

12 Landscape and Visual

12.1 Introduction

This section describes the likely significant effects of the proposed development on landscape and visual aspects of the receiving environment.

Chapter 4 provides a full description of the proposed development whilst **Chapter 5** describes the Construction Strategy. This chapter is accompanied by a set of photomontages of the proposed development which are included in **Appendix 12.1**.

The following aspects are particularly relevant to the landscape and visual assessment:

- **Design:**
 - Form of the proposed flood defence infrastructure and alterations to the existing built environment;
 - Details of all above ground structures and finishes; and
 - Cognisance of how design elements impact on Views of the proposed development and any effects on the receiving environment, including landscape character.
- **Operation:**
 - Views of the proposed development and any effects on the receiving environment, including landscape character.
- **Construction:**
 - Views of the proposed development and any effects on the receiving environment, including landscape character; and
 - Loss or change of existing structures that contribute to the receiving environment.

12.2 Assessment Methodology

12.2.1 General

The landscape assessment has considered the likely significant effects of the proposed development on the landscape as an environmental resource and the visual assessment has considered the effect of visual change on receptors. Landscape and visual effects have been considered for the construction and operation of the proposed development.

The landscape and visual assessment involved visits to Arklow town, initially in March 2012, and on an ongoing basis through the design development of the WwTP Project and the Flood Relief Scheme, from March 2018 to September 2020, to review the nature and scale of existing development both on and surrounding the site, to identify landscape features, local character and land uses,

to identify key views to and from the proposed development, and to note receptor sensitivity.

This site based assessment was augmented by desk-based review of aerial photography and mapping of the site area and Arklow environs; landscape and planning policies and objectives set out in the Wicklow County Development Plan 2016-2022 and Arklow and Environs Local Area Plan 2018-2024; project information pertaining to other consented development with the environs and in particular, the Arklow WwTP; and project information included within the application for consent and in this EIAR.

To support the assessment, a series of photomontages, illustrating the physical and visual appearance of the proposed development, has been prepared from a range of publicly accessible locations that are representative of the more open views in the surrounding environment. The Photomontage views are included within **Appendix 12.1**.

12.2.2 Legislation, Policy and Guidelines

The assessment has been carried out with reference to the following legalisation, policy and guidelines:

Legislation

- Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment;
- Planning and Development Act 2000, as amended;
- Planning and Development Regulations 2001, as amended; and
- European Landscape Convention 2000.

Policy

- Wicklow County Development Plan 2016-2022;
- Arklow and Environs Local Area Plan 2018-2024

Guidelines

- Environmental Protection Agency (EPA, 2017). Guidelines on the Information to be contained in Environmental Impact Assessment Reports. Draft;
- Environmental Protection Agency (EPA, 2015). Advice Notes for preparing Environmental Impact Statements. Draft;
- Landscape Institute and the Institute of Environmental Management and Assessment (LI/IEMA, 2013) Guidelines for Landscape and Visual Impact Assessment, 3rd edition, (GLVIA);
- Landscape Institute (LI, 2018) Technical Information Note 05/2017 (Revised 2018) on Townscape Character Assessment; (TCA)

- Department of Housing, Planning and Local Government (DHPLG, 2018) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (GEIA).
- Landscape Institute (LI, 2019) Technical Guidance Note 06/2019 on Visual Representation of Development Proposals, (VPDP).

12.2.3 Consultation

Consultations relevant to landscape and visual aspects are described in **Chapter 1 Introduction** and **3 Alternatives Considered**, including consultation with Wicklow County Council, the Department of the Arts, Heritage and Gaeltacht (now the Department of Housing, Local Government and Heritage), and also including iterative project design coordination between the design and client teams of the permitted Wastewater Treatment Project (WwTP) and the proposed Arklow Flood Relief Scheme.

As noted in **Section 2.6 Arklow Wastewater Treatment Plant** of **Chapter 2 Background and Need for the Scheme**, the Arklow Flood Relief Scheme (FRS) has extensive physical overlap along the south side of the Avoca River with the permitted Arklow WwTP Project. It was important to ensure that any works included as part of the Flood Relief Scheme would be compatible with the design of the WwTP Project. The benefits of design coordination include:

- Optimising investment in structural and civil works to suit the WwTP Project and Flood Relief Scheme;
- Minimising cumulative environmental effects that might arise from the construction and operation of both projects; and,
- Minimising further future disruption to the local community.

Design coordination of the FRS project and the WwTP Project involved iterative consultation and workshops, between November 2017 and July 2018, involving the design and client teams for both projects, and also Wicklow County Council as party to both projects.

The specific areas of design coordination included:

- Detailed consideration of the realignment of sections of quay walls required for the WwTP Project and its sewer infrastructure, so as to readily accommodate the provision of a parapet along the quay wall as part of the Flood Relief Scheme;
- The interface of proposed and planned infrastructure with Arklow Bridge, a protected structure, to ensure the protection and enhancement of the visual integrity and setting of Arklow Bridge following the implementation of the WwTP Project and the FRS. Further details of Arklow Bridge are provided in **Chapter 11, Archaeological, Architectural and Cultural Heritage** and
- Identification of opportunities for public realm improvements that would form part of the FRS.

The coordination of the design of the WwTP Project and FRS were presented as part of the wider consultation with the (now the Department of Housing, Local Government and Heritage) during two meetings on 16 January 2018 and 19 June 2018, and most recently on 26 August 2020 and 30 September 2020.

12.2.4 Assessment of Landscape and Visual Effects

The assessment of landscape and visual impacts has had regard to the Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports prepared by the Environmental Protection Agency (2017) and to the EIA Directive 2011/92/EU (as amended by Directive 2014/52/EU) on the assessment of the effects of certain public and private projects on the environment.

Assessment of landscape effects and visual effects are two separate but closely related aspects, where:

- Landscape effects relate to the effects of a proposed development on the physical characteristics of the landscape and its resulting character and quality; and
- Visual effects relate to the effects on views experienced by visual receptors (e.g. residents, footpath users, tourists etc.) and on the visual amenity experienced by those people.

Assessment of potential landscape and visual effects is a two-stage process that involves:

- classifying the sensitivity of the receiving environment, and
- describing and classifying the magnitude of change in the environment resulting from the proposed development.

These factors are combined to provide a classification of significance of effects for the impact assessment.

12.2.4.1 Landscape Effects

Landscape effects describe the impact on the fabric or structure of a landscape or landscape character. The assessment of landscape effects firstly requires the identification of the components of the landscape.

The landscape components are also described as landscape receptors and comprise the following:

- Individual landscape elements or features;
- Specific aesthetic or perceptual aspects; and
- Landscape character, or the distinct, recognisable and consistent pattern of elements (natural and manmade) in the landscape that makes one landscape different from another.

The assessment identifies the interaction between these components and the proposed development during construction and operation. The condition of the landscape and any trends of change and relevant policy framework have also been taken into account.

Sensitivity of Landscape Receptors

The sensitivity of a landscape receptor is determined by employing professional judgment to consider and assess the identified value of the landscape and its susceptibility to the type of change or development proposed.

Table 12.1 Landscape Sensitivity

Sensitivity	Susceptibility	Value
Very High	Exceptional landscape quality, no or limited potential for substitution. Key elements/features well known to the wider public. The landscape receptor is of very high susceptibility to the Project and has little or no tolerance to change.	Nationally/internationally designated/valued landscape, or key elements or features of national/internationally designated landscapes.
High	Strong/distinctive landscape character; absence of landscape detractors. The landscape receptor is of high susceptibility to the Project and has low tolerance to change.	Regionally/nationally designated/valued countryside and landscape features or landscapes judged to be of equivalent value using clearly stated and recognised criteria.
Medium	Some distinctive landscape characteristics; few landscape detractors. The landscape receptor is of medium susceptibility to the Project and has medium tolerance to change.	Locally or regionally designated/valued countryside and landscape features or landscapes judged to be of equivalent value using clearly stated and recognised criteria
Low	Absence of distinctive landscape characteristics; presence of landscape detractors. The landscape receptor is of low susceptibility to the Project and has high tolerance to change.	Undesignated landscapes and landscape features which have little value to local communities.
Negligible	Absence of positive landscape characteristics. Significant presence of landscape detractors. The landscape receptor is of negligible susceptibility to the Project and has very high tolerance to change.	Undesignated landscapes and landscape features which have no particular scenic qualities or are in poor condition or altered by presence of intrusive manmade structures.

Magnitude of Change to the Landscape

Magnitude of change is an expression of the size or scale of change in the landscape, the geographical extent of the area influenced, and the duration and reversibility of the resultant effect.

The duration of the effects are short-term lasting 0-5 years; medium term lasting 5-10 years, long term lasting 10-20 years; and permanent lasting more than 20 years.

Table 12.2 Magnitude of Change

Magnitude of impact	Definition
Large	Total loss or addition or very substantial loss or addition of key elements/features/patterns of the baseline (i.e. pre-development landscape) and/or introduction of dominant elements which are uncharacteristic with the attributes of the receiving landscape.
Medium	Partial loss or addition of or moderate alteration to one or more key elements/features/patterns of the baseline (i.e. pre-development landscape) and/or introduction of elements that may be prominent but may not necessarily be substantially uncharacteristic with the attributes of the receiving landscape.
Small	Minor loss or addition of or alteration to one or more key elements/features/patterns of the baseline (i.e. pre-development landscape) and or introduction of elements that may not be uncharacteristic with the surrounding landscape.
Negligible	Very minor loss or addition of or alteration to one or more key elements/features/patterns of the baseline (i.e. pre-development landscape) and/or introduction of elements that are not uncharacteristic with the surrounding landscape approximating to a 'no-change' situation.
None	No loss, alteration or addition to the receiving landscape resource.

12.2.4.2 Visual Effects

Visual effects relate to how a development will be seen within the landscape, and whether the development is integrated, balanced or incongruous within the visual setting and context. Visual effects can be adverse, neutral or beneficial.

Visual effects are experienced by people, or visual receptors, and the degree to which they will be affected by changes as a result of the proposed development depends on many factors including:

- The importance of the location as may be reflected by designations or by the numbers of people who experience the view;
- The nature of receptors, who may be residents, workers, passing through, or visiting, and who may experience the view momentarily, for longer periods, or frequently;
- The nature and extent of changes that may be viewed openly or intermittently in the local or wider context; and,
- Accessibility of the viewpoint.

Sensitivity of Visual Receptors

The sensitivity of a landscape receptor is determined by combining judgments in relation to the susceptibility of the receptor to the type of change, and to the value attached to particular views.

Table 12.3 Sensitivity of Visual Receptors

Sensitivity	Viewer susceptibility	Value of views
Very High	Visitors drawn to a particular view (usually a designated landscape), including those who have travelled to experience the views. These viewers have very high susceptibility.	Views of internationally designated landscape, or in a countryside/land or widely known/famous views.
High	Residents. People engaged in quiet outdoor recreation where landscape is an important part of the experience. These viewers have high susceptibility.	Views of nationally designated countryside/land.
Medium	Observers enjoying the countryside from vehicles on quiet/promoted routes. People engaged in outdoor sport or recreation which may involve appreciation of views (e.g. cyclists, golfers). These viewers have medium susceptibility.	Views of designated countryside/land.
Low	People engaged in outdoor sport or recreation which does not involve appreciation of views. These viewers have low susceptibility.	Views of undesignated countryside/land.
Negligible	People at work where the setting is not important to the quality of working life. Road users (commuters) where the view is incidental to the journey. These viewers have negligible susceptibility.	Undesignated landscapes and landscape features which have no particular scenic qualities or are in poor condition or altered by presence of intrusive manmade structures.

Magnitude of Visual Impact

The criteria for defining magnitude of impact on visual receptors are defined in **Table 12.4**.

Table 12.4 Magnitude of Visual Impact

Magnitude of impact	Definition
Large	Complete or very substantial change in view. Change dominant involving complete or very substantial obstruction of existing view or complete change in character and composition of baseline, e.g. through removal of key elements.
Medium	Moderate change in view which may involve partial obstruction of existing view or partial change in character and composition of baseline (i.e. pre-development view) through the introduction of new elements or removal of existing elements. Change may be prominent but would not substantially alter scale and character of the surroundings and the wider setting. Composition of the view would alter. View character may be partially changed through the introduction of features which, though uncharacteristic, may not necessarily be visually discordant.
Small	Minor change in baseline (i.e. pre-development view). Change would be distinguishable from the surroundings whilst composition and character would be similar to the pre change circumstances.
Negligible	Very slight change in baseline (i.e. pre-development view). Change barely distinguishable from the surroundings. Composition and character of view substantially unaltered.
None	No alteration to the existing view.

12.2.4.3 Significance of Effects

The significance of the effect upon landscape and visual receptors is arrived at by combining judgements in relation to the sensitivity of the receptor to change and to the magnitude of the impact and is presented in **Table 12.5** below.

Table 12.5 Matrix for the assessment of the significance of the effect.

	Magnitude of Impact					
		No Change	Negligible	Small	Medium	Large
Sensitivity of receptor	Negligible	None	Negligible	Negligible or Minor	Negligible or Minor	Minor
	Low	None	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
	Medium	None	Negligible or Minor	Minor	Moderate	Moderate or Significant
	High	None	Minor	Minor or Moderate	Moderate or Significant	Significant or Profound
	Very High	None	Minor	Moderate or Significant	Significant or Profound	Profound

Table 12.6 Significance of effect criteria.

Significance	Landscape Resource	Visual Resource
Profound	Where proposed changes would be uncharacteristic and/or would significantly alter a landscape of exceptional landscape quality (e.g. internationally designated landscapes), or key elements known to the wider public of nationally designated landscapes (where there is no or limited potential for substitution nationally).	Where proposed changes would be uncharacteristic and/or would significantly alter a view of remarkable scenic quality, within internationally designated landscapes or key features or elements of nationally designated landscapes that are well known to the wider public.
Significant	Where proposed changes would be uncharacteristic and/or would significantly alter a valued aspect of (or a high quality) landscape.	Where proposed changes would be uncharacteristic and/or would significantly alter a valued view or a view of high scenic quality.
Moderate	Where proposed changes would be noticeably out of scale or at odds with the character of an area.	Where proposed changes to views would be noticeably out of scale or at odds with the existing view.
Minor	Where proposed changes would be at slight variance with the character of an area.	Where proposed changes to views, although discernible, would only be at slight variance with the existing view.
Negligible	Where proposed changes would have an indiscernible effect on the character of an area.	Where proposed changes would have a barely noticeable effect on views/visual amenity.
None	Where the project would not alter the landscape character of the area.	Where the project would retain existing views.

12.3 Receiving Environment

12.3.1 Site Context and Description

The proposed development extends to both terrestrial and riverine areas lands as illustrated in **Figure 12.1**. The site extends along the Avoca River immediately north of the town centre, and includes River Walk, the Avoca River channel and the eastern extent of the Arklow Town Marsh upstream of Arklow Bridge; the Arklow Bridge; and the South Quays and Avoca River channel downstream of Arklow Bridge and including the area around Arklow Harbour (also referred to as Arklow Dock).



Figure 12.1: Arklow town illustrating extent of proposed works

Arklow town has its origins on the southern side of the Avoca River, and essentially comprised a single street running parallel to the river with buildings on both sides, and those on the northern side of the street with their backs to the river. The river opened out on the seaward side of the town to extensive mudflats and sand hills at Ferrybank and Tinahask Lower to the north and south respectively.

The town has a long association with the sea, and as a port, and the evolution of the town as a port has strongly shaped its growth. The Arklow Bridge (Protected Structure, RPS A26), a 19 arch stone bridge spanning 150m, was constructed in the middle of the 18th century, and provided a connection between Arklow Main Street and Ferrybank on the northern side of the river. Over time, the mudflats and sand hills were reclaimed and extended the harbour area on both sides of the river to where the north and south piers are now located.

Today, the original Main Street remains the centre of the town, and the settlement extends for 1.0 to 1.5km to the south, east and west, with the ground rising gently to the south from the river.

North of the river, the Ferrybank area extends for a similar distance, and in more recent times, there has been significant development and regeneration along the North Quay with the Bridgewater Shopping Centre and the Marina Village apartments.

The Avoca River, the Arklow Bridge and the coastal setting are the key defining natural and built features of the urban and port setting of Arklow town.



Figure 12.2: Aerial view of Arklow town from northeast, showing the Avoca River, South Quays and Arklow Bridge along the northern side of the town centre, and the wider setting of the southern Wicklow Mountains in the distance

Within the planning boundary (Refer to **Figure 2.3** of **Chapter 2, Background and Need for the Scheme** for project planning boundary), there are a number of distinct landscape character areas, including the following (which are discussed in detail in **Sections** Error! Reference source not found. – **12.3.1.6**).

- River Walk;
- Arklow Bridge;
- Arklow Town Marsh;
- Avoca River channel;
- South Quay; and
- Arklow Harbour.

In addition, implementation of the project will require the establishment and use of six temporary to short term Site Compounds (SC) to facilitate construction of different parts of the proposed development, and also for archaeological testing and temporary stock piling of excavated materials. These will include:

- SC No. 1: At Ferrybank, between Dublin Road and Arklow Town Marsh
- SC No. 2: At Mill Road, south of the Arklow Sports field.

- SC No. 3: At Ferrybank, upstream and adjacent to the Arklow Bridge
- SC No. 4 At Arklow town carpark off Main Street
- SC No. 5: North Pier, and the eastern end of North Quay
- SC No. 6: At South Beach Road

Refer to **Drawing No 1065** in **Appendix 4.1** for locations of construction compounds.

12.3.1.1 River Walk

River Walk extends from The Alps along the south bank of the Avoca River to the Arklow Bridge. The Avoca River and part of its riverbanks lies within a proposed Natural Heritage Area (pNHA, Site Code 001931). River Walk comprises riverbank footpaths, the town carpark (also referred to as Main Street car park or St Marys carpark), and River Walk local access road serving the rear of the properties along Main Street and incorporating on street parking and areas of open space. 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.

Upstream of the carpark, River Walk is an attractive riverfront amenity walkway, comprising a grass riverbank with occasional mature trees and shrubs affording open views of the river and the more strongly wooded northern riverbank as illustrated in **Figure 12.3**. Trees are generally in fair to good physical condition, typically fair structural condition, and provide moderate to good amenity value.

The upstream portion of River Walk is considered to be of medium to high landscape sensitivity and visual receptors enjoying this amenity of high sensitivity.



Figure 12.3: River Walk upstream of carpark, looking downstream

River Walk leads to the town carpark which 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. There are open views of the Avoca River and northern river bank from both River Walk and the carpark.

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 as illustrated in **Figure 12.4**. 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. Trees in this area are typically smaller and younger, in fair physical condition, with fair to poor structural condition, and provide moderate amenity value.



Figure 12.4: River Walk upstream of Arklow Bridge, looking upstream

The built side of River Walk downstream of the carpark (Refer to **Figure 12.**) includes occasional units that provide active frontage onto the walk, including at the carpark, Condren's Lane and approaching the Arklow Bridge, but the balance comprises rear walls of property boundaries and gates that present a piecemeal and haphazard elevation to the walk.

River Walk, from the town carpark to the Arklow Bridge, is considered to be of medium to high landscape sensitivity by virtue of the adjacent Avoca River. Visual receptors include residents and visitors alike and are of medium to high sensitivity.



Figure 12.5: River Walk upstream of Arklow Bridge, looking downstream

12.3.1.2 Arklow Bridge

Arklow Bridge is one of the most distinctive built elements of Arklow town. Built in the middle of the 18th century, and comprising nineteen stone arches, it is the longest stone bridge in Ireland spanning approximately 150m (Refer to **Figure 12.6**). As detailed in **Chapter 13, *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.



Figure 12.6: Arklow Bridge seen from South Quay

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 1960's, 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 **Figure 12.7**.



Figure 12.7: Downstream view of the first (southern) and nineteenth (northern) arch of the Arklow Bridge

The Flood Relief Scheme will include dredging of the river channel and underpinning of the bridge piers so as to lower the river bed level under the bridge and to increase the hydraulic capacity of the river. (Refer to **Section 4.4.3** of **Chapter 4** *Description of the Proposed Development* for further details). The existing river bed under the bridge comprises stone paving as scour protection that can be seen at low tide.



Figure 12.8: View of Arklow Bridge from downstream at low tide

The permitted WwTP Project includes the installation of a main interconnector sewer below the existing river bed level through the first arch on the southern side of the river. This detail was developed in collaboration with the design team for the Flood Relief Scheme and ensures the integrity of the bridge and appropriate integration with the South Quay. As noted in **Section 4.4.2** of **Chapter 4**

Description of the Proposed Scheme, should the construction of the FRS proceed in advance of the WwTP project, the interconnector sewer will be constructed as part of the FRS in this location.

The Arklow Bridge is considered to be of high landscape sensitivity. Visual receptors include residents and visitors alike and are of medium to high sensitivity.

12.3.1.3 Arklow Town Marsh

The Arklow Town Marsh (pNHA, Site Code 001931) 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 eastern part of the marsh includes a number of power lines on timber poles, and a disused overground pipe from the former IFI site leads 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. The Arklow Town Marsh is of high landscape sensitivity. Visual receptors include immediately adjoining residents and those within the town centre on the southern side of the river and are of medium to high sensitivity. (Refer to **Figures 12.9** and **12.10**).



Figure 12.9: Eastern edge of Arklow Town Marsh, at Ferrybank, looking south, and showing the private properties at Ferrybank, the elevated pathway to Shelton Abbey, and the power lines. Avoca River and Arklow Bridge visible in the distance

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 3.0km to the west and upstream of Ferrybank

A water channel (former canal from Shelton Abbey) 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.



Figure 12.10: Eastern edge of Arklow Town Marsh, at Ferrybank, looking north, and showing the private properties at Ferrybank, the water channel, disused overground pipeline from former IFI site, the power lines, and the elevated pathway to Shelton Abbey

12.3.1.4 Avoca River Channel

Upstream of the Arklow Bridge, the river channel 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. 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.

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. Downstream of the bridge, the southern and northern quay walls, comprising a mix of stone, concrete and sheet pile, define the river channel.

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. Downstream, the river is deeper, and the water extends the full width of the river even at low tide.

The Avoca River channel within the context of the surrounding natural and built environments is considered to be of high landscape sensitivity. Visual receptors include residents and visitors alike and are of medium to high sensitivity.



Figure 12.11: Avoca River channel, upstream of Arklow Bridge

12.3.1.5 South Quay

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, 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 roadway along South Quay varies considerably to include one-way single carriageway and wider two-way sections. There are minimal footpaths on one side only between Doyle's Lane and South Green (refer to **Figure 12.12**), 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.



Figure 12.12: South Quay, with residential buildings directly facing the quayside.

Starting at the junction with South Green, there is a grass verge along the quayside incorporating a row of mostly young Norway Maple trees interspersed with individual semi-mature Lime, Rowan, Cherry, White Poplar, Sycamore and Hawthorn trees as illustrated in **Figure 12.1**. Trees are generally in fair physical and structural condition but are of low arboricultural quality and value. While they currently provide some amenity value, their poor growing environment is likely to limit their future value. There are six granite mooring posts set within the grass verge, and likely to extend c.1.5m or more below ground.



Figure 12.13: South Quay looking east from near junction with South Green

A slipway (referred elsewhere in the EIAR as Tyrells slipway) is located on South Quay directly opposite the Arklow Marina on North Quay as illustrated in **Figure 12.4**.

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. An information panel is located on top of the slipway telling the story of the John Tyrell Boatyard. 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.



Figure 12.4: South Quay slipway opposite the Anchor Mews development

Opposite Harbour Road and Rockview Terrace, the Arklow Seafarers Memorial Garden (Refer to **Figure 12.55**) is a modest public space on the quayside that includes a simple paved central area with seating benches, and is flanked on either side by an area of grass and a further row of mostly young Norway Maple trees. The central paved area is also defined by a number of decorative Cordyline trees and low shrub planting. Simple metal railings define edge of the space with the river and are bolted into the concrete capping of the sheet pile quay wall below. An information panel tells the story of the Arklow Offshore Wind Park incorporating the worlds' first offshore wind turbines of over 3MW.



Figure 12.5: Arklow Seafarers Memorial Garden, South Quay

South Quay continues beyond this point to the Arklow Harbour (Dock) 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 office marks the corner of South Quay where it joins Arklow Harbour.

South Quay is considered to be of medium landscape sensitivity. Visual receptors primarily include local residents and high sensitivity.

12.3.1.6 Arklow Harbour

Arklow Harbour (also referred to elsewhere in the EIAR as Arklow Dock) 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.

The western side of the harbour is used for loading and unloading trawlers 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 areas 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 slipway 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 with modest landscape 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.

The Arklow Harbour is a working harbour and is considered to be of low to medium landscape sensitivity. Visual receptors include workers, residents and visitors and are of low to high sensitivity.

12.3.1.7 South Quay Wall

At Arklow Bridge, a c.3.5m length of stone quay wall abuts the bridge pier and continues along South Quay. It a raked cross section and has a curved concrete capping. Vegetation is growing through the stonework. A metal railing, matching

the modern railing on the bridge, is fixed on top of this wall and continues for a further c.6.0m along the concrete upstand on top of the next section of quay wall (Refer to **Figure 12.5**).



Figure 12.6: Interface of south Quay wall and Arklow Bridge

Between Arklow Bridge and South Green, a concrete enclosure is located above the riverbed level outside the quay wall itself and houses a sewer pipe. A series of inspection chambers are also formed in concrete and rise up to the adjoining road level as illustrated in **Figure 12.7**. A low concrete stub wall lies on top of the quay wall as a kerb or barrier to prevent vehicles accidentally traversing the quay edge. The upper part of the quay wall, between the concrete housing and the stub wall, is variably faced with concrete lining or plastered. In some places, this finish has eroded to reveal rubble stone of the quay wall, and vegetation is growing through the joints. Near Arklow Bridge, the quay includes parts of a disused slipway referred to in the EIAR as Coal Quay slip.



Figure 12.7: Sewer housing and inspection chambers on river side of quay wall.

At South Green, a pair of larger inspection chambers mark the end of the sewer pipe and its housing. For the next c.75m, the rubble stone quay wall faces the river, and is capped with large granite flags as can be seen in **Figure 12.18** below. The following c.100m of the quay wall is faced with old concrete, however, the concrete is failing in areas and it is likely that much of the stone wall and granite cappings remain in-situ.



Figure 12.8: Exposed stone quay wall with stone cappings downstream of South Green

The concrete faced stone wall continues for c.35m beyond the Tyrells slipway, after which the next c.65m of river edge comprises rock armour and a pre-cast concrete flood defence wall above the pavement level. At the Arklow Seafarers Memorial Garden, the quay wall becomes a steel sheet pile wall with a concrete capping and this construction continues to the harbour entrance, into the harbour itself, and back out along the river edge as far as South Pier further downstream.

12.3.2 Landscape Planning Context

12.3.2.1 Overview

The proposed development is within the administrative area of Wicklow County Council, and development is guided by the Wicklow County Development Plan 2016-2022, (WCDP).

The WCDP ‘Core Strategy’ and ‘Settlement Strategy’ identify Arklow town as a ‘Level 3 – Large Growth Town II’ within the hinterland area of Dublin. Level 3 settlements in County Wicklow are prioritised to accommodate a large amount of population growth, to be strong active towns that are economically vibrant with high quality transport links to larger towns/cities.

Chapter 9 of the WCDP, Section 9.2 water Infrastructure and Flooding, includes a strategy to “*assist the Office of Public Works through the implementation of measures capable of managing and mitigating against the consequences of flooding in all areas*” and the flood risk and characteristics at Arklow are clearly set out in Volume 3, Appendix 11, Strategic Flood Risk Assessment of the WCDP, with further reference to the Arklow and Environs Local Area Plan 2018-2024.

The WCCDP, Appendix 5, Landscape Assessment, identifies a hierarchy of 6 distinct Landscape Categories throughout the County and within those, 15 Landscape Character Areas (LCAs).

The proposed development is within Landscape Category No. 6, or *Urban Area*, that applies to all settlements of Level 1-6 defined in the Wicklow Settlement Hierarchy. Section 4.5.6 of the WCCDP Landscape Assessment state that ‘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'. Table 1 describes the characteristics of Urban Areas 'As per the provision of the County Development Plan and the provisions of any Local Area, Town or Settlement plan for each area.'

12.3.2.2 Arklow and Environs Local Area Plan 2018-2024

The County Development Plan refers to the Arklow and Environs Local Area Plan 2018-2024 (Arklow LAP) for specific objectives and policies.

The Arklow LAP includes a number of specific landscape and visual references that apply to the context of the proposed development. These are primarily focused on the existing strength of its waterfront location and the positive influence of the Avoca River on the town, as well as on potential enhancements to the landscape/townscape setting that can be derived from these assets.

Chapter 2, the Overall Development Strategy for Arklow, includes an Infrastructure Strategy to *assist the Office of Public Works through the implementation of measures capable of managing and mitigating against the consequences of flooding.*

In **Chapter 5** Keys Areas, under 'Enhancing the Public Realm', the Arklow LAP notes:

"The elements in and around Arklow's town centre that contribute mostly to the quality of the public realm are the streetscape; landmark buildings and appearance of principal junctions/gateways; building frontages, in particular materials, colours and shop fronts; the relationship of the Main Street to the river; urban open spaces and parks, and the juxtaposition of structures to spaces and; footpaths, lighting, seating and other street 'furniture'" (page 29).

The Arklow LAP goes on to note that:

"The 'Waterfront Zone' (WZ) is made up of two distinct areas north and south of the river that have seen different development pressures and levels of activity over the year, but both sharing the common characteristics of water frontage onto the river and/or the sea and the presence of industrial lands/buildings, a large proportion of which is currently underutilised and vacant....It is important that this area is developed in such a way that maintains the river and coast as an accessible, attractive and environmental amenity area." (page 32).

The importance of the Avoca River, its associated bridge, quays, navigation features, and riverside areas, which includes the 'Seafarers Memorial Garden' on South Quay, and the coastal waterfront to the east of Arklow are also identified as important amenity, heritage, recreational and tourism assets, which can be further improved through future enhancements.

Chapter 9 of the Arklow LAP notes that Irish Water is in the process of preparing an application for the development of a comprehensive WwTP to eliminate the

current practice of discharging untreated wastewater directly into the Avoca River and to provide sufficient capacity for the waste water treatment required to serve the population target of Arklow and all associated community, employment and commercial demands.

As noted previously in the EIAR, planning consent has since been given for the WwTP in 2019. The LAP includes Infrastructure Objective T1 *“To support and facilitate the development of a wastewater treatment plant in Arklow, at an optimal location following detailed technical and environmental assessment and public consultation.”*

12.3.2.3 Key Landscape and Visual Objectives

The key landscape and visual objectives from the Arklow LAP includes Town Centre Objectives VP2 and VP9 which promotes better pedestrian linkages along the river, the coast and the main street; VP10 which seeks to maintain the existing bandstand and Seafarers Memorial Garden and promotes opportunity for new urban spaces, and VP11 to improve footpaths, lighting, seating and other street ‘furniture’ as funding allows, and require private development providing such features to meet the highest standards of design and siting in the town centre and waterfront zones.

The LAP includes a vision for the waterfront area to continue to sustainably develop as an active port alongside the development of its recreational potential and to encourage the redevelopment of the waterfront as a residential and mixed use extension of the existing town. The importance of connections between the town centre and waterfront is noted in order to maximise their collective asset value without compromising their historical and environmental amenity.

Waterfront Objectives include WZ6 to require any new developments in the Waterfront Zone to meet a high standard of design that respects the unique historical, environmental, visual and recreational amenities of the area; WZ7 to support and facilitate the development of new infrastructure necessary for the continued operation and development of the harbour; WZ10 to ensure that access to the water, such as steps/slipways/river/beaches etc are maintained and improved; and WZ12 to ensure that any development projects in and around the Arklow quays preserve and enhance any valuable structures or items of Arklow’s maritime heritage

Tourism and Recreation Objectives include TR2 to support and facilitate, in co-operation with relevant bodies and landowners, the provision of tourism amenity routes around the town; and TR6 that promotes and encourages the recreational use of the coastline and the river, and that proposals respect the natural amenity and character of the area, and listed views and prospects to and from the area. There are no designated views and prospects within Arklow town.

Heritage Objectives include HT1 to maintain the favourable conservation status of all proposed and future Natural Heritage Areas (NHAs) in the plan area in particular the Arklow Town Marsh and to support environmentally sensitive measures to enhance the understanding and enjoyment of such natural areas; HT3 to protect and enhance the character, setting and environmental quality of natural,

architectural and archaeological heritage, and in particular those features of the natural landscape and built structures that contribute to its special interest.

The natural, architectural and archaeological heritage of the area shall be protected in accordance with the objectives set out in the Wicklow County Development Plan; HT4 to consolidate and safeguard the historical and architectural character of Arklow town centre through the protection of individual buildings, structures, shopfronts and elements of the public realm that are of architectural merit and/or contribute greatly to this character; and, HT9 to maintain the conservation value of all proposed and future Natural Heritage Areas (NHAs) and to protect other designated ecological sites in Arklow and Environs.

12.3.3 Landscape/Townscape and Visual Significance and Sensitivity

Landscape and visual significance and sensitivity may be highlighted by landscape (or townscape) or visual designation or reference in national, county or local statutory documents or by identification in appropriate publications and reports (e.g. other landscape and visual assessments).

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

- Works within the river channel, including temporary construction haulage routes, dredging, construction of the gravel trap and debris trap infrastructure, and construction of and modification to the river banks and quay walls;
- Works at Arklow Town Marsh, including realignment of the existing drainage channel; construction of a new flood defence embankment along the eastern edge of the marsh; construction of a flood defence wall to tie in to the Dublin Road at Ferrybank; and associated reinstatement and landscaping;
- Works at Arklow Bridge, including underpinning the bridge piers; lowering the river bed under the bridge; and construction of the interface between the new flood relief wall and the southern end of the bridge;
- Construction of the new flood relief wall at River Walk including modifications to the river edge; tree removal; establishment of the flood relief walls; and introduction of new promenade with pathways, ramps; terraces and lighting; alterations to existing roads; utility installations, landscaping; and associated streetscape elements;
- Widening of South Quay downstream of Arklow Bridge, including tree removal and construction of the new flood defence walls; introduction of new riverside promenade with paving, grass verges, tree planting and lighting, and modifications to the existing roadway;
- Construction of the interface between the new flood defence wall and the existing South Quay wall, including localised removal of parts of South Quay wall; removal of cementitious facing material from stonework; re-pointing stonework; re-location of stone mooring posts; re-setting existing granite capping stones; and construction of promenade, grass verges, changes to road

layouts; utility installations, lighting, landscaping and associated streetscape elements;

- Increasing the height of existing flood defence walls and quay levels downstream of South Green towards Arklow Harbour, including tree-removal; construction of new or modified sections of flood defence walls; alterations at the slipway and Seafarers Memorial Garden; and construction of promenade, grass verges, changes to road layouts; utility installations, lighting, landscaping and associated streetscape elements;
- Extension of flood defence walls around Arklow Harbour, including introduction of new sections of wall along the quays, new vehicular ramps; alterations to vehicular regimes; and associated landscaping and streetscape elements.

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

- Views along, to and from the river edge, and in particular along River Walk and South Quay;
- The setting and character of Avoca River within its urban context, including its quaysides and river banks;
- Changes to the character of the Arklow Town Marsh;
- The setting and presentation of Arklow Bridge;
- Changes in the character and amenity of the southern quayside and river setting; and,
- Views from nearby residential properties.

12.4 Characteristics of the Proposed Development

The proposed Flood Relief Scheme includes a number of distinct yet connected elements centred around the Avoca River as it leads through Arklow town, including:

- Flood Defence Walls at River Walk
- Underpinning of Arklow Bridge
- Flood Defence Embankment at Arklow Town Marsh
- Dredging of the Avoca River channel and construction of a Gravel Trap and Debris Trap
- Flood Defence Walls at South Quay
- Flood Defence Works at Arklow Harbour

In addition to the infrastructural proposals, public realm and streetscape improvements are proposed throughout the project area.

It is noted that the proposed Arklow Flood Relief Scheme and associated Public Realm has been designed in collaboration with the permitted Arklow WwTP

project team. As there are direct overlapping construction elements of the two projects, and in particular the permitted interceptor sewer along parts of River Walk, at Arklow Bridge and parts of South Quay, the proposed Arklow Flood Relief Scheme includes the directly overlapping construction elements of the permitted Arklow WwTP project. The inclusion of these overlapping elements will allow either project being implemented in advance of the other while eliminating the need for double digging. Refer to **Section 2.6 Arklow Wastewater Treatment Plant** of **Chapter 2 Background and Need for the Scheme** for further details.

The proposed flood relief drawings are available in **Appendix 4.1**. The landscape design and public realm drawings are included in **Appendix 4.2**.

12.4.1 Flood Defence Walls at River Walk

River Walk will comprise two parts, including the pedestrian area on the river side of the town carpark and the combined pedestrian and vehicular area between the carpark and Arklow Bridge.

The proposed flood relief scheme requires the construction of flood defence walls along River Walk along the southern river bank that will typically be 1.2m to 2.1m higher than the current footpath and road levels at River Walk.

The proposed flood walls and drainage along the south bank upstream of Arklow Bridge are shown on **Drawing Nos 1031, 1036 to 1039 inclusive, 1051, 1053 and 1056 in Appendix 4.1**.

Along the pedestrian section adjacent to the carpark, the full width of River Walk will be ramped up and down to a maximum height of 1.35m above existing levels at a gradient of 1:20 so as to be fully accessible to all users and incorporating a viewing platform c. 6m x 8m and cantilevered over the wall and river. The flood defence wall along the downstream set of ramps will be 1.15m higher than the ramp surface, whereas upstream of the viewing platform, the ramps will incorporate a 1.15m high metal and timber railing along the river edge. Trees on the river bank and on the embankment between River Walk and the carpark will have to be felled including trees T14, T15, T16, T17 T22, T23 and T24 (Refer to **Appendix 12.2 Tree Survey report** for locations of trees).

A new pathway will be provided from the high point of the ramp leading directly to the carpark. A second set of ramps, c. 1.8m wide, will lead from the viewing platform along the outer side of the flood wall providing pedestrian access a new terrace area and floating pontoon at the river edge and continuing c. 175m downstream along the river side of the new wall.

The junction of River Lane and River Walk will be upgraded as a high quality paved pedestrian environment, with raised table access for local traffic. The flood defence wall will incorporate glazed panels so as to permit visibility from this location to the Avoca River and the proposed terrace and pontoon facilities.

River Walk, from River Lane to the Arklow Bridge, is substantially wider and is used by pedestrians and for local vehicular access. The flood defence wall will typically be c.1.6m higher than the existing ground level. Existing trees T1 to T11

inclusive, all category C2, will need to be felled in order to facilitate construction of the flood defence walls, underground interceptor sewer and other civil works. The proposed development however includes a promenade along the wall that will be elevated by c. 500mm so that the wall will be 1.15m high above the promenade. The 500mm level difference between roadway and promenade will be formed using a combination of low landscaped embankments, planters and retaining walls with steps and short ramps at a number of locations to facilitate easy access from the road to the promenade.

Between Condren's lane and Arklow Bridge, the elevated promenade will widen from c. 3.0m to as much as 9.0m by extending into the river bank for a maximum width of 6m, tapering back to zero for a length of approximately 100m. The new promenade will incorporate a series of paved terraces, seat-level planters and landscaping, as well as providing both stepped and ramped access to a second viewing platform cantilevered over the flood wall and river. In the vicinity of the terraces, the flood defence wall will incorporate sections of glazing to provide visual connection with the river for those sitting on the terraces.

The lower level of this portion of River Walk, between the promenade and buildings, will be upgraded as a shared surface and will include designated parking spaces, additional landscaping, as well as short flights of steps and ramps leading to the promenade and terraces. The raised terraces will be a seat level relative to the lower level thereby providing permanent seating directly opposite the café and public house. The lower level and terrace levels will become a strong pedestrian amenity space with high quality paving, permanent seating, landscaping, trees and spill out space for the businesses along River Walk.

The proposed public realm promenade, terraces, new tree planting and landscaping are illustrated on drawings 6545-300 and 301 in **Appendix 4.2**.

The elevated promenade and terrace level, together with the lower level, will be fully accessible to Bridge Street and the Arklow Bridge so that the promenade will continue seamlessly across Bridge Street and onto South Quay.

12.4.2 Underpinning of Arklow Bridge

The Arklow Bridge spans 152m over the Avoca River from the junction of River Walk and South Quay on the southern river bank to Ferrybank on the north side. The bridge, a Protected Structure, comprises 19 stone arches together with a connected 1960s reinforced concrete deck and supporting piers along the upstream side of the original bridge.

The flood relief scheme requires that the river bed under the bridge be lowered by c. 1.0m. Lowering the river bed will require underpinning of the bridge abutments and piers, grouting of the bridge superstructure, piers and pier foundations, remedial works to the stonework and jointing, and construction of a new scour protection for the reduced river bed.

The riverbed at Arch 1 on the southern side will be reinstated at the current level as an interceptor sewer associated with the permitted Arklow WwTP will be laid at the reduced level under the arch and backfilled and finished to the existing river

bed level. Similarly, Arch 19 on the northern side will not be altered due to the range of existing services already passing through this arch.

Although the works required at the Arklow Bridge are extensive, they will not result in alteration to the form of the bridge structure above the low water or foundation level. Changes in appearance will mostly be associated with remedial and refurbishment works to the stonework. The exception to this is at low tide when currently the tops of the pier foundations and the scour protection become visible. Post construction, the new lower scour protection will mean there is always a depth of water through the arches even at low tide, and the existing foundations will remain visible but will be widened all around as they are encased in new concrete casing.

12.4.3 Flood Defence Embankment at Arklow Town Marsh

Flood defence proposals at the north bank include a c. 155m long section of flood defence wall starting at the northern side of Arklow Bridge and leading to a new earth embankment to be constructed along the eastern side of the Arklow Town Marsh. The embankment will vary in height from up to c. 4m at its maximum height above existing ground level towards its southern extent and reducing as the ground level rises towards the northern end c. 600m from the Arklow Bridge.

The proposed flood wall and embankment on the north bank are shown on **Drawing Nos 1031 to 1035 inclusive in Appendix 4.1.**

The embankment will be up to a maximum of c. 18.5m in width, including 1:2 side slopes and a 2.5m wide flat crest on the top and landscaped with native species rich grass and wildflower. A permanent 4.0m wide maintenance access track will be located along the toe of the dry side of the embankment and will be access via a short track leading from the Dublin Road just north of the filling station.

Vegetation to be removed includes existing trees associated with Site Compounds 1 and 3 as described previously, but also includes sections of Rhododendron bushes on either side of the pathway to Shelton Abbey and stripping the footprint of the proposed embankment through the marsh to a depth of c. 1.0m.

To facilitate construction of the berm, c. 125m length of an existing drainage channel located along the eastern edge of the marsh and the rear of the private property boundaries will be diverted westwards so as to remain on the marsh side of the embankment and will join the Avoca River close to the existing channel discharge point. At this location, c. 75m length of the existing river bank will be excavated to facilitate construction of the proposed flood defence wall connecting the embankment to the Arklow Bridge.

After completion of the infrastructural works, this section of river bank will be re-formed with rip-rap at the river bed and with an earth embankment grading upwards to the flood defence wall. The new embankment along the north bank will be landscaped with native species rich grass and wildflower

12.4.4 Dredging of the Avoca River channel and construction of a Debris Trap

The Avoca River channel will be dredged for a distance of c. 320m and 520m upstream and downstream of Arklow Bridge respectively for a depth of up to 1.0m and within 2m of the existing river banks. This work will remove the existing gravel banks that are visible at low tide upstream of the bridge and will also remove the group of trees located within the channel close to the north bank upstream of the bridge.

The proposed channel dredging works are shown on **Drawing Nos. 1003 and 1011 to 1020** inclusive in **Appendix 4.1**.

A debris trap comprising a line of 13 reinforced concrete oval shaped columns will be constructed at the upstream extent of the dredging works immediately north of the town carpark. A gravel trap will be formed in the river bed immediately upstream of the debris trap comprising a 12.0m wide trench across the river bed for a depth of up to 1.0m. A gravel maintenance access ramp will be formed on the south bank at River Walk, upstream of the town carpark and accessed via the ramp described in Section 12.4.1 above, to facilitate periodic maintenance access for the removal of debris and gravel from the river.

The proposed debris and gravel traps are shown on **Drawing Nos 1021 to 1023** inclusive in **Appendix 4.1**. Refer also to **Figures 12.1.1 and 12.2.1** (existing views) and **12.2.2 and 12.1.2** (proposed views) of **Appendix 12.1** which show photomontage views in the vicinity of the debris trap. **Drawing No 300** of **Appendix 4.2** also shows the permanent river access ramp for maintenance and public realm design along River Walk in the vicinity of the debris and gravel traps.

On completion of the infrastructural and dredging works, the existing north bank of the river upstream of the channel discharge location will be extended into the river channel for a length of c.75m and up to 12.0m in width. The realigned river bank will be formed using rip rap at the river bed level and earth will be placed on top to match the levels of the existing river bank. The extended river bank will be landscaped with mixed native woodland trees. In addition, three floating roosting platforms. C. 5m wide and 8m long, will be anchored upstream of Arklow Bridge. These will be low platforms with timber edges and finished in a layer of gravel and will provide roosting areas for birds at all tides. Refer to **Drawing No 1003** of **Appendix 4.1**. Refer also to **Drawing No 301** of **Appendix 4.2** for landscape details. Refer also to **Figures 12.5.2 and 12.7.2** photomontages (which show the proposed roosting platforms) of **Appendix 12.1**.

12.4.5 Flood Defence Walls at South Quay

The proposed development will extend c.1,150m along South Quay downstream of Arklow Bridge. The first c. 270m of downstream of Arklow Bridge will be widened into the river bank by up to 6.0m to facilitate laying of new underground drainage infrastructure. This additional width together with reallocation of quayside space further downstream, permits the establishment of a continuous promenade along the entire length of South Quay from Arklow Bridge to Arklow

Harbour. The promenade will typically be 3.0m in width however at various locations, including vehicular junctions, green spaces and the Seafarer's Memorial Garden, will be up to 6.0 and 9.0m wide. For the first c. 275m as far as South Green, it is proposed to build a new quay wall c.4.5m out into the river channel from the existing quay wall. This will provide space for construction of the interceptor sewer associated with the permitted Arklow WwTP project as well as providing additional width along South Quay for the construction of underground surface water drainage, new footpaths, roadways and public realm works.

The proposed flood defence walls and drainage along the south bank downstream of Arklow Bridge are shown on **Drawing Nos 1031, 1040 to 1049 inclusive, 1051, 1054 to 1055 inclusive and 1057 to 1058 inclusive in Appendix 4.1.**

At South Green, the alignment of the flood defence wall will switch to being on the existing South Quay and will be constructed c. 2.5m behind the existing stone quay wall for a distance of c.90m after which it will be constructed along the line of the existing quay wall.

The top of the proposed flood defence and quay wall, from the Arklow Bridge to just downstream of the slipway, will typically be at 1.15m above pavement level. After the slipway, there is an existing reinforced concrete wall that is sufficiently high to meet the designed flood defence level. The next section however, at the Seafarer's Memorial Garden, has no flood defence wall and a 1.15m high will be constructed for the length of the garden.

Along South Quay, the majority of the existing roadway and quayside will be reconfigured and upgraded to provide a continuous promenade walkway along the river side, revised road and parking arrangements, raised table junctions with side streets, new street lighting and landscaped verges. Construction will require removal of all of the existing street trees at South Green and the Seafarer's Memorial Garden at the outset, however the revised South Quay proposals include planting of new street trees along much of the riverfront promenade and also along section of the residential side of the new street.

12.4.6 Flood Defence Works at Arklow Harbour

Where South Quay joins the Arklow Harbour, the level of the existing low flood defence is sufficiently high to meet the designed flood defence level. This low wall will be continued from South Quay into and around the harbour to provide a continuous flood defence. Short sections of vehicular ramps will be constructed to facilitate vehicular access to the quay wall along the western side of the harbour.

12.5 Likely Significant Effects

As previously noted, the Arklow Wastewater Treatment Plant (WwTP) project is already permitted and shares a considerable site development area and common construction elements with the Arklow FRS, in particular along South Quay, at the Arklow Bridge and along River Walk.

The proposed Arklow FRS project therefore includes the construction elements common to both projects so as to allow either scheme be implemented first without compromising the deliverability of the other project and so as to avoid any potential double digging and associated environmental effects.

In considering the likely significant effects of the proposed Arklow FRS project, the worst-case scenario is assumed which is that the Arklow FRS project is implemented in advance of the permitted Arklow WwTP project and all of the common construction and infrastructural elements are delivered as part of the Arklow FRS project. Should the Arklow WwTP project proceed in advance of the Arklow FRS project, a substantial amount of the civil engineering along South Quay, at Arklow Bridge and along River Walk that is common to both projects will have been implemented prior to implementation of the Arklow FRS project. In these circumstances, landscape and visual effects arising from the Arklow FRS project will generally be reduced as the receiving environment along South Quay, at Arklow Bridge and River Walk in particular will already have been modified by the Arklow WwTP project works.

12.5.1 Do-Nothing Scenario

The overall site area comprises urban, riverine and natural areas, and the town includes a mix of established uses including residential, commercial, amenity, industrial, cultural and port related uses. The population of the town is projected to grow pending the availability of suitably serviced lands.

In the scenario where the proposed development did not proceed as planned, none of the effects arising from the Flood Relief Scheme as set out in this chapter would occur and River Walk, the Arklow Bridge, South Quay and the Arklow Town Marsh may remain substantially unchanged in the short to medium term.

It is noted however that even in a Do-nothing Scenario for the Arklow FRS project the permitted Arklow WwTP Project may be implemented in which case landscape and visual effects within Arklow town and environs will be as set out in the EIA for that project.

12.5.2 Assessment of Effects During Construction

The main construction stages from 2023 onwards (work packages 1-5) of the overall proposed development is anticipated to be a total of 46 months, however, due to in-channel works being restricted to the summer months, construction activity will not be continuous.

The overall project will be delivered in 5 distinct work packages (refer to **Chapter 5, Construction Strategy**), and some of these will run in parallel such that there will be periods when there is construction activity at two separate locations within the overall project area, and to reduce the overall construction duration. There will be a total of 6 Site Compounds established for construction works.



Figure 12.19: Construction Work Packages 1 - 5, and Site Compounds 1 – 6 (not to scale)

12.5.2.1 Construction Site Compounds

There will be six Site Compounds established throughout the project area to facilitate construction of different work packages and also for archaeological examination of excavated material and temporary stock piling of excavated materials. Refer to **Figure 5.1** of **Appendix 5.2** for details of the overall construction programme. These will include:

- SC No. 1: At Ferrybank, between Dublin Road and Arklow Town Marsh
- SC No. 2: At Mill Road, south of the Arklow Sports field.
- SC No. 3: At Ferrybank, upstream and adjacent to the Arklow Bridge
- SC No. 4: At Arklow town carpark off Main Street
- SC No. 5: North Pier, and the eastern end of North Quay
- SC No. 6: At South Beach Road

Site Compound No. 1 will be established at Ferrybank, west of the Dublin Road and Brigg's Lane, and will be in operation for the duration of all work packages of the project.

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 7 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. Tree Group G3 is noted in the Tree Survey Report (**Appendix 12.2**), as an area of dense unmanaged scrub woodland, impenetrable for detailed tree inspection, and comprising mostly early and semi-mature *Salix spp.*, *Acer pseudoplatanus*, *Alnus glutinosa* and scrub natural regeneration growing on wetland fringe and category C2. Five individual trees are noted, including T105 *Salix fragilis* category U, and T106 and T107 *Acer pseudoplatanus* category U, T108 *Pinus sylvestris* category B2 and T115 *Alnus glutinosa* category C2, together with a row of four early mature *Acer pseudoplatanus*, a mature *Salix spp.* and a mature *Tilia spp.*

Site Compound No. 2 will be established within an existing grassland area between the Mill Road and the running track and will be in operation primarily during the dredging work package (WP2). 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 car parking and vacant site areas along Mill Road, and the eastern edge of the open space is defined by the grass embankment along the coast edge.

Site Compound No. 3 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, and will be in operation for WP1, WP2 and WP5. The site is derelict, with the previous dwelling demolished, and presenting areas of rubble and scrub vegetation leading to the adjoining northern river bank. 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 G6 is noted in the Tree Survey Report to the immediate north comprising *Salix spp.*, *Betula pendula*, *Acer pseudoplatanus*, *Fraxinus excelsior*, and *Malus domestica* probably associated with the garden of the demolished dwelling. They are category C2. Willow bushes in poor condition, category C2, are noted along the adjoining river bank. Tree Group G7 is noted west of the compound area immediately beyond existing drainage channel, forming the downstream end of the riparian tree line along the north bank, and comprising *Salix spp.*, *Betula pendula*, and *Alnus glutinosa* category B2 and C2.

Site Compound No. 4 will be within the western portion of the Arklow town carpark between Main Street and River Walk and will be in operation for WP3 and WP4. The area includes part of the tarmac parking area, and also includes part of the grass bank that leads from the carpark to River Walk. The grass bank includes 5 No. trees, T15 to T19 inclusive, *Tilia cordata*. Four of these are category C2 trees, and T19 closest to the carpark is category B2. Along the western boundary of the carpark, there are two trees, T20 *Betula pendula*, category C2, and T21 *Prunus spp.*, category B2. 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 river bank.

There are three additional trees along the river bank at River Walk adjacent to the carpark including T22 *Fraxinus excelsior* category B2, T23 *Betula pendula* category C2 and T24 *Alnus glutinosa* category C2.

Site Compound No. 5 comprises the eastern end of North Pier at the furthest extent of North Quay and will be in operation primarily during the dredging work package (WP5). The area is a narrow strip of hard standing and scrub that lies between the north quay wall and the southern extent of Arklow South Beach. The area is not normally publicly accessible as it lies beyond the security fencing further upstream along North Quay.

Site Compound No. 6 is an area of grassland that lies between the South Beach Road and the South Beach, and will be in operation for WP1, WP2 and WP4. 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 are carparks to the immediate north and south of the space. The land to the west of South Beach Road is part of the Arklow Golf Course.

Effects on Landscape/Townscape Character

Establishment and operation of Site Compound No. 1 will alter the existing character of the site area through site clearance, tree, hedge and scrub removal, laying down of hardcore areas, erecting site offices, security fencing and hoarding, and from construction related activity. The site compound will have short term localised significant adverse effects on the immediate site area, as may be perceived from the adjoining main road and facing properties.

Compound No. 2 will be defined and secured by perimeter fencing and hoarding along the Mill Road and facing the Arklow sports field. The wider area is expansive, with the more sensitive and frequented areas located to further to the north and along the coastal embankment. Movement of trucks and personnel to and from the compound will give rise to short term minor adverse effects on the wider area.

Compound No. 3, by virtue of its adjacency to the north bank, and its prominence at the busy intersection of the Arklow Bridge, Dublin Road and North Quay, is considered a sensitive setting. Establishment of the compound will require clearance of the site area and erection of security fencing and hoarding that will be prominent locally, and readily visible from the south bank at River Walk. Operation of this compound, together with associated pedestrian and traffic management regimes, will give rise to localised short term significant adverse effects.

Compound No. 4, by virtue being located within an existing public carpark and adjacent to the riverside amenity walk, is considered a sensitive setting. Establishment of the compound will include cordoning off this part of the carpark and erection of security fencing and hoarding and felling of trees T14, T15, T16, T17 T22, T23 and T24. Operation of this compound, including construction traffic access and egress and associated pedestrian and traffic management regimes, will give rise to localised short term moderate/significant adverse effects.

Compound No. 5 is part of the North Quay that is substantially industrial and port-related in character, although it is set within the wider river and harbour setting. Establishment of the compound will include erection of security fencing and hoarding. Operation of this compound, including movement of construction

vehicles to and from the compound, will intensify the industrial activity at the pier and result in short term minor adverse effects.

Compound No. 6, by virtue of its coastal and amenity setting, including proximity to Arklow Golf Club, is considered to be of high sensitivity. Establishment of the compound will include cordoning off this area and erection of security fencing and hoarding. Operation of this compound, including construction traffic access and egress, will give rise to localised short term moderate adverse effects.

Effects on Views

Effects on views during construction by virtue of the Site Compounds and associated construction activity will be temporary to short term, and will range from minor to significant, and from neutral to negative.

Site compounds, by their nature, introduce elements that are temporary to short term, but can nonetheless be incongruous particularly within a more urban or sensitive landscape setting.

The smaller site compounds associated with the Arklow Flood Scheme project are No. 3 at the southern end of Ferrybank, and No. 4 in the town carpark. By virtue of their locations being both within the townscape and facing the river corridor, these will impact to a greater extent on more sensitive aspects of the project area than the larger site compounds that are typically more remote or within a more expansive visual environment that has greater capacity to absorb change.

12.5.2.2 Arklow Bridge

Works to the Arklow Bridge will include, in summary, lowering the riverbed under the bridge by 1.0m, which will require underpinning of the bridge abutments and piers, and reconstruction of the scour protection slab at the reduced riverbed level. Arklow Bridge is a Protected Structure (RPS A26), and its stone arched construction is such that the stonework will need to be grouted to improve the physical integrity and bearing capacity of the structure in advance of and underpinning works.

Works to Arklow Bridge will be carried out over a total of 36 months from 2023 to 2025 of the works, however in-channel works will only be carried out during the summer months (May-Sept). Works will be undertaken in three stages, starting with the southern section, and continuing with the middle and northern sections respectively.

Full details of the proposed works are provided in **Section 5.5.1 of Chapter 5, Construction Strategy**. Construction works will give rise to temporary and short term landscape (townscape) and visual impacts through:

- Establishment and operation of Site Compounds No. 1 and 3, including stripping, geotextile, compacted hardcore, site offices and storage units, security fencing and lighting as described in **Section 5.4.3 of Chapter 5, Construction Strategy**;
- Establishing site entrance boundaries and hoarding;

- Establishing 4 No. temporary access points to the Avoca River up and downstream of the bridge, and on the north and south banks using compacted hardcore ramps from the public roads;
- Operation of management regimes for pedestrian and vehicular access across Arklow Bridge;
- General construction activity, including movement and operation of construction vehicles and machinery, construction personnel, import and export of materials, site lighting etc;
- In-channel bunding and de-watering, and establishment of temporary in-channel construction access roads from the river access points to the work areas;
- Grouting of the stone bridge structure, including associated construction activity above and below the bridge deck and arches;
- Excavation, piling and concreting at each bridge pier to underpin the piers deeper into the river bed;
- Remedial works to Arklow Bridge including temporary scaffolding and access arrangements;
- Excavation of the river bed under each arch to a depth of up to c. 1.6m including removal of existing concrete slab and interlocking stone scour protection;
- Laying and backfilling the interceptor sewer associated with the Arklow WwTP through Arch 1 on the south bank;
- Modification of the southern quay walls where the Arklow Bridge joins the south bank to include installation of high quality contemporary pre-cast concrete panels as a finial finish that extends from lower water level to the top of the flood defence level and provides an appropriate tie-in between the historic bridge and the new quay wall; and,
- Construction of a new concrete scour protection slab under the bridge at the reduced riverbed level and extending up and downstream from the bridge to a concrete toe and riprap to join and protect the natural river bed materials from erosion. The interlocking stone scour protection will be reinstated under arches 1 and 19 at the existing level.

Effects on Landscape/Townscape Character

Effects during construction works at Arklow Bridge will be temporary or short term, with works associated with the Arklow Bridge spanning the summer months of three consecutive years for the southern, middle and northern portions of the bridge respectively.

Construction activity will include intensive physical disruption of the normal setting of the bridge, including extensive scaffolding and access management arrangements, at deck level where pedestrian and vehicular movements will be impacted by the presence of temporary deck level work compounds and construction activity, and in-channel where temporary river access points, haul roads, bunding, de-watering, excavation, drilling and concreting activities will be

detract from the normal setting and appearance of the Arklow Bridge and the Avoca River setting from Arklow town. Site lighting from working compounds as well as operational task lighting will also be apparent and detract from the night time appearance of the bridge.

It is noted that the in-channel construction activity, including temporary access ramps and haul roads etc will not be present during the winter months to comply with Inland Fisheries Ireland requirements, and this will reduce the intensity of construction activity during the winter months.

Landscape/townscape effects during construction will be temporary to short term, but significant and negative for the duration of the summer months of 2023 to 2025 inclusive.

Effects on Views

The Arklow Bridge over the Avoca River is a defining characteristic of Arklow town. The presence of temporary haul roads and construction vehicles and activity within the river channel below the bridge, and of scaffolding and hoarded working areas on the bridge deck, will be visually incongruous with the character of the bridge and river. Effects on views to and from the Arklow Bridge, and along and across the Avoca River during construction works will be temporary to short term, but significant and adverse and will include construction site lighting on the bridge at night time.

12.5.2.3 River Dredging

Dredging works will take place after completion of the works to underpin the Arklow Bridge and will include, in summary, lowering the river bed for c. 320m upstream and 520m downstream of the Arklow Bridge, and to a maximum depth of 1.0m. Dredging will be carried out over a total of 5 summer months in Q2 and Q3 of 2026.

Full details of the proposed works are provided in **Section 5.5.2 of Chapter 5, Construction Strategy**. Construction works will give rise to temporary and short term landscape (townscape) and visual impacts through:

- Establishment of Site Compound No. 2 and 5 as described in **Section 5.4.3 of Chapter 5**, of this EIAR;
- Operation of Site Compounds Nos. 1 and 3;
- Operation of Site Compounds No. 1, 2, 5 and 6 for archaeological testing and stockpiling of dredged material;
- Establishing site entrance boundaries and hoarding;
- Establishment of 4 No. additional river access points – 2 No. upstream at River Walk, and 2 No. downstream along South Quay and North Quay;
- Operation of management regimes for pedestrian and vehicular access to public roads and to properties;
- Establishment and use of in-channel temporary haul roads adjacent to both river banks for the extent of the river dredging area;

- General construction activity, including movement and operation of construction vehicles and machinery, construction personnel, import and export of materials, site lighting etc;
- Removal of group of in-channel bushes, (*Salix app.* Category C2 and U), close to north bank and upstream of Arklow Bridge;
- Widening of c. 75m length of the north river bank up to 12m in width using rip-rap at the river bed level and earth mounding to tie in with the existing river bank and planted with mixed native woodland to match the existing river bank vegetation;
- In-channel operation of excavators, long reach excavators and dump trucks for the removal of river bed material for archaeological testing and archaeological examination of dredge material at Site Compounds No. 1, 2, 5 and 6; and,
- Installation of 3 No. floating (anchored) roosting platforms upstream of Arklow Bridge, c. 5m wide and 8m long, with shallow timber sides and a gravel finish on top.

Effects on Landscape/Townscape Character

The main dredging works (WP2) will be undertaken following completion of most of the rest of the flood defence project works, apart from the north defences at the Arklow Town Marsh (WP5).

By that time, the majority of changes to the physical environment of the Arklow Bridge, Avoca River, River Walk and South Quays will have been completed, save for the establishment of new landscaping and tree planting.

Dredging the river channel during the summer months of 2026 will include the provision of river access points together with temporary haul roads adjacent to both river banks, and for the full extent of dredging works. These installations, although temporary, will be disruptive to the character of the river and its urban, riverine and quayside setting. Once established, and dredging is commenced, the majority of activity will be within the river corridor along these temporary haul roads and including operation of excavating equipment to dredge the river bed. There will be ongoing movement of dumper trucks to and from the river access points and leading to Site Compounds No. 1, 2, 5 and 6 to deposit excavated material for archaeological examination, stock piling and disposal. There will be temporary traffic management regimes in operation along the routes to and from these sites, and these will increase the sense of disruption within the wider townscape.

Landscape/townscape effects during construction will be temporary to short term, and significant and negative for the summer months of 2026.

Effects on Views

Dredging of the river channel, including the establishment of temporary access and haul roads along the river banks, and the operation of construction vehicles and equipment within the river channel and along the river banks, will give rise to

temporary to short term significant negative effects of views to and from the river channel.

See photomontage View 7, **Appendix 12.1**, **Figures 12.7.1** and **12.7.2**.

12.5.2.4 Debris and Gravel Trap

The debris trap will be located c. 300m upstream of Arklow Bridge opposite the town carpark and will comprise a series of reinforced concrete columns set within the river channel and extending between the southern and northern river banks. The debris trap columns will be 1500mm long and 600mm wide and will reach c.500mm higher than the flood defence level. The gravel trap will be on the upstream side of the debris trap and will comprise c. 12.0m excavation to a depth of c. 1.0m between the river banks, and with riprap protecting the downstream excavated faces of the excavation.

The debris trap and gravel traps will be constructed concurrently with first stage of works to the Arklow Bridge during the summer months of 2023.

Full details of the proposed works are provided in **Section 5.5.3 of Chapter 5, Construction Strategy**. Construction works will give rise to temporary and short term landscape (townscape) and visual impacts through:

- Operation of Site Compounds Nos. 1 and 4;
- Operation of Site Compound No. 1 for archaeological testing of excavated material prior to reuse/disposal;
- Establishing site entrance boundaries and hoarding;
- Establishment of 1 No. additional river access point from River Walk upstream of the carpark;
- Operation of management regimes for pedestrian and vehicular access to public roads and to properties, and in particular along River Lane, River Walk and Condren's Lane;
- Establishment and use of in-channel temporary haul roads adjacent to the south river bank and crossing the river;
- General construction activity, including movement and operation of construction vehicles and machinery, construction personnel, import and export of materials, site lighting etc;
- Establishment of in-channel bunds, and excavation, piling and construction of reinforced concrete foundations and debris trap columns;
- In-channel operation of excavators and dump trucks for the removal of river bed material for archaeological testing; and,
- Removal of temporary access and haul roads.

Effects on Landscape/Townscape Character

The proposed debris and gravel traps will be localised to the river channel area immediately north of the Arklow town carpark and parts of River Walk. While

these facilities will extend from the south bank to the north bank, the presence of a strong riparian tree line of mature trees along the north bank will minimise potential construction impacts on the Arklow Town Marsh area immediately north of the river.

Construction of the debris and gravel traps will necessitate significant disruption to the normal setting of River Walk and the Avoca River, and including within Site Compound No. 4 within the public carpark and along the affect public roads.

Tree removal along River Walk will be necessitated, including T23 *Betula pendula* category C2, T24 *Alnus glutinosa* category C2, and T25 *Salix X chrysocoma* category B2 in addition to those on the adjacent carpark embankment identified in Section 12.5.2.1 above. Temporary river access and haul roads will be established from River Walk and alongside the southern river bank, and then extending across the Avoca River to provide access for construction vehicles and activity. The establishment of this work area extending from the carpark to the river will restrict public access to and from River Walk for the duration of construction of the debris and gravel traps. These temporary construction facilities, together with associated bunding, de-watering, excavation and concreting activities, will be uncharacteristic of the river setting, and will give rise to localised landscape/townscape impacts that are temporary, significant and negative.

Effects on Views

Construction of the debris and gravel traps, including the establishment of temporary access and haul roads within the river channel, hoarding of work areas, and operation of heavy construction vehicles and equipment will have temporary to short term locally significant and adverse effects of views of the river corridor from River Walk and downstream as far as Arklow Bridge.

See photomontage View 1, **Appendix 12.1, Figures 12.1.1 and 12.1.2.**

12.5.2.5 Flood Defences along South Bank

The proposed flood defence walls along the south bank will extend from 320m upstream of Arklow Bridge along River Walk, and for c.1150m downstream of Arklow Bridge along South Quay. The physical condition and profile of the existing quay walls and river banks vary considerably as described above in **Section 12.3.1.7**. The proposed flood defence walls will include a combination of new sheet piled flood defence walls in-channel in front of the existing quay walls, new reinforced concrete flood defence walls on quay behind the existing quay walls, and modification of exiting walls and quay edges with reinforced concrete to increase the flood defence level.

Construction of flood defence walls will commence after the completion of the second stage of works to the Arklow Bridge, and continue for c. 18 months, commencing with the upstream section along River Walk, and following downstream on to South Quay to Arklow Harbour. Upon completion of structural elements of the flood defences, the public realm works along the entire length of the south bank will be implemented.

Full details of the proposed works are provided in **Section 5.5.4 of Chapter 5, Construction Strategy**. Construction works will give rise to temporary and short term landscape (townscape) and visual impacts through:

- Operation of Site Compounds Nos. 4 and 6;
- Establishing site entrance boundaries and hoarding, and site access routes to include temporary relocation of pedestrian facilities;
- Tree removal along River Walk adjacent to the carpark including T23 *Betula pendula* category C2, T24 *Alnus glutinosa* category C2, and T25 *Salix X chrysocoma* category B2, and T1 to T11 inclusive along River Walk between Condren's Lane and Arklow Bridge.
- Tree removal along both sides of the road and at the Seafarer's Memorial Gardens, including T32 to T72 and G8 (primarily *Acer platanoides* and with occasional *Crataegus monogyna*, *Prunus spp.*, *Tilia cordata*, *Sorbus aucuparia*, *Acer pseudoplatanus* and all category C2, and 5 No. *Cordyline* category C2 at Seafarer's Memorial Garden;
- Operation of management regimes for pedestrian and vehicular access to public roads and properties, including River Walk, River Lane, Condren's Lane, South Quay and Arklow docks;
- Establishment of a temporary compacted stone river access ramps and causeways along the south bank, c. 10.0m in width and extending c.120m and 300m up and downstream of Arklow Bridge respectively, to provide access and a working platform to facilitate construction works, to comply with Inland Fisheries Ireland requirements;
- Import, storage and installation of sheet piling and associated materials, to form the structure of new flood defence walls, and encasing the top of the sheet pile with reinforced concrete to form the top of the wall to the required flood defence level;
- Construction of new storm water drainage infrastructure including pipelines and pump stations, using open cut and cover construction;
- Construction of public realm, streetscape and landscaping works to include:
 - New pedestrian promenade, including landscaped terraces and viewing areas at Riverwalk, along the riverside, inside the new flood defence walls, and typically elevated such that the new wall is not more than 1200mm high from the pedestrian side;
 - New pedestrian facilities including footpaths, stepped terraces and a moored floating pontoon on the riverside of the flood defence wall;
 - New pedestrian ramps and steps, immediately north of the town carpark at River Walk and along River Walk approaching Arklow Bridge, to provide full accessibility along River Walk and between River Walk and the new riverside facilities;
 - Shared surface paving areas along River Walk, including raised table junctions, and incorporating paving and kerb upgrades, landscape verges, planter boxes, and steps and ramps establish an attractive and safe pedestrian environment;

- New paving, kerbing, verges and associated streetscape alterations along South Quay to provide a high quality continuous promenade from Arklow Bridge to Arklow Harbour, and the enhance the presentation and amenity of South Quay generally;
- Provision of high quality finishes to the new flood defence walls, including glazed sections at the junction of River Lane, at the seating area along River Walk, at the new terraces just upstream of Arklow Bridge and at the existing Tyrells slipway on South Quay;
- New tree planting throughout as showing on drawings 6545-300 to 304 (**Appendix 4.2**); and,
- Lighting and associated street furniture.

Effects on Landscape/Townscape Character

The southern flood defences will extend along the entire south bank of the Avoca River within Arklow town, and will by their nature, necessitate intensive disruption and physical disturbance along the river bank and South Quays.

Initially, working areas will be established with the erection of security fencing and hoarding together with implementation of temporary alterations to pedestrian and vehicular access regimes and tree felling.

The River Walk section will be constructed first, during Q4 of 2023 and Q1 of 2024. The nature of the proposed flood defences and subsequent public realm works, is that full road re-construction will effectively be required. Construction will involve site area clearance including trees, existing flood walls, footpaths and kerbs and carriageways to facilitate excavation for foundations, drainage and utilities infrastructure, and construction of reinforced concrete flood defence walls, new footpaths, terraces, tree pits, and lighting, revised carriageways and associated public realm works.

Pedestrian and local vehicular access routes will be maintained along the building side of River Walk, however, the extensive nature of construction is that much of River Walk will be enclosed with security fencing and hoarding for the duration of works.

Construction work areas and activity, and the movement of construction vehicles to and from River Walk, will disconnect the buildings from the river bank for the duration of construction, giving rise to temporary to short term significant adverse landscape/townscape effects.

At the beginning of the summer months of 2024, temporary in-channel causeways and river access ramps will be constructed up and downstream of Arklow Bridge from approximately Condren's Lane to South Green for the extent of proposed new in-channel sheet piled flood defence walls, so as to facilitate sheet piling from the river side of the south bank. During this period, a large proportion of the heavy civil engineering works will take place on the river side of the quays, with a consequent reduction in the level of disruption on the quayside. Nonetheless, work areas along the south bank of the river will be secured with fencing and hoarding with extensive disruption and disconnection from the river, giving rise to temporary to short term significant adverse landscape/townscape effects during construction.

The proposed flood defence wall alignment will switch just downstream of South Green from being in-channel to being on South Quay. From this point on, the flood defence wall will be constructed by excavating foundations and constructing reinforced concrete flood defence walls. Similarly, the new drainage infrastructure will continue to be constructed within the South Quay using open excavations and backfilling.

From this point onwards, and continuing into Arklow Harbour, the flood defence wall will comprise either a new reinforced concrete wall constructed within South Quay, or a reinforced concrete extension of the existing wall. The nature of this type of construction is less intensive, and the width of South Quay is typically wider, such that the level of disruption will generally be less than further upstream. Nonetheless, the work areas will be secured by hoarding, and the quayside character of South Quay will be less apparent during construction. Landscape/townscape effects during construction will be temporary to short term, significant and adverse.

Following completion of the main civil engineering works, the public realm construction works will then be implemented. Despite being extensive along River Walk and South Quay, the nature of this type of construction is that it can be more localised and less disruptive in general. Additionally, as the final public realm, streetscape and landscaping are being implemented, the emerging character of the final project, and the benefits it will bring, becomes more readily apparent. Construction of the public realm will generally have temporary slight to moderate adverse landscape/townscape effects.

Effects on Views

Construction of the southern flood defence walls and associated drainage infrastructure and public realm works will alter the visual environment along River Walk and the South Quays, and at Arklow Bridge and Arklow Harbour, as temporary in-channel access and haul roads, and the presence and activity of heavy construction vehicles and equipment, change the visual setting of river banks and quays.

Locally, on River Walk and South Quay, views of the river setting will be largely obstructed by construction hoarding around work areas, and in the wider context, views towards the south river bank from North Quay and Arklow Bridge will be altered. Effects on views during construction of the southern flood defences will be temporary to short term, but significant and adverse.

12.5.2.6 Flood Defences along North Bank

The proposed flood defences at the north bank extend from Arklow Bridge for c.610m along the eastern side of the Arklow Town Marsh, and will primarily comprise earth embankments, with a short section of sheet piled and concrete wall to tie into the existing Dublin Road at Arklow Bridge. Works will also include realignment of an existing drainage channel to the toe of the proposed embankment.

Construction of north bank flood defence walls will be in parallel with the river dredging works, in Q2 and Q3 of 2026.

Full details of the proposed works are provided in **Section 5.5.5 of Chapter 5, *Construction Strategy***. Construction works will give rise to temporary and short term landscape (townscape) and visual impacts through:

- Operation of Site Compounds Nos. 1 and 3;
- Establishing site entrance boundaries and hoarding, and site access routes to include temporary relocation of pedestrian facilities, and tree removal;
- Operation of management regimes for pedestrian and vehicular movements at the access locations to Site Compounds No. 1 and 3;
- Diversion of the existing drainage channel, and modifications or protection of existing utilities;
- Establishment of a temporary haul road along both sides of the flood defence works;
- Clearance of trees and stumps and c.75m length of the north bank upstream of Arklow Bridge, and sheet piling and concrete casing to establish the southern portion of the north bank flood defence;
- Stripping the footprint of the proposed embankment to a depth of c. 1.0m to remove organic materials, sods and stumps, and rubbish fills;
- Driving sheet piles to establish cut-off of any groundwater beneath the embankment;
- Construction of the embankment to include a geotextile strengthening membrane across the formation, and establishing the embankment in compacted layers of up to 150mm depth to reach the flood defence level application of 300m depth of topsoil and seeding; and,
- Re-establishment of north bank using rip rap at river bed and earth embankment rising to meet the sheet piles concrete wall and also to tie into the embankment; and,
- Landscaping of the embankments to include a mixture of native species rich grass and wildflower.

Effects on Landscape/Townscape Character

Construction of the northern flood defences involved construction activity along the eastern edge of the Arklow Town Marsh, pNHA. Initially, construction will include realignment of the existing drainage channel, establishment of temporary construction haul routes along both sides of the proposed flood defence alignment and stripping of the footprint area of the proposed embankment to provide a suitable base for the construction of the earth embankment. The southern end of the flood defence will require construction of a short section of sheet piled defence wall with reinforced concrete casing to tie into the levels at the Dublin Road and Arklow Bridge.

The main embankment will be constructed on a geotextile strengthening membrane laid over the stripped ground. Interlocking sheet piling will be installed

to form a groundwater cut-off within the body of the proposed embankment, and the embankment will then be formed in 150mm lifts of compacted material to achieve the required profile. The embankment will be finished with 300mm depth of topsoil and seeded.

By virtue of its proposed location at the eastern edge of the Arklow Town Marsh, and being substantially behind the buildings along Ferrybank, effects of landscape/townscape character will be mostly confined to the immediate site area, and to the rear aspect of properties at Ferrybank that face west over the marsh area. It is noted that these properties generally have long rear garden areas, of 50m or more, and many have mature trees along their rear boundaries with the marsh, and along neighbouring boundaries. Nonetheless, construction activity and the emergence of the proposed embankment will represent a change in the character of the rear aspect of these properties.

There will be direct landscape disturbance along the eastern edge of the Arklow Town Marsh, including removal of vegetation and realignment of an existing marsh drainage channel. Additionally, construction of the sheet piled concrete flood wall in the vicinity of Arklow Bridge will necessitate removal of river bank vegetation in that locality, which, together with removal of in-channel vegetation associated with the river dredging works, will render the Arklow Town Marsh somewhat more open from the river corridor, including from Arklow Bridge and parts of River Walk.

Landscape/townscape effects during construction will be temporary to short term, significant and negative.

Effects on Views

The Arklow Town Marsh area is not openly visible from areas outside of the marsh itself, with the exception of the rear aspect from properties along the western side of Ferrybank. The southern portion of the proposed northern flood defences adjoining the Arklow Bridge and northern river bank, is more readily visible from the Arklow Bridge and also from the southern side of the river. Construction of the northern flood defences will alter the visual environment of the Arklow Town Marsh, and locally at along the north bank adjoining the Arklow Bridge. Effects on views during construction of the northern flood defences will be temporary to short term, and moderate/significant and adverse.

12.5.3 Assessment of Effects During Operation

During operation, the landscape and visual effects will primarily be associated with the physical alterations within the environs of Arklow town, including alterations to the quayside at River Walk and South Quay, and the presence of new flood defence structures in the Avoca River and along the eastern side of the Arklow Town Marsh.

The debris and gravel trap will require periodic maintenance to remove trapped material and silt build-ups. This will involve an excavator forming a temporary causeway from the proposed permanent maintenance access slipway at River Walk along the river edge and across the river at c.300mm below water level. These works will be carried out at times of low river flow and during the summer

months and a mechanical grab will load the material onto dumps trucks that will travel back and forth along the causeway. Upon completion of clearance, the temporary causeway will be removed to restore the river channel to its normal operational appearance.

12.5.3.1 Site Compounds

The site compounds associated with the construction works will be decommissioned and will mostly be reinstated to their original condition and use, with no residual landscape or visual effects. Site Compound 1 will be decommissioned and will be planted with mixed woodland planting that ties into new planting extending southwards along the dry side of the embankment.

12.5.3.2 Arklow Bridge

Upon completion of the strengthening works, underpinning and general repair works to the Arklow Bridge, there will be limited if any apparent changes to the bridge structure above water. The reduction of the river bed level will be more apparent at low tide levels by virtue of the absence of the existing scour protection that currently becomes visible at low tide. Once the river bed under the bridge is lowered and the new scour protection is in place, there will be a depth of water under the bridge at all stages of the tide.

At low tide, the concrete foundations will continue to be visible however they will be wider as new concrete casing will have been formed around the foundations as part of the underpinning process and extending deeper into the river bed.

The interface of the South Quay wall and the Arklow Bridge will be altered, but with changes associated with the quay wall rather than the bridge structure. The existing wall presents as a mix of old stonework in varying states of repair, and old concrete casing, and the height of the wall needs to be raised to the flood defence level. South Quay wall, immediately adjoining the Arklow Bridge on the up and downstream sides of the bridge, will be finished in a high quality pre-cast concrete cladding panel, presenting a clean, modern and high quality quay wall surface that receives the historic bridge structure and clearly distinguishes between it and any new flood defence structures.

Effects on Landscape/Townscape Character

The Arklow Bridge, together with the Avoca River, will remain the defining characteristic of the townscape, and effects of the Arklow Bridge in its setting, and landscape/townscape character will be slight and neutral.

Effects on Views

Works to Arklow Bridge will not alter the visual appearance of the bridge structure above the low water mark, with exception of the interface between the bridge and southern quay wall described above. It is noted that the repair and grouting work at the bridge will give rise to a restored and more consistent presentation of the bridge particularly from downstream and effects of views will be slight and positive.

12.5.3.3 River Dredging

The nature of river dredging is to remove gravel deposits from the river bed and permit increased flow of water. In consequence, the majority of change occurs at the river bed level and below water.

In the case of the Avoca River at Arklow, dredging will include removal of a narrow strip of trees and other vegetation towards the north bank and upstream of Arklow Bridge, as well as the existing volume of gravel deposits that has established upstream of the bridge.

The trees and vegetation in particular are an attractive feature within the river setting, however the tree lined river bank lies immediately north of them and is the key defining edge of the river. Removal of these elements from the river will have indirect effects as the colonies of birds that currently gather on the gravel banks at low tide and perch of the branches of the trees in the river will no longer be able to do so. The proposed development however includes the installation of 3 No. floating roosting pontoons, c. 5m wide and 8m long, anchored to the river bed and presenting as shallow timber edged rafts in the water with a gravel finish. As these pontoons will be floating, there will be available for roosting birds at all stages of the tide.

Depending on deposition levels and growth, possible that occasional routine channel maintenance dredging and vegetation clearance will be required.

Effects on Landscape/Townscape Character

Dredging will restore the full flow of the Avoca River, with a depth of flowing water present at all stages of the tide. The absence of in-channel vegetation and low tide roosting ground will give rise to moderate adverse landscape/townscape character effects.

Effects on Views

Restoration of the Avoca River to full flow will have a positive effect on views to and from the river and its setting, however, the absence of the low tide colonies of birds on the existing gravel banks and in-channel vegetation will reduce the visual diversity of the river channel, giving rise to indirect moderate adverse effects on views.

See photomontage View 6, 7 and 8 in **Appendix 12.1**.

12.5.3.4 Debris and Gravel Traps

Upon completion of construction, removal of temporary in-channel haul roads and reinstatement works, the only parts of the debris and gravel traps that will be apparent will be the tops of the debris traps columns extending from the water level. These columns are reinforced concrete c. 1,500mm long and 600mm wide, set at 4.0m spacings and reaching a height of c. 4.2m OD, or c. 2.6m above the level of River Walk.

The debris trap will present as a simple line of oval shaped reinforced concrete columns extending from the south bank to north bank. The main body of the

infrastructure, including the foundations and the gravel trap, will be concealed at and below the river bed.

It is noted that the gravel trap will require clearing periodically. This will involve establishment of temporary access and haul roads along the south bank at River Walk and leading across the river so as to access the gravel trap with excavators and dump trucks. This activity will have adverse effects on the river setting, however, will be periodic and temporary.

Effects on Landscape/Townscape Character

The presence of the debris trap piers in the river will appear incongruous to some, while others may perceive them as being of visual interest and having an almost sculptural appearance, echoing the rhythm of the arches of the Arklow Bridge. Effects on landscape/townscape character are considered moderate and adverse, reducing over time to become neutral as they become an accepted part of the river.

Effects on Views

The debris trap piers in the river be permanent modern structures within the river channel. They will be arranged at regular spacings from the south bank to the north bank in a straight line, and will be contemporary in appearance, and will proximate to the built environment of the centre of Arklow town. They will be noticeable within the river, particularly from River Walk upstream of Arklow Bridge, but will not restrict views along the river. The debris trap piers will have a slight/moderate adverse effect on the local visual environment.

See photomontage View 1, **Appendix 12.1, Figures 12.1.1 and 12.1.2.**

12.5.3.5 Southern Flood Defences

The introduction of the southern flood defences as part of the overall flood defence project, will give rise to the most noticeable change in the townscape and riverine environment at Arklow town. It is noted that the construction elements that are common with the permitted Arklow WwTP project are included under the Arklow FRS, including the installation of the underground interceptor sewer along South Quay and River Walk.

At present, much of the river bank and quay walls within the town have an open aspect to the river. At some locations, there are low walls of varying construction that were introduced over time to combat flooding, but the low level of these walls has limited impact on the visual connection between the quayside and the river.

The establishment of modern flood defences along the quays, by its nature, necessitates the introduction of higher physical barriers along the river edge. The existing quay levels are such that the height of barrier required to provide a secure flood defence level varies from c.2.0m upstream of Arklow Bridge to less than 1.0m further downstream along South Quay and at Arklow Harbour.

The potential landscape/townscape and visual effects of a continuous barrier between the river bank/quayside and the river is significant, however this effect will be mitigated by the introduction of enhanced public realm and landscaping

that will provide a high quality amenity along the quays. The perception of impacts will reduce over time to become positive as the new quayside amenity becomes established and is accepted.

In addition to achieving a secure floor defence height, the location of the flood defence wall is also important, and relates to a combination of factors including the width of the river channel, the space available along the river bank /quayside for associated underground drainage infrastructure, maintaining access for pedestrians and vehicles, and ensuring amenities are retained and even enhanced. The proposed development includes establishment of new flood defence walls, or quay walls, both within the existing river channel and on the existing quayside. Depending on location, this will have the effect of either widening or reducing the existing width of the quayside.

The introduction of the southern flood defences will give rise to substantial physical changes along different parts of the south bank.

Upstream of Arklow Bridge, the height of flood defence wall required is typically 2.0m above the ground level of River Walk. The potential landscape/townscape and visual effects of a continuous structure that is higher than eye level is significant, with potential to visually disconnect River Walk from the river setting. The proposed development however, includes re-profiling of the streetscape, or quayside, along River Walk to include elevated walkways and terraces along the flood defence wall such that the wall is only 1,150mm above the new walkways and terraces.

Sections of the existing road surface will also be raised so as to reduce the relative height difference between the road level and the flood defence level, and the entire streetscape area between the buildings and the flood defence wall is to be re-arranged to make River Walk a substantially pedestrian priority area, with shared surface paving, steps, ramps, elevated walkways and terraces and substantial improvements to the public realm along River Walk.

Additionally, an outer walkway will be provided, on the river side of the flood defence wall, and will include additional terrace areas, stepped terraces and a floating moored pontoon for public use. These river edge facilities will be fully accessible via a number of ramp and step features over the flood defence level and will incorporate elevated viewing platforms near Condren's Land and opposite the town carpark.

Glass panels will be incorporated within the flood defence wall at a number of key locations including at the junction of River Walk and River Lane, the seating area along River Walk, the elevated terraces upstream of Arklow Bridge and at the existing slipway on South Quay. These, together with the elevated viewing platforms and outer walkways will enhance visual connectivity either side of the wall and to the river.

Downstream of Arklow Bridge, the relative height of the flood defence level and the existing quay level is smaller, and the wall height required will mostly be 1,150mm. The introduction of a continuous wall along South Quay will alter the character of the quayside, however, the lower wall height will ensure a strong visual connection is maintained to the river and North Quay.

Additionally, the current streetscape and quayside arrangement is to be reconfigured so as to provide a continuous and substantially tree-lined promenade along the flood wall. The promenade will extend from the elevated walkways and terraces upstream of Arklow Bridge and will be a minimum of 3.0m wide for the entire length of South Quay. The carriageway along South Quay will be realigned in part so as to provide grass verges, new tree planting, designated parking and high quality pedestrian provision along South Quay. All junctions will be raised tables with accessible pedestrian crossings and will be integrated with the new paving and public realm proposals.

The new flood defence wall at the Tyrell slipway will incorporate glass panels to maintain and emphasise the historic boat yard relationship on South Quay with the river and North Quay, and the Arklow Seafarers Memorial Garden will be retained and upgraded and integrated with the riverside promenade along South Quay.

Effects on Landscape/Townscape Character

The introduction of continuous flood defences along the south bank will give rise to significant changes in the perception of River Walk and South Quay and their relationship to the river, with potential significant and adverse effects on landscape/townscape character.

The magnitude and significance of change is largely informed by the height of the flood defence structure required to be effective in combatting flood event and modifications to River Walk and South Quay including the removal and replacement of trees. Where the proposed wall height facilitates views to the river, effects are less significant. Where the wall height obstructs views to the river, effects are more significant as the presence of the wall will alter the landscape, visual and cultural setting of the quayside.

The design of the proposed development extends not just to the flood defence wall, but has considered the wider profile and design of River Walk and South Quay in order to maintain visual connectivity, and views, to the river, and also to reinvent the public spaces along the river as high quality amenity spaces for the people of the town.

Effects on landscape/townscape character will be perceived as significant or moderate and adverse, upstream and downstream of Arklow Bridge respectively, however, the benefits of a townscape that is secured from flooding will be balanced against the new public space and amenity provisions, and the perceived effects will become positive over time as the activity and use of the new revised public spaces trigger regeneration and new development along River Walk.

Effects on Views

The southern flood defences will alter the visual, streetscape and riverine environment along River Walk and South Quay. The presence of the flood defence walls, particularly where their height approaches or exceeds eye level, will adversely impact of views to and along the river setting.

Effects on views will be perceived as significant or moderate and adverse, upstream and downstream of Arklow Bridge respectively, however, the elevated

walkways and terraces, the river edge walkways, terraces and stepped terraces, elevated viewing platforms and the continuous promenade and new tree planting and landscaping will all contribute positively to reinventing the public spaces at River Walk and South Quay, and over time, will become more accepted as the new usage pattern establishes and the public amenity benefit realised.

See photomontage Views 1, 2, 3, 4, 5, 9, 10 and 11 in **Appendix 12.1**.

12.5.3.6 Northern Flood Defences

The embankment for the northern defences will impact more localised to the environment of the Arklow Town Marsh and particularly along its eastern edge. The short section of flood defence wall along the southern end of the defences at Ferrybank, together with the reconstructed river bank and embankment, will give rise to moderate adverse landscape/townscape effects in the immediate locality at the northern end of the Arklow Bridge, and from areas to the south.

Effects on Landscape/Townscape Character

The addition of landscape embankments of varying overall height will be inconsistent with the natural character of the marsh, however, by virtue of being limited to the eastern edge of the marsh, the embankment and the tie in section of flood defence wall will rise to localised adverse moderate landscape/townscape effects.

Effects on Views

The embankment will be apparent from the rear aspect of the properties at Ferrybank, however, these views are moderated by established trees along rear and adjoining boundaries, and effects of views will be moderate and adverse.

The tie in flood defence wall at Arklow Bridge will be substantially screened by the new river bank and landscaped embankment.

See photomontage View 7, **Appendix 12.1**, **Figures 12.7.1** and **12.7.2**.

12.6 Mitigation Measures and Monitoring

12.6.1 Mitigation During Construction

Construction activity and disruption of a physical and visual nature of the townscape, and of the use of the town and its environs, represents the greatest potential impact on landscape/townscape and visual aspects.

Mitigation during construction of all work packages therefore relates to the establishment and maintenance of organised and tidy site and work compounds, and effective management of pedestrian and vehicular diversions.

In addition, where works are close to existing trees that are to be retained, tree protection fencing must be erected in accordance with BS 5837:2012.

The project includes extensive public realm and landscaping proposals that will be implemented during the construction stage after the heavy civil engineering works and will gradually mitigate the construction appearance and deliver the new public realm and landscaping. Details of these works are included in **Appendix 4.2, Dwgs 300 to 306** inclusive.

12.6.2 Mitigation During Operation

Mitigation measures for the flood defence project are primarily inherent in the multi-disciplinary design of the flood defence infrastructure together with the wider and associated public space, public amenity and streetscape modifications that are included in **Appendix 4.2, Dwgs 300 to 306** inclusive. These also include details of tree and landscape planting proposed at different areas throughout the project and are described below.

12.6.2.1 Planting

Tree/landscape planting will be undertaken to address the loss existing vegetation and terrestrial habitat to accommodate the FRS.

- **Dwg 300:** River Walk (South Bank) Planting proposed: Semi-mature tree species proposed include: *Acer platanoides* 'Columnare' (Norway Maple), *Betula pendula* (Birch), *Crataegus laevigata* 'Paul's Scarlet' (Hawthorn), *Pinus sylvestris* (Scot's Pine), *Prunus avium* 'Plena' (Double flowered Wild Cherry). Ornamental shrubs and perennials, amenity grass.
- **Dwgs 301, 302 and 303:** South Quay to Arklow Harbour (South Bank) - Planting proposed: Semi-mature tree species proposed include: *Acer platanoides* 'Columnare' (Norway Maple), *Ulmus* "Lobei" (Elm), *Prunus avium* 'Plena' (Double flowered Wild Cherry). Ornamental shrubs and perennials, amenity grass.

At Arklow Marsh adjacent to the proposed embankment and at the extension to the north river bank upstream of Arklow Bridge, landscaping proposals include:

- Native Woodland planting (Area No 1) is along the new extended north bank of the river (Refer to **Dwg 304**) comprising: *Alnus glutinosa* (Black Alder), *Salix aurita*, *Salix cinerea oleifolia*, *Salix caprea*, *Salix petrandra* (Willow) and *Betula pubescens* (Downy Birch).
- Irish Native species rich grass and wildflower mixture along the river side of the new floodwall on north bank (SC3) and along the length of the embankment (Refer to **Dwg 304, 305 and 306**).
- Native Woodland planting (Area No 2) along the east side of the embankment and in SC1 (Refer to **Dwg 304, 305 and 306**) and comprising: *Alnus glutinosa* (Black Alder), *Salix spp.* (Willow) and *Betula pubescens* (Downy Birch), *Prunus spinosa* (Blackthorn), *Crataegus monogyna* (Hawthorn) and *Viburnum opulus* (Guelder Rose).

The physical changes along River Walk and South Bank will be mitigated by the public realm proposals combined with tree and shrub planting as described in **Dwgs 300 to 303 in Appendix 4.2).**

12.6.2.2 Arklow Bridge

The main works to the bridge are associated with physical strengthening and underpinning of the bridge, and with limited if any change in the appearance and character of the Arklow Bridge above water level. Maintaining and enhancing the visual integrity of the bridge has been a key objective of the design process. The proposals maintain full visibility of the 19 arch structure, and the design of the interface with South Quay presents a clean, contemporary and high quality wall detail that clearly distinguishes the historic bridge structure from the new flood defence structures.

The interlocking rocks that form the scour protection under the arches will be reinstated under arches 1 and 19 at their existing level. Existing lighting on Arklow Bridge will be reinstated upon completion of the bridge works.

12.6.2.3 River Dredging

Once river dredging has been completed during the construction, there is no ongoing landscape/townscape impact associated with this work package. There may be occasional routine channel maintenance dredging and clearance of vegetation if the levels of gravels and vegetation become a risk to blockage.

Mitigation measures included in the design for the loss of the small group of in-channel bushes and vegetation close to the north bank, and removal of the gravel banks that facilitate gathering of colonies of birds at low tide, include extension of the northern river bank to provide additional habitat areas, and also the provision of three floating roosting platforms anchored to the river bed upstream of Arklow Bridge.

12.6.2.4 Debris and Gravel Traps

Mitigation associated with the introduction of the debris and gravel trap infrastructure includes locating these elements closer to the built environment of the town core rather than further upstream in a more natural environment. This keeps any new built elements such as the debris trap piers within the built context of the town, and also ensures that periodic access for gravel trap clearance is kept within the built environment of the town core.

Additionally, such periodic maintenance access will be facilitated through the establishment of a temporary causeway within and across the river channel that will be accessed from a small permanent access ramp located upstream of the debris and gravel trap on the south bank. The temporary causeway will be removed entirely following clearance of the debris and gravel traps.

12.6.2.5 Southern Flood Defences

Mitigation associated with the southern flood defences has been described above under Operational Effects and is focussed on the integrated design for the civil engineering infrastructure of the flood defences of the public realm and open spaces along the south bank.

The primary design objectives have been to seek to maintain the height flood defence wall along the riverside promenade at 1,150mm so as to maintain the visual connection with the river and north bank. The provision of the promenade itself as a major public realm enhancement, together with landscaping and general streetscape enhancements, and raised pathways, terraces and viewing areas, all contribute to reinventing how the river edge is used in combination with the flood defences. The materials used are of high quality, with the inner face of the wall being clad in textured concrete panels, and paving materials being of a natural stone finish. Additionally, and as the flood wall is c. 400mm thick, it has been possible to include a capping profile on the wall that is chamfered so that the vertical surface of the wall is only 900mm high, with the additional 250mm being formed across the chamfer. This has the effect of the wall appearing lower towards the promenade while maintaining its effective flood defence height.

At River Walk, where the height of flood defence is greatest, a series of elevated pathways and terraces, combined with ramps, steps, landscape areas and raised viewing platforms are designed to bring pedestrians along the upper levels with only 1,150mm height of wall between them and the river, and to add visual diversity and amenity along River Walk. These facilities also extend over the wall onto the river edge where a separate pathway, together with a terrace, stepped terrace and a floating pontoon are all accessible to the public along the edge of the water.

12.6.2.6 Northern Flood Defences

Mitigation of the north flood defences includes minimising the encroachment into the Arklow Town Marsh by keep the embankment as far eastwards as possible, and by including newly established areas of river bank where the defences join the Avoca River so as to facilitate the reinstatement of river edge planting and to provide new habitat areas along the river bank.

New mixed woodland planting will be provided between the embankment and the rear of the existing properties at Ferrybank and this woodland planting will extend northwards and into the lands that will be used for Site Construction compound number 1.

Maintenance access to the embankment will be from the Dublin Road with a permanent access track along the eastern side of the embankment ensuring no additional impact on the Arklow Town Marsh.

12.6.3 Monitoring

12.6.3.1 Monitoring During Construction

A Construction Environmental Management Plan (CEMP) will be required to ensure the mitigation measures set out above are implemented during construction, and that any shortcomings are remedied immediately. A CEMP is included in **Appendix 5.1**. The appointed contractor will have a community liaison office to liaise with residents and other stakeholders in advance of establishing working areas so as to ensure such working areas have the minimum potential impact of residents and their properties.

12.6.3.2 Monitoring During Operation

Monitoring during operation relates principally to the maintenance and aftercare of new public realm and landscaping as appropriate to ensure appropriate presentation of the built environment and proper establishment of soft landscape. Any plants or trees that fail will be required to be replaced in the next available planting season.

12.7 Cumulative Effects

A schedule of permitted or planned projects that may have potential for cumulative effects is included in **Chapter 20** of the EIAR. These comprise a range of development types including modest developments at individual or small groups of buildings or site within the town; medium scale urban regeneration and development projects within the town and environs; large scale industrial and high technology developments beyond the urban centre of Arklow; and the Arklow Bank Wind Park Phase 2 project include offshore and onshore elements. Additionally, the permitted Arklow WwTP project is identified.

The majority of these projects are of a scale or sufficient remote from the town so as not to give rise to any significant cumulative landscape and visual effects in combination with the proposed Arklow FRS project. The Arklow WwTP however shares a considerable site development area and common construction elements with the proposed Arklow FRS, in particular along South Quay, at the Arklow Bridge and along River Walk.

The proposed Arklow FRS includes the common construction elements so that either project can be implemented in advance of the other. In this regard, the proposed Arklow FRS project includes the following substantial elements of works associated with the permitted Arklow WwTP project:

- Construction of the realigned quay wall along South Quay to road level, as permitted;
- construction of the underground interceptor sewer and associated infrastructure from the Seafarer's Memorial Garden along South Quay, under the Arklow Bridge and along River Walk to the western extent of the Arklow FRS project boundary, including removal of trees, as permitted;

- construction of the new quay walls along River Walk to existing quay of road level, as permitted; and,
- underpinning, strengthening and repair of the southern two arches of the Arklow Bridge.

The Arklow WwTP project extends beyond the proposed Arklow FRS site development boundary and will also include the following permitted elements:

- Demolition of the Old Wallboard building and chimney at the eastern end of North Quay and construction of the WwTP plant;
- Upgrade of the existing revetment between the WwTP site area and the coast;
- Construction of underground drainage infrastructure along North Quay and Mill Road including associated disruption and reinstatement of landscaping;
- Construction of the interceptor sewer under the Avoca River to from North Quay to South Quay;
- Construction of the underground interceptor sewer along River Walk for c. 150m further upstream the Arklow town carpark to The Alps site;
- Construction of the SWO plant at The Alps.

Cumulative landscape and visual effects therefore take into account the additional elements of the permitted Arklow WwTP in combination with the overall proposed Arklow FRS. In landscape and visual terms, they relate primarily to:

- The permitted WwTP plant at North Quay
- The permitted revetment upgrade
- Continuation of the underground interceptor sewer along River Walk upstream of the carpark; and,
- The SWO plant at the Alps.

Cumulative landscape and visual effects within the core Arklow FRS project area are therefore predicted as similar to the landscape and visual effects arising from the Arklow FRS project and with the additional effects associated with permitted WwTP, revetment upgrade and interceptor sewer and SWO plant at River Walk and The Alps. These landscape and visual effects of these additional elements were identified in the EIAR for the Arklow WwTP as ranging from significant/moderate and negative to slight and adverse and reducing over time with establishment to being moderate and neutral.

Cumulative landscape and visual effects are not significant.

In the event that the permitted Arklow WwTP project is implemented in advance of the Arklow FRS project, the baseline for the Arklow FRS would be the common construction elements of both projects together with the temporary finishes permitted under the Arklow WwTP project. The residual effects however, within the overlapping project areas, will be the same as those of the proposed Arklow FRS project.

12.8 Residual Effects

Residual landscape/townscape effects will generally relate to the widening and alteration and enhanced public realm of South Quay and River Walk, the presentation of the Avoca River corridor leading through the town, and also the embankment along the eastern side of the Arklow Town Marsh.

In relation to the Arklow Town Marsh, the nature of the marsh and existing vegetation is such as to preclude taking baseline eye-level photography for the purposes of preparing photomontages to illustrate landscape and visual effects. The latter are nonetheless described in the foregoing and predicted to be localised, moderate and adverse.

Beyond the Arklow Town Marsh, residual landscape/townscape effects will vary considerably throughout the townscape of Arklow town and these are described with reference to the series of photomontage views prepared from 11 representative locations throughout the proposed development and included in **Appendix 12.1**.



Figure 12.20: Photomontage View Locations

12.8.1.1 Photomontages

View 1

View 1, **Figure 12.1.1**, is from River Walk as existing upstream of the carpark as is where River Walk transitions from its riverine and rural upstream character to its riverine and urban setting. The north bank is clearly defined by strong mixed

woodland edge. River Walk includes built elements such as the retaining walls to the rear of properties and parts of the carpark and road network with the town are coming into view. The river bank is a simple grass bank incorporating a number of early mature and mature trees.

View 1, **Figure 12.1.2**, shows the proposed development with the main intervention being the introduction of the ramped River Walk pathway and associated floor defence wall along the river edge leading to a cantilevered viewing platform at the high point and the removal of the existing river bank trees. Additionally, the debris trap columns are readily visible traversing the river and the permanent ramp access for maintenance is visible in the foreground. The absence of the existing river bank trees is notable however this also opens up the wider view of the river corridor. The proposed development brings the rural to urban transition along River Walk slightly upstream from its current location.

Landscape and visual effects will be perceived as moderate and adverse, however will become positive as the amenity value of the revised river edge detail within the urban setting is fully realised.

View 2

View 2, **Figure 12.2.1**, is from the junction of River Walk and River Lane adjacent to the town carpark and looking upstream along the Avoca River. The existing low flood defence wall defines the edge of the footpath and roadway and there is a short section of river bank formed in concrete that provides passive amenity at the river edge. The heavily wooded north bank is distinctive and the occasional trees on the south bank are visible together with the trees on the grass embankment between River Walk and the carpark.

View 2, **Figure 12.2.2**, shows the proposed development including the flood defence wall at c. 1.85m above River Walk and leading to the newly ramped section of River Walk beyond and the cantilevered viewing platform at the high point. The flood defence wall will be at its highest at this location however it will incorporate glass panels so as to permit visibility to the river corridor and also to the proposed new terrace area, walkway and floating mooring platform. Whereas the current junction of River Walk and River Lane is primarily a vehicular carriageway, the proposed development will transform the junction to one of high pedestrian amenity with stronger and more direct connections along River Walk and to the town carpark

Landscape and visual effects are likely to be perceived initially as significant and adverse, however in the context of the new continuous river promenade and enhanced public realm along the southern river bank throughout the town, this will reduce over time as the change becomes accepted and the full amenity value of River Walk within its urban context is realised.

View 3

View 3, **Figure 12.3.1**, is from River Walk near Condren's Lane and illustrates the simple yet attractive green space on the inside of the low flood defence wall overlooking the river where there is a concrete pathway. Car parking can be seen to the right and the carriageway of River Walk runs along the parking area before

the rear boundary walls of private properties. The Arklow Bridge is apparent in the distance however it is the modern 1960s concrete side that presents upstream to River Walk. There are a number of trees of mixed species and maturity within the landscaped space and in the river bank.

View 3, **Figure 12.3.2**, shows the proposed development including the flood defence wall at typically c. 1.15m above the proposed promenade and terrace level, with some sections following the profile of the outer pedestrian ramp as it rises to meet the elevated viewing platform cantilevered over the wall and river. The carriageway level remains at its existing level however the promenade and terraces are elevated and separated from the carriageway by low planters that will also serve as permanent seating. The promenade and terraces are distinctly pedestrian in character, with high quality paving and bespoke precast polished concrete panels to finish the wall. Dual lighting provides for the pedestrian spaces and carriageway and comprises LED luminaries with high cut-off so as to minimise any light spill to the river corridor. Parking spaces are defined along the carriageway and new tree planting will be provided to enhance to overall character of River Walk and to further reinforce the elevated promenade as a pedestrian only zone.

The proposed development will represent a substantial change along River Walk as the visual connection with the river corridor will be less open than at present, however, the enhanced public realm and amenity space along River Walk will provide a high quality and attractive amenity and visual and physical connections to the river will be maintained over the walls and from the elevated viewing platform and fully accessible outer pedestrian ramps.

Landscape and visual effects are likely to be perceived initially as significant and adverse, however the new high quality pedestrian environment will ultimately draw additional pedestrian activity to River Walk and to the river area, and the revised public space will become a positive asset for the town.

View 4

View 4, **Figure 12.4.1**, is also from River Walk approaching the Arklow Bridge and opposite the existing café. The river edge includes a concrete pathway and a low flood defence wall. A buffer space between the wall and carriageway incorporates sections of landscaping, car parking and a small paved area that serves as a spill out area for the café. The floor levels of the café and adjoining buildings are raised and ramps are required to access these premises.

View 4, **Figure 12.4.2**, shows the proposed development including the new flood defence wall constructed further into the river channel. The new wall alignment facilitates a substantial increase in pedestrian and amenity space along the river front, and this will be developed as raised terrace areas that are continuous with the overall river front promenade and incorporate raised and flush planters with new tree planting and ground cover landscaping. The carriageway level between the terraces and buildings will be paved as a shared surface but will also be raised so as to eliminate the need for ramped access to the properties along River Walk. The public space is primarily pedestrian, with private vehicular access only to the apartment building and for café deliveries. The widened River Walk will become an attractive and high quality riverfront space that is a destination along the

overall promenade and will support existing businesses at River Walk and catalyse further regeneration. The flood wall is only 1.15m above the elevated terrace level permitting direct visibility of the river corridor and yet incorporates three sections of glazing so as to ensure visual connection for those seated on the terraces.

The proposed development will represent a substantial change along River Walk as the visual connection with the river corridor will be less open than at present, however, the enhanced public realm and amenity space as a destination and gathering point along the promenade will provide an attractive amenity space for the town and contribute to further redevelopment and regeneration along River Walk.

Landscape and visual effects may be perceived initially as moderate and adverse, however the establishment of a new high quality public space will ultimately result in moderate and positive landscape and visual effects.

View 5

View 5, **Figure 12.5.1**, is from Bridge Street approaching River Walk and provides an open and attractive view to the north bank and upstream of the Avoca River and of River Walk. The vehicular character of River Walk is apparent and the rear boundary walls of the properties are just out of view. A narrow pedestrian ramp leads from Bridge Street to the concrete walkway along the river bank.

View 5, **Figure 12.5.2**, shows the proposed development including the new flood defence wall constructed further into the river channel and facilitating the establishment of a substantial new public space along the river front. The new terraces areas are contiguous with the overall proposed river front promenade and are elevated so that the flood defence wall is only 1.15m high and facilitates views over the wall to the river corridor. Additionally, sections of glazing are incorporated into the wall so as to ensure visual connections with the river for those seated on the terraces. The terraces include multiple stepped and ramped connections to the lower shared surface carriageway that optimise permeability between the buildings and businesses at River Walk and the river front public space. The terraces also include raised and flush planters with new tree planting and ground cover to further enhance the amenity value of the public space.

The proposed development will represent a substantial change along River Walk however the changed visual relationship with the river corridor will be offset by the establishment of a high quality public amenity space and landscape and visual effects will ultimately be moderate and positive.

View 6

View 6, **Figure 12.6.1**, is from the Arklow Bridge looking upstream toward River Walk and illustrates the existing low level of the river edge and the mixed quality and usage of River Walk for both pedestrian and vehicular use. Ornamental planting defined the pedestrian ramp connection to Bridge Street and occasional trees of varying maturity and species are apparent further upstream along River Walk. As the view is taken close to low tide, the gravel beds used by roosting birds are visible within the river channel.

View 6, **Figure 12.6.2**, shows the proposed development including new alignment and height of the river edge defined by the new concrete faced wall, with the additional parapet height above the elevated River Walk promenade expressed as a high quality concrete finish with a precast concrete capping and sections of glazing at each of the main terrace areas. The parapet wall leads to the elevated cantilevered viewing platform at the bend in the river further upstream. New tree planting is visible along River Walk.

The scale and extent of the flood defence infrastructure is more readily apparent when viewed from the river channel. It is noted that the view was photographed close to low tide and presents the worst case scenario and the wall be less prominent at higher tide levels. Rip rap will be placed along the river edge where hydrological requirements permit so as to soften the visual appearance of the bottom of the wall where it joins the water. The use of different concrete finishes will also assist in reducing the vertical scale of the wall.

The proposed development will represent a substantial change in the appearance of the river bank as a continuous built element along River Walk replaces a more diverse range of river edge conditions. Landscape and visual effects will initially be perceived as significant and adverse, however this will reduce over time to moderate as the public space along River Walk establishes and the new construction becomes weathered and more established.

View 7

View 7, **Figure 12.7.1**, is from the Arklow Bridge looking upstream towards the north bank and Arklow Town Marsh and illustrates the existing riverine character and mixed woodland setting of the river corridor. The view is taken close to low tide and the gravel can be seen just below the water in the foreground together with the row of in channel bushes and vegetation towards the north bank.

View 7, **Figure 12.7.2**, shows the proposed development including the removal of the in channel vegetation, extension of the north bank into the river, modifications to the north bank adjoining the Arklow Bridge and one of the three floating roosting platforms.

Post construction, there will be a noticeable change in the existing river bank character and consequent significant adverse landscape and visual effects, however, as the new mixed woodland planting on the extended north bank and the native species rich grass and wildflowers on the embankment become established, the revised landscape will become more visually integrated with the background and landscape and visual effects will become minor and adverse.

View 8

View 8, **Figure 12.8.1**, is from the Arklow Bridge looking downstream toward South Quay and illustrates the existing low level of the river edge and the mixed quality and usage of South Quay and the diversity of building types and ages on the Quay. The narrow width of South Quay approaching Arklow Bridge is clearly visible and elements of the existing drainage infrastructure can be seen along the outside of the quay wall. The photograph is taken close to low tide and presents close to the worst case scenario in this regard.

View 8, **Figure 12.8.2**, shows the proposed development including the new alignment of the river edge defined by the new concrete faced wall, with the additional parapet height required for flood defence above the level of South Quay expressed as a high quality concrete finish with a precast concrete capping. New tree planting is clearly visible as a continuous feature along South Quay that will define the new promenade located immediately behind the parapet wall.

As with View 6 of River Walk, the scale and extent of the flood defence infrastructure is more readily apparent when viewed from the river channel. Rip rap will also be placed along the river edge where hydrological requirements permit so as to soften the visual appearance of the bottom of the wall where it joins the water. The same approach to using different concrete finishes as at River Walk will also assist in reducing the vertical scale of the wall.

The proposed development will represent a substantial change in the appearance of the river bank as a continuous built element along River Walk replaces a more diverse range of river edge conditions. Landscape and visual effects will initially be perceived as significant and adverse, however this will reduce over time to moderate as the new high quality and tree-lined promenade amenity is established the new construction of the flood defence wall weathers.

View 9

View 9, **Figure 12.9.1**, is from South Quay near South Green where the cappings of the original quay wall can be seen forming the quay edge and the historic granite mooring posts are located in the grass verge. Young street trees are set within the quayside grass verge at regular spacings and are mostly *Acer platanoides* (Norway Maple) and category C2. The carriageway is wide and there are no footpath on either side of the road. Wide grass verges and extended driveways form the residential side of the roadway.

View 9, **Figure 12.9.2**, shows the proposed development including the provision of a new promenade along the river front and the establishment of the parapet section of the flood defence wall up to a height of 1.15m above promenade. New tree planting will be located in the new grass verge between the promenade and the carriageway provide a distinctly pedestrian amenity that is segregated from the carriageway. The parapet will be clad in polished precast concrete panels and profiled cappings such that the inner edge of the parapet is c. 900mm high and rising to 1.15m at the outer edge.

The proposed development will represent a substantial change in the appearance of South Quay however the provision of a dedicated high quality tree-lined public promenade with inherent flood defence will ultimately result in landscape and visual effects that are moderate and positive.

View 10

View 10, **Figure 12.10.1**, is from South Quay at the Tyrell slipway and illustrates South Quay becoming narrower towards the slipway and the presence of the original boatyard rail lines set in the roadway and leading to the slipway. A low flood defence wall is located either side of the slipway and demountable barriers are in place at the head of the slipway.

View 10, **Figure 12.10.2**, shows the proposed development including the provision of a new promenade along the river front, the establishment of the parapet section of the flood defence wall up to a height of 1.15m above promenade and reconfiguration of the carriageway so as to provide continuous pedestrian facilities and landscaped verges along both sides of South Quay. The carriageway at the slipway be paved and the original boatyard rail lines retained and expressed in the paving and the line of the rails will also be expressed in the paving pattern across the promenade to the head of the slipway. Glazing panels will be incorporated within the parapet wall along the head of the slipway so to preserve the historical connection between the former boatyard and the slipway and river. Interpretive panels will be installed along the parapet wall to provide historical information about the boatyard

The proposed development will give rise to landscape and visual effects that are moderate and positive.

View 11

View 11, **Figure 12.11.1**, is from South Quay at the Sea Farer's Memorial Garden. The amenity has evolved over time with the help of the local community and is an appropriate and important memorial to those members of the Arklow community who served and were lost at sea. While the amenity has been maintained, it is in part suffering lack of investment and upkeep. It is also located beside an exceptionally wide double road junction that cuts it off from the residential side of the quays. Trees include the Norway Maple at regular spacings along the kerb side as well as a number of ornamental Coryline within the space.

View 11, **Figure 12.11.2**, shows the proposed development including the continuation of the proposed promenade along South Quay leading to and connecting with memorial garden. The carriageway and adjoining junction are rationalised and paved as a raised table to as to reduce vehicular dominance and speed and provide a more pedestrian friendly environment. The memorial garden will be repaved using a similar high quality paving material to the promenade and seating, the anchor and interpretive panel will be refurbished or replaced as appropriate. New trees consistent with those of the overall promenade will be planted in the adjacent landscape spaces and the flood defence parapet will be extended along the memorial facing the river channel.

The proposed development will give rise to landscape and visual effects that are moderate and positive.

12.9 References

- Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment;
- Planning and Development Act 2000, as amended;
- Planning and Development Regulations 2001, as amended; and
- European Landscape Convention 2000.
- Wicklow County Development Plan 2016-2022;
- Arklow and Environs Local Area Plan 2018-2024
- Environmental Protection Agency (EPA, 2017). Guidelines on the Information to be contained in Environmental Impact Assessment Reports. Draft;
- Environmental Protection Agency (EPA, 2015). Advice Notes for preparing Environmental Impact Statements. Draft;
- Landscape Institute and the Institute of Environmental Management and Assessment (LI/IEMA, 2013) Guidelines for Landscape and Visual Impact Assessment, 3rd edition, (GLVIA);
- Landscape Institute (LI, 2018) Technical Information Note 05/2017 (Revised 2018) on Townscape Character Assessment; (TCA)
- Department of Housing, Planning and Local Government (DHPLG, 2018) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (GEIA).
- Landscape Institute (LI, 2019) Technical Guidance Note 06/2019 on Visual Representation of Development Proposals, (VPDP).