

Irish Water

**Arklow Waste Water Treatment  
Project**

**EIA Scoping Report**

247825/EIA/Sc/REP/2

Issue | 18 October 2017

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 247825-00

**Ove Arup & Partners Ireland Ltd**

**Arup**  
50 Ringsend Road  
Dublin 4  
[www.arup.com](http://www.arup.com)

**ARUP**

# Contents

---

	Page	
<b>1</b>	<b>Introduction</b>	<b>1</b>
	1.1 Overview	1
	1.2 Benefits of the Proposed Development	2
<b>2</b>	<b>Purpose of the Scoping Report</b>	<b>3</b>
	2.1 Overview	3
	2.2 Legislative context	3
<b>3</b>	<b>The Proposed Development</b>	<b>4</b>
	3.1 Overview	4
	3.2 Description of Permanent Works	5
	3.3 Description of the Construction Works (including demolition)	12
	3.4 Integration with the proposed Arklow Flood Relief Scheme	14
	3.5 Environmental Constraints	16
<b>4</b>	<b>Statutory Basis</b>	<b>17</b>
	4.1 Introduction	17
	4.2 The Need for EIA	17
	4.3 Consultation	18
<b>5</b>	<b>EIA Process</b>	<b>19</b>
	5.1 Introduction	19
	5.2 EIA Process	19
	5.3 Scoping	20
	5.4 Rating and Significance of Effects	21
	5.5 Information to be included in an EIA Report	23
<b>6</b>	<b>EIA Report</b>	<b>28</b>
	6.1 Introduction	28
	6.2 Front end chapters	28
	6.3 Assessment chapters	29
	6.4 Additional documents	45
<b>7</b>	<b>Indicative Table of Contents</b>	<b>46</b>
<b>8</b>	<b>References</b>	<b>50</b>

## Tables

Table 1: Description of effects (Source: EPA, 2017)

Table 2: Summary of the proposed scope of the EIA

## Figures

Figure 1: Location of the proposed development

Figure 2: Overview of the proposed development

Figure 3: Indicative site layout at the Waste Water Treatment Plant

Figure 4: Proposed Overlap of the Arklow Flood Relief Scheme and the Proposed Development

Figure 5: Natura 2000 sites in relation to a 15km radius of the proposed development

## Appendices

### Appendix A

List of Consultees

### Appendix B

Indicative drawings

# 1 Introduction

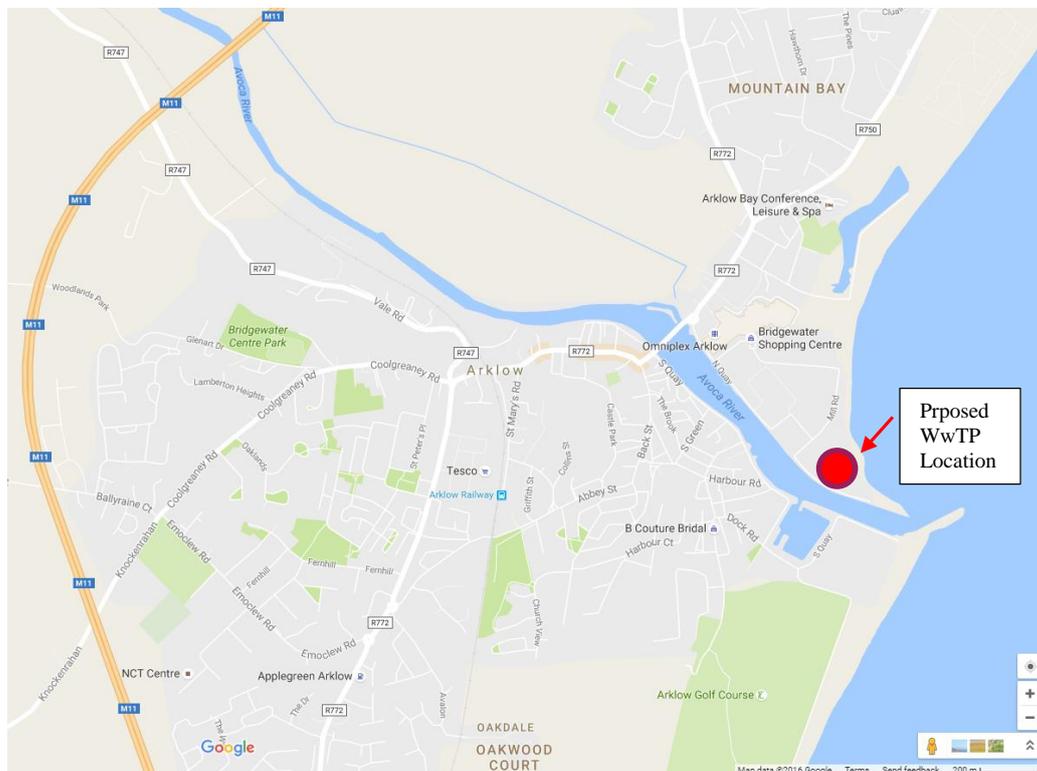
## 1.1 Overview

Irish Water intend to develop the Arklow Waste water Treatment Project at the old Wall Board Factory, North Quay, Ferrybank (refer to Figure 1), hereafter referred to as the proposed development.

The proposed development would comprise the provision of a new Waste water Treatment Plant (WwTP) and associated infrastructure including pumping station and interceptor sewer network. There are currently no waste water treatment facilities in Arklow town. As a result, untreated effluent is being discharged directly into the Avoca River. To rectify this problem the proposed development is being advanced.

The proposed development exceeds the thresholds specified in legislation for which an Environmental Impact Assessment (EIA) is required. To inform the content and scope of the EIA Report an informal scoping exercise is being undertaken.

This scoping report sets out the proposed scope of the EIA and content to be provided as part of the EIA Report in accordance with EU Council Directive 2014/52/EU (the EIA Directive). The EIA Directive sets out the current requirements for member states on the assessment of the effects of certain public and private projects on the environment. It is currently anticipated that the planning application for the proposed development would be submitted to An Bord Pleanála in the first quarter of 2018.



**Figure 1: Location of the proposed development**

The proposed development would comprise the following elements:

- A new WwTP of 36,000 population equivalent;
- Associated infrastructure for the WwTP including an inlet pumping station, a 2,500m<sup>3</sup> storm water storage tank, preliminary and secondary treatment facilities, sludge thickening facilities and site administration facilities;
- Interceptor sewers along North Quay, South Quay and under the Avoca River that would tie in with the existing waste water network and bring the untreated waste water to the WwTP;
- A short sea outfall pipe extending to the edge of the Irish Sea to allow for discharge of storm flows (in excess of the 30 year return period storm) and thus mitigate the risk of flooding; and
- A long sea outfall pipe to safely discharge the treated waste water to the sea.

Further information on the proposed development is included in Section 3 of this report.

## **1.2 Benefits of the Proposed Development**

### **1.2.1 Need for the Proposed Development**

At present, untreated waste water from homes and businesses in Arklow is discharged into the Avoca River. The proposed development aims to provide for the first time, waste water treatment in Arklow through the development of a new WwTP. The proposed development is important in terms of protecting the environment, facilitating economic development and providing for a growing population.

### **1.2.2 Protecting the Environment and Health**

The provision of a WwTP for Arklow is a requirement under both European and National Legislation. The Urban Waste Water Treatment Regulations 2001 (S.I. 254 of 2001) as amended, requires relevant authorities to provide waste water treatment.

In order to comply with Irish statutory regulations and the European Urban Waste Water Treatment Directive, Irish Water intend to develop the proposed development. A sustainable WwTP would bring benefits in terms of health, integrity of the environment and improved water quality.

### **1.2.3 Economic Benefits**

As a result of this proposed development, water quality in the Avoca River in Arklow would improve significantly. Cleaner water would enhance Arklow's amenity value and act as a platform for social and economic development. The proposed development includes the capacity for future growth in the area. The new pipes, pumping stations and WwTP have all been sized to accommodate an increase in the local population. The proposed development would ensure that the water quality standards set down by regulatory bodies will be achieved.

## 2 Purpose of the Scoping Report

---

### 2.1 Overview

The purpose of scoping is to describe the proposed development and outline the level of detail and information to be included in the EIA Report. This report describes the key elements of the proposed development, baseline conditions and sensitivities, identifies likely significant effects and provides an outline of the proposed EIA Report. Feedback is sought from consultees to inform the content and scope of the EIA Report.

### 2.2 Legislative context

This scoping exercise has been undertaken with due regard to the following guidelines:

- Department of the Environment, Community and Local Government (2013) *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment*;
- Department of the Environment, Heritage and Local Government (2003) *Environmental Effect Assessment (EIA) Guidance for Consent Authorities regarding Sub-threshold Development*;
- Department of Housing, Planning, Community and Local Government (2017) *Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licencing Systems*; and
- Department of Housing, Planning, Community and Local Government (2017) *Circular PL 1/2017 - Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive): Advice on the Administrative Provisions in Advance of Transposition*; and
- Environmental Protection Agency (2017) *Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Draft August 2017)*.

Responses to this EIA Scoping should be forwarded by email to [aoibhin.flanagan@arup.com](mailto:aoibhin.flanagan@arup.com) by close of business on 15 November 2017.

Alternatively, you can respond by letter to:

Aoibhin Flanagan,

Arup,

50 Ringsend Road,

Dublin 4

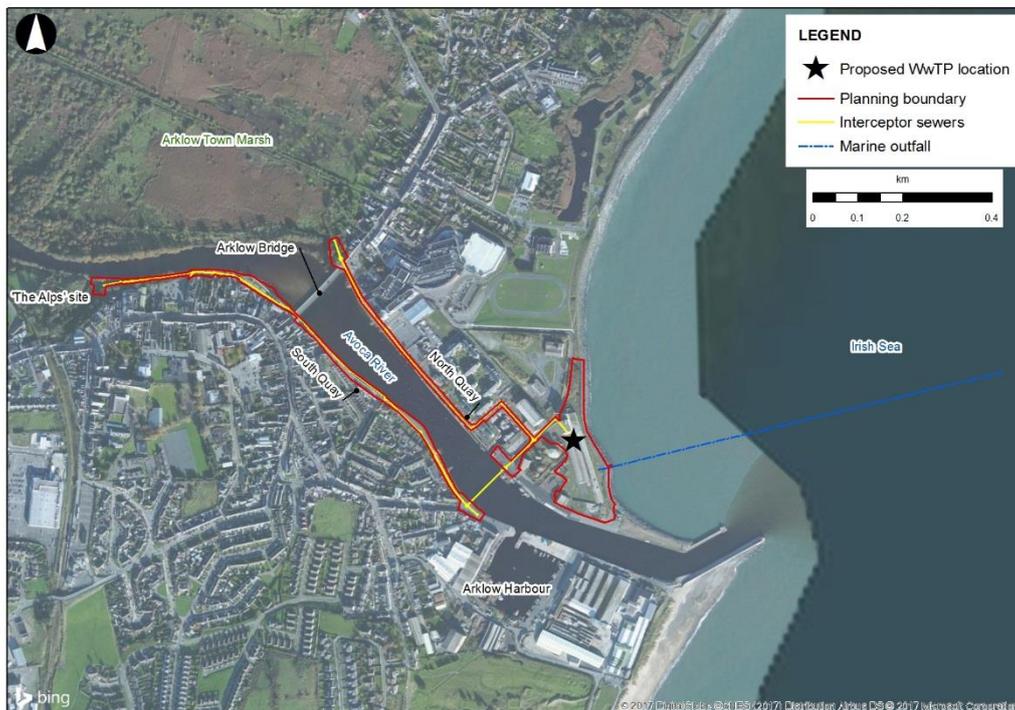
D04 T6X0.

## 3 The Proposed Development

### 3.1 Overview

The proposed development would comprise the provision of a new enclosed WwTP, of 36,000 population equivalent, and associated infrastructure including a combined sewer overflow (CSO) and storm water storage tank at the Alps, pumping station and sewage interceptor pipelines along the North and South Quay to connect to the existing sewer network (refer to the indicative design drawings in Appendix B). These interceptor sewers would be connected to each other by means of a crossing under the Avoca River between Harbour Road and Mill Road. There would also be a small pumping station built at South Dock with a rising main to connect this to the sewer network.

The enclosed WwTP would be located at Ferrybank (as illustrated in Figure 2) and would comprise facilities for preliminary treatment (screening) to remove the coarse items, followed by secondary treatment to remove the fine items and reduce the biological loading and thickening facilities for the sludge. The site would also include storm water storage and a storm overflow. Treated final effluent would be discharged to sea via an outfall 900m long and there would be an additional short outfall of approximately 90m for storm flows. The existing rock armour revetment on site would be upgraded for protection as part of the proposed development (running for 500m on the coastal side of the site, approximately 2m higher than the existing revetment).



**Figure 2: Overview of the proposed development**

## 3.2 Description of Permanent Works

The indicative drawings of permanent works for the proposed development are provided in Appendix B.

### 3.2.1 Alps CSO and Storm Water Storage Tank

The existing combined sewer overflow (CSO), located in the northeast corner of 'the Alps' development site, would be upgraded and associated site works would be undertaken to link with the existing network and provide storm water storage.

The scope of works for this portion of the proposed development include:

- Construction of a new CSO with fine screens. Screenings returned to interceptor sewer;
- Construction of approximately 10m sewer connecting the existing combined sewer and surface water sewer to the proposed CSO;
- Construction of approximately 11m sewer connecting the outlet of the proposed CSO to the proposed interceptor sewer on South Quay;
- Approximately 24m of sewer diversion for the existing Vale Road sewer to the proposed interceptor sewer on South Quay;
- Demolition of approximately 76m of existing sewer;
- Construction of an underground storage tank (approximately 10m x 5.5m);
- Flushing and return pumping system to ensure that settled solids and effluent in the storm tank are returned to sewer after storm event;
- Electrical Supply for above with over ground kiosks; and
- Construction of approximately 3m of sewer for emergency overflow from the proposed storage tank to the existing box culvert (tideflex valve or similar would be provided as part of this sewer).

#### 3.2.1.1 CSO

The existing CSO needs to operate frequently (given the absence of waste water treatment) and hence is currently causing an excessive number of overflow events to the Avoca River. The proposed works would intercept a combined sewer and a storm sewer which conveys some foul connections, and would pass flows through a new CSO. The sewage would be conveyed to the interceptor sewers whilst and the storm components would be diverted via a screen and into an underground storm water storage tank. All screenings would be passed onto the interceptor sewer when the storm has receded and the return flows would be pumped back to the interceptor sewer and onto the WwTP for treatment.

#### 3.2.1.2 Storm Water Storage Tank

A new underground storage tank would be provided for holding storm water flow during flood events. The storm water tank would have a storage volume of approximately 375m<sup>3</sup>.

Modelling will be carried out to ensure that the storm water tank is sized to ensure that there is sufficient storage to ensure that the emergency storm overflow discharges no more than 7 times per bathing season in accordance with Council Directive 91/271/EEC Concerning Urban Waste Water Treatment and the Greater Dublin Drainage Study (McCarthy Hyder MCOS Joint Venture, 2001).

### 3.2.2 Interceptor Sewers

Interceptor sewers would be constructed along the North and South Quays and linked with a connection under the Avoca River. These sewers will intercept existing outfalls of untreated sewage to the Avoca River and convey the untreated sewage to the WwTP for treatment and processing.

The scope of works for this portion of the proposed development includes construction of:

- 1.1km long sewer on the southern side of the river of which approx. 300m will be constructed in the Avoca River with associated road widening on the adjoining river bank;
- Approximately 900m of sewer on the northern side of the river; and
- Approximately 120m of tunnelled sewer under the Avoca River.

#### 3.2.2.1 South Quay

The interceptor sewer on South Quay would commence close to the area known as the Parade Ground, adjacent to the proposed Alps CSO. This section of pipeline would continue south to Arklow Bridge along River Walk.

Immediately upstream of Arklow Bridge, the pipeline would enter the Avoca River and be constructed within the river channel, under the first arch of the bridge (a protected structure) to a point just downstream of South Green.

Adjacent to South Green, the pipeline would join the existing road and continue south to the proposed river crossing at Harbour Road. The pipeline would traverse under the existing road and green space at South Quay along this section to Harbour Road.

Approximately 30m of the pipeline would be constructed to the east of the proposed river crossing to collect flows from the existing foul sewer network in this area.

Following this it is expected that the pipeline would run along South Dock where a rising main will discharge into it. This main will originate at a pumping station at the corner of South Quay and South Dock to service the area east of South Dock, currently in industrial use but proposed for redevelopment and zoned as a waterfront development zone.

#### 3.2.2.2 North Quay

The North Quay interceptor sewer would commence via a manhole on the existing sewer in an area of green space to the rear of the properties on the west side of Ferrybank.

Westwards from this location, a pipeline would be constructed with the first shaft located in the area to the west of Arklow Bridge. The tunnelled section would continue along North Quay to join the river crossing pipeline at Mill Road.

### 3.2.2.3 Avoca River Crossing

The Avoca River Crossing would be a 120m tunnelled pipeline beneath the Avoca River from Harbour Road (on the southern side of the river) to Mill Road (on the northern side of the river). The tunnelled pipeline would then continue along Mill Road on the northern side of the river and enter the site at Ferrybank.

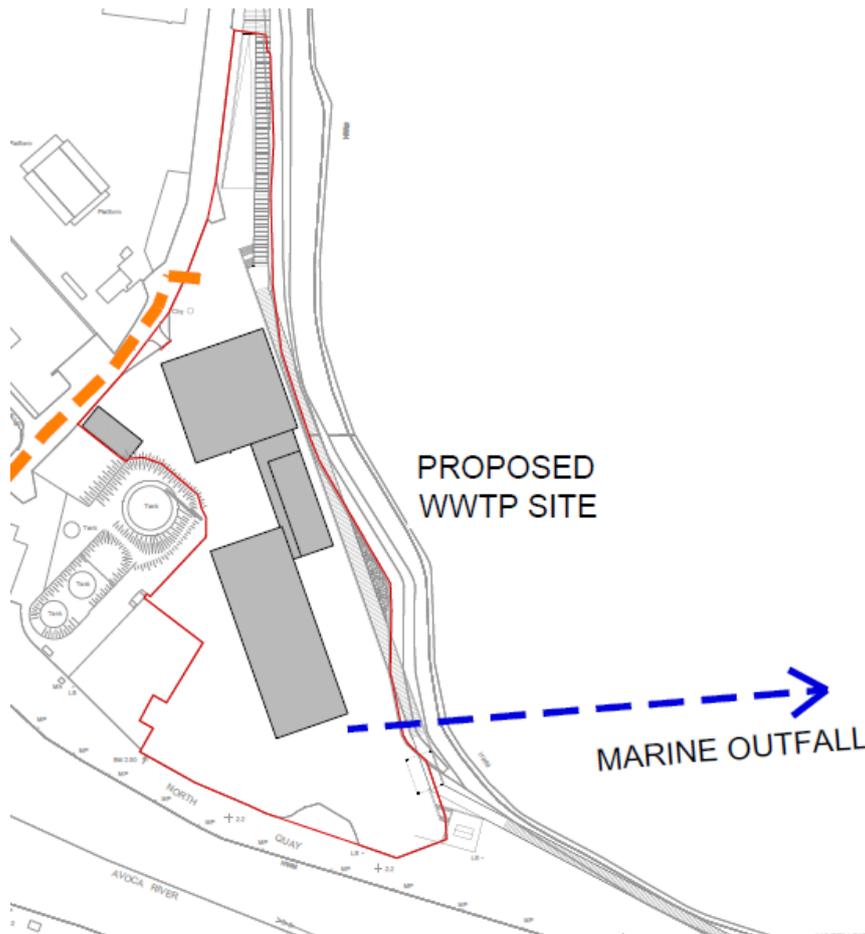
## 3.2.3 Waste Water Treatment Plant

### 3.2.3.1 Overview

The WwTP would comprise the following:

- An inlet lift pumping station for the incoming sewage;
- A pumped overflow main linked to the short outfall to the sea;
- A building enclosing the WwTP;
- Facilities for preliminary and secondary treatment of sewage;
- A long sea outfall;
- A 2,500m<sup>3</sup> storm water storage tank ;
- Sludge thickening facilities; and
- Site control and administration facilities.

An indicative site layout is provided in Figure 3, however the exact massing of the buildings is currently being developed and any material changes to these assumptions will be considered as part of the EIA Report.



**Figure 3: Indicative site layout at the Waste Water Treatment Plant**

### Architecture

The site of the WwTP has a long history of industrial use and is set between the Avoca River and Irish Sea. The buildings that house the WwTP are two compact structures that conceal the yard areas within and facilitate soft landscaping around the perimeter of the site.

The façades would take its design cues from the sites history and is comprised of industrial materials. The façade is modulated and serrated and acts to screen loading bays, cranes, pipe runs, and to shield flood lighting from becoming overbearing. The façade runs past the top of the structures to hide a photovoltaic farm which offsets some of the energy use of the plant.

The design team has engaged in discussions with the planning department of Wicklow County Council.

### Odour control

The building housing the WwTP would be enclosed and design measures would be incorporated to control odour including foul air collection systems, odour control treatment units and treated air venting systems. Foul air from the buildings and process tanks, would be treated prior to emission. Venting would occur in line with current best practice with a combination of direct extraction from tanks and equipment and general room and building venting. Odour control units would be provided to treat foul air extracted from the process buildings in the WwTP.

### 3.2.3.2 WwTP Processes

Waste water would go through a number or combination of treatment stages to meet the discharge criteria. The final detailed process design would be the responsibility of the design-build-operate contractor, but it is anticipated that the following processes would occur at the WwTP:

- Preliminary treatment;
- Secondary treatment;
- Sludge thickening; and
- Sludge disposal.

### 3.2.3.3 Preliminary treatment

Preliminary treatment comprises the initial screening of influent to remove bulky material and prevent clogging within the WwTP. The scope of works for this portion of the proposed development include:

- An inlet lift pumping station (11m deep);
- Coarse (6mm in both directions) influent screens;
- A pumped overflow main linked to the short outfall to the sea;
- Inlet works providing further screening, grit and Fats/Oils/Grease (FOG) removal;
- Screening dewatering presses and conveyors to skips; and
- An approximately 2,500 m<sup>3</sup> storm water tank with overflow connection to the proposed long sea outfall.

#### **Inlet Lift Pumping Station and Storm Overflow**

The tunnelled inlet sewer to the WwTP would enter at approximately 11m below ground level from Mill Road. From this point the sewage would be conveyed to the inlet works via an inlet pumping station. The pumps would transfer influent flows for screening (i.e. preliminary treatment). There would be a pumped storm overflow to ensure that excessive flows do not cause flooding (up to 30 year return period storm). Influent would be screened to 6mm in two directions and large residuals removed at this point and pumped to a short outfall to sea.

#### **Inlet Works and Storm Water Tank**

The sewage would be brought to the inlet works where there would be coarse screening, grit removal, Fats/Oils/Grease (FOG) removal and fine screening. All screenings would be dewatered and transferred to skips for disposal off site. All screening and grit/FOG removal processes would be provided on a duty/standby basis and augmented with a bypass facility as required.

The storm water tank would have a storage volume of approximately 2,500m<sup>3</sup>. Modelling will be carried out to ensure that the storm water tank is sized to ensure that there is sufficient storage to ensure that the emergency storm overflow discharges no more than 7 times per bathing season in accordance with the relevant guidelines. Volumes in excess of this would be discharged to sea via the long outfall.

### 3.2.3.4 Secondary Treatment

As outlined in Section 3.2.3.2, secondary treatment comprises the physical processes to remove settleable solids and biological processes to remove dissolved and suspended organic compounds in order to produce sludge for processing. The scope of works for this portion of the proposed development include:

- Four Sequence Batch Reactors (SBRs); and
- Provision of blowers and associated pipework and electrical supply to serve the SBRs.

#### Sequence Batch Reactors

Following preliminary treatment, flow would be transferred for treatment to the SBRs. The SBRs would consist of four basins that would go through a number of cycles of filling, aeration, settling and decanting per day to treat the sewage.

The SBRs would require provision of blowers and associated pipework for the aeration phase of operation. The provision of decanting in the SBRs will avoid the need for separate final settlement tanks.

### 3.2.3.5 Sludge thickening

As outlined in Section 3.2.3.2, this refers to the thickening of sludge for disposal. The scope of works for this portion of the proposed development include:

- A Waste Activated Sludge (WAS) pump;
- A sludge holding tank;
- A thickened sludge holding tank;
- Provision of dewatering centrifuges; and
- Associated pipework, pumps and electrical supply to serve the sludge thickening facilities.

Waste Activated Sludge (WAS) would be removed from the SBRs and transferred to a sludge holding tank. It would then be thickened to approximately 6% Dry Solids (DS) and transferred to a thickened sludge holding tank. It would be subsequently dewatered in centrifuges to approximately 23% DS and sent to storage units for transport off site and final disposal.

A pumped system would be provided at the sludge holding tanks to return the concentrates (i.e. liquid removed from the thickened sludge) to the treatment stream. All sludge generated would be in accordance with Irish Water's Sludge Management standards.

### 3.2.3.6 Sludge Disposal

Once processed, the sludge would be stored on site until removed and disposed of by a licensed operator off site. The scope of works for this portion of the proposed development include:

- Dewatered sludge holding facilities; and
- Dewatered sludge collection and loading area.

Dewatered sludge holding facilities would be provided and collection/loading areas would be provided to facilitate efficient removal and disposal off site. This dewatered sludge would be collected and transported to the County Wicklow's sludge hub (at Wicklow Town) for further treatment, in accordance with the Irish Water Sludge Management Plan. It is anticipated that the WwTP would have the capacity to receive liquid sludge from other small plants for dewatering prior to forwarding to the County hub at Wicklow town.

### 3.2.3.7 Site Facilities

Additional facilities would be provided on site to support day-to-day operations and provide a secure perimeter around the WwTP. Few staff are likely to be required on site during operation and it is anticipated that fewer than ten staff would be working on site. The scope of works for this portion of the proposed development include:

- Administration and control building;
- Provision of a boundary wall, railings and entrance gates;
- Construction of internal site roads, paths and service pipelines; and
- Soft and hard landscaping.

The site of the proposed development would include control, administration and welfare facilities. These would include control rooms, canteen facilities, recreational rooms, toilets, showers, laboratories and electrical rooms to support the day-to-day WwTP operations.

Normal site services and ancillary works would include the provision of power connections to the existing grid, access roads, site drainage, connections to the local distribution system, the provision of lighting and landscaping on site. All site administration and incidental facilities and ancillary works provided as part of the proposed development would be undertaken within the site.

The site would be accessed via the Mill Road which is an existing local road that connects to the existing road network in the wider area. The site would have a security gate and secured walls and railings around the site to prevent trespassing.

The existing revetment bounding the north-east of the site (approximately 500 m) would be upgraded. The existing revetment is in need of repair and does not meet current best-practise guidelines for protection of the site. This upgrade would involve raising the height of the revetment by 2m and increasing the rock armour to 3-6 tonne grading.

## 3.2.4 Outfalls

### 3.2.4.1 Long Sea Outfall

The long sea outfall would be 900m in length and would carry treated final effluent plus screened overflows from the storm water tank on site. The sea outfall would discharge via a diffuser system at the end of the outfall pipe in the Irish Sea. There would be a balancing tank at the plant to allow for tidal variations at the outlet.

### 3.2.4.2 Short Sea Outfall

The short sea outfall would extend for approximately 90m and carry storm flows from the storm water overflow at the Inlet Lift Pumping Station. It would be fitted with flap valves/non-return valves to prevent seawater ingress.

## 3.3 Description of the Construction Works (including demolition)

### 3.3.1 Overview

The following section describes the current assumptions on construction aspects of relevance for EIA scoping. Details on construction phasing and proposed methodologies are currently being developed and any material changes to these assumptions will be considered as part of the EIA Report.

It is anticipated that the contractor(s) would establish the detailed construction methodologies upon appointment and develop a Construction Environmental Management Plan that would set out the principles and control procedures to manage any likely significant effects.

### 3.3.2 Indicative Methodology

The following sections provides an overview of the indicative construction works that are likely to be required to support the proposed development.

#### 3.3.2.1 Alps CSO and Storm Water Storage Tank

The works to construct the CSO and storage tank at the Alps development site would occur on private property. This portion of works would occur at the upstream end of the interceptor sewer on South Quay adjacent to the south river bank of the Avoca River. Works would comprise the construction and diversion of sewers, the construction of the storm water storage tank and minor mechanical, electrical, instrumentation, controls and automation (MEICA) works with overground kiosks.

These works would likely be completed either in advance of or in conjunction with the interceptor sewer works.

#### 3.3.2.2 Interceptor Sewers

These works are mainly located on public roads and comprise the following:

- Construction of the 900m interceptor sewer on North Quay;
- Construction of the 1.1km interceptor sewer on South Quay (of which approximately 300m will be constructed in the river channel);
- Construction of the 120m tunnelled Avoca River crossing; and
- Integration with the proposed Flood Relief Scheme (FRS) on South Quay.

The bulk of the interceptor sewers would be constructed by trenchless techniques as outlined by the following:

- The interceptor sewer along River Walk would be constructed by open cut techniques;
- The interceptor sewer in the river channel would be laid in the void between the existing quay wall and a new quay wall constructed as part of the proposed development;
- The interceptor along South Quay would be constructed either by tunnelling or open cut techniques;
- The interceptor sewer to the east of the proposed river crossing and the portion of the network serving South Dock would be constructed by open cut techniques;
- The proposed river crossing would be tunnelled for 120m;
- The interceptor sewer on the west side of Ferrybank would be constructed by open cut techniques; and
- The remainder of the interceptor sewer to the west of the green space at Ferrybank would be tunnelled.

Temporary access and reception shafts for tunnelling equipment would be formed with sheetpiled walls or caisson shafts. It is anticipated that the pipelines in the river channel would be constructed using sheetpiled cofferdams.

These works would be completed either in advance of or in conjunction with the WwTP works.

### 3.3.2.3 Site Demolition

The Old Wall Board Factory at the Ferrybank site would require demolition and the removal of contaminated material (including asbestos). Additionally, all hard standing would be removed from the site.

The handling and removal asbestos would be undertaken by a registered company in accordance with legislative obligations. All elements of the existing building would also be made safe prior to demolition works..

Initially the external area would be cleared of all asbestos, debris and rubbish. The buildings would then be made safe using various propping and temporary supports (as required). The ground floors of the buildings would be cleared of all fallen materials, loose asbestos, debris and rubbish.

Following this, the asbestos sheeting would be taken down sheet by sheet, stacked and removed to a licensed disposal site. Once the asbestos sheeting has been removed the remaining buildings and structures would be dismantled down to the underside of the ground floor slab including the existing chimney stack. All demolition materials would be cleared, loaded into trucks and removed to licenced treatment facilities.

Then the existing hard standing, comprising tarmacadam and concrete hardcore paving, would be broken up and removed.

These works would be completed in advance of the capping and ground remediation works and construction of the WwTP at Ferrybank.

### 3.3.2.4 Site Capping and Remediation

Historic site investigations indicate the presence of contaminated ground at the site of the Old Wallboard Factory and on adjacent lands at Ferrybank. Subject to a risk assessment of contamination, it is anticipated that extensive capping and possible removal of contaminated material may be required.

These works would be completed after the demolition of the existing buildings and in advance of the construction of the WwTP.

### 3.3.2.5 WwTP

The construction of the WwTP would be undertaken using standard, land based construction methods (subject to detailed design). Site access would be via Mill Road and all works would be undertaken within the site boundary.

These works would be completed in conjunction with or after the interceptor sewers works.

### 3.3.2.6 Rock Armour Revetment Replacement

The replacement of the Rock Armour Revetment would provide coastal protection on site. Subject to detailed design, works envisaged comprise the replacement of 500m of the existing rock armour revetment adjacent to the site.

These works would be completed either in advance of or in conjunction with the WwTP works.

### 3.3.2.7 Marine Outfalls

The construction of the marine outfalls is subject to further discussion. At this stage, it is anticipated that the interceptor sewers would be constructed using open cut and trenching techniques.

These works would be completed either in advance of or in conjunction with the WwTP works.

## 3.4 Integration with the proposed Arklow Flood Relief Scheme

### 3.4.1 Background

Wicklow County Council in combination with the Office of Public Works (OPW) propose to undertake the development of the Arklow Flood Relief Scheme (FRS) which is currently being designed.

Arklow Town is located at the mouth of the Avoca River which flows from the Wicklow Mountains in the north-west before discharging into the Irish Sea. The town has experienced recurrent flooding events that have caused widespread damage to properties and material assets along the banks of the Avoca River. Arklow Town is at risk from both fluvial flooding from the Avoca River and tidal flooding via the harbour mouth and the Avoca estuary. Heavy storms in 1986,

1989, 2000, and 2004 caused severe flooding in the town, primarily in Lower Main Street, South Quay and Ferrybank.

The FRS would be undertaken along the Avoca River to alleviate future flooding in Arklow Town. The FRS would provide direct flood defences as well as conveyance measures in the river channel to improve flows and landside works as outlined below:

- Flood defence walls would be provided along River Walk and South Quay;
- The river channel would be widened downstream of Arklow Bridge (at South Quay);
- Dredging would be undertaken upstream and downstream to deepen the river channel;
- A debris/gravel trap would be constructed in the river channel upstream of the Arklow Bridge;
- The floor of the Arklow Bridge would be lowered by 1m and the bridge piers and abutments would be underpinned to improve the integrity of the Arklow Bridge;
- Scour protection would be provided at Arklow Bridge to prevent any impacts on the riverbed due to the force of water; and
- A new flood embankment would be provided on the north side of the river channel upstream of the Arklow Bridge to prevent ingress of flood water.

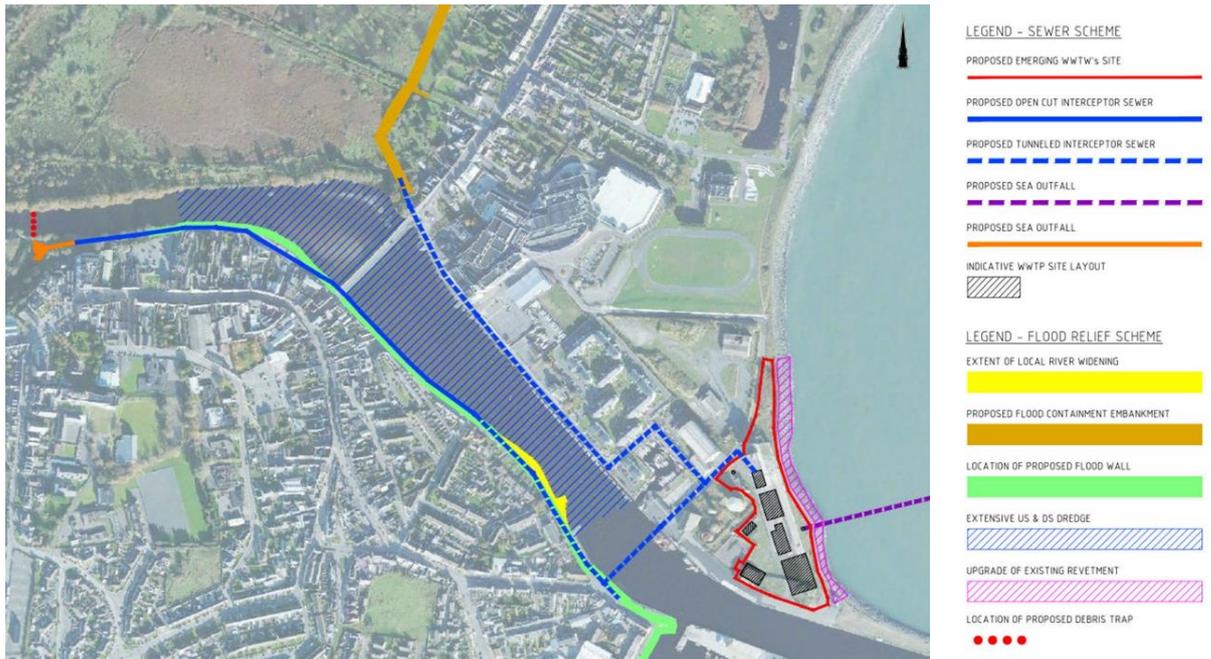
The phasing of the FRS would commence with the conveyance measures in the river channel, followed by the land based works upstream of the Arklow Bridge and finally by land based works downstream.

### 3.4.2 Outline of potential integration of the schemes

Design of the FRS is ongoing and the FRS is subject to a separate planning application (and EIA Report). However, there are some elements of overlap that will be considered as part of the cumulative assessment for the proposed development.

There is a potential interface between the FRS and the proposed development including a geographical overlap along South Quay and River Walk..

Figure 4 provides an outline of the potential overlap of both schemes. The FRS would be considered as part of the assessment of cumulative effects in the EIA Report.



**Figure 4: Proposed Overlap of the Arklow Flood Relief Scheme and the Proposed Development**

Whilst the full extent of the FRS works and integration between the two schemes has yet to be finalised, this would likely include some overlapping elements such as retaining walls, surface water drainage, river widening, bridge underpinning, scour protection, debris traps and dredging. Such works would be confined mainly to South Quay and the riverbank area as illustrated in Figure 4.

The extent of integrated works would depend on the timing of the planning consent and commencement of construction for both schemes and the need to ensure that overlapping elements not exacerbate flooding in the short term.

### 3.5 Environmental Constraints

There are a number of environmental constraints relating to the proposed development that would be taken into account in the preparation of the EIA Report. These include, but are not limited to the following:

- Residential receptors in close proximity to the site;
- Interested third parties who currently use the Avoca River and bay for leisure activities, namely sailing, canoeing etc;
- There are three Special Areas of Conservation (SAC) (i.e. European designated sites) within 15km of the proposed development including Buckronev-Brittas Dunes and Fen SAC (located approximately 5km to the north), Kilpatrick Sandhills SAC (located approximately 6.5km south) and the Magherabeg Dunes SAC (approximately 15km to the north). These sites are also designated as proposed Natural Heritage Areas (pNHAs) (nationally designated sites);
- There are six other pNHAs within 15km of the site, three of which are within 2km of the site, namely Arklow Town Marsh to the west, Arklow Sand Dunes to the north and Arklow Rock-Askintinny to the south; and

- The Avoca River adjoins and extends into the site. The river is seriously polluted due to contamination from raw sewage and historical mining and chemical industries.

## 4 Statutory Basis

---

### 4.1 Introduction

A European Directive for EIA has been in force since 1985 since the adoption of Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment.

The EIA Directive of 1985 has been amended three times by Council Directives 97/11/EC, 2003/35/EC and 2009/31/EC. It was ultimately codified and repealed by Council Directive 2011/92/EU on 13 December 2011. This Directive was further amended in 2014 by Council Directive 2014/52/EU which sets out the current requirements for member states on the assessment of the effects of certain public and private projects on the environment.

The EIA Directive, requires the competent authority to consider and take account of the EIA of certain public and private projects that are likely to have significant effects on the environment as part of the consent decision making process.

In Ireland, the requirements for EIA in relation to planning consents are specified in Part X of the Planning and Development Act, 2000, as amended and in Part 10 of the Planning and Development Regulations, 2001, as amended. At the time of preparation of this scoping report, the EIA Directive has not been transposed into Irish legislation and the criteria outlined in the guidance are based on the older EIA Directive (2011/92/EU).

In accordance with the Department of Housing, Planning, Community and Local Government Circular distributed in May 2017, this scoping report has prioritised the requirements of the EIA Directive and draft guidance published in 2017 from the EPA and the Department of Housing, Planning and Local Government (rather than older Irish guidance) in advance of transposition into Irish legislation.

### 4.2 The Need for EIA

The EIA Directive sets out the requirements for the EIA process, including the need for undertaking an EIA for development proposals. Projects listed in Annex I of the EIA Directive require a mandatory EIA whilst projects listed in Annex II require screening to determine as to whether an EIA is required. The proposed development does not require a mandatory EIA under the provisions of Annex I of the EIA Directive, but meets the criteria outlined in Part 11(c) in Annex II (which identifies waste water treatment plants of this nature). As such, Irish legislation and guidance is pertinent for determining the need for an EIA to support the planning application for the proposed development.

The provisions of Part 2, Section 37A of the Planning and Development (Strategic Infrastructure) Act, 2006, require an application for infrastructure that meets the criteria specified in the Seventh Schedule and conditions set out in Section 37A(2) of the Act, to be made directly to An Bord Pleanála rather than the local planning authority. The Seventh Schedule of the Planning and Development (Strategic

Infrastructure) Act, 2006 states the following, under the heading ‘Environmental Infrastructure’.

*“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/EEC”.*

Pre-application discussions with An Bord Pleanála have commenced and it is anticipated that An Bord Pleanála will notify Wicklow County Council (in accordance with Section 37B(4)(a) of the Act) that the proposed development is of a class specified in the Seventh Schedule to the Act and falls within one of the paragraphs of Section 37A(2) of the Planning and Development (Strategic Infrastructure) Act, 2006. Accordingly, the application for permission for the proposed development would be to An Bord Pleanála and not to Wicklow County Council.

Section 37E (1) of the Planning and Development (Strategic Infrastructure) Act, 2006 states that:

*“An application for permission for development in respect of which a notice has been served under section 37B(4)(a) shall be made to the Board and shall be accompanied by an environmental impact statement in respect of the proposed development.”*

The preparation of an EIA Report (referred to as an Environmental Impact Statement in the Act) is therefore required for the proposed development.

### 4.3 Consultation

A variety of third parties will be consulted throughout the EIA process and scheme design process for the proposed development. This will include key stakeholders including relevant statutory bodies as well as utility/service providers and those in proximity to the proposed development.

A list of the bodies being consulted as part of this scoping exercise is provided in Appendix A. This will facilitate the determination of significant issues and agreements on the acceptability of likely significant effects.

Public consultation for the proposed development took place from October to December 2014 as part of the first phase of the site selection process. A second phase of consultation took place between May – July 2015 on progress made on the site selection process.

It is intended that additional public consultation will take place as part of the design development and EIA processes. Specifically, this scoping report and the EIA Report will be subject to consultation with those bodies outlined in Appendix A.

It has been determined that transboundary consultation will not be required for the purpose of the EIA given the nature and scale of the proposed development.

## 5 EIA Process

---

### 5.1 Introduction

Article 1(2g) of the 2014 EIA Directive outlines that:

*“environmental impact assessment” means a process consisting of:*

- (i) the preparation of an environmental impact assessment report by the developer, as referred to in Article 5(1) and (2);*
- (ii) the carrying out of consultations as referred to in Article 6 and, where relevant, Article 7;*
- (iii) the examination by the competent authority of the information presented in the environmental impact assessment report and any supplementary information provided, where necessary, by the developer in accordance with Article 5(3), and any relevant information received through the consultations under Articles 6 and 7;*
- (iv) the reasoned conclusion by the competent authority on the significant effects of the project on the environment, taking into account the results of the examination referred to in point (iii) and, where appropriate, its own supplementary examination; and*
- (v) the integration of the competent authority's reasoned conclusion into any of the decisions referred to in Article 8a.”*

For the purpose of the EIA, Irish Water are the ‘developers’ proposing the Arklow Waste water Treatment Project and An Bord Pleanála is the ‘competent authority’ that would undertake the EIA and decide whether to grant consent for the proposed development.

### 5.2 EIA Process

EIA supports the decision-making process as it is integrated into consenting processes for new development projects. This helps to ensure that consent decisions are made in knowledge of the environmental consequences of the project. The principal elements of the EIA process can be described as follows:

- **Screening** – deciding whether an EIA is required to be undertaken for the proposed development;
- **Scoping** – determining the issues to be considered as part of the EIA, further issues identified by consultees and the availability of data. The scoping report provides consultees with information on the proposed development and details level of detail and content to be covered as part of the EIA Report so that they may provide comments/input to the final scope and content of the EIA Report;
- **Consideration of alternatives** – considering the reasonable alternatives studied by the developer (in terms of design, technology, location, size and scale) and indicating the reasons for selecting the chosen option;
- **Determination of baseline conditions** – determining the existing conditions against which the likely environmental effects of the proposed development will be evaluated;

- **Description of the proposed development** – outlining the relevant information on the site, design and other relevant features of the proposed development required to support the EIA;
- **Identification and assessments of effects** – an iterative process whereby the significance of likely effects is determined;
- **Monitoring and Mitigation** – description of the relevant mitigation measures envisaged to avoid, prevent and reduce significant adverse effects and a description of proposed monitoring arrangements;
- **Reporting** – the findings of the assessment are reported and published in an EIA Report which is submitted to An Bord Pleanála as part of the application for planning permission;
- **Scrutiny** – An Bord Pleanála (as the competent authority) will consider the proposed development (and associated EIA Report) to determine whether the proposed development should be granted consent; and
- **Enforcement and monitoring** - If consent has been granted, then the developer is obliged to adhere to the measures and commitments contained in the EIA Report, as modified by any conditions attached to the consent.

As described in Section 4.2, an EIA Report is required for the proposed development as it meets the criteria specified in the Seventh Schedule of the Planning and Development (Strategic Infrastructure) Act, 2006 and conditions set out in Section 37A(2) of the Act. Therefore, EIA screening was not required for the proposed development.

### 5.3 Scoping

As outlined in Section 2, the purpose of the scoping process is to establish the content, and extent of the aspects to be covered in the EIA Report. Scoping comprises the initial collation of information on proposals and determination of the potential or likely significant effects to determine the appropriate level and detail of assessment required to support the EIA Report.

The draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2017) state that the scoping process should focus effort and resources on key significant issues that are guided by the following criteria:

- Use of likelihood and significance as the principal criteria for determining what environmental aspects need to be considered and addressed in the EIA;
- Consider precedence to ensure any EIA Reports for similar projects on similar sites are used to develop an appropriate technical scope and robust assessment; and
- Recognise potential direct and indirect interactions that may magnify effects and/or give rise to cumulative significant effects (from multiple non-significant effects).

This scoping report provides an overview of the likely significant environmental effects that may arise from the proposed development and describes the methods which will be used to evaluate them as part of the EIA. Consequently, this scoping report includes information on the following:

- Information and studies needed to characterise the existing environment;
- Methods used to predict the magnitude of environmental effect where applicable;
- Criteria against which the significance of effects will be evaluated;
- Consultations to be carried out (see above); and
- The envisaged structure and content of the EIA Report.

## 5.4 Rating and Significance of Effects

Section 3.7 of the draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2017) outlines that the EIA Report should focus on likely, significant effects and descriptions of effects that are accurate and credible.

Likely effects are considered to be those which are planned to take place and those which can be reasonably foreseen to be inevitable consequences of normal construction and operation of the proposed development. Significance of effects is understood to mean the importance of the outcome of the effect (i.e. consequence of change) and it determined by a combination of objective (scientific, often quantitative) and subjective (social, often qualitative) concerns.

The factors outlined in Table 1 are therefore considered when determining likely significant effects of the proposed development on environmental aspects.

**Table 1: Description of effects (Source: EPA, 2017)**

Nature	Description	Definition
Quality of effects	Positive effect	A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities)
	Neutral effect	No effect(s) and/or effects that are imperceptible within normal bounds of variation or within margin of forecasting error
	Negative effect	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance)
Significance of effects	Imperceptible	An effect capable of measurement but without significant consequences
	Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences
	Slight effect	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
	Moderate effect	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends
	Significant effect	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment

	Very significant effect	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment
	Profound effect	An effect which obliterates sensitive characteristics
Extent and Context of effects	Extent	Describe the size of the area, the number of sites, and the proportion of a population affected by an effect
	Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
Probability of effects	Likely effect	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented
	Unlikely effect	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented
Duration and Frequency of effects	Momentary effect	Effect lasting from seconds to minutes
	Brief effect	Effect lasting less than a day
	Temporary effect	Effect lasting less than one year
	Short-term effect	Effect lasting one to seven years
	Medium-term effect	Effect lasting seven to fifteen years
	Long-term effect	Effect lasting fifteen to sixty years
	Permanent effect	Effect lasting over sixty years
	Reversible effect	Effects that can be undone, for example through remediation or restoration
	Frequency of effects	Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)
Type of effects	Indirect effect	Impacts on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway
	Cumulative effect	The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects
	Do-nothing effect	The environment as it would be in the future should the subject project not be carried out
	Worst-case effect	The effects arising from a project in the case where mitigation measures substantially fail
	Indeterminable effect	When the full consequences of a change in the environment cannot be described
	Irreversible effect	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost
	Residual effect	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic effect	Where the resultant effect is of greater significance than the sum of its constituents, (e.g. combination of SO <sub>x</sub> and NO <sub>x</sub> to produce smog)

## 5.5 Information to be included in an EIA Report

An EIA Report is best defined as “a statement of the effects, if any, which the proposed development, if carried out, would have on the environment” (EPA, 2017). As outlined in Article 5(3)(a) of the EIA Directive, the EIA Report must be prepared by competent experts. Annex IV of the EIA Directive identifies that the following information must be provided in an EIA Report:

“1. Description of the project, including in particular:

- a) a description of the location of the project;
- b) a description of the physical characteristics of the whole project, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;
- c) a description of the main characteristics of the operational phase of the project (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;
- d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases.

2. A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.

3. A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.

4. A description of the factors specified in Article 3(1) likely to be significantly affected by the project: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.

5. A description of the likely significant effects of the project on the environment resulting from, *inter alia*:

- a) the construction and existence of the project, including, where relevant, demolition works;
- b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;

- c) *the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;*
- d) *the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);*
- e) *the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;*
- f) *the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;*
- g) *the technologies and the substances used.*

*The description of the likely significant effects on the factors specified in Article 3(1) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the project. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project.*

*6. A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.*

*7. A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.*

*8. A description of the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council (\*) or Council Directive 2009/71/Euratom (\*\*) or relevant assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.*

*9. A non-technical summary of the information provided under points 1 to 8.*

*10. A reference list detailing the sources used for the descriptions and assessments included in the report.*

In August 2017, the EPA published the latest version of the draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports

(EPA, 2017). The draft EPA Guidelines are currently in draft format, pending the transposition of the EIA Directive into national legislation. Section 4 of these Guidelines outlines the information to be presented in an EIA Report as follows:

*“To assist assessment and increase clarity and the systematic organisation of information in an EIAR; it is good practice to separately describe the:*

- i) key alternatives considered*
- ii) proposed project*
- iii) receiving environment*
- iv) likely significant effects*
- v) mitigation and monitoring measures and*
- vi) residual effects.*

*A non-technical summary must also be provided.*

*The receiving environment and the effects of the project are explained by reference to its possible effects on a series of environmental factors:*

- *Population and Human Health*
- *Biodiversity*
- *Land & Soils*
- *Water*
- *Air*
- *Climate*
- *Material Assets*
- *Cultural Heritage*
- *Landscape*
- *Interactions.”*

Table 2 presents an overview of the proposed scope of the EIA and the aspects that will be considered in the EIA Report and conclusions of whether significant effects are considered likely and require assessment. Further detail on the proposed scope of the assessments is provided in Section 6.3.

**Table 2: Summary of the proposed scope of the EIA**

<b>Environmental aspect</b>	<b>Scoped in/out</b>	<b>Justification</b>
Traffic and transportation	In	Construction activities and the generation of additional vehicle movements during construction and operation has the potential to impact on existing traffic and transportation.
Air quality and climate	In	Demolition, construction activities, traffic and operational processes have the potential to give rise to air quality impacts. Given the nature and scale of the proposed development, significant effects on climate or carbon emissions are unlikely.
Odour	In	Demolition, construction activities and operational processes have the potential to be odorous.
Noise and vibration	In	Demolition, construction activities and construction and operational traffic and operational processes have the potential to generate noise and vibration.
Biodiversity (Terrestrial and marine)	In	The construction and operation of the proposed development may impact on existing terrestrial and marine biodiversity including terrestrial and aquatic (including marine) flora, fauna and habitats in proximity to the site.
Archaeology, architectural and cultural heritage (Terrestrial and marine)	In	The construction of the proposed development may impact on unknown and/or unrecorded subsurface features as well as impacts on existing terrestrial and marine heritage including items on the National Inventory of Architectural Heritage and Record of Monuments and Places. Operational effects could comprise indirect visual impacts on heritage items.
Landscape and visual	In	The construction and operation of the proposed development may alter the nature of the existing views and townscape character.
Soils and geology	In	Given the natural geology of the area and industrial history of the site, there is the potential for construction activities to generate contaminated materials during construction. Further, the intrusive nature of the construction activities may directly impact on existing soils and geology.
Hydrogeology	In	Given the intrusive nature of the construction activities, the proposed development may impact on existing hydrogeological conditions.
Hydrology	In	Given the intrusive nature of the construction activities and works within the river channel, the proposed development may impact on existing hydrological conditions.
Resource and waste management	In	The proposed development will generate waste arisings that will require management during construction and operation.
Population and human health	In	The proposed development has the potential to impact on employment, the local community and amenity during construction and operation.
Material assets	In	The proposed development may indirectly impact on existing material assets during construction and operation.

Major Accidents and Natural Disasters	In	Given the historical industry on the site and nature of the operational activities and the pluvial and fluvial flooding in Arklow, the proposed development may exacerbate the risk of major accidents and natural disasters.
Cumulative	In	The nature of the proposed development and likely overlap with the proposed FRS has the potential to exacerbate or create larger, more significant effects from the proposed development.
Interactive	In	There is the potential for multiple direct or indirect effects (from various environmental aspects) to result in an accumulation or magnified effects from the proposed development.
Daylight and sunlight	Out	There would be no significant change to overshadowing and/or the existing daylight and sunlight conditions at neighbouring properties.
Wind and microclimate	Out	The massing of the buildings is such that it would not result in a significant change to the wind conditions at pedestrian level and/or microclimate on site and/or in the vicinity of the site.
Transboundary	Out	The nature and scale of the proposed development would not result in any significant transboundary effects.

## 6 EIA Report

---

### 6.1 Introduction

The grouped format structure proposed for the EIA Report will comprise ‘front end’ chapters in addition to ‘assessment’ chapters for each environmental aspect. It is envisioned that this structure makes it easy to understand the proposed development and investigate topics of interest in the assessment chapters.

The front end chapters will provide the relevant project context (As described in Section 6.2) whilst the assessment chapters will provide a description of the relevant environmental aspects and likely significant effects (as described in Section 6.3). The EIA Report will be supported by additional volumes comprising a non-technical summary (that captures the essence of the EIA Report in a readily understandable way) and technical appendices (containing relevant information to support the narrative in the EIA Report) as described in Section 6.4.

The EIA Report will be prepared by competent experts, make use of the latest and most appropriate scientific methodology and assessment procedures and support the correct interpretation of data. A proposed Table of Contents for the EIA Report is provided in Section 7.

### 6.2 Front end chapters

#### 6.2.1 Overview

The front end chapters present the relevant project-wide information in a clear and informative manner. This will facilitate a systematic approach to understanding the EIA process in the context of the proposed development, provide standard description of the proposed development and ensure that all matters identified in Annex IV of the EIA Directive have been addressed in order to provide all relevant information to An Bord Pleanála.

#### 6.2.2 Summary

The EIA Report will commence with the front end chapters that provide overarching information on project context by addressing the following:

- **Introduction and Background** – this section will outline the background and need for the proposed development;
- **Consultation** – this section will summarise the engagement carried out with regard to the proposed development. An outline of the key issues raised by stakeholders will also be provided;
- **Alternatives** – this section will illustrate the reasonable alternatives considered during the development of the design including alternative locations, layouts, designs, processes and the ‘do nothing’ scenario;
- **Project Description** – this section will describe the proposed development supported by scheme drawings describing the design, construction and operation of the proposed development;

- **Construction Strategy** – this section will outline the likely approach to the construction of the proposed development, including indicative duration and phasing. The strategy will form the basis of the environmental assessments to establish the likely significant effects which could arise. An outline of the Construction Environmental Management Plan (CEMP) content will be included in the EIA Report, and the Contractor will then be required to develop and maintain this document during the construction phase of the scheme;
- **Planning and Policy** - this section will examine the proposed development in the context of relevant national, regional and local planning policy. Consideration will also be given to relevant non-statutory plans and guidance as required. The chapter will provide an evaluation of compliance with these policies;
- **Cumulative and Interactive Effects** – this section will address any direct or indirect effects which are caused by the interaction of environmental aspects (i.e. interactive effects). It will also address the potential for other projects or proposals in the locale (e.g. the FRS) to exacerbate or create larger, more significant effects (i.e. cumulative effects). Cumulative and interactive effects may be considered in the assessment for each environmental aspect as appropriate, however they will be reported on in this stand-alone chapter; and
- **Summary of Monitoring, Mitigation and Residual Effects** – this section will summarise the proposed monitoring, mitigation measures and residual effects outlined in the EIA Report. Where appropriate, consultation will be undertaken with the relevant authorities and stakeholders throughout the EIA process to determine the practicality, acceptability, enforceability and appropriateness of the proposed mitigation and monitoring measures. All residual effects will be described in accordance with the recommended terminology from the EPA (outlined in Table 1).

## 6.3 Assessment chapters

### 6.3.1 Overview

The assessment chapters will provide detail on the existing environment and relevant standards, the assessment methodology, the likely significant effects, mitigation and monitoring measures and residual effects for each environmental aspect. The potential for cumulative effects (during both construction and operational phases) will be identified in the assessment chapters where appropriate.

### 6.3.2 Traffic and Transportation

The traffic and transport assessment will describe the existing roads, footpaths, access arrangements and traffic in the local area.

The likely traffic and transportation effects associated with the proposed development during construction would result in additional vehicles (i.e. construction traffic) on the existing road network. The volume of traffic generated by the proposed development during construction and its distribution onto the local road network will be estimated. The assessment will also consider the likely

significant effects on pedestrian movement and vehicular access in the local area. Recommendations for appropriate mitigation will be made where necessary to avoid significant adverse effects. The assessment will also consider operation of the proposed development on a day to day basis in order to identify and address any significant operational traffic and transportation effects associated with the proposed development.

The assessment will be undertaken with appropriate consideration of national, regional and local transport policy. In addition, the assessment will address transport issues that emerge from consultation with stakeholders, for example Wicklow County Council Roads and Traffic Department.

### 6.3.3 Air Quality and Climate

The proposed development falls within Zone D (Rural Ireland) as outlined in Schedule 18 of the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011).

The assessment of air quality will address the effect of the proposed development on ambient air quality. The assessment will be prepared in accordance with the requirements of the following documents:

- *Air Quality Standards Regulations 2011* (S.I. No. 180 of 2011); and
- *Technical Instructions on Air Quality* (TA Luft, 2002).

The chapter section will provide information on the existing air quality conditions recorded in Zone D by the EPA. Climate data will also be obtained from Met Éireann and the EPA.

The likely effects on air quality associated with the construction of the proposed development will be as a result of construction and demolition activities and construction traffic accessing the site during the works.

The nearest sensitive receptors are residential in nature and are located approximately 250m north-west of the proposed development (Lighthouse apartments at Ferrybank) and across the Avoca River on South Quay approximately 150m to the south of the proposed development.

The construction and demolition dust assessment will focus on any sensitive air quality receptors in the local area including residences, schools etc. Monitoring and mitigation measures will be implemented to minimise dust nuisance. Given the scale and extent of the construction works there is potential for significant effects during construction. Mitigation measures will be proposed where appropriate to minimise significant adverse effects on air quality.

The assessment of traffic-related pollutants during the demolition, construction and operational phases will follow the '*Design Manual for Roads and Bridges*' (DMRB) methodology (Highways Agency (UK), 2017). A screening assessment will be carried out and traffic-related pollutants, namely carbon monoxide (CO), benzene, nitrogen oxides (NO<sub>x</sub>), nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) will be quantified where traffic volumes are predicted to increase by greater than 5% during the operational phase and 10% during the construction phase.

It is understood that no new air emissions sources are proposed that will result in significant new emissions. While air quality and climate effects during the operational stage will be considered, once operational it is not envisaged there will be a significant increase in traffic volumes. Therefore, it is unlikely that there will be a significant operational impact on air quality or climate.

In December 2008, the EU Climate Change and Renewable Energy Package set out a number of commitments.

This package commits to reduce the EU's Greenhouse Gas (GHG) emissions from non- Emission Trading Scheme (ETS) sectors (such as transport, agriculture, residential and waste) by 20% on 2005 levels by 2020 or by a more ambitious 30% in the event of a comprehensive global agreement.

As part of the effort-sharing proposal of this package, Ireland is one of the countries facing the highest target of a 20% reduction on 2005 levels for non-ETS sectors. This will result in a limit of approximately 38 Mt CO<sub>2</sub> equivalent for Ireland's non-ETS emissions in 2020, together with annual binding limits for each year from 2013 to 2020.

In October 2014, EU leaders agreed a 2030 policy framework to reduce greenhouse gas emissions by at least 40% compared to a 1990 baseline. No agreement on the contribution of individual EU Member states has yet been reached.

The Climate Action and Low Carbon Development Act was published by government in January 2015. The Act sets out the national objective of transitioning to a low carbon, climate resilient and environmentally sustainable economy in the period up to 2050.

In April 2017, the EPA reported that Ireland is unlikely to meet 2020 EU greenhouse gas targets for all sectors including transport. Current projections indicate that Ireland will be 4-6% below 2005 levels by 2020 against the target of 20%. No significant effects on carbon or greenhouse emissions as a result of the proposed development are expected. Effects arising from natural disasters (including extreme events associated with climate change projections) would be considered as part of the assessment of major accidents and natural disasters as described in Section 6.3.15.

### 6.3.4 Odour

The baseline odour will be determined through a site visit. Current sources of odours will be identified. The likely odour effects associated with the construction and operation of the proposed development will be considered as part of this assessment.

During operation, there is potential for odour emissions from the WwTP. The building housing the WwTP would be enclosed and design measures would be incorporated to control odour including foul air collection systems, odour control treatment units and treated air venting systems.

An assessment of likely significant effects will be carried out through air dispersion modelling. The air dispersion modelling assessment would be carried out using the EPA approved AERMOD model. Five years of meteorological data from Dublin Airport will be used in the assessment. Emissions of Hydrogen

Sulphide (H<sub>2</sub>S) will be modelled. Concentrations of H<sub>2</sub>S will be predicted at the nearest sensitive receptors and in the wider area. Predicted levels will be compared to relevant UK Environmental Assessment Levels.

### 6.3.5 Noise and Vibration

The noise and vibration assessment will address the likely significant effects associated with the proposed development during construction and operation.

The noise and vibration assessment will focus on sensitive receptors in the local area including residences in Ferrybank and at South Quay. The nearest sensitive receptors are residential in nature and are located approximately 250m north-west and 150m to the south across the Avoca River at South Quay.

A noise survey will be conducted at noise sensitive properties and other locations within the vicinity of the site to determine the existing baseline noise environment. The noise environment is likely dominated by traffic movements, industrial/commercial activities and events at the marina. There is potential for noise generation during demolition, earthworks and construction activities associated with the proposed development.

Construction noise calculations will be carried out and levels compared to limits outlined in the Transport Infrastructure Ireland (TII) (formerly National Roads Authority) *'Guidelines for the treatment of noise and vibration in National Road Schemes'* (2004).

A suite of indicative calculations will be carried out at set distances from the works using the source noise data and calculation procedures set out in 'BS5228: Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1 – Noise' (BSI, 2014a). Predicted noise levels will be compared to the construction limit values provided in the aforementioned TII Guidance and mitigation measures proposed, as required. Reference will be made to BS5228, Part 2 – Vibration (BSI, 2014b) in order to determine the likely range of vibration levels during construction at the nearest sensitive properties.

The assessment of traffic-related noise during the construction and operational phases will follow the *"Calculation of Road Traffic Noise (CRTN)"* (UK Department of Transport, Welsh Office, 1998) methodology. Noise levels will be quantified where traffic volumes are predicted to increase by greater than 25%.

The noise and vibration assessment will focus on the likely significant effects and mitigation measures will be proposed to minimise significant adverse noise and vibration effects. Mitigation measures will (where necessary) minimise any disturbance to sensitive receptors, based on the following:

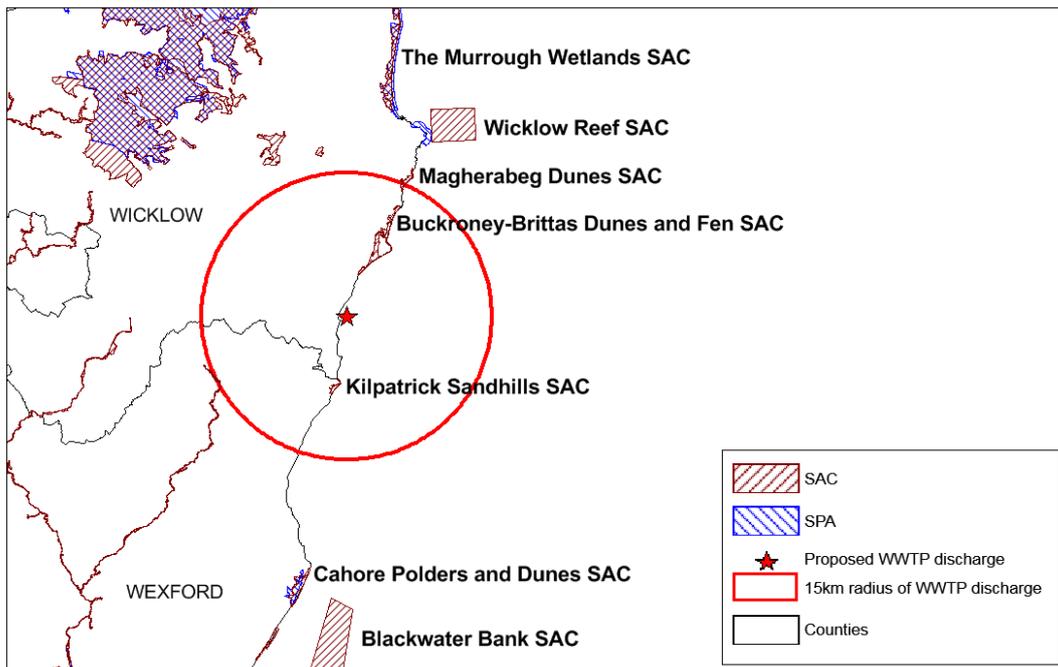
- *BS5228 Code of Practice for Noise and Vibration Control on Construction and Open Sites (Part 1 & Part 2) (British Standards Institute (BSI), 2014a & 2014b);*
- *Environmental Assessment and Construction Guidelines (NRA, 2006);*
- *UK Design Manual for Roads and Bridges (Highways Agency (UK), 2017);*
- *Calculation of Road Traffic Noise (CRTN) (UK Department of Transport, Welsh Office, 1998);*

- *ISO 9603-2: Attenuation of Sound Propagation Outdoors – General Method of Calculation (International Organisation for Standardisation (ISO), 1996); and*
- *ISO 1996: Acoustics – Description, measurement and assessment of environmental noise (Part 1 and Part 2) (ISO, 2003 and 2007, respectively).*

### 6.3.6 Biodiversity (Terrestrial and Marine)

The site of the proposed WwTP is on a brownfield site adjacent to Arklow Bay and the Avoca River. It does not encroach on any designated areas. Interceptor sewers will be laid in close proximity to and within the river channel of the Avoca River whilst the outfalls would extend into Arklow Bay from the WwTP.

There are three European designated sites - Special Areas of Conservation (SAC) within 15km of the proposed development, including Buckroney-Brittas Dunes and Fen SAC which is located approximately 5km to the north and Kilpatrick Sandhills SAC which is located approximately 6.5km south of the site (as illustrated in Figure 5). Further to the north (approx. 15km) are the Magherabeg Dunes SAC. These sites are also nationally listed as proposed Natural Heritage Areas (pNHAs).



**Figure 5: Natura 2000 sites in relation to a 15km radius of the proposed development**

Additionally, there are six other pNHAs within 15km of the site, three of which are within 2km of the site, namely Arklow Town Marsh to the west, Arklow Sand Dunes to the north and Arklow Rock-Askintinny to the south.

The biodiversity assessment will address the likely significant effects of the proposed development on terrestrial and aquatic (including marine) flora, fauna and habitats in proximity to the site. Likely significant effects will be assessed during both construction and operation of the proposed development.

Consultation will take place with the National Parks and Wildlife Service (NPWS) at an early stage in the assessment and mitigation will be proposed, as required. Inland Fisheries Ireland (IFI) will also be consulted in relation to the freshwater fish element of the works.

The assessment will be carried out in three stages, firstly through desktop assessment to determine existing records in relation to habitats and species present within the footprint of the proposed development. This will include research on the National Parks and Wildlife Services (NPWS) metadata website, the National Biodiversity Data Centre (NBDC) database, Environmental Protection Agency (EPA) reports and data and a literature review of published information on flora and fauna occurring on site and in the surrounding marine, estuarine and riverine environment.

The second phase of the assessment will involve site visits and fieldwork by specialist aquatic and terrestrial ecologist teams, to establish the existing ecological conditions within the footprint of the proposed development and within the vicinity of the proposed development. The site visits/fieldwork include terrestrial, marine, estuarine and river surveys.

The macroinvertebrate community of the marine and estuarine environment, along with the benthic sediment, has been sampled using standard methods in the Irish Sea and within the Avoca River estuary. The macroinvertebrates were identified and the sediment underwent particle size analysis and total organic carbon analysis. The resulting data was used to identify biotopes (combinations of habitat and species) present in the vicinity of the proposed development. These results provide a baseline against which the effects of the proposed development can be assessed and the results of any future monitoring can be compared.

A walkover survey of the intertidal zone of the Avoca River estuary and in the vicinity of the proposed outfall location was also carried out and habitats and species present recorded.

Walkover flora surveys have been carried out to determine species composition and distribution in areas identified as potential receptors. A list of habitats recorded will be provided along with a description of these habitats in terms of their botanical components and compared to the Habitat Classification system outlined by Fossitt (A Guide to Habitats in Ireland (J.A. Fossitt, Heritage Council 2000, and also having regard to Best Practice Guidance for Habitat Survey and Mapping (Heritage Council, 2011), in order to provide a basis for habitat evaluation and a later determination of impact assessment. Habitat evaluation will be based on the Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal (CIEEM, 2016).

Surveys of invasive plant species listed in Part 1 of the Third Schedule of S.I. No. 477 of 2011, in the National Roads Authority Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Road Schemes (Revision 1, December 2010) have been carried out, together with recording of any additional non-native species encountered that can be spread through distribution of plant material (National Biodiversity Data Centre).

Fauna surveys have included breeding and non-breeding bird surveys at the WwTP site and its environs including Arklow Ponds, and in the Avoca River and Estuary and in Arklow Bay. Bat surveys have included examination of potential

roost sites, and bat detector surveys of bat activity in the general area of proposed development, to identify and assess the significance of areas used by feeding and commuting bats. The presence and distribution of other mammal species, including Habitats Directive Annex 2 listed species, includes direct observations of animals during field surveys, and searches for field signs including tracks and droppings.

The final part of the assessment involves an evaluation of the footprint of the proposed development and determination of the likely significant effects on the flora and fauna within the area. This part of the assessment forms the basis for an Ecological Impact Assessment and is based on the following guidelines and publications:

- *Bat Mitigation Guidelines for Ireland* (National Parks and Wildlife Service, Department of Environment Heritage and Local Government, 2006);
- *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* (Department of Arts, Heritage and the Gaeltacht, January 2014), issued as an official guideline and code of practice under Regulation 71 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011);
- *Assessment of plans and projects significantly affecting Natura 2000 sites* (EC, 2002);
- *Managing Natura 2000 Sites (EC, 2000) Guidance document on Article 6(4) of the Habitats Directive 92/43/EEC* (EC, 2007);
- *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities* (DoEHLG, Rev. Feb. 2010);
- *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal* (CIEEM, 2016); and
- Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2017).

Consideration will also be given to cumulative effects with any other plans or developments in the locality, in particular.

The construction of the proposed development has the potential for the following significant effects:

- Contaminants could be released into the aquatic and terrestrial environment during construction;
- Noise impacts could arise to sensitive marine mammal receptors during construction;
- Demolition and vegetation removal during construction could impact terrestrial flora and fauna including bats, birds etc.
- Increased human activity and the operation of plant and machinery during construction could impact terrestrial bird and mammal species; and
- Site works could result in the spread of alien invasive species.

Once operational, the removal of uncontrolled untreated waste water discharges by the proposed development could impact positively on aquatic/marine ecology.

Mitigation will be proposed where appropriate in order to avoid, reduce or remedy significant adverse effects. The result of the field surveys will be used to inform the location and detailed design of mitigation measures, and appropriate guidance will be implemented where required.

In addition to the ecological impact assessment, a separate Appropriate Assessment (AA) is required to be undertaken by the competent authority. AA is a staged process and the first stage is known as screening. An AA Screening Statement will be prepared in the first instance. Should the screening conclude that there is a potential for negative effects on the qualifying interests or integrity of Natura 2000 sites then the process will progress to Stage 2 and the preparation of a Natura Impact Statement.

### 6.3.7 Archaeology, Architectural and Cultural Heritage (Terrestrial and Marine)

The town of Arklow has a rich and varied history. It was founded by the Vikings in the 9th century, settled by the Normans in the 12<sup>th</sup> century and was also the site of one of the bloodiest battles of the Irish rebellion of 1798. There are a number of historic features and sites of heritage interest in the town.

There are no Recorded Monuments (RMP s sites), or buildings listed on the Record of Protected Structures (RPS) or the National Inventory of Architectural Heritage (NIAH) in immediate proximity to the proposed WwTP site however, the sewer pipeline will pass through a zone of archaeological potential for Arklow Town and will also run in close proximity to a number of heritage features (RMP sites, RPS sites and NIAH sites). In particular, the sewer pipeline has the potential to directly impact Arklow Bridge, which is a nineteen arch stone bridge over the Avoca River listed on both the NIAH and the RPS as the interceptor sewer would be constructed under the first arch of the bridge.

The archaeological, architectural and cultural heritage assessment will provide an assessment of the archaeological, architectural and cultural heritage potential within, and in the vicinity of the extent of the proposed development.

The Department of Arts, Heritage and the Gaeltacht (now the Department of Culture, Heritage and the Gaeltacht) “*Architectural Heritage Protection Guidelines for Planning Authorities*” will be taken into account in undertaking the assessment. Consultation will be undertaken with relevant statutory bodies including Wicklow County Council and the National Monuments Service during the assessment. The principal aim of the assessment will be to anticipate and avoid significant effects on cultural, archaeological and architectural resources.

The assessment will initially comprise a desktop survey of the area to establish existing architectural and archaeological conditions. The following sources will be consulted:

- Record of Monuments and Places;
- Register of Historic Monuments;
- National Museum of Ireland Topographical Files;

- County Development Plans;
- Record of Protected Structures;
- Database of Irish Excavations;
- Irish Architectural Archive;
- Cartographic and photographic sources;
- National Inventory of Architectural Heritage (NIAH); and
- Other published sources.

Following the desktop assessment, a site visit will be undertaken by an archaeological, architectural and cultural heritage specialist.

An underwater archaeological survey of the proposed river crossing has already taken place, along with survey works along the northern and southern quay walls to the east of the bridge. The works were carried out under licence and the results will be included in the EIA Report. No features or artefacts of archaeological significance were identified during the surveys.

A marine archaeological geophysical survey has also been carried out along the path of the proposed marine outfall in an attempt to identify archaeological anomalies that may represent previously unrecorded shipwrecks. The works were carried out under licence and the results will be included in the EIA Report. No anomalies of archaeological potential were identified during the survey.

Likely significant effects (both direct/indirect) on any sites of interest will be assessed. Likely significant effects will be identified for construction and operation and appropriate monitoring and mitigation measures will be recommended as required.

Construction presents the greatest potential for significant effects, particularly if previously unrecorded or unknown sub-surface features are encountered. Given the nature of the proposed development, effects during operation could comprise indirect visual impacts to features of archaeological, architectural and cultural heritage value.

As there is a possibility of archaeological features being uncovered it is intended that groundworks associated with the construction/emplacement of the pipeline and site investigation works be subject to a programme of archaeological mitigation. These mitigation measures will draw on the results of the desktop assessment, site surveys and previous investigations.

### 6.3.8 Landscape and Visual Impact

Under the European Landscape Convention, the term ‘landscape’ refers equally to areas of rural countryside and urban – built up – areas (typically historically referred to as ‘townscape’) and is defined as follows:

*“An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors”.*

The proposed development will be considered in terms of two separate but closely related aspects, including effects on the landscape character of the existing setting within Arklow (including the adjoining residential settlements and other sensitive

land/river uses) and visual impacts (i.e. the extent to which the proposed development can be seen).

The landscape and visual impact assessment will address the likely significant effects of the proposed development during the demolition, construction and operational phase in accordance with the following guidelines:

- Guidelines for Landscape and Visual Impact Assessment, 3<sup>rd</sup> Edition (Landscape Institute and Institute of Environmental Management & Assessment, 2013).
- Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2017);

and has regard to:

- EPA Consultation Draft Advice Notes on the preparation of Environmental Impact Statements' (EPA, 2015);
- earlier versions of these Guidelines and Advice Notes from the EPA.

The landscape and visual impact assessment (LVIA) will be prepared in the context of the Wicklow County Development Plan 2016 to 2022. The landscape assessment prepared as part of the Plan process describes the Landscape Character Areas (LCA) in County Wicklow. Arklow is described as an "Urban Area" and the Plan states the following with regard to this classification:

*"In terms of landscape classification, these settlements have already been deemed suitable for development (of the type allowed by the settlement strategy and the development standards of this plan) and the impacts on the wider landscape of such development has already been deemed acceptable. Therefore it will not be necessary for developments in urban areas to have regard to the surrounding landscape classification or to carry out landscape or visual impact assessment".*

However, given the scale of the proposed development and its proximity to the coast, it is intended to carry out a LVIA. As part of this assessment, a review will be undertaken of planning documents, OS mapping and aerial photography. The existing character of the site and surrounding area will be assessed and recorded. A photographic survey of the site, surrounding landscape context and visual receptor types will be undertaken. Photomontages will be prepared for a number of locations and the impact on those views assessed.

The likely direct and indirect effects on the landscape/townscape character and surrounding residential settlements, and the visual environment within and surrounding the proposed development will be assessed during both the construction and operation phases.

Measures will be proposed to avoid, reduce and or remediate landscape/townscape and visual impacts. Mitigation measures will be in compliance with national and local policy guidelines.

### 6.3.9 Soils and Geology

The assessment of likely significant effects on the soils and geology environment takes account of both the importance of an attribute and the magnitude of the effects on it. Likely significant effects associated with the proposed development include:

- Removal of soil and rock from the ground via tunnelling for the interceptor sewers could result in ground movement and a risk of settlement to buildings, infrastructure or utilities in the immediate vicinity;
- There is potential for contamination hotspots along the route of the proposed development; and
- Leakage or spillage of construction related materials on site can cause ground contamination in the subsoil during construction stage.

The assessment will determine the likely significant effects on soils and geology associated with the construction and operation of the proposed development.

In determining the effects of the proposed development on the baseline geological conditions a number of documents and sources will be referred to including information from previous ground investigations in the area, where relevant and available.

Soils and geology will be described under a number of criteria, where relevant including their removal, erosion or extraction; stability/ground conditions; ability for growing plants; value as a material asset etc. The bedrock and subsoil types, their mineralogy and engineering properties, degree of weathering and vertical and horizontal extent will also be described. Any structural, geological and geomorphic features will be identified and described. Each soil type present on site will be described in terms of its classification, soil profile, site characteristics (relief, slope, vegetation, etc.), drainage conditions and properties such as texture, structure, colour and root development.

The site is known to have an industrial past. The potential for contamination to affect the proposed development and potential site users shall be considered, together with the potential for the development to spread contamination. If soil excavation is necessary to remove contamination the volume shall be quantified.

During construction the likely effects on soils and geology would be associated with activities such as excavation and tunnelling. The likely operational effects relate the management of sewage and foul water within the proposed development. Additionally, consideration will be given to the potential consequences and mitigation of accidents on soil quality e.g. spillage of fuels.

Likely significant effects on the geological environment will be assessed by classifying the importance of the relevant attributes at key constraints and their locations. The likely magnitude of any effect will then be quantified. This effect will be assessed through the review of the construction methodology.

Following the assessment of effects, specific mitigation measures will be developed to avoid, reduce and, if possible, remedy any significant adverse effects on soils and geology during the construction and operation of the proposed development.

### 6.3.10 Hydrogeology

The assessment of likely significant effects on the hydrogeological environment takes account of both the importance of an attribute and the magnitude of the effects on it. Likely significant effects associated with the proposed development include:

- Tunnelling and deep excavations will permanently alter any aquifers they are constructed in and have the potential to impact on the groundwater environment by altering groundwater flow directions and reducing storage in the aquifer along and in the vicinity of the route;
- Dewatering associated with construction can also potentially impact the groundwater environment and any surface water feature dependant on the groundwater by lowering the water table. Given the extent of the construction works and the proximity of surface water features there is potential for significant hydrogeological effects arising during the construction phase of the proposed development; and
- Altering the groundwater flow direction temporarily or permanently can change the direction of any groundwater contamination that may currently exist.

The assessment will determine the likely significant effects on the hydrogeological environment associated with both the construction and operational phases of the proposed development.

In determining the effects of the proposed development a number of documents and sources will be referred to including information from previous ground investigations in the area, where relevant and available.

The hydrogeological properties of the strata present at the site will also be described, consistent with the descriptions given in the soils and geology chapter. The impacts of any structural, geological and geomorphic features on the hydrogeological environment will be identified and described. The hydrogeological assessment will comprise a detailed review of the site investigation data to determine the unsaturated zone thickness, direction of groundwater flow and characteristic water quality which will be used to prepare a Conceptual Site Model (CSM). It will inform the design of the proposed development.

Consistent with the soils and geology chapter (as described in Section 6.3.9) the extent of any groundwater contamination shall be assessed and where necessary effects on the environment and potential site users shall be described. If necessary, the assessment shall quantify the volume of soil to be removed in order to reduce the groundwater contamination to an acceptable environmental level. Should any groundwater remediation be required this shall be assessed alongside the effects of the proposed development.

Likely significant effects on the hydrogeological environment will be assessed and the magnitude of any effect will be quantified. This effect will be assessed through the review of the construction methodology.

Following the assessment of likely significant effects, if necessary specific mitigation measures will be developed to avoid, reduce and, if possible, remedy

any significant adverse effects on the hydrogeological environment during the construction and operation of the proposed development.

### 6.3.11 Hydrology

Environmental Quality Standards are used to assess the risk of pollutant effects on water quality and aquatic plants and animals and reflect the requirements of the Water Framework Directive (Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy), which has been transposed into Irish legislation. The objective of the directive is to achieve ‘good’ status in all waters, prevent deterioration in water quality and reverse pollution trends.

Construction in close proximity to and within river channels has the potential for the following effects on water quality, species and habitats:

- Direct removal of riverine and bankside habitat;
- Creation of barriers to fish movement;
- Short-term construction impacts;
- Pollution from road run-off;
- Pollution from accidental hazardous spillage; and
- Impacts on river geomorphology.

The proposed development includes works within and adjacent to the Avoca River. Therefore there is potential for direct and indirect effects to occur during construction of the proposed development.

The hydrological assessment will address the likely significant effects, both positive and negative, of the proposed development on surface watercourses and features in proximity to the site. Likely significant effects will be assessed during the construction and operation of the proposed development.

The hydrological assessment will include the following:

- A regional overview and characterisation of the hydrological environment;
- Assessment of likely significant effects on the existing hydrological environment;
- Provide appropriate monitoring and mitigation measures and provide an assessment of residual effects; and
- Assessment of the likely significant effects of discharging treated effluent on the marine environment. This assessment will be undertaken using a detailed dispersion model which will simulate the transport of the relevant variables (e.g. faecal coliforms) in the receiving water.

Current water protection legislation will also be reviewed and details of baseline water quality data presented where available.

A Stage 1 Flood Risk Assessment will be undertaken (if required) for the proposed development in accordance with “*The Planning System and Flood Risk Management. Guidelines for Planning Authorities*” (DEHLG, 2009). A Stage 2

Flood Risk Assessment will be undertaken if a significant risk of flooding is identified from the Stage 1 assessment.

During construction, there is the potential for pollution of surface and ground water features from sediment loading and associated anthropogenic polluting substances entering watercourses/aquifers, e.g. as a result of surface water runoff or spills on-site. Potential operational effects to waters are associated with drainage discharges to water bodies from the WwTP.

Mitigation measures will be proposed where necessary and include measures to protect water bodies namely best practice construction methods for undertaking work adjacent to, on and over watercourses and for adequately dealing with surface water run-off and controlling the sources of pollution. Significant effects on natural watercourses and flood risk during construction can also be minimised by applying sound design principles and by following good work practices.

In summary, the proposed development shall:

- Take into account the general aims of the Water Framework Directive for the catchment, and ensure that there is no deterioration in water quality as a result of the works;
- Take into account potential overflows from the proposed development to watercourses; and
- Take into account the likely significant effects during construction and operation of the proposed development.

### 6.3.12 Resource and Waste Management

Waste will be generated by the proposed development during construction and operation. A description of the likely waste types and quantities to be generated from the proposed development and mitigation measures to handle and manage the waste will be provided as part of the assessment.

Waste arising from the construction of the proposed development is likely to include waste generated from demolition, excavation (including contaminated material), tunnelling and site clearance activities as well as waste from construction compounds. Waste generated during operation of the proposed development will typically comprise by-products from the waste water treatment process, maintenance works and from on-site staff and welfare facilities.

The principal objective of mitigation measures in the resource and waste management assessment will be the efficient use of material resources and management of waste in accordance with the waste hierarchy. Mitigation measures will be identified where appropriate to minimise the amount of resources used, reduce the quantity of waste sent for final disposal and to promote sustainable waste management practices in accordance with the waste hierarchy. Where practicable, on-site re-use of materials arising from both demolition and excavation activities will be prioritised. Mitigation measures will require that waste is re-used, recycled or recovered and to generally increase resource efficiency and ensure that all waste generated will be managed in accordance with the principles of the waste hierarchy, project and site management plans and relevant statutory requirements.

### 6.3.13 Population and Human Health

The purpose of this assessment within the EIA Report is to examine the likely significant social and economic effects from the construction and operation of the proposed development on the local community. This may relate to both actual and perceived effects. The assessment would principally relate to:

- The impact of scheme related traffic, including construction traffic;
- Socio-economic and employment effects during construction and operation;
- Residential and amenity effects; and
- Other effects (e.g. Qualitative impact on tourism and nearby businesses etc.).

Other effects relevant to human wellbeing such as odour, noise, vibration and visual impacts, will also be considered when classifying effects, but will be assessed in more detail in the relevant sections of the EIA Report.

Mitigation measures will be recommended as required to avoid or reduce significant adverse effects during the construction phase. It is not anticipated that any mitigation measures will be required for the operational phase.

During the operational phase, the development will provide a significant positive effect to the local environment through the provision of waste water treatment by removing the direct discharge of untreated sewage effluent into the Avoca River and Irish Sea.

### 6.3.14 Materials Assets

This purpose of this assessment is to examine the likely significant effects of the construction and operation of the proposed development on intrinsic and valuable assets of material value. This may relate to material assets in the form of existing land use and ownership, built services, utilities and infrastructure within the footprint of the proposed development. Typical built services, utilities and infrastructure likely to be located in the vicinity of the proposed development include:

- Electricity;
- Gas;
- Foul and Storm Water Drainage;
- Water supply; and
- Telecommunications.

Other material assets will be addressed elsewhere in other assessment chapters include:

- Transport assets and infrastructure will be addressed in the Traffic and Transportation Assessment (Chapter 7);
- Heritage assets will be addressed in the Archaeological, Architectural and Cultural Heritage assessment (Chapter 12);

- Sensitive views will be addressed in the Landscape and Visual Impact assessment (Chapter 13);
- Natural Resources will be addressed in the Soils and Geology, Hydrogeology, Hydrology and Resource and Waste Management assessments (Chapters 14, 15, 16 and 17 respectively); and
- Amenity and community values will be addressed in the Population and Human Health assessment (Chapter 18).

This section will provide a description of material assets (not discussed in other chapters) and outline any likely significant effects on those material assets during construction and operation.

Where appropriate engagement will be undertaken with the relevant authorities responsible for the material assets and agreements will be made to develop mitigation measures. Mitigation measures will prioritise the continued provision of material assets throughout construction and operation and solutions will be developed to mitigate significant effects arising from the relocation or diversion of utilities and services.

### 6.3.15 Major Accidents and Natural Disasters

The need to consider major accidents and natural disasters and the risk of consequential significant adverse effects on the environment has been introduced in the EIA Directive. This is to ensure a higher level of protection of the environment, and ensure that the precautionary principle approach has been taken for certain projects which are at risk of or vulnerable to major accidents and/or natural disasters.

The context for such precautionary action is given in Paragraph 15 of the EIA Directive which states:

*“In order to ensure a high level of protection of the environment, precautionary actions need to be taken for certain projects which, because of their vulnerability to major accidents, and/or natural disasters (such as flooding, sea level rise, or earthquakes) are likely to have significant adverse effects on the environment. For such projects, it is important to consider their vulnerability (exposure and resilience) to major accidents and/or disasters, the risk of those accidents and/or disasters occurring and the implications for the likelihood of significant adverse effects on the environment. In order to avoid duplications, it should be possible to use any relevant information available and obtained through risk assessments carried out pursuant to Union legislation, such as Directive 2012/18/EU of the European Parliament and the Council and Council Directive 2009/71/Euratom, or through relevant assessments carried out pursuant to national legislation provided that the requirements of this Directive are met.”*

It is considered that a major accident means events that threaten immediate or delayed serious damage to human health, welfare and/or the environment and requires the use of resources beyond those of Irish Water or its contractors to manage. A disaster is considered a naturally occurring phenomenon such as an extreme weather event (e.g. storm, flood, temperature) or ground-related hazard events (e.g. subsidence, landslide, earthquake) with the potential to cause an event or situation that meets the definition of a major accident. Combined, the term major accident and natural disaster, captures events triggered both internally and

externally to the proposed development, where the presence of the proposed development could contribute to serious damage. Serious damage includes the loss of life or permanent injury and/or permanent or long-lasting damage to an environmental receptor which cannot be restored through minor clean-up and restoration efforts.

Given the nature of the construction and operational activities and vulnerability of the site to natural disasters (including flooding, coastal erosion and sea level rise) an assessment of major accidents and natural disasters is proposed to determine the risk and likelihood of events that may result in serious damage to receptors. This assessment will identify risks (from the project's risk registers), define relevant receptors and categorise relevant risks that may result in significant effects on those receptors (including population and human health, biodiversity, land, soil, water, air and climate, material assets, cultural heritage and landscape).

Specifically, the assessment will draw on other chapters and existing risk registers to identify, describe and evaluate in the appropriate manner, the reasonable worst case (direct and indirect) effects. The assessment will derive from (amongst other things) the vulnerability of the proposed development to risks, credible source-pathway-receptor linkages and the likelihood of serious damage to environmental receptors.

Mitigation measures will be outlined to eliminate, reduce, isolate and control significant risks and associated significant adverse effects. It is anticipated that there will be an appropriate risk management structure in place to mitigate and ensure that the risk of major accidents and natural disasters is as low as reasonably practicable for the proposed development. Further, as health and safety risks will be required to be adequately addressed within the regulatory framework of the proposed development, it is not anticipated that significant residual effects from natural or man-made events will be identified.

## **6.4 Additional documents**

### **6.4.1 Volume 1 – Non-Technical Summary**

Volume 1 of the EIA Report will provide the non-technical summary. This will summarise the findings of the EIA Report in a clear, accessible format that uses non-technical language and supporting graphics.

The non-technical summary will describe the proposed development, existing environment, effects and mitigation measures and relevant aspects of the EIA Report in a manner that can be easily understood by the general public.

### **6.4.2 Volume 3 – Figures**

Volume 3 of the EIA Report will comprise the figures to support Volume 2 (including photomontages to support the LVIA).

### **6.4.3 Volume 4 – Technical Appendices**

Volume 4 of the EIA Report will comprise the technical appendices that support and are cross-referenced with Volume 2. This may include other relevant drawings, modelling outputs, background reports and/or supporting documents.

The technical appendices will ensure that all relevant information referred to within the EIA Report (that is not in the public domain) is provided herein to ensure a robust, holistic EIA.

## **7 Indicative Table of Contents**

---

A draft table of contents for the EIA Report is outlined below. The final version will be informed by the responses to the scoping process and any further modifications considered appropriate to account for the iterative EIA process.

### **VOLUME 1 - NON-TECHNICAL SUMMARY**

### **VOLUME 2 – EIA REPORT**

#### **Chapter 1: Introduction**

- 1.1 Introduction
- 1.2 Overview of the Proposed Development
- 1.3 Overview of the Planning Process
- 1.4 Approach to the EIA
- 1.5 Consultation Undertaken
- 1.6 Difficulties Encountered During the Study
- 1.7 References

#### **Chapter 2: Background**

- 2.1 Introduction
- 2.2 Irish Water
- 2.3 Need for the Proposed Development
- 2.4 Planning History
- 2.5 Objectives of the Proposed Development
- 2.6 Existing Site Layout
- 2.7 Neighbouring Land Uses
- 2.6 References

#### **Chapter 3: Alternatives**

- 3.1 Introduction
- 3.2 Do-nothing
- 3.3 Locations

- 3.4 Layouts
- 3.5 Designs
- 3.6 Processes
- 3.7 Mitigation and Monitoring Measures
- 3.8 Consultation Inputs
- 3.9 References

#### **Chapter 4: The Proposed Development**

- 4.1 Introduction
- 4.2 Design of the Proposed Development
- 4.3 Operation of the Proposed Development
- 4.4 References

#### **Chapter 5: Construction Strategy**

- 5.1 Introduction
- 5.2 Duration and Phasing
- 5.3 Land Use Requirements
- 5.4 Site Preparation and Enabling Works
- 5.5 Construction Methods
- 5.6 Employment
- 5.7 Hours of Working
- 5.8 Construction Safety
- 5.9 Environmental Management
- 5.10 Outline Construction Management Plan
- 5.11 References

#### **Chapter 6: Planning and Policy**

- 6.1 Introduction
- 6.2 National Policy Guidance
- 6.3 Regional Policy Guidance
- 6.4 Local Policy Guidance
- 6.5 Non-Statutory Planning Policy

## 6.6 References

### **Chapter 7: Traffic and Transportation**

- 7.1 Introduction
- 7.2 Assessment Methodology
- 7.3 Baseline Conditions
- 7.4 Likely Significant Effects
- 7.5 Mitigation Measures and Monitoring
- 7.6 Residual Effects
- 7.7 References

Note: The following assessment chapters will follow the same structure to that of Chapter 7 above.

### **Chapter 8: Air Quality and Climate**

### **Chapter 9: Odour**

### **Chapter 10: Noise and Vibration**

### **Chapter 11: Biodiversity (Terrestrial and Marine)**

### **Chapter 12: Archaeology, Architectural and Cultural Heritage (Terrestrial and Marine)**

### **Chapter 13: Landscape and Visual**

### **Chapter 14: Soils and Geology**

### **Chapter 15: Hydrogeology**

### **Chapter 16: Hydrology**

### **Chapter 17: Resource and Waste Management**

### **Chapter 18: Population and Human Health**

### **Chapter 19: Material Assets**

### **Chapter 20: Accidents and Disasters**

### **Chapter 21: Cumulative and Interactive Effects**

- 21.1 Introduction
- 21.2 Assessment Methodology
- 21.3 Intra-Project Cumulative Effects
- 21.4 Inter-Project Cumulative Effects

21.5 Interactive Effects

21.6 References

## **Chapter 22: Summary of Mitigation, Monitoring and Residual Significant Effects**

22.1 Introduction

22.2 Summary of Mitigation Measures

22.3 Summary of Monitoring Measures

22.4 Residual Significant Effects

22.5 References

## **VOLUME 3 – EIA Figures**

## **VOLUME 4 - APPENDICES**

## 8 References

---

British Standards Institute (BSI), 2014a. BS5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites (Part 1 – Noise). BSI, UK.

BSI, 2014b. BS5228-2: 2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites (Part 2 – Vibration). BSI, UK.

CIEEM, 2016. Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. CIEEM, UK.

Department of Arts, Heritage and the Gaeltacht, 2011. Architectural Heritage Protection Guidelines for Planning Authorities. Dublin, Ireland.

Department of Arts, Heritage and the Gaeltacht, 2014. Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters. Dublin, Ireland.

Department of the Environment, Heritage and Local Government (DoEHLG), Rev. Feb. 2010. Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities. DoEHLG, Dublin, Ireland.

DoEHLG, 2009. The Planning System and Flood Risk Management. Guidelines for Planning Authorities, November 2009. DoEHLG, Dublin, Ireland.

DoEHLG, 2006. Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects. DoEHLG, Dublin, Ireland.

DoEHLG, 2000. Landscape and Landscape Assessment. Consultation Draft of Guidelines for Planning Authorities. DoEHLG, Dublin, Ireland.

Department of Housing, Planning, Community and Local Government (DHPCLG), 2017a. Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licencing Systems. DHPCLG, Dublin, Ireland.

DHPCLG, 2017b. Circular PL 1/2017 - Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive): Advice on the Administrative Provisions in Advance of Transposition. DHPCLG, Dublin, Ireland.

DHPCLG, 2017c. Circular PL 8/2017 - Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive): Advice on the electronic notification requirements. DHPCLG, Dublin, Ireland.

Department of Transport (UK), 1998. Calculation of Road Traffic Noise (CRTN). Department of Transport, Welsh Office.

Environmental Protection Agency (EPA), 2002. Guidelines on the Information to be Contained in an Environmental Impact Statement. EPA, Wexford, Ireland.

EPA, 2003. Advice Notes on Current Practice (in the preparation of Environmental Impact Statements. EPA, Wexford, Ireland.

- EPA, 2015a. Revised Guidelines on the Information to be Contained in Environmental Impact Statements Draft. EPA, Wexford, Ireland.
- EPA, 2015b. Advice Notes for Preparing Environmental Impact Statements Draft September 2015. EPA, Wexford, Ireland.
- EPA, 2017. Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Draft August 2017). EPA, Wexford, Ireland.
- EPA Envision Viewer. Air Quality. Air Zones. <http://gis.epa.ie/Envision>
- European Commission (EC), 2000. Managing Natura 2000 Sites. Office for Official Publications of the European Communities, Luxembourg.
- EC, 2002. Assessment of plans and projects significantly affecting Natura 2000 sites. Office for Official Publications of the European Communities, Luxembourg.
- EC, 2007. Guidance document on Article 6(4) of the Habitats Directive 92/43/EEC. Office for Official Publications of the European Communities, Luxembourg.
- Fossitt, J., 2000. A Guide to Habitats in Ireland. The Heritage Council of Ireland, Kilkenny, Ireland.
- Heritage Council, 2011. Best Practice Guidance for Habitat Survey and Mapping. Heritage Council, Kilkenny, Ireland.
- Highway Agency (UK), 2017. Design Manual for Roads and Bridges. Highways Agency, Birmingham, England.
- Institute of Ecology and Environmental Management (IEEM), 2006. Guidelines for Ecological Impact Assessment in the United Kingdom. IEEM, Hampshire, UK.
- International Organisation for Standardisation (ISO), 1996. ISO 9603-2: Attenuation of Sound Propagation Outdoors – General Method of Calculation. ISO, Geneva, Switzerland.
- ISO, 2003. ISO 1996-1: Acoustics – Description, measurement and assessment of environmental noise, Part 1: Basic Quantities and Assessment Procedures. ISO, Geneva, Switzerland.
- Joint Nature Conservation Committee (JNCC), Rev 2010. Handbook for Phase 1 habitat survey - a technique for environmental audit. JNCC, Peterborough, UK.
- Wicklow County Council, 2010. Wicklow County Development Plan 2010-2016. Wicklow County Council, Wicklow Town, Co. Wicklow, Ireland.
- Landscape Institute, 2013. Guidelines on Landscape and Visual Impact Assessment (3rd Ed). Landscape Institute, London, UK.
- McCarthy Hyder MCOS Joint Venture (2001). Greater Dublin Drainage Study – Final Strategy Report. Dublin, Ireland.
- National Monuments Service, 2015. Archaeological Survey of Ireland (ARI) Sites and Monuments Record (SMR), Department of Arts, Culture and the Gaeltacht, Dublin, Ireland.

National Parks and Wildlife Service and DoEHLG, 2006. Bat Mitigation Guidelines for Ireland. DoEHLG, Dublin, Ireland.

National Parks and Wildlife Service. Map Viewer  
<http://webgis.npws.ie/npwsviewer/>

National Roads Authority (NRA), 2004. Guidelines for the treatment of noise and vibration in National Road Schemes. NRA, Dublin, Ireland.

NRA, 2006. Environmental Assessment and Construction Guidelines. NRA, Dublin, Ireland.

NRA, 2010. Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads, Revision 1. NRA, Dublin, Ireland.

TA Luft, 2002. Technical Instructions on Air Quality.

## **Appendix A**

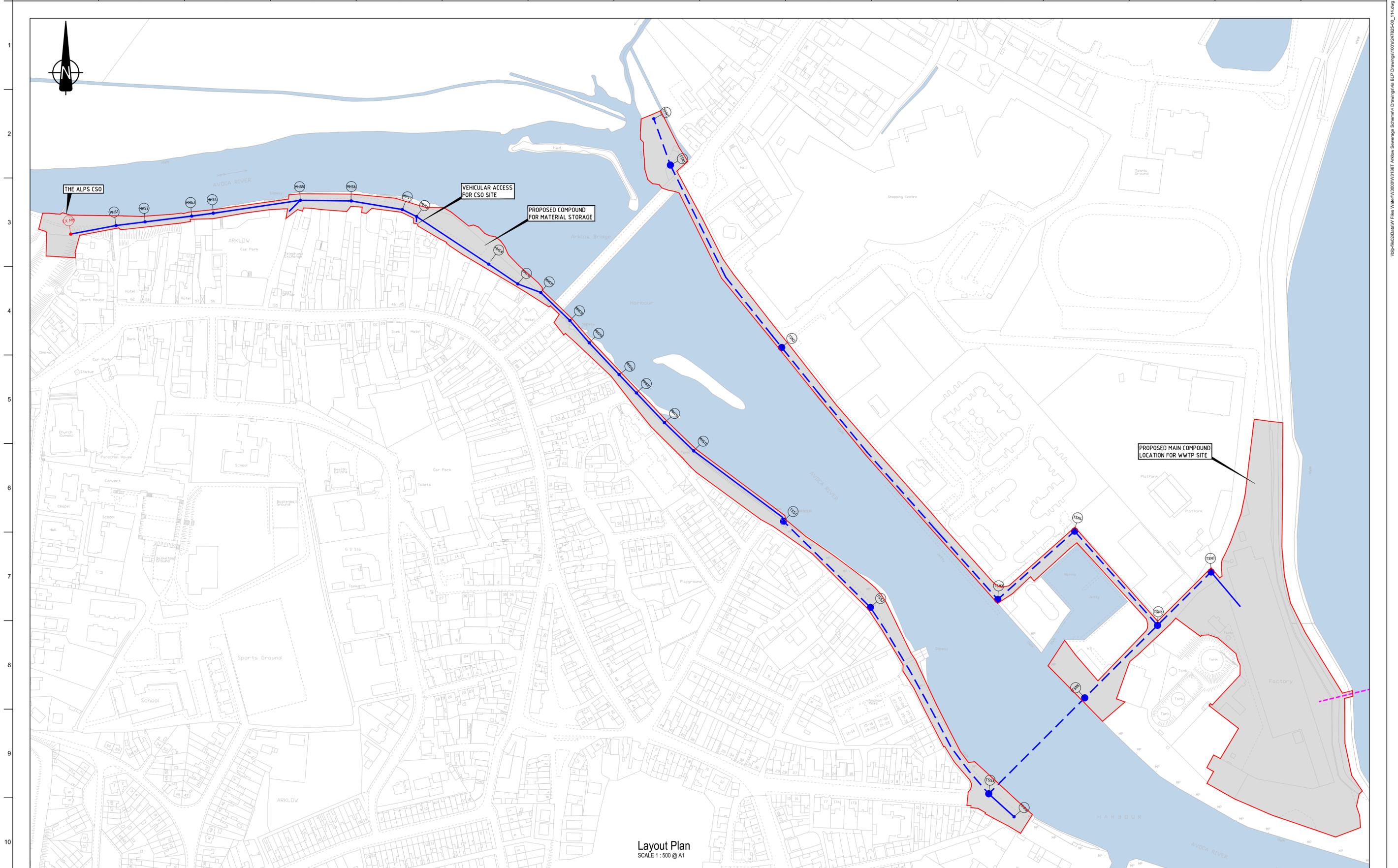
### **List of Consultees**

This scoping report will be sent for consultation to the following bodies:

- Department of Housing, Planning, Community and Local Government;
- Department of Communications, Climate Action and Environment;
- Department of Transport, Tourism and Sport;
- Department of Culture, Heritage and the Gaeltacht (including the Development Applications Unit, National Parks and Wildlife Service and the National Monuments Service);
- Department of Agriculture, Food and the Marine;
- Health and Safety Authority;
- Health and Safety Executive;
- Transport Infrastructure Ireland;
- National Transport Authority;
- Mid-East Regional Authority;
- An Chomhairle Ealaíon (The Arts Council);
- Fáilte Ireland;
- An Taisce;
- The Heritage Council;
- Environmental Protection Agency;
- Inland Fisheries Ireland;
- Wicklow County Council;
- Office of Public Works;
- Arklow and District Chamber of Commerce; and
- Arklow Harbour Authority / Harbour Commissioners.

## **Appendix B**

Indicative drawings



Layout Plan  
SCALE 1 : 500 @ A1

<p>Issue Date By Chkd Appd</p> <table border="1"> <tr> <td>D1</td> <td>18/10/16</td> <td>PR</td> <td>EB</td> <td>DR</td> </tr> </table>	D1	18/10/16	PR	EB	DR	<p>Client Obair i gcomhpháirtíocht Working in Partnership</p>	<p>Job Title Arklow Sewerage Scheme</p> <p>Scale at A1 AS SHOWN</p> <p>Discipline CIVIL</p>	<p>ARUP BYRNELOOBY</p> <p>*Arup, 50 Ringsend Road* Dublin 4 Tel +353(0)1 233 4455 Fax +353(0)1 668 3169 www.arup.ie</p>	<p>Drawing Title PROPOSED INTERCEPTOR SEWERS RED LINE BOUNDARY 5.0m WIDE</p> <p>Drawing Status <b>DRAFT</b></p> <table border="1"> <tr> <td>Job No</td> <td>Drawing No</td> <td>Issue</td> </tr> <tr> <td>247825-00</td> <td>114</td> <td>D1</td> </tr> </table>	Job No	Drawing No	Issue	247825-00	114	D1
D1	18/10/16	PR	EB	DR											
Job No	Drawing No	Issue													
247825-00	114	D1													



**LEGEND**

-  Proposed WwTP location
-  Planning boundary
-  Interceptor sewers
-  Marine outfall

©Copyright Information

P1	12/10/2017	AF	AF	EF
Issue	Date	By	Chkd	Appd

**ARUP**

50 Ringsend Road  
 Dublin 4  
 D04 T6X0  
 Ireland  
[www.arup.com](http://www.arup.com)

Client

**Irish Water**

Job Title

**Arklow Waste Water Treatment Project**

km



0 0.125 0.25 0.5

**Overview of the proposed development**

Scale at A4

**1:12,000**

Job No <b>247825-00</b>	Drawing Status <b>Issue</b>
Drawing No <b>001</b>	Issue <b>P1</b>