

2 Background and Need for the Scheme

2.1 Introduction

Chapter 2 provides a summary of the background and need for the proposed scheme. This includes a description of the history, objectives and need for the proposed scheme as well as an overview of the existing site layout and neighbouring land uses in the surrounding area. The interaction with the proposed Arklow Wastewater Treatment Plant (WwTP) is also discussed in this chapter.

2.2 Need for the Proposed Scheme

The town of Arklow has, for many years, experienced recurring flooding problems that have caused widespread damage to public and private property. The largest flood event recorded was in August 1986 resulting from extreme meteorological conditions commonly referred to as “Hurricane Charlie.” Further recent flooding events occurred in December 1989, November 2000, February 2002 and in October 2004, October 2005, January 2010, January 2013 and December 2015. **Figure 2.1** illustrates the historic flood events in the Arklow area, according to ‘www.floodmaps.ie.’ **Figure 2.2** illustrates predicted flood levels in Arklow, according to the Strategic Flood Risk Assessment in the Arklow Local Area Plan 2018-2024.

The following areas are considered the most at risk of flooding in Arklow:

- Upstream (west) of Arklow Bridge along the south bank of the Avoca River is a promenade (River Walk) which includes residential and commercial properties, car parking, green space and public amenity facilities. This is connected to Main Street by Bridge Street and Condren’s Lane Upper. This is a low-lying urban area built on the narrow floodplain and is affected primarily by fluvial flooding.
- Downstream (east) of the Arklow Bridge (along the South and part of the North Quays, towards the dock area) is prone to tidal flooding. This area experiences periodic flooding from significant tidal events. This flooding is more frequent but less extreme than fluvial flooding events and generally coincides with spring tides.
- The Ferrybank area, located north of the Avoca River, which is predominantly residential in character, is impacted by fluvial rather than tidal flooding. Flooding on Ferrybank is directly related to the flooding capacity of the river plain. Flooding occurs in Ferrybank when floodwater exits the Arklow Town Marsh

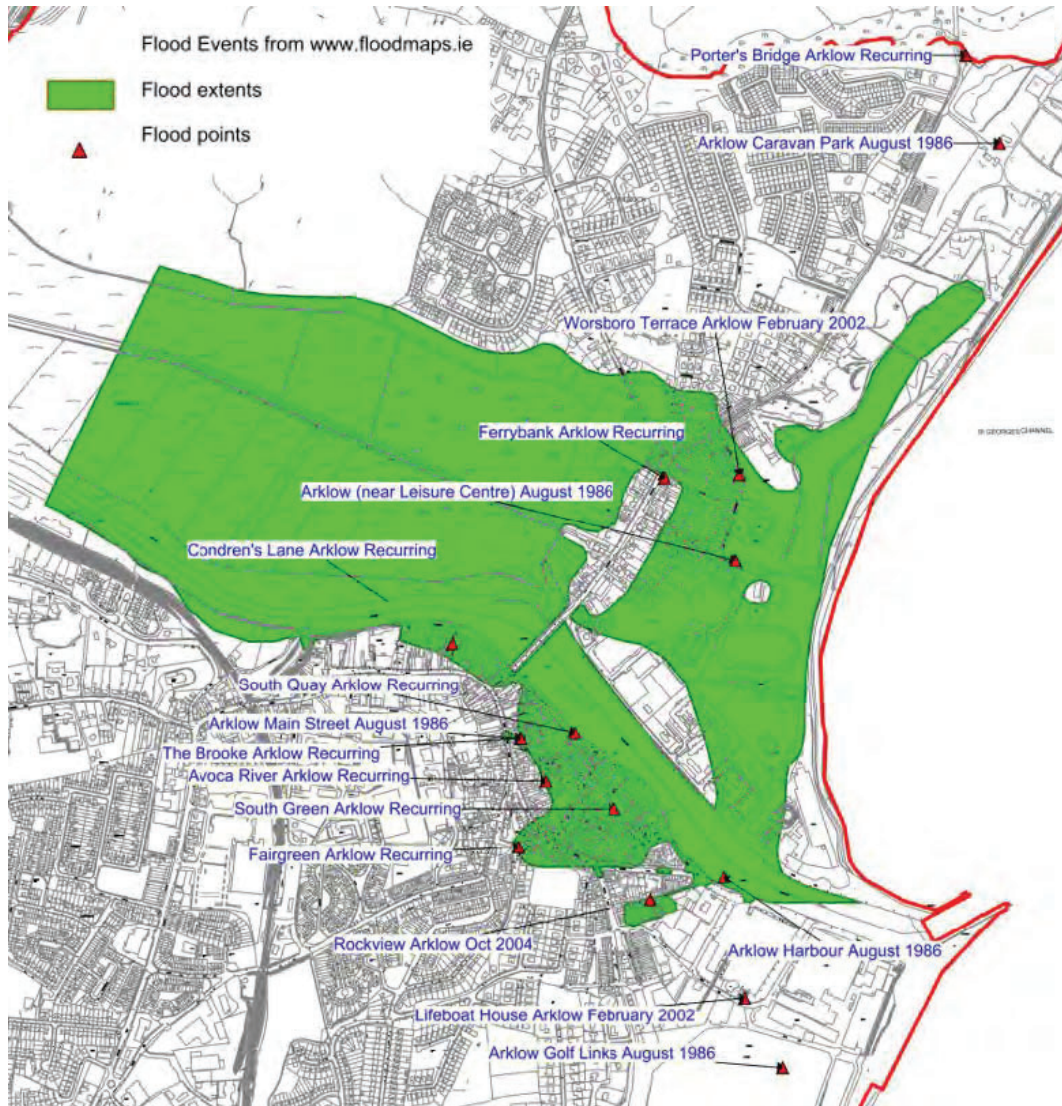


Figure 2.1: Historic Flood Extents. Extract from The Arklow and Environs Local Area Plan (2018- 2024) Strategic Flood Risk Assessment (Source: Wicklow County Council, www.floodmaps.ie)

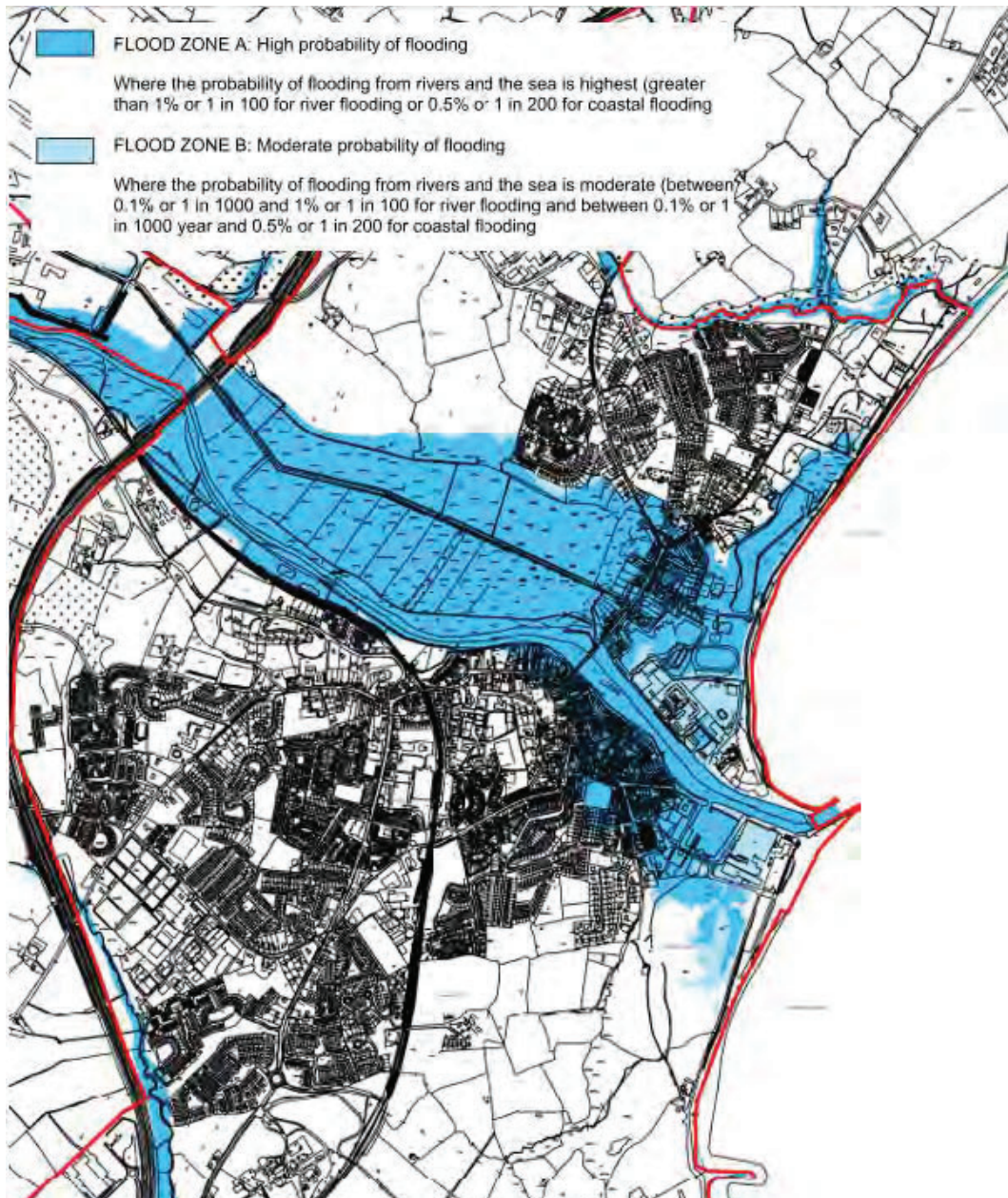


Figure 2.2: Flood Zones in Arklow. Extract from The Arklow and Environs Local Area Plan (2018- 2024) Strategic Flood Risk Assessment (Source: Wicklow County Council, www.floodmaps.ie)

In the future, the risk of flooding in Arklow may increase. Future changes which have the potential to affect the risk of flooding include:

- Climate change resulting in higher rainfall, increased river flows and higher tide levels;
- Geomorphological processes, such as sediment transport, which affects the area of conveyance of the river channel, and erosion;
- Development within the catchment of the Avoca River and its tributaries, which does not conform to the principles of sustainable drainage, and which adversely affects the response of the catchment to rainfall; *and*
- Changes in land use, including forestation and land drainage.

Arklow is, as such, at risk from recurring and, having regard to current climate change predictions, potentially worsening flood events in the future. Without intervention, Arklow faces the continued onset of a range of issues associated with flooding including; tangible and intangible flood damages, extensive community disruption, health and safety issues and development restrictions.

Tangible damages that have occurred in Arklow due to past flood events include direct damage to residential and non-residential properties, commercial buildings, agricultural lands, damage to infrastructure and utility assets and the cost of emergency services. Those who have been affected by tangible flood damage in Arklow have incurred large financial costs relating to loss of business, damage repair, as well as indirect costs such as evacuation, temporary accommodation and increased travel and shopping costs. There are also increased liabilities and premium costs for insurance in vulnerable areas at risk of flooding.

According to the *National Adaptation Framework: Planning for a Climate Resilient Ireland* (Government of Ireland, 2018), asset losses (direct damages) from flooding in Ireland in recent years could amount to as much as €192 million per year. As further outlined in the National Adaptation Framework, damages from flooding are expected to increase ‘six-fold’ by 2050. This would see direct damages from flooding in Ireland costing as much as €1.15 billion per year by 2050, should appropriate adaptation measures not be introduced.

Thus, financial savings- to both the individual and the state, represent a compelling need for the proposed scheme.

There are also health and safety risks associated with extreme flooding, such as increased risk of drowning or flood related injuries, and increased potential for infectious diseases (e.g. through contamination of water supplies). Increased risk of flooding can also result in significant anxiety and stress for affected populations.

The risk of recurrent flooding in Arklow restricts the type and extent of development which is permitted in areas vulnerable to flood events. As the proposed FRS seeks to reduce the risk of flooding in Arklow, there is potential for increased development opportunities in the area.

Thus, there are a number of justifications surrounding the need for the proposed scheme. Arklow is at risk from recurring, and, potentially worsening flood events in the future. The existing flood risk in Arklow has health and safety, as well as financial implications for all those who live and work in the area.

Further, the existing flood risk in Arklow continues to restrict the nature, scale and extent of development in the area. There is, as such, an evident and imperative need for the proposed Flood Relief Scheme in Arklow.

2.3 Background and Scheme History

Following the flood event in 1986 as a result of “Hurricane Charlie.”, PH McCarthy Consulting Engineers, who became WYG Ireland Engineering Ltd (WYG) and are now Byrne Looby & Partners, were commissioned by Arklow Town Council (now Wicklow County Council) to prepare a Flood Study Report for the Arklow area.

The report was issued in 1989 and contained a number of short- and long-term recommendations for future flood alleviation measures. The recommended long-term measures generally consisted of increasing the waterway area of the Arklow Bridge and providing a levee embankment and flood defence walls to prevent flood ingress into the Ferrybank, Condrens Lane and South Quay areas of Arklow. None of these measures were implemented.

After the flood events in 1989 and 2000, Arklow Town Council engaged WYG (now Byrne Looby & Partners) to review and update their report. The updated report was issued in June 2002 and the recommendations contained therein were generally in line with those outlined in the 1989 report but also included two additional recommendations. These were the lowering of the floor of Arklow Bridge to improve flow capacity and the refinement of the towns flood warning system.

In 2005 Byrne Looby were appointed by Arklow Town Council to prepare a new report, based on an OPW brief, to augment the work of the “Arklow Flood Study.” This report was titled “Avoca River (Arklow) Flood Relief Scheme Feasibility Study.”

The OPW brief also required that an assessment of the environmental constraints and impacts of possible scheme options be undertaken independently of the engineering work.

Therefore, the OPW commissioned Arup Consulting Engineers (Arup) to assess the potential environmental impacts arising from a flood relief scheme. Arup undertook their initial studies and consulted with the public during a public information day described in **Section 1.6** and issued a “Constraints Report” in May 2007.

During the initial stages of the study, Arup and Byrne Looby, in consultation with the OPW, identified a range of potential flood relief measures that could be included as part of an overall flood relief scheme. These were also partially informed by the “Hydrology and Hydraulics Report” (Byrne Looby, 2007). A number of these measures were subsequently discounted following the environmental review and also on technical and economic grounds.

A Flood Relief Feasibility Study was initially compiled in 2013 to consider flood relief measures that were identified by Arup, Byrne Looby, and the OPW. At that time, three alternative ‘do something’ options were developed using different combinations of the flood relief measures. These options were considered from an environmental, technical and economic viewpoint.

In early 2015, further measures were examined and modelled. This included consideration of combinations of measures. These were considered in the “Hydraulic Modelling Options Report”, June 2015. A screening exercise to confirm the decisions made, with regard to measures to be retained for further consideration, was undertaken in 2015, as described **Section 3.3. of Chapter 3, Alternatives Considered**. This was followed by a Multi-Criteria Assessment (MCA) workshop in 2016, as described **Section 3.4 of Chapter 3, Alternatives Considered**. A Feasibility Study was subsequently finalised in 2017 identifying and assessing viable flood relief measures for the Emerging Preferred Scheme.

Following public consultation and design development, a number of studies were undertaken to develop the Emerging Preferred Scheme. These include a Hydro-Geomorphology Study (as referenced in **Section 1.6.4** of **Chapter 1 Introduction**, Assessment of Proposed Dredging on Arklow Town Marsh (included in **Appendix 13.1**) and a Dredge Material Management Study (**Appendix 15.2**).

As described in **Section 1.6** of **Chapter 1, Introduction**, informal EIA scoping consultation and other non-statutory consultation took place with key stakeholders in relation to development of the proposed scheme. It's design has also evolved to respond to this consultation, and some design changes were made as described in **Section 1.5** and in **Chapter 3, Alternatives Considered**. Refer to **Chapter 4, Description of the Proposed Scheme**, for a detailed description of the proposed scheme.

2.4 Objectives of the Proposed Scheme

The primary objectives of the Scheme are to deliver a viable, cost-effective and sustainable flood relief scheme that:

- Mitigates the recurring flood events in Arklow, and subsequent damage to public and private property; *and*
- Provides flood relief measures along the Avoca River to alleviate flooding for all events up to the 100 year fluvial and the 200-year coastal flood event.

The objectives of the Scheme are further described in **Section 4.3.1** of **Chapter 4 Description of the Proposed Scheme**. The Scheme is being developed in consideration of the EU Floods Directive 2007/60/EC, which was given effect in Irish law by the European Communities (Assessment and Management of Flood Risks) Regulations of 2010, S.I. No. 122 of 2010.

To achieve these objectives, the Scheme must have a whole life cost benefit ratio greater than parity, it must be technically robust, and it must be socially and environmentally acceptable.

In terms of technical robustness, a strong preference was given to 'passive' schemes which do not rely on manual interventions during a flood event, and therefore retain a lower residual risk. The Scheme must also consider the potential future impacts of climate change and, where possible, incorporate the flexibility for adaptation in the future if required. This, and other aspects of the scheme design are addressed further in **Section 4.3** of **Chapter 4 Description of the Proposed Scheme**.

2.5 Site and Surrounds

2.5.1 Overview

The site of the proposed scheme as illustrated on the scheme drawings in **Appendix 4.1** includes the footprint of terrestrial and riverine lands within the planning boundary. Reference should be had to the full set of planning drawings accompanying the application for approval. A summary set of drawings in A3 format are included in **Appendix 4.1** and **Appendix 4.2**

The planning boundary of the proposed scheme is located in Arklow town, entirely within the administrative boundary of Wicklow County Council. An overview of the planning boundary is presented in **Figure 2.3** and in **Appendix 4.1** (drawing 1065).

Arklow town is a key hub of economic activity, shopping, education, recreation and administration for south-east Wicklow therefore the site of the proposed scheme is predominantly urban in character.

The proposed scheme is concentrated around the waterfront area of Arklow, with the proposed scheme located along the north and south banks of the Avoca river channel. An overview of the study area of the proposed scheme is included in **Figure 2.4**.



Figure 2.3 Overview of Planning Boundary including construction compound areas. Not to scale. Extracted from Drawing No 1065)

2.5.2 Site Layout

This section provides an overview description of the site of the proposed scheme. For the purposes of this description, the site of the proposed scheme has been broken down into a number of study areas. The overall site layout of the proposed scheme is outlined in **Figure 2.4**.

A description of the site areas relating to the proposed construction compounds and river access areas are described separately, in **Section 2.5.3**.



Figure 2.4: Study Areas (not to scale). Source: Google Maps

Avoca River

Arklow Town is divided by the Avoca River, which is crossed by Arklow Bridge, a stone arch bridge linking the southern part of the town with the northern part, called Ferrybank.

The Avoca River is the longest river in County Wicklow and its catchment covers an area of approx. 650km² on the eastern flanks of the Wicklow mountains. The Avoca River discharges into the Irish Sea in Arklow town.

The Avoca Estuary is a relatively small, narrow estuary that runs from Pearse Park yard to Arklow Bay. The river channel (which is part of the Avoca Estuary) is within the Arklow Town Marsh pNHA upstream of Arklow Bridge. The banks of the estuary primarily consist of sea walls, boat moorings and piers. The estuary upstream of the Arklow Bridge has steep banks and is heavily wooded with large trees on both banks. Discrete small-scale gravel beds (islands) have built up on the riverbed immediately upriver of Arklow Bridge. The shape and size of these features' change over time, mainly due to increased river flow, on a seasonal/annual duration as sediment particles collect upriver of the bridge. The estuary covers an area of 0.17km².

The Avoca River is illustrated in **Figure 2.5**.



Figure 2.5: Avoca River – View Looking Eastwards. Source: Google Maps

River Walk

This area includes the River Walk on the south bank of the Arklow River and the Avoca river channel itself. River Walk extends from The Alps along the south bank of the Avoca River to the Arklow Bridge. The River Walk segment of the site comprises town car park (referred to as Main Street or St Marys), existing footpaths and roads (including on street parking and adjoining open space) that run along the south bank of the Avoca River upstream of Arklow Bridge as illustrated in **Figure 2.6**. This area is regularly used by the local community as it includes car parking, a number of cafes and a riverfront walkway as well as connecting roads that link with Main Street which lies to the south. The town carpark lies between the southern river bank and the Main Street of Arklow. The ground rises from River Walk such that the carpark is at a higher level than River Walk. Downstream of the carpark, River Walk provides convenient pedestrian connection and local vehicular access. The walkway along the riverbank is formed in concrete, and a low concrete wall separates the walkway from the roadway and on-street parking. The walkway affords open views across the river to the mostly wooded edge of the Arklow Town Marsh on the northern side of the river. The Arklow Bridge is also prominent from this location, however, the upstream side of the bridge incorporates modern bridge widening and presents as concrete piers and cappings supporting pipework and a concrete parapet that detracts from the appearance of the original stone arched bridge. A number of laneways and paths including New Coomie Lane, Coomie Lane, River Lane and Condren's Lane connect River Walk to the Main Street and to Vale Road. There are a number of existing trees throughout this section of the site (Refer to **Section 12.3 of Chapter 12, Landscape and Visual** for further details on trees within the study area).

Upstream of the Arklow Bridge, the river flows in an easterly direction parallel to Main Street and is typically c.50m wide. The river widens to c.150m at the Arklow Bridge, and changes course to a south easterly direction. Upstream of Arklow Bridge, the river channel is defined by River Walk on the southern side, and by the wooded edge of the Arklow Town Marsh on northern side.

The river is shallow immediately upstream of the bridge, and large areas of gravel with colonies of gulls and other birds are often visible particularly at lower tides (Refer to **Figure 12.11** of **Chapter 12, Landscape and Visual** which shows the Avoca River channel, upstream of Arklow Bridge). The Avoca River and part of its riverbanks and the Arklow town marsh lie within a proposed Natural Heritage Area (pNHA, Site Code 001931).



Figure 2.6: River Walk (viewed from the river channel looking westward) Source: Google Maps

Arklow Town Marsh and Ferrybank

This area comprises Arklow Town Marsh proposed Natural Heritage Area (pNHA, Site Code 001931), as illustrated in **Figure 2.7** and **Figure 2.8**, North Quay and Ferrybank. The Arklow Town Marsh is located on the northern side of the Avoca River and upstream of Arklow Bridge. The marsh is the principal wetland habitat in the area, providing an important flood control role and supporting a variety of plant and animal life, in particular reed species and bird life. The marsh acts as a natural flood plain during peak flood periods.

The marsh extends northwards from the Avoca River for c. 500-700m, and its eastern extent is defined by the rear of private properties along the western side of Ferrybank and the Dublin Road. The marsh is traversed by an elevated pathway leading from the Dublin Road at Ferrybank to Shelton Abbey over 3km to the west and upstream of Ferrybank.

A water channel (sometimes referred to as canal in this EIAR) runs along the southern side of the pathway, and continues along the rear property boundaries at Ferrybank, discharging to the Avoca River just upstream of the Arklow Bridge.

Due to the waterlogged conditions of Arklow Town Marsh, its amenity and recreational use for people is extremely limited. The Marsh primarily consists of wetland habitat however, some services are also located within the marsh.

The eastern part of the marsh includes a number of power lines on timber poles, and a disused overground pipe which runs from the western face of the Arklow Bridge, across and also the western side of the water channel in the marsh and continues along the southern side of the elevated pathway. Refer also to **Figures 12.9-12.10** of **Chapter 12, Landscape and Visual** for additional views of the marsh.



Figure 2.7: Banks of Arklow Town Marsh. View from Arklow Bridge, looking westwards. Source: Google Maps



Figure 2.8: Arklow Town Marsh. Source: Google Photos

Arklow Bridge

This area contains Arklow Bridge. Arklow Bridge lies between River Walk and South Quay (to the south of the river channel) and crosses the Avoca River to join North Quay on the northern side of the river channel as illustrated in **Figure 2.9**. Arklow bridge is a 19-span masonry arch structure carrying the R722 road over the Avoca river.

The bridge dates from approx. 1755 and was designed by Andrew Noble. The arch spans vary from approx. 4.6m to 7m giving a total overall length in the order of 150m. The deck surface is approximately 11.4m wide.

As detailed in **Chapter 11, Archaeological, Architectural and Cultural Heritage**, Arklow Bridge is a protected structure (RPS A26; NIAH No. 16322046) and is a defining asset of the built environment of Arklow town as well as being an important piece of architectural and industrial heritage.

Arklow Bridge is best appreciated from the downstream side, as it presents as a striking nineteen arch stone bridge with a larger central pier, and cutwaters at all of the other piers. The original low parapet was modified in the 1960s, with the addition of cement render and installation of replacement metal railings.

The nineteenth arch on the northern end of the bridge has been compromised by the installation of a range of utilities pipework as illustrated in Error! Reference source not found.7 of **Chapter 12, *Landscape and Visual***.



Figure 2.9: Arklow Bridge (viewed from downstream on North Quay. Looking westward) Source: Google Maps

South Quay

This area contains the south quays on the south bank and the Avoca River channel downstream of Arklow Bridge.

Downstream of the Arklow Bridge, the width of the river varies from c.150m at the bridge, to c.75m at a pinch point at South Quay and widens again to c.100m just before Arklow Harbour. Downstream of the bridge, the southern and northern quay walls, comprising a mix of stone, concrete and sheet pile, define the river channel. Downstream of the bridge, the river is deeper, and the water extends the full width of the river even at low tide.

South Quay, downstream of Arklow Bridge, is notably different in character to River Walk as the buildings along South Quay were built to front onto the river and South Quay also faces the buildings along North Quay as opposed to the wooded riverbank at Arklow Town Marsh, that lies opposite River Walk. From Doyle's Lane, approximately 80m southeast of Arklow Bridge, there is a notable change in the scale, use and intensity of buildings, where almost all buildings as far downstream as the harbour area are residential and are clearly more contemporary and a later extension of the town centre.

The South Quay segment of the site comprises a narrow road and, in some areas, it has a footpath that runs along the south bank of the Avoca River as illustrated in **Figure 2.10**. The roadway along South Quay varies considerably from one-way single carriageway to wider two-way sections. There are narrow footpaths, on one side only between Doyle's Lane and South Green, beyond which there are frequently no footpaths on either side of the road. Depending on the width of the roadway, parking is generally defined on either one or both sides of the road. Further downstream, there is space for parking but it is not generally defined.

South Quay is mostly used for residential access, however, a substantial number of heavy goods vehicles also use South Quay for access to and from the harbour area and the quarry at Arklow Rock to the south of the town.

There are a number of existing trees along the quayside throughout this segment of the site (Refer to **Section 12.3.1** of **Chapter 12, Landscape and Visual**) for further details. There are six granite mooring posts set within the grass verge of the quayside, and likely to extend c.1.5m or more below ground.

Residential development along South Quay fronts onto the roadway and Avoca River. There is an area of green space separating the houses from the riverside downstream on South Quay (between South Green and Anchor Mews). Further downstream, to the east of the Harbour Road – South Quay junction, there is industrial development that loops around Arklow Harbour, which is located at the downstream end of South Quay.

A slipway (referred to in this EIAR as Tyrells Yard slip) is located on South Quay directly opposite the Arklow Marina on North Quay as illustrated in **Figure 12.4** of **Chapter 12, Landscape and Visual**). The John Tyrell Boatyard once stood on South Quay directly behind the slipway, where the Anchor Mews development now stands, and boats built at the boatyard made their way across South Quay to be launched from the slipway. The old metal tracks are set in concrete within the modern carriageway. A wooden demountable had to be installed across the slipway as storm surges regularly came up the river and inundated the road (Harbour master pers comm.). A low painted concrete flood defence wall extends either side of the slipway, and then continues further downstream as a pre-cast concrete flood defence wall for c.100m to the Arklow Seafarers Memorial Garden. South Quay continues beyond this point to the Arklow Harbour area and is increasingly maritime in character with two storey pitched roof buildings incorporating both residential and port related uses and facing onto a wide tarmac quayside with a low plinth wall along the quay edge. The harbourmaster's office marks the corner of South Quay where it joins Arklow Harbour.



Figure 2.10: South Quay (viewed from the river channel, looking eastwards) Source: Google Maps

Arklow Harbour

This area contains Arklow Harbour, as illustrated in **Figure 2.11**.

Arklow Harbour is located on the southern side of the Avoca River, and South Quay leads around the harbour area to South Pier. The harbour itself is c.150m x 200m, and caters for fishing and cargo vessels and pleasure craft. The harbour is also the base for the RNLI Arklow Lifeboat Station. Arklow Harbour is an infrastructural asset and is central to the town's maritime history. It is also an important source of economic activity associated with the town.

The western side of the harbour is used for loading and unloading fishing boats and cargo vessels, and trucks can access the quayside directly from the local road network. A pier on the northern side of the harbour separates the harbour from the river and is used as a general marshalling area and is also used on occasions for loading and unloading larger vessels.

The harbour is surrounded on the southern, eastern and western sides by industrial units of various sizes, but typically single storey warehouse type buildings or two storey warehouse and office units.

The quayside, including the South Quay roadway, varies substantially in width from c. 15m to over 30m. The quayside is finished in concrete, and is mostly used for marshalling, loading and unloading. A number of semi-permanent shipping containers provide storage along the eastern side of the harbour.

Most of the harbour area is publicly accessible, however, some sections along the southern edge are in private ownership. The south western corner includes a substantial secured compound with shipping containers and a number of stored boats. A syncrolift provides access from this compound to the water and connects southwards across the public road to the yards and warehouses south of the harbour. To the east of this facility, there is a small public slipway and set-down pontoon with modest landscaped areas to either side. The Arklow RNLI Lifeboat station building then occupies the south eastern corner of the harbour.

The harbour is also part of the South Quay amenity, and people regularly walk around it from the South Quay to the South Pier further downstream.

There are a number of small landscaped areas with seating maintained by the local community

Businesses operating out of Arklow Harbour include ship-owning, a shipping agency, a leisure vessel marina operation and shipping services. The harbour has an active fishing sector, with fish catches including whelks, herring and mussels. Also based around the harbour are a number of leisure and outdoor clubs and organisations. These clubs include Arklow Sailing Club, Arklow Harbour Sea Angling Club, Arklow Sea Scouts and the Arklow Rowing Club. Many events are held by these clubs in the harbour throughout the year.



Figure 2.11: Arklow Harbour (View looking eastwards from the southwestern corner of the harbour) Source: Google Maps

Bridge Street

Bridge Street is a two-way street which connects Arklow Bridge to Main Street, extending for approximately 70m. The street contains a number of retail premises, as well as the Bridge Hotel, as illustrated in **Figure 2.12**. There is a pedestrian crossing on the Bridge Street junction with Main Street. Bridge Street provides pedestrian access to River Walk from the west and both pedestrian and vehicle access to South Quay from the east.



Figure 2.12: Bridge Street (View from Arklow Bridge looking southwards) Source: Google Maps

Main Street

Arklow's traditional town centre thoroughfare focuses on the area around the Main Street. Main Street is a two-way street from Bridge Street and onwards to the west. Lower Main Street and Laffin's Lane south of the Bridge Street junction, is one way, providing an outer vehicular route around the town and to Castle Park carpark. Arklow's Main Street is the principal distributor of north-south traffic in the town.

Today, the original Main Street remains the centre of the town, and the settlement extends for 1 to 1.5km to the south, east and west, with the ground rising gently to the south from the river. Main Street is illustrated in **Figure 2.13**.



Figure 2.13: Main Street (View looking eastwards) Source: Google Maps

Harbour Road

Harbour Road connects South Quay and Tinahask Road and extends for approximately 200m. Harbour Road is a residential road with residential units located on either side of the thoroughfare, as illustrated in **Figure 2.14**. Five young trees are located along the western side of the road, near its junction with Tinahask Road.



Figure 2.14: Harbour Road (View looking northwards)

Condren's Lane Lower

Condren's Lane provides pedestrian access from Main Street to South Quay. It is a narrow lane containing two residential dwellings and access to the Lounge Bar. There is some parking available in the lane, near its junction with South Quay, as illustrated in **Figure 2.15**.



Figure 2.15: Condren's Lane Lower (View from South Quay, looking eastwards) Source: Google Maps

2.5.3 Site Compounds

Site compounds have been, as much as possible, located close to the working areas. There are six proposed site compounds which will be used to support the construction activities described in **Chapter 5, Construction Strategy**. In addition, it is expected that local offices, welfare facilities and storage of materials will be accommodated in suitable locations within the working areas. The site areas associated with the site compounds are illustrated in **Figure 2.16** below. A description of the site areas relating to the proposed site compounds is provided below. Refer to **Section 5.3.2 of Chapter 5, Construction Strategy** for further information on the construction compounds.

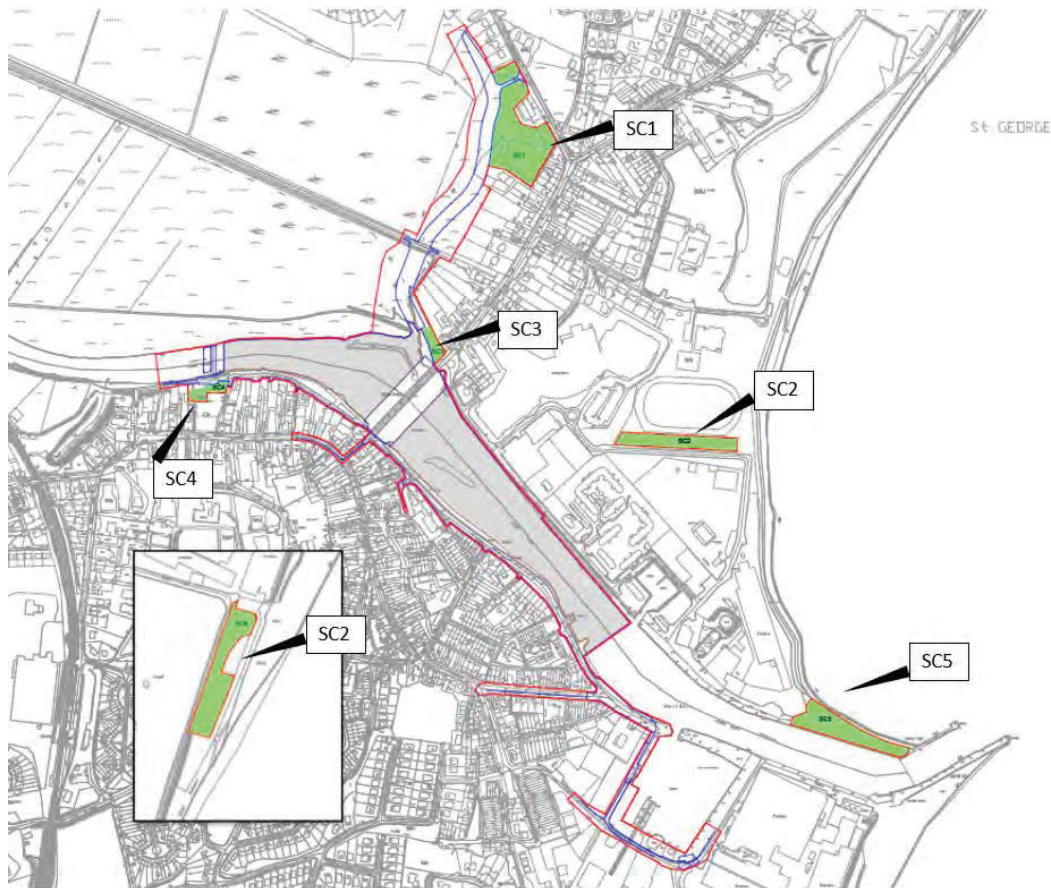


Figure 2.16: Construction Compounds (indicated in green. Not to scale. Extracted from Drawing No 1065

2.5.3.1 Site Compound 1

Site Compound 1 (SC1) will be established at Ferrybank, west of the Dublin Road and Brigg's Lane. This site is located to the south and west of Circle K garage (white building on **Figure 2.17** and **Figure 2.18** below). It incorporates a section of the marsh to the west of the Circle K garage, some treelines/scrub and a green space which is occasionally used for grazing. Some surface paving also appears to have taken place in the area.

The site currently comprises areas of field and grassland adjoining the eastern edge of the Arklow Town Marsh and includes an area of hard standing to the rear of the filling station. There is a terrace of seven two-storey private dwellings along the western side of Ferrybank that back onto the proposed site compound area and have shared vehicular access via Brigg's Lane. There are hedgerows and scrub along many of the field boundaries.



Figure 2.17: Site Compound 1 (SC1)



Figure 2.18: Site Compound 1 (SC1)

2.5.3.2 Site Compound 2

Site Compound 2 (SC2), which will be established during the dredge works, is located within an existing grassland area between the Mill Road and the running track. This area is overlooked by the Bridgewater shopping centre and residential apartments at Marina village and is part of the wider coastal and amenity infrastructure of the town. There are secured surface carparking and vacant site areas along Mill Road, and the eastern edge of the open space is defined by the grass embankment of the coastal revetment. Refer to Figures 2.19 and 2.20 below.



Figure 2.19: Site Compound 2 (SC2)



Figure 2.20: Site Compound 2 (SC2) (View facing eastwards towards Bridgewater Shopping Centre)

2.5.3.3 Site Compound 3

Site Compound 3 (SC3) will be established at a vacant site at the southern end of Ferrybank, upstream but adjacent to Arklow Bridge, and directly opposite the roundabout leading to North Quay (Refer to **Figure 2.21** below).

The site is vacant/disused, with the previous dwelling demolished, and it present areas of rubble and scrub vegetation adjoin the northern riverbank. The Arklow Town Marsh and associated drainage channels are immediately west of this site, and overhead electricity poles can be seen towards the rear of the site and beyond. A mixed tree group is noted in the immediate north, probably associated with the garden of the demolished dwelling. Willow bushes in poor condition, are noted along the adjoining riverbank. Existing trees are noted west of the compound area immediately beyond existing drainage channel, forming the downstream end of the riparian tree line along the north bank.



Figure 2.21: Site Compound 3 (SC3)

2.5.3.4 Site Compound 4

Site Compound 4 (SC4) will be within the western portion of the Arklow town carpark between Main Street and River Walk (Refer to **Figure 2.22** below).

The area includes part of the paved parking area, and also includes part of the grass bank that leads from the carpark to River Walk. The grass bank includes five trees and along the western boundary of the carpark, there are two trees. The carpark is heavily used by people in the town and includes a bandstand towards the Main Street and public toilets along the western side. River Walk is a popular amenity along the riverbank.



Figure 2.22: Site Compound 4 (SC4)

2.5.3.5 Site Compound 5

Site Compound 5 (SC5) comprises the eastern end of North Pier at the furthest extent of North Quay and will be in operation during the dredging work package during the final year of construction. The area is comprised of a narrow strip of hard standing and grass. The area is not normally publicly accessible as it lies beyond the security fencing further upstream along North Quay (Refer to **Figures 2.23** and **2.24** below).



Figure 2.23: Site Compound 5 (SC5)



Figure 2.24: Site Compound 5 (SC5) looking westwards.

2.5.3.6 Site Compound 6

Site Compound 6 (SC6) will be established during the dredge works in an area of grassland that lies between the South Beach Road and the South Beach. The road edge is defined by a low sod and stone ditch with gorse cover, and the eastern edge has a post and wire fence leading to the marram grasses along the back of the beach. There is a small carpark at the northern end of the space, and a larger one at the southern end. The land to the west of South Beach Road is part of the Arklow Golf Course (Refer to **Figures 2.25** and **2.26** below).



Figure 2.25: Site Compound 6 (SC6) looking northwards.



Figure 2.26: Site Compound 6 (SC6) looking southwards

2.5.4 River Access Areas

River access to the Avoca River will be needed for certain construction activities such as the bridge works, channel dredging works and construction of the gravel and debris traps. Refer to **Figure 2.16** above. These will be located at existing slipways where available and are detailed below:

- RA1 – North bank upstream of the bridge; access from the roundabout at Ferrybank/North Quay junction through SC3.
- RA2 – North bank downstream of the bridge; access from North Quay. Existing hardcore material in channel at RA2.
- RA3 – North bank downstream of the bridge at the location of the existing slipway; access from North Quay.
- RA4 – South bank upstream of the bridge at the location of the maintenance access ramp; access from Main Street via Condren’s Lane and River Walk.
- RA5 – River Walk upstream of bridge adjacent to SC4
- RA6 – River Walk upstream of the bridge; access from Main Street via Condren’s Lane (entrance) and River Walk (exit).
- RA7 – South Quay downstream of the bridge at the location of the partly damaged/unused slipway; access from South Quay.

- RA8 – South bank downstream of the bridge at the location of the existing slipway; access from South Quay.

2.5.5 Neighbouring Land-Uses

The location of the proposed scheme along River Walk and South Quay, including Arklow Harbour, are bounded by the Avoca River to the north and a number of residential and commercial properties to the south. There are also a number of roads that connect River Walk and South Quay with the wider road network in Arklow town.

Arklow Bridge is bounded by River Walk and South Quay to the south, and Arklow Town Marsh pNHA and North Quay to the north. To the south of the river crossing there are a number of residential properties whilst vacant or derelict land as well as local businesses are present to the north of the river crossing.

The section of the proposed scheme at Arklow Town Marsh pNHA is bounded by a number of residential and commercial properties along the R772 in Ferrybank.

North Quay is bounded to the south by the Avoca River, and to the north by residential and commercial properties including the Bridgewater Shopping Centre as well as the Blessings Clinic, Arklow Sailing Club and the Marina Village residences. There are no works proposed on North Quay

This part of the town has a history of industrial development, with maritime development still thriving, as evidenced by the adjacent boat building premises and the marina. Further to the north, the Bridgewater Shopping Centre and the Marina Village residential development, have evolved the development type in this area, which is intended to evolve further to incorporate high quality, mixed use development, in line with the vision for the waterfront area outlined in the Arklow Local Area Plan (LAP).

Further information on the existing conditions in and around the site and more generally in Arklow town is provided in **Chapters 6 – 19**.

2.6 Arklow Wastewater Treatment Plant

2.6.1 Introduction

As noted in **Section 1.3.4 of Chapter 1, Introduction**, the Arklow Wastewater Treatment Plant (WwTP) project received planning consent in 2019. The proposed WwTP will mitigate the current practice of discharging untreated effluent from Arklow town into the Irish Sea.

The proposed WwTP will physically overlap with the Arklow Flood Relief Scheme (FRS) as there are common work areas within the town where works for both the proposed WwTP and FRS developments will be undertaken. Depending on the final construction programme for both the WwTP and FRS, construction works for both projects may occur in parallel or sequentially.

The proponents of the WwTP scheme, Irish Water, and the proposed FRS scheme, WCC on behalf of OPW, have therefore considered each other's proposals during their respective design development. As a result, a memorandum of understanding (MOU) has been agreed between OPW and Irish Water (IW) to share specific work elements in the common areas. Refer to **Appendix 2.1** for the MOU.

There is the potential for physical and temporal overlap in the construction of the proposed development and the proposed Arklow Flood Relief Scheme and therefore, the WwTP is of particular relevance in relation to the potential for cumulative effects in combination with the flood relief scheme. The cumulative impact assessment is addressed in each of the specialist chapters and brought together as a whole in **Chapter 20, Cumulative and Interactive Effects** of this EIAR.

This section provides further details on the interactions between the two projects. Specific details on the construction programme and construction methodology for the shared works elements are provided in **Section 5.2 of Chapter 5, Construction Strategy**.

2.6.2 Overview of Arklow Wastewater Treatment Plant

The WwTP project will comprise of the following elements:

- A new WwTP of 36,000 population equivalent and associated infrastructure for the WwTP including an inlet pumping station, a storm water storage tank, treatment, sludge thickening and dewatering facilities, a pump sump and tank to discharge excess stormwater flows as well as site administration facilities and associated landscaping (all located at the Old Wallboard site at Ferrybank);
- Interceptor sewers along River Walk, North Quay, South Quay and under the Avoca River (including associated manholes and vent stacks) that will tie in with the existing wastewater collection network and bring the untreated wastewater to the WwTP;
- A stormwater overflow (SWO) and stormwater storage tank to the west of River Walk on a vacant site referred to as 'the Alps'¹;
- A SWO to discharge excess stormwater flows to the Irish Sea;
- A long sea outfall pipe (approximately 955m in length) to discharge the treated wastewater effluent to the Irish Sea;
- An upgrade to the existing revetment on the coastal side of the Old Wallboard site at Ferrybank; and

¹ Note -The Alps refer to the Alps Opportunity Site as defined in the Arklow and Environs Local Area Plan 2018 – 2024. Aspects of the proposed scheme, i.e. the SWO and stormwater storage tank are within this site.

- All associated and ancillary development works comprising or relating to permanent and temporary construction and excavation, abandonment of short sections of existing sewers (and infilling with concrete), site boundaries and landscape reinstatement works as well as all ancillary connections to electricity, telecommunications and water supply networks and site drainage.

In August 2019, Irish Water were granted permission to develop the Arklow Wastewater Treatment Plant (WwTP) Project. Refer to **Figure 2.27** which shows the main elements of the proposed scheme (extracted from WwTP EIAR – Figure 1.1)



Figure 2.27 Overview of Main Elements of WwTP Project. Not to Scale. Extracted from WwTP EIAR

2.6.3 Interactions between WwTP and FRS

The Arklow Flood Relief Scheme has an extensive physical overlap along the south side of the Avoca River with the permitted Arklow WwTP Project.

It has been important to ensure that any works included as part of the proposed scheme would be compatible with the design of the WwTP Project. The benefits of design coordination include:

- Optimising investment in structural and civil works for two publicly funded agencies; and
- Minimising cumulative environmental effects that might arise from the construction and operation of both projects

Design coordination of the Flood Relief Scheme project and the WwTP Project involved iterative consultation and workshops involving the design and client teams for both projects.

The specific areas of design coordination included:

- Detailed consideration of the alignment of sections of new flood defence walls;
- The interface of proposed infrastructure with the Arklow Bridge, a protected structure, to ensure the protection and enhancement of the visual integrity and setting of the Arklow Bridge following the implementation of the two schemes.
- Identification of opportunities for public realm improvements that would form part of the Flood Relief Scheme.

The directly overlapping construction elements are the underpinning works at the two southernmost arches of Arklow Bridge and works to construct the sheet piled foundations for the flood defence walls and a portion of the interceptor sewer along parts of River Walk and South Quay.

It was recognised that undertaking these works separately would require further construction activities at the same physical locations. As stated above, a memorandum of understanding has been jointly prepared by Irish Water and OPW (**Appendix 2.1**), which sets out the agreed principles from their discussions. As complete certainty with regard to the programme for each project is not possible, it has been agreed that the project that is first able to progress the directly overlapping construction works on site will do so.

In this way, the two schemes will ensure that the impacts in this area are minimised and the need to come back to the same location at a later date is avoided.

The planning application for the proposed scheme includes all of the elements of the FRS in addition to the directly overlapping construction elements of the WwTP project, referred to above.

For clarity, this proposed scheme as described in Chapters 4 and 5 of this EIAR does not anticipate that any elements of the WwTP will be in place in advance.

Both the sequential (either before or after) and concurrent construction of the WwTP project and the FRS have been assessed on a topic by topic basis to identify the worst-case scenario for the purposes of the cumulative impact assessment. These scenarios are addressed in the individual specialist assessment chapters and in **Chapter 20**, *Cumulative and Interactive Effects*.

2.7 References

Department of Housing, Planning and Local Government (2018) Circular PL 05/2018 -Transposition into Planning Law of Directive 2014/52/EU amending Directive 2011/92/EU on the effects of certain public and private projects on the environment (the EIA Directive) And Revised Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment;

Environmental Protection Agency (2017) Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Draft August 2017);

European Commission (2017) Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report;

Government of Ireland (2018) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018).

Wicklow County Council (2018) Arklow and Environs Local Area Plan 2018-2024

BLP (2013) Avoca River (Arklow) Flood Relief Feasibility Study (September 2013)

BLP (2015) Avoca River (Arklow) Flood Relief Feasibility Study Hydraulic Modelling Options Report (June 2015)

BLP (2016) Avoca River (Arklow) Flood Relief Feasibility Study Report on Options Screening Workshop (August 2016)

BLP (2017) Avoca River (Arklow) Flood Relief Scheme – Feasibility Study Report (July 2017)

EPA (2017) Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, Draft August 2017)

GDG (2019) Arklow Flood Relief Scheme – Hydrogeomorphology Study – Hydraulic modelling of the Avoca River

OPW (2013) Guidance Note No 28 - Option Appraisal and Multi Criteria Analysis (MCA) Framework