage by 5m. This would provide passive provision for a future pavement which may be provided by others (i.e. this is not part of the proposed development, however it does not restrict this being provided in the future). The site boundary fronting onto Mill Road would comprise a timber fence with low level planting to the pavement edge.

Façade

The façade design takes its cues from the site's history and the nature of this infrastructure. The Inlet Works and Process buildings have an inner, operational façade and an outer façade which allows them to address the civic nature in response to human scale. This external façade would act to screen loading bays, cranes, pipe runs, and internal lighting. This façade would also run above the top of the structures to shield the roofs, including the PV panels on the Process building. The sludge tank enclosure would be screened by a permeable timber and steel framework. The façade of the administration building would echo the Inlet Works and Process buildings and would be clad in fibre cement panels.

The external façade would be made with industrial materials (including fibre cement panels, aluminium flashings, timber and aluminium supports surrounded by a steel frame), modulated and serrated into oversized louvred planes so that it has a presence in silhouette when viewed from a distance and responds to human scale when closer to the structure. The serration refers both to the maritime context and the building form.

The horizontal striation produced by the overlapping planes would allow for the buildings masses to respond to the horizon as the primary context. Further, the angles of the planes would provide differing levels of shelter at different areas and this would therefore allow the building to subtly change its character depending on the ambient light conditions and rain - inflecting the architecture to its climatic context.

2.3.2 Landscaping Strategy

Landscaping around the four buildings would follow a basic grid, derived from the primary geometries of the site. This grid would include hard landscaping between the buildings in addition to soft landscaping that would be planted around the site perimeter. Soft landscaping is likely to be native plant shrub, grass and trees species found locally such as gorse, grasses, birch and pine trees. The selection of plant species has been undertaken in consultation with the lead ecologist for the proposed development and is proposed as a consolidation and extension of existing biodiversity on the site.

Hard landscaping between the buildings would include concrete and gravel finishes with marked areas for workers on foot to navigate between the buildings. Parking would be provided on site for 20 vehicles (including 2 electric car charging points), four bays for fork lifts would be provided and standby areas would be provided for up to two trucks collecting sludge.

External lighting would be installed around the WwTP for the safety and security of staff on the site. Lighting for traffic and pedestrian movements would be low level and discrete. Flood lighting for operational areas close to the building would be integrated into and shielded behind the architectural façade. Flood lighting to the main yard would not be regularly required and so this lighting (also integrated into the building facades) would only be switched on when required. Flood lighting would not be required to any other areas of the WwTP site.

2.4 Community Gain

Irish Water recognises the importance of ensuring that the development and operation of its assets is undertaken with minimum impact and indeed to the benefit of the local community. A number of community gain initiatives are included as part of the proposed development, as outlined below:

- The primary community gain benefit is the proposed development itself, i.e. the provision of appropriate treatment of wastewater for the people of Arklow now, and into the future.
- The provision of the WwTP will also result in significant environmental improvements in Arklow, particularly with regard to water quality. The existing outfalls discharging untreated wastewater into the Avoca River will be discontinued, with a long marine outfall, discharging treated effluent, replacing the existing outfalls. This will result in a significant improvement in water quality in the Avoca River.
- At the WwTP, the site boundary has been pulled back from the existing road line, by 5m, to further accommodate pedestrian traffic along Mill Road and to provide passive provision for additional public realm in this area.
- A landscaped area with additional native planting will be provided to the north-west of the WwTP site. Upon commissioning, this landscaped area will be handed over to the Wicklow County Council as a continuation and contribution to the public realm of the area.
- Facilities will be provided within the signature WwTP building for use by schools.
- Irish Water is also committed to making all relevant environmental data it gathers as part of the EIA process and during operation, available to stakeholders.
- The provision of wastewater treatment in Arklow town aligns with the County Development Plan as it will help create a safe and healthy environment whilst assisting in the protection of its natural resources as well facilitating the achievement of the population and employments targets set out for Arklow.
- The proposed development will meet the land use zoning outlined in the Arklow LAP by providing a high standard of design that respects the local area and providing the required wastewater treatment in the appropriately zoned area in Arklow town.

3.0 Planning History

There is no recent relevant planning history in relation to the Old Wallboard site where the WwTP is proposed.

Under a Part VIII application (ref. 13.38) Arklow Town Council received approval in December 2013 to upgrade an existing combined sewer and a combined sewer overflow located within the Alps site (at a similar location to where the Storm Water Overflow (SWO) and Stormwater Storage Tank are currently being proposed).

4.0 Policy Context

4.1 National Policy Guidance

4.1.1 Project Ireland 2040: National Planning Framework

The Department of Housing, Planning and Local Government published Project Ireland 2040: National Planning Framework (NPF) in February 2018. The NPF is the overarching policy and planning framework for the social, economic and cultural development of the country.

The NPF was published together with a 10-year national investment plan as one vision – Project Ireland 2040, meaning that implementation of the NPF is fully supported by the Government's investment strategy for public capital investment and investment by the State sector in general.

The NPF is the overarching document guiding regional spatial and economic strategies and local development plans. The NPF identifies national strategic outcomes (including the sustainable management of water and other environmental resources) as well as strategic investment priorities (including water infrastructure). Specifically, urban wastewater is identified as a principal pressure on Ireland and the need to ensure adequate treatment and capacity to avoid direct discharges has been recognised in the NPF. Urban waste water treatment plant compliance and remedial actions are therefore a key short term priority.

Furthermore, National Policy Objective 63 states:

“Ensure the efficient and sustainable use and development of water resources and water services infrastructure in order to manage and conserve water resources in a manner that supports a healthy society, economic development requirements and a cleaner environment.”

The proposed development complies with the objectives of the NPF by providing infrastructure that would provide wastewater treatment and eliminate, in so far as possible, the discharge of untreated wastewater into the Avoca River therefore improving water quality in the river channel and more generally in Arklow Town.

4.1.2 National Development Plan 2018 – 2027

The National Development Plan 2018 – 2027 (NDP) was published in conjunction with the NPF in February 2018. The NDP is the national plan setting out investment priorities to guide national, regional and local planning and investment decisions.

The NDP prioritises investment in high-quality infrastructure and specifically identifies €8.5 billion investment by Irish Water over the decade. The fragmentation of the water and wastewater network is recognised and the need for further investment to deliver new connections to provide an efficient, fit-for-purpose infrastructure network is recognised. The NDP states the following under National Strategic Outcome 9: Sustainable Management of Water and other Environmental Resources:

“Investment in our country’s water services is critical in meeting the needs of our growing economy across the regions, of our people and their health and the protection and enhancement of the quality of our environment and ensures public health.”

The proposed development is consistent with the NDP by providing infrastructure that would provide wastewater treatment and eliminate, in so far as possible, the discharge of untreated wastewater into the Avoca River therefore improving water quality in the river channel and more generally in Arklow Town.

4.1.3 National Flood Policy

The National Flood Policy was adopted by the Government in 2004 after an inter-departmental review on how to manage flood risk most effectively and efficiently. The National Flood Policy builds on the Arterial Drainage Acts 1945 and 1995, which permits the OPW, as the lead agency coordinating the management of flood risk in Ireland, to implement localised flood relief schemes.

The National Flood Policy identifies that *‘the flooding problem cannot be eliminated but can be managed so as to minimise its impact’* and that there are *‘a considerable number of heavily populated urban centres that are currently at risk of flooding and where flood defence may be the only feasible solution’*. The National Floods Policy generally advocates for sustainable flood prevention, mitigation and protection in areas of flood risk.

Arklow is one such area that is at risk of flooding and the OPW are currently proposing to develop the proposed Arklow Flood Relief Scheme in close proximity to the proposed development. Given this potential for flood risk, the National Flood Policy has been considered throughout the design development of the proposed development. The proposed Arklow Flood Relief Scheme has been considered during the design development of the proposed development. The likely significant effects of the proposed development and the proposed Arklow Flood Relief Scheme have been considered in so far as possible as part of the assessment of in combination effects. Furthermore, measures have been included to mitigate flood risk should the proposed development proceed in advance of the Arklow Flood Relief Scheme.

4.1.4 Ireland’s Transition to a Low Carbon Energy Future 2015-2030

Ireland's Transition to a Low Carbon Energy Future 2015 – 2030 was launched by the Department of Communications, Climate Action and Environment in December 2015 to update energy policy and set out the framework to guide policy to 2030. It guides the national transition to a low carbon future that would transform Ireland into a low carbon society and economy by 2050.

This Policy outlines the extensive range of existing literature on climate change as well as the international policy framework for addressing climate change at the global, EU and national level with cognisance of the Climate Action and Low Carbon Development Bill 2015. Specifically, the energy vision for Ireland is set out in Section 2.6 and the objectives outlined in Section 2.7 state that:

“Ireland’s energy policy addresses three core objectives – the ‘three energy pillars’:

- *sustainability*
- *security of supply*
- *competitiveness – leading to affordable energy for domestic and business consumers.*

Sustainability is essential to reduce our dependence on imported fuels and to combat climate change through the reduction of energy-related GHG emissions in the transition to 2050.

Security of supply is necessary to the functioning of our society and economy.

Price competitiveness is needed both for business (which provides employment and creates wealth) and for households (which need affordable energy and protection against energy poverty).

Our new energy policy framework seeks to strike a balance between the three pillars to ensure a sustainable, secure and competitive energy system for Ireland.”

The proposed development is in compliance with Ireland’s Transition to a Low Carbon Energy Future 2015-2030 as provision has been made for PV panels on the roof of the Process building, i.e. a source of renewable energy that would reduce reliance on fossil fuels (and associated energy related greenhouse gas emissions) and improve security of supply.

4.1.5 Irish Water Services Strategic Plan – A Plan for the Future of Water Services (2015-2020)

The Water Services Strategic Plan – A Plan for the Future of Water Services (‘Strategic Plan’), as per Section 33 of the Water Service (No. 2) Act 2013, was published by Irish Water in October 2015 to set out the strategic delivery of water services to 2040. The Strategic Plan details current and future challenges which affect the provision of water services and identifies priorities to be tackled in the short and medium term.

The Strategic Plan identifies that many urban agglomerations do not have sufficient wastewater treatment and that raw sewage is currently discharging in Arklow, therefore infringing the requirements of the UWWT Directive.

Achieving compliance with the UWWT Directive is an immediate priority for Irish Water and the Strategic Plan recognises that substantial upgrading of the wastewater treatment network is required. Specifically, the following responsibilities for wastewater treatment are outlined:

“Our responsibilities for wastewater commence when effluent reaches the public wastewater network. We are responsible for its transfer to wastewater treatment plants, its treatment and the subsequent discharge of the treated effluent back into the water environment. We are also responsible for the treatment and disposal of the sludge that is generated from both our water and wastewater treatment plants.”

Furthermore, the following specific objectives have been outlined as part of the Strategic Plan:

- **WW1:** Manage the operation of wastewater facilities in a manner that protects environmental quality;
- **WW2:** Manage the availability and resilience of wastewater services now and into the future; and
- **WW3:** Manage the affordability and reliability of wastewater services.

The proposed development is in compliance with the objectives outlined in the Strategic Plan by enabling the effective management and provision of wastewater treatment within the Arklow agglomeration which is currently lacking wastewater infrastructure.

4.1.6 Irish Water Business Plan – Transforming Water Services in Ireland to 2021

The Irish Water Business Plan – Transforming Water Services in Ireland to 2021 (Business Plan) was published by Irish Water in 2015 as a framework for delivering efficient national water and wastewater services. The Business Plan identifies a range of national issues associated with the fragmented network and key deliverables to improve infrastructure and services for customers.

The Business Plan highlights that Arklow is one of a number of large urban areas with no treatment or preliminary treatment only. As such it is non-compliant with the UWWT Directive and the Business Plan identifies that compliance with the UWWT Directive is a key metric to be achieved by 2021.

The proposed development is in compliance with the Business Plan by providing wastewater treatment within the Arklow agglomeration which is currently discharging raw wastewater into the Avoca River. Further, this would ensure that Arklow is brought into compliance with the obligations of the UWWT Directive.

4.1.7 National Wastewater Sludge Management Plan

The National Wastewater Sludge Management Plan (NWSMP) outlines Irish Water's strategy to ensure a nationwide standardised approach for managing wastewater sludge over the next 25 years. It is required in order to set out the short, medium and long-term strategy for management of sludge produced at wastewater treatment plants under the control of Irish Water.

Irish Water has looked at how wastewater sludge is currently managed and has set out sustainable proposals for the investment in future treatment, transport and reuse or disposal of the sludge in keeping with the following objectives: -

- To avoid endangering human health or harming the environment;
- To maximise the benefits of wastewater sludge as a soil conditioner and source of nutrients;

- To ensure that all regulatory and legislative controls are met, and due regard is given to non-statutory Codes of Practice and industry guidance;
- To establish long term, secure and sustainable reuse/disposal methods;
- To ensure cost-effective and efficient treatment and reuse/disposal techniques;
- To reduce potential for disruption from sludge transport and sludge facilities;
- To extract energy and other resources where economically feasible; and
- To drive operational efficiencies, e.g. through the use of Sludge Hub Centres.

The proposed development is in compliance with the objectives of the NWSMP as it proposes to manage sludge effectively and make use of the regional sludge hub centres.

4.2 Regional Policy Guidance

4.2.1 Regional Planning Guidelines for the Greater Dublin Area 2010 – 2022

The Regional Planning Guidelines for the Greater Dublin Area 2010 -2022 (Regional Planning Guidelines) set out the strategic policy for Dublin and the mid-east region over the twelve-year period to 2022. They provide a regional context to the National Spatial Strategy (the precursor to the National Planning Framework) and the individual development plans contained within the Greater Dublin Area.

The Regional Planning Guidelines effectively implement the National Spatial Strategy, whilst providing more detail and establishing a regional development and spatial framework that can be used to strengthen local authority development plans and other planning strategies at county, city and local level. The Regional Planning Guidelines prioritises value for money strategic state investments and a coordinated approach with Government agencies, departments and stakeholders.

Strategic policy PIP3 outlines the need to improve water quality and seeks that investment in wastewater infrastructure is prioritised to support the delivery of the economic and settlement strategy. Specifically, Table 11 which identifies 'Critical Strategic Projects – Waste Water and Surface Water', outlines the need for the "Development of a high quality treatment plant for Arklow town" under point 6.

Arklow is designated as a Large Growth Town II in the Hinterland Area, defined as smaller in scale (than Large Growth Towns II) but a strong active growth town, economically vibrant with high quality transport links to larger towns/city.

Other strategic recommendations in the Regional Planning Guidelines of relevance include:

- **ER16:** "Seek proactively the delivery of new sustainable water supply, waste water treatment and waste management infrastructure without which the future development of the Greater Dublin Area will be impossible."
- **SR5:** "The expansion and growth of towns in the Greater Dublin Area is predicated on the delivery of suitable and necessary infrastructure."

Local Area and Development Plans need to take into account the current and future infrastructure needs of zoned lands and ensure that future development is only permitted where necessary water services have been provided to avoid causing a risk to the environment and is in accordance with existing and future discharge licences for waste water facilities.”

- **PIR15:** *“Seek continued investment in Wastewater treatment facilities and networks to meet the needs of the River Basin Management Plans and to achieve the targets for good water status for river, coastal and transitional waters in the Water Framework Directive.”*
- **PIR16:** *“Ensure that future capacity is provided in growth towns through expansion and upgrading of facilities where necessary and/or exploration of alternatives such as connecting to adjoining drainage systems or changes to catchments to enable growth towns to provide for the population growth envisaged in the settlement strategy and thus enable a more sustainable settlement pattern to be supported.”*

The proposed development complies with the strategic objectives and recommendations of the Regional Planning Guidelines regarding the need for investment in waste and surface water treatment and management in order to support the delivery of the economic and settlement strategies.

Arklow is a key growth town in the Greater Dublin Area, and investment in its water infrastructure is critical to realise the overall strategy for development in the region. In recent years, development has been stymied in Arklow town as a result of the lack of wastewater treatment and the proposed development would therefore facilitate the expansion and growth envisioned in the Regional Planning Guidelines.

4.3 Local Policy Guidance

4.3.1 Wicklow County Development Plan 2016 – 2022

The Wicklow County Development Plan 2016 – 2022 (County Development Plan) sets the overall strategy for planning and sustainable development within the administrative boundaries of County Wicklow. The County Development Plan through the policies and objectives contained therein, provides the direction for the future development of County Wicklow.

Vision and Strategic Goals

The Vision for County Wicklow is:

“For County Wicklow to be a cohesive community of people enjoying distinct but interrelated urban and rural environments; where natural surroundings and important resources are protected; where opportunities abound to live and work in a safe atmosphere, allowing the people to enjoy the benefits of well paid jobs, a variety of housing choices, excellent public services, simple cultural and leisure opportunities, and a healthy environment.”

Strategic Goal 7 pertaining to infrastructure is:

“To protect and improve the county’s transport, water, waste, energy and communications, and maritime infrastructure, whilst having regard to our responsibilities to respect areas protected for important flora, fauna and other natural features.”

Core Strategy

It is a statutory obligation that the County Development Plan must have a “Core Strategy” which inter alia:

- Defines a settlement hierarchy for the County that is consistent with the National Spatial Strategy and Regional Planning Guidelines;
- Transposes the prescribed Regional Planning Guidelines housing and population targets (set at County level) for the rural and urban centres identified within the settlement hierarchy of the county; and
- Provides an evidence based rationale for the land proposed to be zoned for residential and mixed-use development having regard to the capacity of existing zoned land and the phasing of development taking account of the location of public transport and services.

Arklow is categorised as a Hinterland Area Large Growth Town II, and on the third tier of towns in the county (behind Bray and Wicklow Town / Rathnew). Arklow town is projected to grow to 19,494 by 2022, 21,247 by 2025 and 23,000 in 2028. In terms of employment growth targets, the County Development Plan states that in order to achieve a jobs target ratio of 86%, an additional 4,661 jobs will be required between 2011 and 2028.

In order to assist in achieving these growth targets additional investment in the town’s infrastructure is urgently required.

Water Infrastructure

The County Development Plan recognises that deficiencies in wastewater infrastructure are a barrier to the economic development and that addressing this issue is therefore critical to the success and well-being of County Wicklow residents. The proposed development complies with Objective WI6 with regard to water infrastructure:

“In order to fulfil the objectives of the Core Strategy, Wicklow County Council will work alongside and facilitate the delivery of Irish Water’s Water Services Investment Programme, to ensure that all lands zoned for development are serviced by an adequate wastewater collection and treatment system and in particular, to endeavour to secure the delivery of regional and strategic wastewater schemes. In particular, to support and facilitate the development of a WWTP in Arklow, at an optimal location following detailed technical and environmental assessment and public consultation.”

Compliance with the County Development Plan

The proposed development is compliant with the County Development Plan as it would help create a safe and healthy environment whilst assisting in the protection of its natural resources. It will facilitate in the achievement of the population and employments targets set out for Arklow. The proposed development would also result in the realisation of Objective W16 with regard to the development of a WWTP in Arklow.

Arklow and Environs Local Area Plan 2018 – 2024

The Arklow and Environs Local Area Plan 2018 – 2024 (Arklow LAP) is the land use framework for guiding future development in the settlement of Arklow Town. The Arklow LAP provides for and controls the physical, economic and social development of the settlement in the interests of overall common good and in compliance with environmental controls. The role of the Arklow LAP is to put in place the local framework within which development can occur.

Vision and Strategy for Arklow

Similarly to the County Development Plan, the Arklow LAP contains a vision for the town infrastructure:

“To protect and improve the settlement’s transport, water, waste, energy, communications and maritime infrastructure having regard to our responsibilities regarding the protection of the environment.”

The Arklow LAP also supports the core strategy outlined in the County Development Plan with regard to the need for wastewater treatment to cater for the projected population within Arklow town. The Arklow LAP specifically states (as part of the Infrastructure Strategy for Arklow) that it will seek:

“To facilitate Irish Water in the provision of necessary waste water infrastructure, in a sustainable manner.”

Relevant Objectives

Specific objectives in the Arklow LAP of relevance to the proposed development are identified in Table 1.

Table 1: Arklow LAP objectives of relevance to the proposed development

Objective	Details	Relevance
Waterfront Strategy Objectives		
WZ5	To support and facilitate maritime activity and to encourage new developments that provide for an improved mix of uses including commercial, retail and residential uses and to particularly encourage tourism and leisure related developments.	The Arklow LAP notes that the future development of this WwTP will help to improve the river and beach quality and will in time open up the potential for the enhancement of the recreational and tourism uses in the waterfront
WZ6	To require any new developments in the Waterfront Zone to meet a high standard of design that respects the unique historical, environmental, visual and recreational amenities of the area.	The proposed development aligns with this objective in the Arklow LAP as the high standard of design respects the local area.
WZ7	To support and facilitate the development of new infrastructure necessary for the continued operation and development of the harbour	The proposed development aligns with this objective in the Arklow LAP as it would provide infrastructure that facilitates continued operation and development of the harbour.
WZ10	To ensure that access to the water, such as steps / slipways / river beaches etc. are maintained and improved	Whilst, the structure and resilience of the coastal revetment would be improved as part of the proposed development, access would be restricted as it has been deemed unsafe to use the revetment as a walkway.
Tourism and Recreation Objectives		
TR6	To promote and encourage the recreational use of coastline, rivers and lakes and the development of 'blueways' subject to normal environmental protection and management criteria. Where such recreational uses involve the development of structures or facilities, the Planning Authority will ensure that the proposals will respect the natural amenity and character of the area, listed views and prospects onto and from the area in question. Where possible,	The proposed development will improve water quality in the Avoca River and along the coastline, thus facilitating more recreational use of these areas.

Objective	Details	Relevance
	such structures should be set back an appropriate distance from the actual amenity itself and should not adversely affect the unique sustainable quality of these resources.	
Infrastructure, Transportation and Movement Objectives		
IT1	To support and facilitate the development of a waste water treatment plant in Arklow, at an optimal location following detailed technical and environmental assessment and public consultation.	The proposed development aligns with this objective in the Arklow LAP as it would provide the necessary wastewater treatment plant.
Heritage Objectives		
HT1	To maintain the favourable conservation status of all proposed and future Natural Heritage Areas (NHAs) in the plan area in particular the Arklow Marsh and to support environmentally sensitive measures to enhance the understanding and enjoyment of such natural areas.	The proposed development aligns with this objective in the Arklow LAP as it does not impact on the Arklow Town Marsh pNHA.

Land Use Zoning Objective

The proposed development is located within the 'Waterfront (WZ)' land use zone which is described as:

"To facilitate the provision of high quality new residential developments at appropriate high densities with excellent layout and design, well linked to the existing town centre, community facilities and water amenities. To provide an appropriate mix of house sizes, types and tenures in order to meet household needs and to promote balanced communities. To also facilitate the provision of high quality new commercial, maritime, leisure, tourism and amenity uses at a scale that does not undermine the role of the existing Town Centre. To facilitate the extension and continued use of the existing employment, maritime and port uses within the zone. To facilitate the provision of a new Waste Water Treatment Plant with an appropriate high quality architectural design/appearance."

As outlined in Objective WZ7, new infrastructure is generally supported and to be facilitated within this land use zone. The proposed development would be consistent with the land use zoning and provide the required wastewater treatment in the appropriately zoned area in Arklow town.

Phasing and Implementation

The Arklow LAP contains a phasing schedule linked with necessary investment in infrastructure. The Waterfront Zone is identified as a Priority 1 development area.

Furthermore, the proposed development is identified as a short-term deliverable (3-5 years) in the Implementation and Infrastructure Delivery Schedule Table as it is key to the overall development potential of Arklow town.

5.0 Key Issues

5.1 Need for the Development

Wastewater in Arklow is currently collected and foul flows are discharged (untreated), through 19 existing discrete overflows and/or outfalls to the Avoca River. To ensure compliance with the Urban Waste Water Treatment Directive, it is necessary to appropriately treat wastewater from Arklow, prior to discharge to the river. The proposed development is designed to address this deficiency and provide appropriate wastewater treatment for Arklow town.

The UWWT Directive and the transposing Urban Wastewater Treatment Regulations, 2001, as amended sets standards to be met in the collection and treatment of wastewater as well as the monitoring requirements for wastewater discharges from urban areas. The Directive and the Regulations require that secondary or equivalent treatment is provided for wastewater generated in urban areas such as Arklow.

Furthermore, the Water Framework Directive (WFD) sets objectives to reduce the discharge of pollutants to waters, to prevent deterioration in water quality and achieve 'Good Status' in all waters over time.

The European Commission is currently taking a case against Ireland at the Court of Justice of the European Union (ECJ) for its failure to ensure that urban wastewater in 38 agglomerations (of which Arklow is one such named agglomeration) is adequately collected and treated to prevent serious risks to human health and the environment. Indeed, the referral decision also raises additional concerns about the failure to ensure that a correct operating licence has been issued for the treatment plants serving the agglomerations of Arklow and Castlebridge.

The proposed development would improve water quality in the Avoca River and provide adequate treatment capacity to support further development in Arklow town. All existing outfalls that currently discharge to the Avoca River would be intercepted by a new interceptor sewer network, provided to the north and south of the river channel, and would convey foul flows to the proposed WwTP for treatment. This would eliminate, in so far as possible, the current practice of discharging raw wastewater to the Avoca River.

5.2 Site and Route Selection

In 2014, following its formation under the Water Services Act 2013, Irish Water commenced a new site selection process for the proposed WwTP and associated infrastructure. In commencing this site selection process, the objectives for the proposed development were set out to ensure the selection of a suitable solution in accordance with the project objectives. A summary is provided below and further detail is available in Chapter 3 of the EIAR which accompanies this planning application.

5.2.1 Site Selection

Phase 1

In October 2014, the Phase 1 Site Selection Report was prepared by Byrne Looby PH McCarthy. The study area extent for this report was the boundary for Arklow Town and its environs as set out in the Arklow Town and Environs Plan 2011 - 2017.

The site selection process was predicated on a WwTP with an ultimate capacity of 36,000PE, with a site of at least 2 hectares considered necessary to provide:

- Flexibility in the final selection of the treatment process to be utilised;
- Sufficient space to adequately construct and screen the site; and
- To ensure flexibility regarding purchase of the required land.

Assessment of Environmental Constraints

To identify suitable land parcels within the study area, an initial desk-based assessment of environmental constraints was undertaken to screen out unsuitable sites from further consideration. Environmental constraints under the following headings were identified:

- Biodiversity – designated environmental sites and protected areas of ecological value.
- Cultural Heritage – designated cultural heritage and archaeology sites
- Geology – Geological Heritage Sites
- Water – sensitive waters and designated areas including Salmonid Waters, recreational waters etc.
- Landscape – areas identified as ‘Highly Sensitive Landscapes’ in the Development Plan.
- Sensitive receptors – a 100m buffer zone around known residential receptors and a 50m buffer zone was applied around known commercial receptors. Appropriate buffers were also applied to roads and railway lines.

Once all of these constraints were identified and mapped, an examination of the remaining land areas was undertaken to identify the remaining sites of at least 2 hectares in size. On this basis, a total of 11 land parcels were identified.

Following an assessment of extant permissions one site was excluded on the basis that when agreed buffer zones were applied, the size of the available land became such that it was now of insufficient size to accommodate the proposed WwTP.

Assessment of Site Suitability

Having identified ten land parcels through the initial assessment, the next step was to assess these parcels in terms of their proximity and accessibility to the identified load centre in Arklow town including feasible outfall locations.

The load centre was identified as the point to which all flow gravitates, from the town sewer network.

The proximity of this load centre to the ten sites and the associated energy requirements (if pumping was required) was an important consideration, again, to minimise the need for additional infrastructure, associated capital and operational costs, energy demand etc.

In terms of outfalls, a river outfall was not considered, on the basis that a single point discharge into the Avoca River would not provide sufficient dilution of the effluent (this had been established through previous surveys) as well as the existing conditions (i.e. existing high levels of naturally deposited material in the river channel and the PNHA designation of a large section of the Avoca River).

Other constraints examined included accessibility, proximity to existing services, site topography and existing land use.

Outcome

When these constraints were considered, sites with a greater combined distance from both the load centre and from a coastal location (for a possible marine outfall) were excluded from further consideration.

The phase 1 site selection process therefore determined that three sites were to be taken forward for detailed technical and environmental consideration in the Phase 2 site selection report. These sites were:

- Old Wallboard site at Ferrybank;
- Seabank; and
- Tinahask Upper.

Consultation

Non-statutory public consultation on the Phase 1 site selection process was undertaken by Irish Water over a period of 8 weeks (15 October 2014 - 12 December 2014).

This public consultation period generated a large number of submissions from interested parties and the general public. Specifically, two issues arose which required further consideration:

- Additional lands at the IFI/Shelton Abbey land parcel (i.e. the adjacent old IFI plant site closed in 2000) would be available for a WwTP if required, hence no longer classifying these lands as a 'sensitive receptor' (Note that the IFI site was originally identified as commercial development and hence had the 50m buffer applied); and
- Irish Water should consider discharging treated wastewater into the Avoca River as well as considering a marine outfall.

The Phase 1 assessment was therefore revisited due to this additional information and it was determined that the Shelton Abbey/IFI site should be taken forward for further assessment, given its location in proximity to Avoca River, and the submissions received during the public consultation process.

Further modelling was also undertaken to inform the feasibility of a river outfall. This exercise concluded that a river outfall was a feasible option, albeit that a higher standard of effluent discharge would be required than for a marine outfall.

Updated Phase 1 Site Selection Report

An updated Phase 1 Site Selection Report was prepared in May 2015, taking account of the public consultation submissions received and further information as described above. This report re-evaluated the ten shortlisted sites again with regard to the updated information.

The updated Phase 1 Site Selection Report recommended that the following land parcels were brought forward for further consideration against a range of technical and economic criteria under a Phase 2 Site Assessment:

- Old Wallboard site at Ferrybank;
- Kilbride; and
- Shelton Abbey/IFI.

Phase 2 Site Selection Report

The Phase 2 site selection assessment, prepared in May 2015, brought forward these three shortlisted sites for further assessment.

Multi-Criteria Assessment

The Phase 2 site selection assessment comprised a multi-criteria assessment of the three shortlisted sites, together with interceptor sewer corridors and outfalls, considering a range of technical, economic and environmental criteria as detailed in Table 4.1.

Table 4.1: Technical, economic and environmental criteria considered during the Phase 2 site selection assessment

Environmental Criteria	Technical/Economic Criteria
Ecology	Safety
Cultural Heritage	Planning Policy
Landscape & Visual	Engineering & Design
Hydrology & Hydrogeology	Capital & Operational Costs (including energy)
Soils & Geology	Land Valuation
Traffic	
Air Quality & Odour	
Agriculture & Agronomy	
Noise & Vibration	
People & Communities	

To support this assessment, a number of additional specialist surveys were undertaken including:

- Ground investigation works at the shortlisted brownfield land parcels, where possible;
- Ecological surveys;
- Archaeological surveys; and
- Asbestos surveys.

The Phase 2 site selection assessment was based on a qualitative assessment, whereby competent specialists assessed the three sites under each of the relevant criteria in Table 4.1. This included data collection (based on desktop assessment) and, in some cases, site surveys and invasive site investigation works as well as site visits and 'windshield surveys'.

In comparison to the Kilbride and Shelton Abbey sites, the Old Wallboard site at Ferrybank was considered more favourable under the following impact headings:

- Cultural heritage
- Landscape and visual
- Ecology
- Hydrology
- Hydrogeology
- Agronomy and land use
- Traffic
- Engineering design including carbon emissions, power and maintenance requirements

Public Consultation

A second public consultation phase took place over an 8 week period (15 May 2015 - 10 July 2015), with an updated Phase 2 Site Assessment Report following thereafter based on the submissions received.

In general, the feedback was positive, with many seeing the Old Wallboard site at Ferrybank as a suitable site for locating the WwTP. Some concern was expressed with regard to the proximity of the Old Wallboard site at Ferrybank to nearby lands which have development potential and its prominent position on the waterfront.

Prior to finalising the site selection report, Irish Water also met with An Bord Pleanála as part of the pre-application consultation process

On foot of that meeting Irish Water undertook further consultation with Wicklow County Council Planning Department and the EPA regarding the proposed development.

During pre-application consultation, in respect of 7th Schedule of the Planning and Development Act, 2001 (as amended), An Bord Pleanála identified that planning policy was considered too narrowly in the site selection report, as it did not consider the potential for each of the sites to support the realisation of the County Development Plan Core Strategy targets or the potential to realise some of the specific objectives contained in the Arklow Town and Environs Plan 2011-2017.

Following consultation with Wicklow County Council, it was considered that the development of a WwTP within a 2 ha site on lands zoned WZ 'Water-front Zone: to promote and provide for mix-use development' would not be inconsistent with the objective to realise housing targets set out in the Wicklow County Development Plan 2010- 2016 and the Arklow Town and Environs Plan 2011 – 2017 and would not impede the delivery of the core strategy.

The Phase 2 Site Selection Report was reviewed and the analysis revisited to take into account the specific concerns of the Board, however it is important to note the changes did not affect the conclusion i.e. the Old Wallboard site at Ferrybank remained as the preferred site.

5.2.2 Route Selection

The purpose of the proposed new interceptor sewers is to collect untreated wastewater flows currently discharging directly to the Avoca River and to transport these flows to the proposed WwTP. Given the topography of Arklow and the termination of all outfalls at the river, the areas along the north and south banks of the Avoca River are considered the only viable locations for these sewers.

Avoca River Crossing

Arklow has developed on both sides of the Avoca River and therefore a river crossing to transfer wastewater to a single WwTP would be required. Several alternatives were considered for locating this sewer crossing.

A crossing upstream of Arklow Bridge was ruled out because it would require works in the Arklow Town Marsh pNHA and would also require deeper sewer excavations due its upstream location and distance from the WwTP site.

On the basis that environmental effects would be similar, a proposed interceptor sewer crossing downstream of Arklow Bridge was assessed based on two main criteria, namely the shortest length to cross the river and proximity to the preferred WwTP site. Two locations were identified for further assessment.

- Location 1: Shortest river crossing (Approximately 80m): this is located at a narrow point approximately halfway between Harbour Rd and South Green on the south side, and runs to a location in front of the Marina Village development on the north side.
- Location 2: Crossing (approximately 120m) between Harbour Road and Mill Road with the sewer continuing up Mill Road to enter the WwTP site.

The final selection of the river crossing point location was based on three considerations:

- Extent of sheet piled quay walls;
- Impact of the planned Arklow Flood Relief Scheme; and
- Length of crossing.

The planned Arklow Flood Relief Scheme proposes various measures to prevent future flooding in Arklow, including a proposal to widen the river at its narrowest point. As this is coincident with Location 1, there is potential for design and construction conflicts between the two schemes, particularly where the sewer would cross the proposed re-aligned sheetpiled river wall on the widened section.

Location 2 held an advantage because it minimised the length of deep tunnel required to the WwTP. Hence it was decided that Location 2, despite being a longer river crossing overall, was the preferred location for the crossing.

Outfalls (Long Sea Outfall and SWO at WwTP)

Hydrodynamic and water quality models were prepared to simulate the impacts of the proposed discharges, allow comparisons to be made and suitable discharge standards to be set.

Three offshore discharge locations for the treated effluent outfall (at approximately 400, 650 and 900m from the shoreline), together with a river discharge location (with the harbour mouth chosen for assessment purposes) were considered. The modelling demonstrated that the discharge standards required for a river outfall would be much more onerous than that of a marine outfall. For that reason, the river outfall was not considered further.

Long Sea Outfall

The modelling referenced above also demonstrated that bacterial concentrations were the critical parameter for the marine outfall options and that only the 900m outfall could ensure compliance with the bathing water 'excellent' category during calm and windy conditions. A marine outfall, of approximately 900m in length was therefore selected to ensure compliance.

In addition to the hydrodynamic modelling, a marine site investigation was carried out to further inform the outfall route selection and design process. This ground investigation indicated that ground conditions are sand and gravel over clay, over sand and gravel, over bedrock. The marine site investigation also included an underwater archaeological investigation, to identify any archaeological constraints associated with the outfall route options.

The location of the existing General Electric (GE) sub-sea electricity cable from the Arklow Bank Offshore Wind Park also formed a significant constraint in the location and route of the marine outfall.

The final route of the outfall was chosen in consideration of these constraints.

Storm Water Overflow (SWO) at WwTP

A SWO is required to discharge excess stormwater flows, when the capacity of the WwTP and the stormwater storage tank is exceeded, in accordance with standard practice for WwTP design. The SWO is also required to provide an emergency relief for excess flows in the sewered catchment during extreme rainfall events and during extended power outages. The excess stormwater will be discharged through the SWO, to the Irish Sea.

This SWO needs to discharge flows below water level. This means that the outfall would terminate at the toe of the proposed revetment upgrade to ensure compliance with Irish Water standards.

The positioning and route of this SWO took into consideration the proposed location of the long marine outfall (which was chosen following a dispersion modelling exercise), the location of the existing GE power cable from the Arklow Bank Wind Park and the location of the pump sump and break pressure tank for the excess stormwater flows. This largely dictated the route of the short marine outfall.

The flow that needs to be discharged under design conditions and the required hydraulic profile of the SWO, determine the size of the pipe required. The outcome of the hydraulic modelling has identified the requirements in this regard.

Emergency Overflow - Stormwater Overflows (SWO)

To alleviate flooding in the network system in the event of power failure, pump failure / blockage at the WwTP or the combination of extreme rainfall events and high tide levels, it was considered necessary to provide SWOs within the interceptor sewer network at appropriate locations.

High level emergency overflows would be provided at key points on the interceptor sewer network to alleviate flooding on the network system in the event of either pump failure / blockage at the WwTP or the combination of extreme rainfall events and high tide levels.

During rainfall events, SWOs act as relief valves within the network, allowing excess and heavily diluted foul flows to be discharged directly to receiving waters. This helps protect properties from flooding and prevents wastewater backing up into streets and homes during heavy storm events. New SWOs are proposed at the following locations:

- A SWO at the head of the proposed interceptor sewer on the southern side of the river channel adjacent to 'The Alps'. This SWO would intercept wastewater in this area and provide appropriate storage as well as a new overflow to the Avoca River;
- A SWO at the southern side of the sewer river crossing on South Quay; and
- A SWO at the inlet pumping station at the WWTP.

These act as emergency overflows and their location has been chosen with a view to optimising the hydraulic design of the system and in particular to reduce the need to pump stormwater at the WwTP.

The alternative of omitting these overflows would result in an unacceptable flooding risk in the event of pump outage at the WwTP and also the requirement to pump large volumes of stormwater for exceptional rainfall events that coincide with high tide levels. Accordingly, it is considered that there is no reasonable alternative to providing the proposed SWOs.

5.3 Odour Control

An assessment of potential odour impacts was undertaken by Arup and is included as Chapter 9 of the EIAR.

The generation and dispersion of odorous emissions have been assessed due to the nature and scale of the proposed development. This assessment considers the potential for likely significant odour effects during the operation of the proposed development. There will be no significant odour emission sources during the construction phase and therefore no construction assessment or mitigation is proposed.

Air dispersion modelling of odorous emissions represents a widely accepted method of assessing potential risk of off-site impacts. In order to assess the likely significant effects on the ambient environment during operation of the proposed development, dispersion modelling of odorous emissions has been undertaken.

The closest existing sensitive receptors to the proposed WwTP site are the residential complex known as the Marina Village located approximately 100m to the west of the site and 185m to the north-west of the site. On South Quay, the closest residential receptor to the WwTP is approximately 260m to the south of the site. In addition, the lands adjacent to the WwTP are zoned for Waterfront (WZ), which includes for a mix of residential, commercial, employment, leisure and tourism uses. A number of sensitive receptors are also located within 15m of the interceptor sewers, at River Walk, South Quay and North Quay

There is the potential for odour to be generated from the proposed development during operation due to discharge venting from the emission vent stacks along the interceptor sewer and from the Inlet Works Building and Process building. Detailed air dispersion modelling has been undertaken for the vent stacks using the industry standard Breeze AERMOD software package³. The air dispersion modelling has been undertaken in accordance with the EPA guidance⁴.

The odour control measures have been incorporated as part of the design of the proposed development. The proposed development includes an odour treatment unit (OTU), that would comprise biological and carbon filters and the treated air would discharge through a vent stack on the Inlet Works Building.

The Process building will be sealed and mechanically ventilated and therefore odour treatment is not required. The Process building would be vented via a vent stack on the Process Building.

As outlined above, the existing wastewater network in Arklow discharges untreated wastewater from homes and business to the Avoca River. It has been reported that this existing practise gives rise to a negative odour emanating from the Avoca River^{5,6}.

³ Breeze AERMOD software package – version 1612r, released January 2017.

⁴ EPA (2010) *Air Dispersion Modelling from Industrial Installations Guidance Note (AG4)*

⁵<http://wiclownews.net/2017/05/not-all-sunshine-in-arklow/>

⁶ <https://www.independent.ie/regionals/wicklowpeople/news/residents-fume-at-stinking-river-30470608.html>

The sailing and rowing clubs and the marina have each report problems with smell along the Avoca River.

The detailed odour assessment modelled results shows compliance with the limit values. It is not envisaged that other developments in the area would have any significant odour emission points during construction or operation and therefore, cumulative effects are not anticipated.

No mitigation measures above those inherent design measures are required during the operation of the proposed development with regard to odour. Monitoring will be undertaken continuous monitors to indicate the performance levels of the abatement measures during the operation to verify the effectiveness of odour control measures.

5.4 Landscape and Visual Impacts

A landscape and visual impact assessment was undertaken by Brady Shipman Martin and is included as Chapter 13 of the EIAR. A set of photomontages has also been prepared to support the planning application and are included as part of the EIAR.

5.4.1 Landscape/Townscape and Visual Significance and Sensitivity

Within the planning boundary, there are a number of distinct landscape character areas, including the following:

- The Alps;
- River Walk;
- Arklow Bridge;
- South Quay;
- North Quay;
- The Old Wallboard site; and
- The Revetment.

In relation to the proposed development, significant and sensitive landscape (or townscape) aspects of relevance include:

- The Avoca River corridor within the urban settlement, including its banks, quay walls, tree plantings, memorial garden and other features;
- Arklow Bridge;
- The adjoining urban structure of the town which encloses and fronts the river corridor; and
- The open character of the coastal waterfront, which includes associated maritime and navigation features.

In relation to the proposed development, significant and sensitive visual aspects of relevance include:

- Views along, to and from the river edge, Arklow Bridge and from the Avoca River itself;
- Views to and from the coastal waterfront;
- Views from surrounding residential areas; and

- Views from surrounding footpaths, amenity areas and features.

5.4.2 Assessment of Effects during Construction

Interceptor Sewers and Alps SWO and Stormwater Tank

Effects on Landscape / Townscape Character

A contractor compound will be established within an existing industrial yard and facility to the immediate south of South Dock at Arklow Harbour that is considered low sensitivity. The scale and short term nature of the compound is such that it will have potential for limited visual disruption and to locally slight negative landscape/townscape effects for those within or passing through the South Dock area at Arklow Harbour.

The working areas and construction activities will be localised to different areas around the site in accordance with construction phasing. These will be located within recognised sensitive areas along North Quay and South Quay, Arklow Bridge and River Walk, and have potential to result in locally moderate to significant temporary or short-term effects on landscape/townscape character during construction, especially as a result of the physical disruption that is commonly associated with such construction activity.

North Quay

North Quay is considered to be of moderate landscape/townscape sensitivity.

Construction activity at North Quay has the potential for locally moderate/slight temporary to short term effects on landscape/townscape character during construction.

River Crossing

The northern shaft (TSN6 in working area N12) will be located in the context of mostly derelict industrial lands, and is considered low sensitivity, and has potential for temporary to short term slight negative effects on landscape/townscape character during construction.

The southern shaft (TSS3 in working area S18) will be established on the South Quay at the existing Seafarers Memorial Garden, and also in the context of residential settlements, and therefore is considered to be high sensitivity. Construction activities will include dismantling and storage of the elements of the Seafarers Memorial Garden, and has potential for temporary to short term significant/moderate negative effects on landscape/townscape character during construction.

South Quay

South Quay is considered to be of high landscape/townscape sensitivity.

The residential context is such that the Avoca River to South Green area is considered to be of high sensitivity, and construction has potential for to result in localised temporary to short term, significant/moderate negative effects on landscape/townscape character during construction.

The residential and river context is such that the South Green to Arklow Bridge area is considered to be of high sensitivity, and although construction will be locally temporary to short term, the likely significant effects on landscape/townscape character during construction are considered to be significant/moderate negative.

Arklow Bridge

Arklow Bridge is a protected structure, and is of high sensitivity, and although construction will be locally temporary to short term, likely significant effects on landscape/townscape character during construction are considered to be significant/moderate negative.

River Walk

The mixed-use residential, retail, commercial, town centre and riverine context is such that this area is considered to be of high sensitivity, and although construction will be locally temporary to short term, potential landscape/townscape construction effects are considered to be significant/moderate.

Alps SWO and Stormwater Tank

In the vicinity of the Alps SWO, the hoarding around the working area will adjoin the riverfront walkway. Whereas the existing revetment is disused and overgrown, the vegetation renders it consistent in character with that of the Avoca River. The proposed security fencing and marshalling area behind the fence has the potential for localised temporary negative effects on landscape/townscape character during construction that are significant/moderate in the immediate vicinity.

Effects on Views

River Walk

Upstream of Arklow Bridge, within the river corridor, sensitive views include views along the river bank, to and from Arklow Bridge and the Avoca River, and views from the surrounding residential areas, footpaths and amenity areas.

The open cut nature of the constructing the sewer, together with the associated continuous hoarding around working areas and movement of construction traffic, will result in physical disruption between the Alps and Arklow Bridge, with potential for locally temporary to permanent significant/moderate negative visual effects during construction.

Arklow Bridge

At Arklow Bridge, where the bridge joins South Quay and the proposed sewer is to be constructed under the first arch, the nature and detail of the construction activities has potential for temporary to short term significant/moderate negative visual effects during construction.

South Quay

Downstream of Arklow Bridge, sensitive views include views along the quays, to and from the Arklow Bridge and the Avoca River, and views from the surrounding residential areas, footpaths and amenity areas.

Potential visual effects will arise from localised and continuous working areas and the movement of construction traffic, and will be temporary to short term, and significant/moderate during construction.

North Quay

Potential visual effects will arise from localised working areas and the movement of construction traffic, and will be temporary to short term, and moderate/slight during construction.

WwTP, Outfalls and Revetment**Effects on Landscape / Townscape Character**

The WwTP contractor compound will be established within the WwTP site. The WwTP site is part of an existing wider industrial setting of North Quay and is considered low sensitivity. The scale and short term nature of the compound in this context, and in the context of the South Quay and South Dock on the opposite side of the Avoca River, is such that it will not result in any significant effects on landscape/townscape character during construction.

The most notable change in the character of the site area will result from the gradual demolition of the existing buildings – in particular the stack and the taller portion of the Old Wallboard factory building to the north of the WwTP site which are both quite distinctive from many directions and vantage points within and beyond the town environs. Excavation of the existing coastal revetment and subsequent reconstruction to a higher level will also be noticeable from the coastal walkway to the north of the site, but will not result in any significant effects on landscape/townscape character during construction.

The main construction works will not result in significant effects on landscape/townscape character during construction as such activities are commonplace in coastal, port and industrial settings.

Taken together with the scale and extent of overall development, construction activity, traffic, etc., landscape effects have the potential to be significant and negative at an immediate and more confined local level – particularly from Mill Road, from the more sensitive residential and amenity areas around Arklow Marina (including Marina Village), and to a lesser degree from the coastal walkway to the north and South Quay area where the development area is part of a wider quayside, port and coastal setting. It is noted that all of these areas are already significantly influenced by the nature and scale of existing industrial developments at the eastern end of Ferrybank in the North Quay and Mill Road area.

Effects on Views

The change in views from these areas during construction will be the gradual removal of the existing Old Wallboard factory building, followed by the presence of cranes on the skyline as the new buildings are constructed. As the proposed buildings are only around 60% of the height of the tallest ridge of the existing Old Wallboard ridge, it is anticipated that the new buildings will remain below the skyline of the Marina Village apartment buildings. Potential visual effects in this area will therefore be temporary to short term, slight and not significant during construction.

Downstream of Anchor Mews on South Quay (including the area around the Seafarers Memorial Garden, the harbour and South Pier), the existing Old Wallboard building is generally more visible than upstream as it is only partially screened by a number of industrial buildings and other structures located on North Quay. From this location, construction activity including cranes on the skyline will be more apparent than further upstream, and the new buildings will also be visible on the skyline in a similar but taller manner to the lower portion of the existing Old Wallboard building. Potential visual effects will be temporary to short term, moderate to slight during construction.

Visual effects during construction have the potential to be significant and negative at an immediate and more confined local level – particularly from Mill Road and from the more sensitive residential and amenity areas around Arklow Marina (including Marina Village), and to a lesser degree from the coastal walkway to the north where the WwTP site is part of a wider quayside, port and coastal setting. It is noted that all of these areas are already significantly influenced by the nature and scale of existing industrial developments at the eastern end of the North Quay and Mill Road area.

Cumulative Effects

The proposed Arklow Flood Relief Scheme has also been considered during this assessment. It is likely that the proposed Arklow Flood Relief Scheme, if it proceeds, will include localised additions and modifications to quay walls, river embankments and to hard and soft landscaping. Design coordination between the proposed project and the design of the proposed Arklow Flood Relief Scheme to date is such that the detail of the proposed development anticipates the proposed Arklow Flood Relief Scheme, and that the proposed Arklow Flood Relief Scheme works can build on and be facilitated by the proposed development.

Cumulative construction effects of the proposed Arklow Flood Relief Scheme with the proposed development will not give rise to significant effects on the landscape and visual resource

5.4.3 Assessment of Effects during Operation

During operation, the primary landscape and visual effects will be associated with the presence of the WwTP at Ferrybank as the interceptor sewers are substantially underground and the existing environment will be reinstated to its pre-construction condition, or similar.

Interceptor Sewers and Alps SWO and Stormwater Tank

The interceptor sewer network will be underground and once construction has completed, the existing environment will be mostly reinstated to its pre-construction condition, or similar.

Effects on Landscape / Townscape Character

The interceptor sewers will be underground and within the quay areas along the Avoca River. Upon completion of construction, all working areas impacted by construction activity will be reinstated to the pre-construction condition, including re-planting of trees removed to facilitate construction work. On this basis, likely significant effects on landscape/townscape character have the potential to be locally short term moderate and negative leading to neutral as reinstated vegetation establishes during operation.

The area of the South Quay immediately downstream of Arklow Bridge will be altered in that South Quay will be widened by approximately 6m over a length of around 300m. The widened quayside will be seeded providing a grass verge along this section of South Quay. Effects on landscape/townscape character during operation have the potential to be locally permanent significant/moderate and positive as the quayside is widened and the existing piecemeal quay wall is replaced with a new quay wall of consistent appearance and build quality.

In the immediate vicinity of the Alps SWO and stormwater tank, along its frontage onto the riverfront walkway, the presence of new security fencing has potential locally Significant/Moderate negative effects on landscape/townscape character during operation as the fencing and infrastructure compound would be incongruous with the riverbank setting.

Effects on Views

The effect on views arising from the interceptor sewers, once operational will be short term and negligible as construction areas are reinstated including tree planting, and the quays and riverbank restored to their pre-construction condition.

The new quay wall and widened quayside immediately downstream of Arklow Bridge will have a positive visual effect during operation in rationalising the piecemeal appearance of the existing quay wall and increasing the amenity space on the quay itself.

The security fencing at the Alps SWO compound has potential locally significant/moderate negative visual effects during operation as the fencing and infrastructure compound would be incongruous with the riverbank setting.

WwTP, Outfalls and Revetment

Effects on Landscape / Townscape Character

The WwTP will be a newly constructed element of industrial/infrastructural character within the Ferrybank area that has been traditionally associated with industrial facilities and activity. The WwTP has been designed to be of high architectural quality that is commensurate with the emerging Waterfront character at Ferrybank and along North Quay.

Whilst the WwTP buildings will take the place the long established Old Wallboard building, effects on landscape/townscape character during operation have the potential to be significant and negative at an immediate and more confined local level of the site.

From the wider townscape and coastal areas, the WwTP buildings will be in part substantially lower, and in part somewhat higher than the existing Old Wallboard building. Generally, the proposed development will have a reduced presence on the skyline when viewed from most directions. In particular, the WwTP buildings will have a negligible presence from Arklow Bridge and the upstream areas of South Quay, and will not break the skyline when viewed from the coastal walkway during operation.

Within the locality of the harbour area and South Pier, the proposed development will be more apparent but these areas are already significantly influenced by the nature and scale of existing industrial developments.

The potential effects on landscape/townscape character during operation are considered slight/not significant.

The upgraded revetment will be around 2m higher than the existing revetment, but will otherwise be consistent in character with the existing and will not result in any significant effect on landscape/townscape character during operation.

The sea outfall pipes/long sea outfall and SWO at the WwTP will be within the seabed and will not be visible and thus will not result in any significant effect on landscape/townscape character during operation.

Effects on Views

The visual environment, in the immediate locality of the WwTP site will change with the introduction of new buildings. While the proposed development will extend to a similar footprint as the Old Wallboard buildings, they are substantially lower than the taller part of the existing buildings, and somewhat higher than the lower portions.

As such, the proposed development will generally be less prominent than the existing, but from certain areas, particularly from the downstream parts of South Quay, from the harbour area and from South Pier, the expanse of the building will be more noticeable. The visual effects have potential to range from locally Significant/Moderate to Moderate/Slight during operation.

From with wider townscape, from Arklow Bridge and further upstream, the visual effects have the potential to be Slight/Not Significant during operation.

Cumulative Effects

It is likely that additional mixed use developments will be proposed along North Quay facing the Avoca River; between Arklow Marina and Mill Road; and around the northern parts of Mill Road. Such developments would intensify the built environment of the locality and gradually transform its current derelict and underutilised industrial appearance to a more intensive and active urban environment. While development as anticipated in the Arklow LAP will result in substantial change in the built environment, however, such change is planned, and each individual development will be subject to separate applications for planning, in EIA if appropriate, and environmental effects will be considered in any grants of permission.

The planned Arklow Flood Relief Scheme (FRS) has also been considered during this assessment. It is likely that the FRS, if it proceeds, will include localised additions and modifications to quay walls, river embankments and to hard and soft landscaping. Design coordination between the proposed project and the design of the FRS project to date is such that the FRS works will build on and be facilitated by the proposed development works. As such, cumulative operational effects of the FRS project in combination with the proposed development will be localised along the quays and riverfront, and are not likely to give rise to significant effects on the landscape and visual resource. The Arklow FRS will be subject to its own EIAR in due course.

5.5 Ecological Impacts

Chapter 11 of the EIAR considered the potential effects of the construction and operation of the proposed development on terrestrial and aquatic biodiversity.

As well as reviewing existing information, a number of specialist surveys were carried out to establish the current baseline terrestrial and aquatic biodiversity in the study area. These studies included a terrestrial ecology and habitat survey, invasive species survey, bird surveys, bat surveys and aquatic ecology surveys.

Along with the EIAR, a Natura Impact Statement (NIS) has been prepared, in line with the requirements of the European Union (EU) Habitats Directive to assess the potential impacts of the proposed development on European sites (i.e. Natura 2000 sites), particularly the Buckronev-Brittias Dunes and Fen SAC. This report concludes that, with the implementation of the proposed mitigation, there are no significant impacts on any European sites.

Terrestrial biodiversity within the planning boundary is assessed as being of high local importance upstream of Arklow Bridge, and of low local importance downstream of Arklow Bridge. This is largely due to the presence of natural river banks and mature trees along most of River Walk, these provide feeding habitat for bats.

The Avoca River continues to be one of the most seriously polluted rivers in Ireland due to acid mine drainage at Avoca Mines, and the estuary is also affected by the discharge of untreated wastewater. This limits the diversity of invertebrate species in the estuary and also in the adjoining coastal water. However, the river and estuary continue to support a diverse fish population, and fish that migrate through the estuary as part of their life cycle, include Habitats Directive Annex II listed species Atlantic Salmon, River Lamprey and Sea Lamprey, and the European Eel which is listed as Critically Endangered by the IUCN.

Otter (Habitats Directive Annex II listed species) signs were recorded along the river bank in the study area.

Grey Seals and one Harbour Seal were recorded during bird surveys of coastal waters in Arklow Bay. All Cetaceans (whales, dolphins and porpoises) are listed under Annex IV of the Habitats Directive, species that have been recorded in coastal and marine waters off Arklow include Harbour Porpoise and Bottle-nosed Dolphin, and Common Dolphin, Striped Dolphin, Risso's Dolphin, and Minke Whale – although no cetaceans were seen during site investigation works carried out in coastal waters to inform this proposed development, there is a risk to them during construction, if individual seals or cetaceans were within 500m or 1000m of specific works. Marine mammals rely on sound to navigate, to communicate with one another, and to sense and interpret their surroundings. They can be killed, injured, disturbed, or show behavioural responses by man-made noise in the aquatic environment, and mitigation will be needed to protect them from construction noise in coastal waters.

Bats and breeding birds are vulnerable to injury or fatality during felling of trees and demolition of buildings, and mitigation is required to avoid these risks. A derogation licence for works to a confirmed bat roost at Arklow Bridge has been granted. Mitigation for bats includes provision of bat boxes, lighting design, and the creation of ecological and biodiversity corridors to replace vegetation that will be removed during construction. The mitigation provided for habitats and plants that will be removed during construction aims to implement Objective NH12 of Wicklow County Development Plan 2016-2022, including "To support the protection and enhancement of biodiversity and ecological connectivity within the plan area in accordance with Article 10 of the Habitats Directive, including linear landscape features...". Native species will be sown and planted to create long and short wildflower meadow, and groups and lines of trees, shrubs and climbing plants. Vegetation management and new planting is also required to prevent any spread of existing invasive plant species.

Mitigation is required to protect the aquatic environment and fish from siltation, spillages, entrapment, and other risks during construction works in and adjoining the Avoca River and Estuary. Construction materials may include concrete and cement, and leaks from construction equipment may include fuel, oils, lubricants and hydraulic fluids; these are toxic to aquatic animals.

The commissioning of the proposed development will have positive impacts on aquatic ecology. The removal of the impact of untreated wastewater will result in a change to a more natural community structure, indicative of cleaner waters. This will benefit the aquatic environment and biodiversity generally and will have a positive impact on the status of the river, estuary and coastal waters. Many fish species are also sensitive to reduced water quality, and serious pollution incidents involving substances that reduce dissolved oxygen (such as raw wastewater) can result in fish kills, while chronic exposure to sub-lethal levels of pollutants can impact on overall health and reproduction. Physiological changes required to move between freshwater and seawater mean that certain migratory fish species have to spend some time in the estuarine environment before moving on, which, in the case of the Avoca Estuary, exposes them to elevated pollution levels associated with raw wastewater. The improvement in estuarine water quality that would result from the proposed development would positively impact on the fish species that use the estuary for short or long periods of time.

5.6 Noise and Vibration

An assessment of potential noise and vibration impacts was undertaken by Arup Consulting Engineers and is included as Chapter 10 of the EIAR.

The baseline noise environment was determined by conducting surveys at sensitive locations in the vicinity of the proposed scheme, at three locations in the vicinity of the proposed WwTP site and at five locations in the vicinity of the proposed interceptor sewers.

The results of the survey have indicated that baseline noise levels at all locations assessed are dominated by passing traffic on the local road network. No sources of vibration were noted during the surveys.

During construction, the contractor will take specific noise abatement measures and comply with the recommendations set out in appropriate codes of practice. In addition, specific measures which are prescribed in the Noise and Vibration Management Plan and in the Outline Construction Environmental Management Plan and will be implemented during construction include the following:

- A site representative shall be appointed to be responsible for matters relating to noise and vibration;
- Internal haul routes shall be well maintained and shall avoid steep gradients;
- Plant and vehicles shall be started sequentially rather than all together;
- Construction plant and activities to be employed on site shall be reviewed to ensure that they are the quietest available for the required purpose;
- Generators will be located away from sensitive receivers;
- Where required, improved sound reduction methods, e.g. enclosures shall be used;
- Site equipment should be located away from noise sensitive areas, as much as is feasible;
- Regular and effective maintenance by trained personnel shall be carried out to reduce noise and/or vibration from plant and machinery;
- The provision of a c. 2.4m hoarding around construction works;

- Site activities shall be limited to 7am – 7pm, Monday to Friday; and 8am – 2pm, Saturday. Tunnelling works will be carried out 24 hours a day, 7 days a week. Any working hours outside the normal construction core working hours will be agreed with Wicklow County Council. The planning of such works will have regard to nearby sensitive receptors;
- The contractor shall be required to carry out continuous noise and vibration monitoring at the three closest sensitive receptors to the site works; and
- A Communications Management Plan shall be prepared to provide for effective community liaison to help ensure the smooth running of construction activities and to address any issues that may arise.
- Any requirement for temporary re-housing (based on the threshold value for eligibility) will be confirmed by the contractor in consultation with Irish Water and the affected stakeholder. The determination for such mitigation will be made after detailed construction methodologies, phasing and detailed equipment are known. This information will be presented in the Noise and Vibration Management Plan.

During the construction of the long sea outfall, specific mitigation measures are recommended to mitigate against noise impacts on marine mammals including the appointment of a qualified and experienced marine mammal observer. In addition the Main Contractor(s) shall be required to carry out continuous noise and vibration monitoring at the three closest sensitive receptors to the proposed WwTP and interceptor sewer works during construction.

Compliance with noise limit values in can be achieved at the nearest sensitive receptors to the WwTP site, however noise limit values will be exceeded at the nearest sensitive receptor to the proposed interceptor sewer for some types of works. Residual short-term, slight to significant negative impacts are predicted during the construction of the proposed development. A summary of the residual effects during construction are outlined below:

- WwTP construction - Range from short term imperceptible negative impact to short term moderate negative impact
- Revetment construction - Range from short term slight negative impact to short term significant negative impacts
- Impact of WwTP, Sea Outfall and Revetment construction -Range from short term moderate negative impact to short term significant negative impacts
- Impact assessment for residential receptors – trench works, shaft construction, tunnelling, ground borne noise and airborne noise Short term significant negative impacts
- Interceptor Sewer (Vibration) and Construction Traffic - Short term slight negative impacts
- Sheet Piling (Vibration) - Short term moderate negative impacts
- Arklow Bridge Works - Potential for short term significant effects

During the operation, the relevant noise limits are predicted to be complied with for the proposed development. Following the implementation of design measures to further reduce the operational noise (in the form of enclosures, screens, ducting etc) greater compliance is expected.

5.7 Population and Human Health

An assessment of likely significant effects on population and human health was undertaken by Dr Craig Bullock and Dr Martin Hogan and is included as Chapter 17 of the EIAR.

The assessment of population includes of likely significant effects on:

- Journey patterns
- Amenity
- Accessibility and community severance
- Business, tourism and employment

Human health was assessment in terms of likely significant effects caused by:

- Traffic
- Air Quality
- Odour
- Noise

5.7.1 Construction

The construction of the proposed development, principally the open cut and tunnelling works for the proposed sewers on the quays and the river crossing, will have a negative economic effect on some businesses beside the Avoca River. These include restaurants and cafes that have a degree of dependence on views of the river or parking in the area which will be affected by construction noise and the loss of visual amenity due to the erection of safety hoarding between publicly accessible areas and the works.

Temporary access diversions to some businesses will also be necessary, including the Bridgewater Shopping Centre and businesses on the quays, although the effects of these access arrangements can be mitigated. Pedestrian and vehicle access across Arklow Bridge is also likely to be affected by temporary closures of one lane or footpath and this too will affect access and journey amenity, although access will be maintained.

There will be effects on pedestrian journey amenity in the Alps along the riverside west of Arklow Bridge due to temporary severance arising from the closure of part of Châteaudune Promenade for the duration of the works at this location, although alternative access will be available from Vale Road.

General amenity use of the quays will be affected by construction of the proposed sewers. This will include significant negative temporary direct effects on green space, and in some instances, private land, affronting private residential properties in the vicinity of South Green. The proximity of works and associated noise and temporary loss of views of the river, together with temporary access arrangements, will affect other private residences along the quays including the Marina Apartments. However, following construction, improved footpaths and landscaping will enhance the urban realm along the quays.

Apart from mild annoyance due to traffic disruption and slight impact due to construction noise, significant effects on human health are not likely during construction.

5.7.2 Operation

Once operational, the proposed development will have a profound positive effect at a community level by providing wastewater treatment for Arklow. It will relieve relevant restrictions on new development proposals in Arklow, helping the town to achieve planned population and economic growth. It will also relieve the sense of dereliction that currently applies to the eastern waterfront area and have a positive effect on existing and planned residential development in this area and the locational image of local businesses associated with the town's maritime heritage. It will also improve the environment and water quality for water-based recreation such as sailing and rowing, and for tourism generally.

The aspects of the environment which were identified as having the potential to effect human health during the operation of the proposed development were traffic, air quality, odour and noise. The likely significant effects on human health associated with each of the identified potential effects are considered to be negligible.

5.8 Appropriate Assessment / Natura Impact Statement

A Natura Impact Statement has been prepared to consider the mitigation measures that have been included, following the precautionary principle, for the European site Buckronev – Brittas Dunes and Fen SAC (site code: 000729), with regard to a single attribute supporting the maintenance or restoration of favourable conservation status of the following habitats listed as Qualifying Interests for Buckronev-Brittas Dunes and Fen SAC:

- Annual vegetation of drift lines [1210]
- Perennial vegetation of stony banks [1220]
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410]
- Embryonic shifting dunes [2110]
- Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]
- Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]*
- Atlantic decalcified fixed dunes (*Calluno-Ulicetea*) [2150]*
- Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*) [2170]
- Humid dune slacks [2190],

for which the following attribute can be modified by ex situ as well as in situ effects:

Attribute	Measure	Target
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions

With the implementation of mitigation measures outlined in the NIS, the proposed Arklow WwTP development will not result in direct, indirect or cumulative impacts on the European site Buckronev – Brittas Dunes and Fen SAC (site code: 000729), in respect of the Qualifying Interests listed above.

The Qualifying Interest for Buckronev – Brittas Dunes and Fen SAC Alkaline fens [7230], does not have a potential to be adversely affected by the proposed development.

Arising from the considerations included in the NIS, the following European sites can be excluded from the Zone of Influence of the proposed development, and no impacts direct, indirect or cumulative will arise on:

- Kilpatrick Sandhills SAC (Site Code 001742)
- Magharabeg Dunes SAC (Site Code 001766).

With the implementation of mitigation measures outlined in the NIS, the proposed Arklow WwTP development is considered unlikely to present a risk to cetaceans.

6.0 Conclusions

This is an application for permission for Strategic Infrastructure development consisting of a proposed wastewater treatment plant, interceptor sewers, storm water overflow (SWO) and stormwater storage tank, outfall pipelines and replacement of a section of the existing coastal revetment in the townlands of Arklow, Tinahask Lower and Ferrybank, Arklow Town, Co. Wicklow.

Wastewater in Arklow is currently collected and is discharged (untreated), through 19 existing discrete overflows and/or outfalls into the Avoca River. To ensure compliance with the Urban Waste Water Treatment Directive, it is necessary to appropriately treat wastewater from Arklow, prior to discharge. The proposed development is designed to address this deficiency and provide appropriate wastewater treatment for Arklow town.

The UWWT Directive and the transposing Urban Wastewater Treatment Regulations, 2001, as amended sets standards to be met in the collection and treatment of wastewater as well as the monitoring requirements for wastewater discharges from urban areas. The Directive and the Regulations require that secondary or equivalent treatment is provided for wastewater generated in urban areas such as Arklow.

Furthermore, the Water Framework Directive (WFD) sets objectives to reduce the discharge of pollutants to waters, to prevent deterioration in water quality and achieve 'Good Status' in all waters over time.

The European Commission is currently taking a case against Ireland at the Court of Justice of the European Union (ECJ) for its failure to ensure that urban wastewater in 38 agglomerations (of which Arklow is one such named agglomeration) is adequately collected and treated to prevent serious risks to human health and the environment. Indeed, the referral decision also raises additional concerns about the failure to ensure that a correct operating licence has been issued for the treatment plants serving the agglomerations of Arklow and Castlebridge.

The proposed development would improve water quality in the Avoca River and provide adequate treatment capacity to support further development in Arklow town. All existing outfalls that currently discharge to the Avoca River would be intercepted by a new interceptor sewer network, provided to the north and south of the river channel, and would convey foul flows to the proposed WwTP for treatment. This would eliminate, in so far as possible, the current practice of discharging raw wastewater to the Avoca River.

The proposed development was examined in the context of national, regional and local planning and development policies. In this regard, it is generally in compliance with the following:

- Project Ireland 2040: National Planning Framework
- National Development Plan 2018 – 2027
- National Flood Policy
- Ireland's Transition to a Low Carbon Energy Future 2015-2030

- Irish Water Services Strategic Plan – A Plan for the Future of Water Services (2015-2020)
- Irish Water Business Plan – Transforming Water Services in Ireland to 2021
- National Wastewater Sludge Management Plan
- Regional Planning Guidelines for the Greater Dublin Area 2010 – 2022

It is also compliant with the current statutory Wicklow County Development Plan 2016-2022. It is consistent with the policies and objectives with regard to waste water, in particular objective WI6 which specifically refers to support for a WwTP in Arklow. It is also consistent with the policies and objectives contained in the Arklow and Environs Local Area Plan 2018 – 2024. The proposed development is identified as a short-term deliverable (3-5 years) in the Implementation and Infrastructure Delivery Schedule Table as it is key to the overall development potential of Arklow town.

In light of the foregoing, we look forward to an early and favourable decision from An Bord Pleanála.

Signed



Alan Whelan
Director
O'Connor Whelan