Arklow Flood Relief Scheme

Presentation to An Bord Pleanala Oral Hearing 19th January 2022

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Office of Public Works

WICKLOW
ENDLESS OPPORTUNITIES

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Contents

The Need for the Scheme

The Need for the Scheme

Arklow has in the past experienced flooding problems which have caused widespread damage to public and private property Flooding events have occurred in 1986, 1989, 2000, 2004, 2005, 2010 2013 and 2015. The biggest flood event was caused by ‘Hurricane Charlie’ in 1986.

Figure 2.1 of Chapter 2 of the EIAR, reproduced below, illustrates the issue well.


Shell

The risk of recurring flooding is ever present and in the future that risk is likely to increase. Future changes that have the potential to affect that risk are:

- climate change (increased rainfall)
- geomorphological processes (such as sediment transport in the River channel) and erosion
- development within the catchment of the Avoca River and its tributaries which does not conform to the principles of sustainable drainage
- changes in land use such as forestation and land drainage.

The areas most at risk of flooding are;

- The River Walk area which is a lowlying urban area built on the narrow flood plain. This area is affected primarily by fluvial flooding
- The area downstream of the Arklow Bridge on South Quay and part of North Quay is prone to tidal flooding which is more frequent but less extreme than fluvial flooding events. This tidal flooding usually occurs with spring tides.
- The Ferrybank area which is predominantly residential in character is impacted by fluvial flooding. Flooding in this area is related to the flooding capacity of the river plain. Flooding occurs when flood water exits Arklow town.

Figure 2.1 of Chapter 2 of the EIAR, reproduced below, illustrates the issue well.

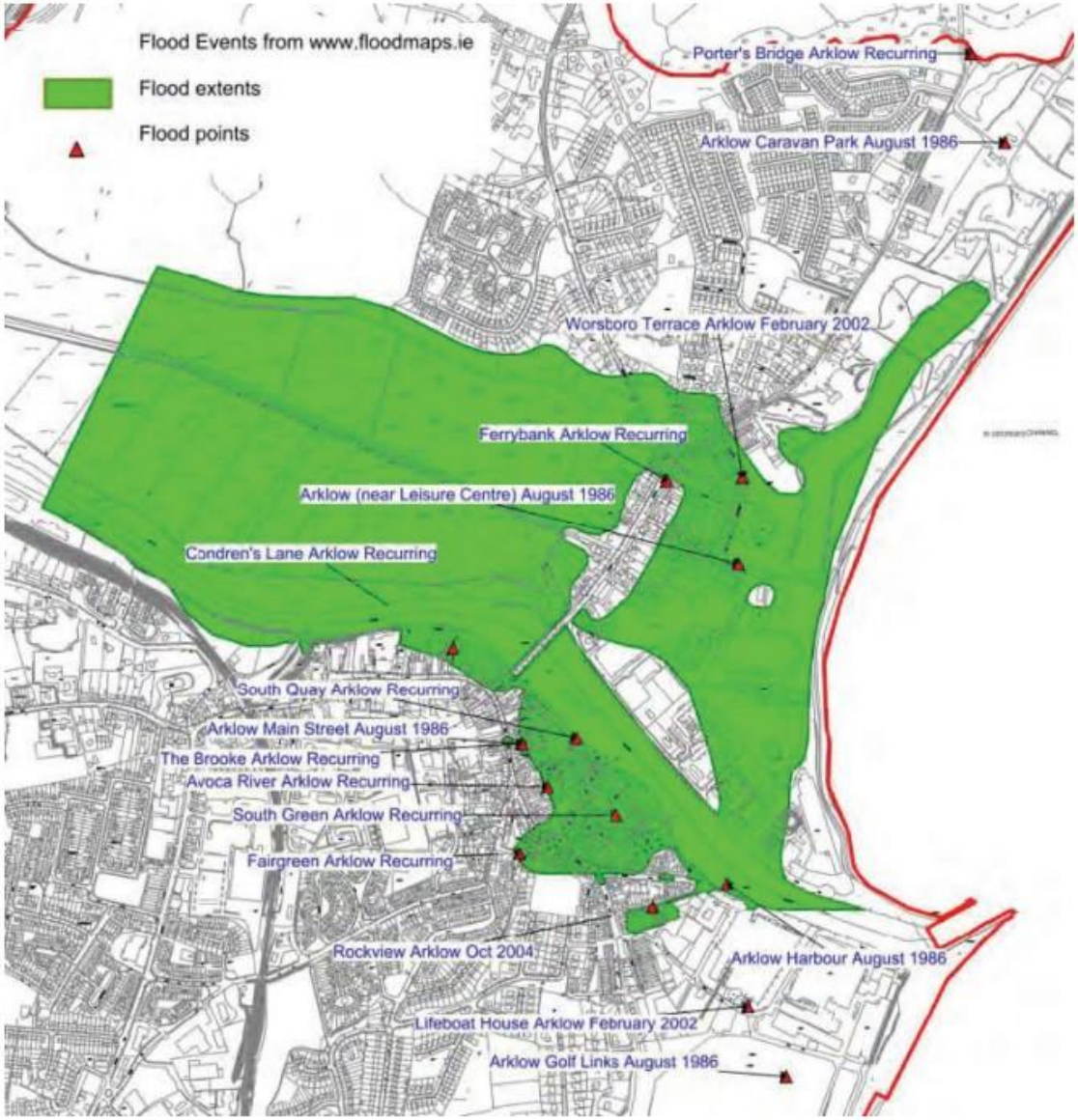


Figure 2.1: Historic Flood Extents. Extract from The Arklow and Environs Local Area Plan (2018- 2024) Strategic Flood Risk Assessment (Source: Wicklow County Council, www.floodmaps.ie)

- Without intervention, Arklow faces the continued onset of the range of issues that are associated with flooding including tangible and intangible flood damage to private and public property including , infrastructure services, extensive community disruption, health and safety issues and development restrictions.
- Furthermore, the existing flood risk in Arklow restricts the nature scale and extent of development in that area.

The need for the proposed Scheme can clearly be justified because:

- Flood events cause extensive economic damage
- Flood events can give rise to injury and loss of life
- Flood events put vulnerable persons at particular risk of suffering from health impacts of flooding: vulnerable person include those with limited physical capacity or limited mobility; those that are reliant on important medication and/or home care and those who have a weak social network or poor flood awareness, lack of resources, lack of access to information and warnings and who stay in properties at high risk from floods

Some of the serious effects of flood events occur through damage to health care infrastructure, leading to loss of access to essential care or loss of access to and failure to obtain continuing health care;

- damage to water and sanitation infrastructure;
- damage to or destruction of property and vital community facilities;
- damage to crops;
- disruption of food supplies;
- disruption of livelihoods and income;
- fear of recurrence;
- stress from dealing with insurance claims and refurbishing properties
- Health effects can occur directly through contact with flood waters or indirectly from damage to infrastructure, ecosystems, food and water supplies or social support systems.

The overall objectives and benefits of the proposed Scheme are

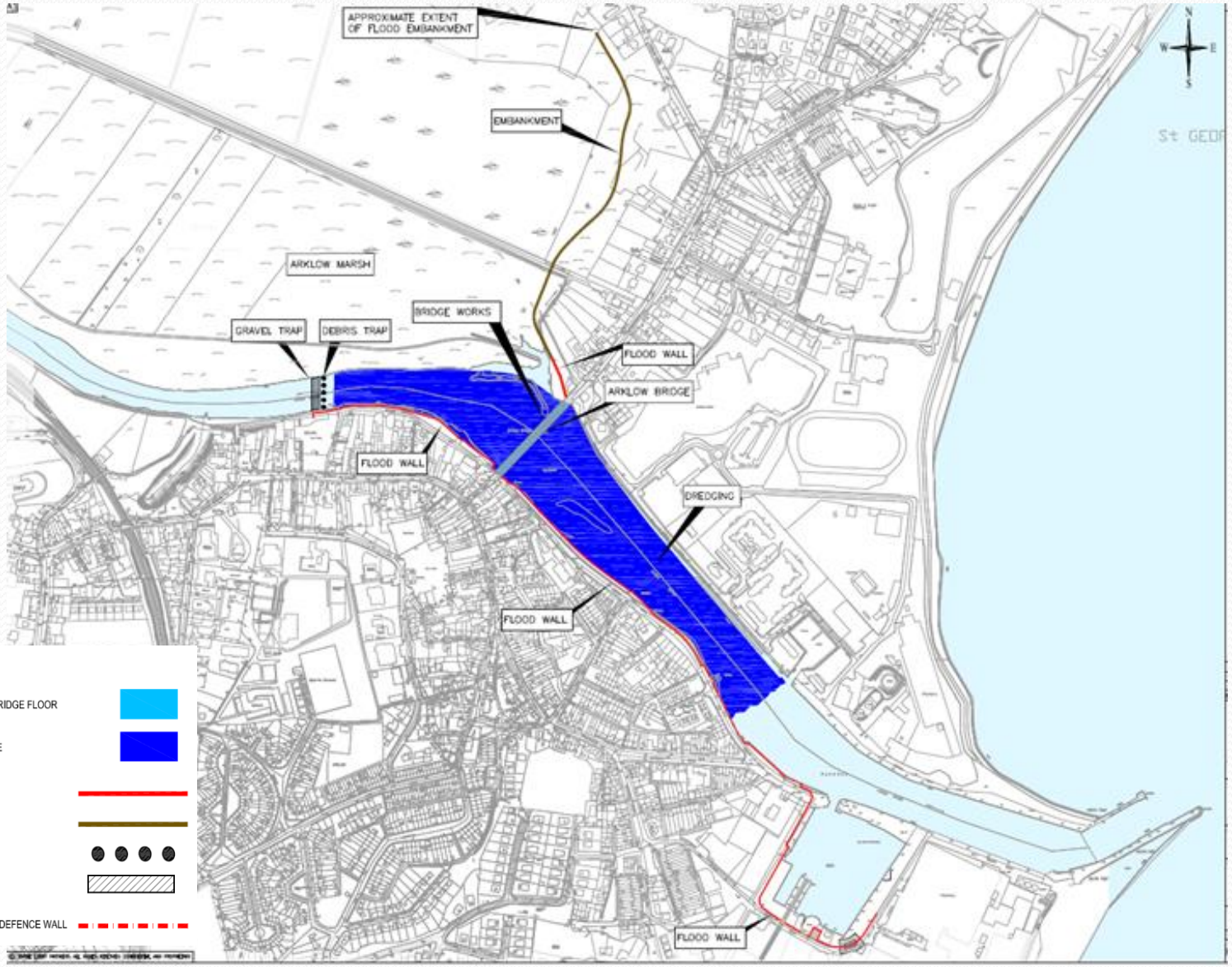
- To provide flood relief measures along the River Avoca and estuary to alleviate flooding for all event up to the 1% Annual Exceedance Probability fluvial event and 0.5% Annual Exceedance Probability coastal flood event.
- To protect residential and non-residential properties from flooding and consequential damage
- To protect infrastructural utility services from flood damage
- To improve for the health and safety of the community in high flood risk areas through direct protection from flooding and through reduction of stress and anxiety
- To reduce disruption and disturbance cause by flood events such as evacuations and traffic diversions
- To reduce the risk of environmental pollution such as runoff from hydrocarbons from flooded areas
- To provide the basis for the appropriate maintenance of the Avoca River

The Proposed Scheme

Key Elements-

- Arklow Bridge Works
- Debris and Gravel Trap
- Dredging
- Flood Defence Walls & Embankments
- Landscaping and Public Realm Improvements

Overview


APPROXIMATE EXTENT OF FLOOD EMBANKMENT
EMBANKMENT
ARKLOW MARSH
GRAVEL TRAP
DEBRIS TRAP
BRIDGE WORKS
FLOOD WALL
ARKLOW BRIDGE
FLOOD WALL
DREDGING
FLOOD WALL
FLOOD WALL
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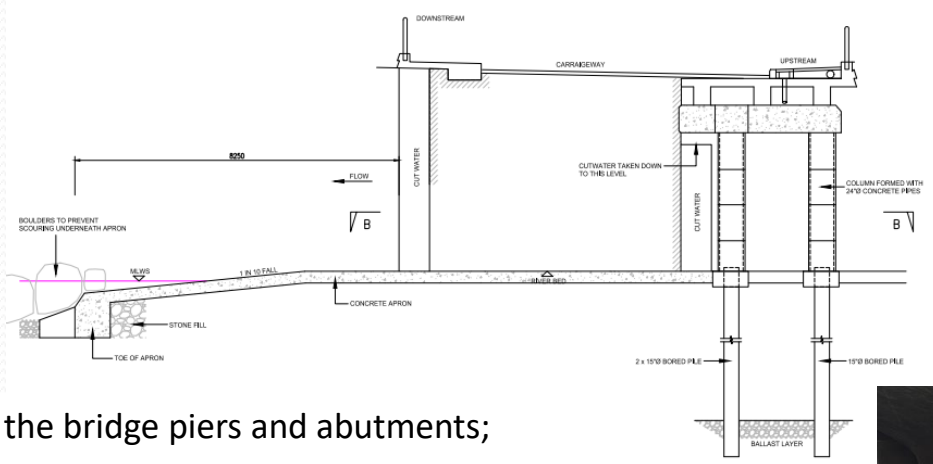
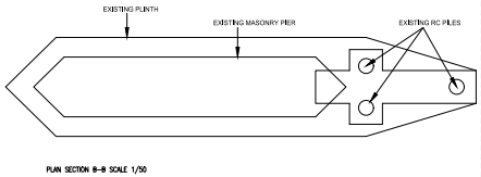
LEGEND
DEEPENING OF BRIDGE FLOOR
U/S & D/S DREDGE
FLOOD DEFENCE
EMBANKMENT
DEBRIS TRAP
GRAVEL TRAP
EXISTING FLOOD DEFENCE WALL

Arklow Bridge Works

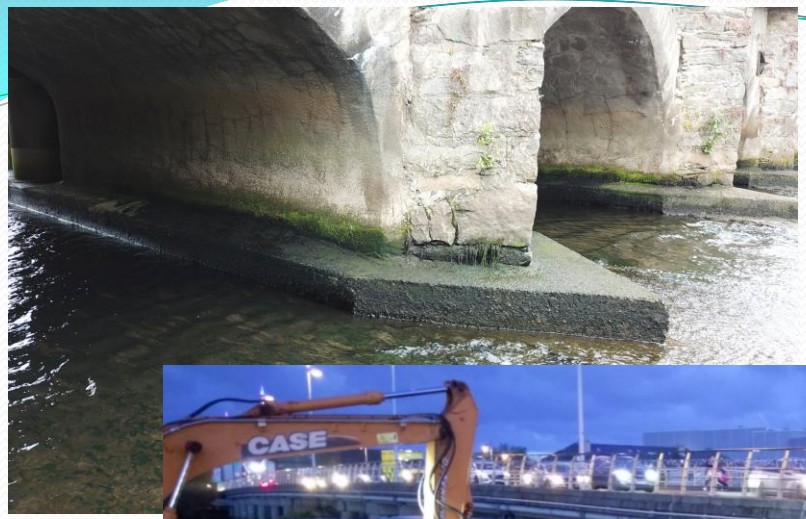
Arklow Bridge

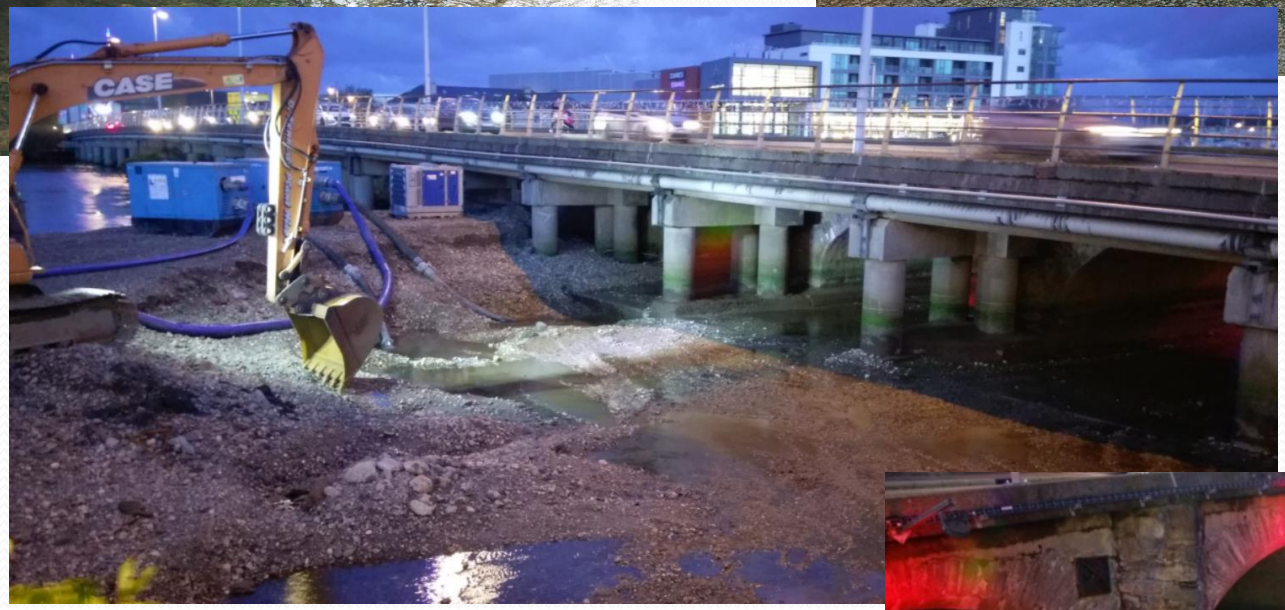




- Underpinning of the bridge piers and abutments;
- Lowering of the floor of the Arklow Bridge by approximately 1m;
- Provision of scour protection to the bridge piers; and
- Repairs to the masonry work of the older section of the bridge.

Arklow Bridge

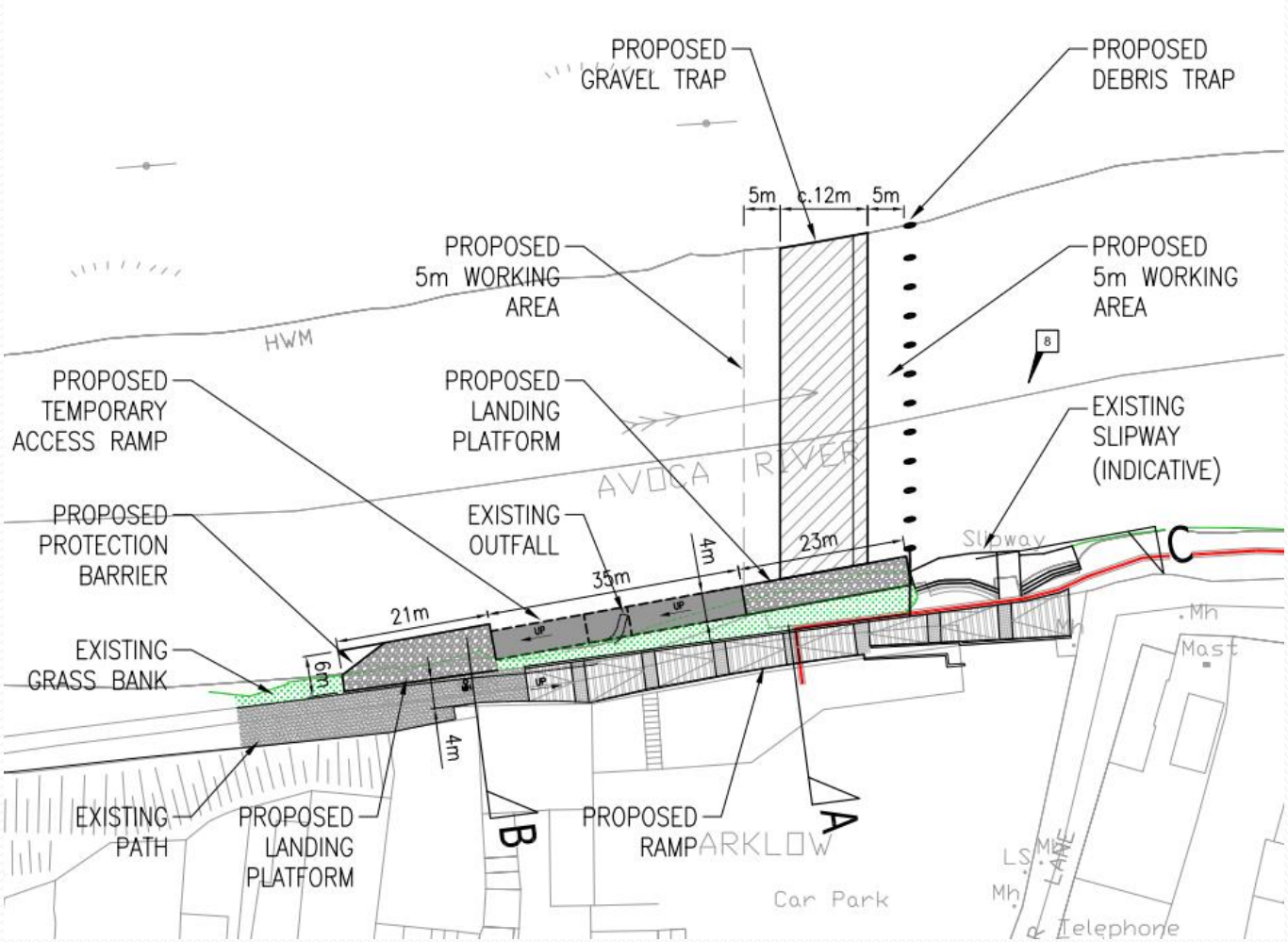




Debris and Gravel Trap

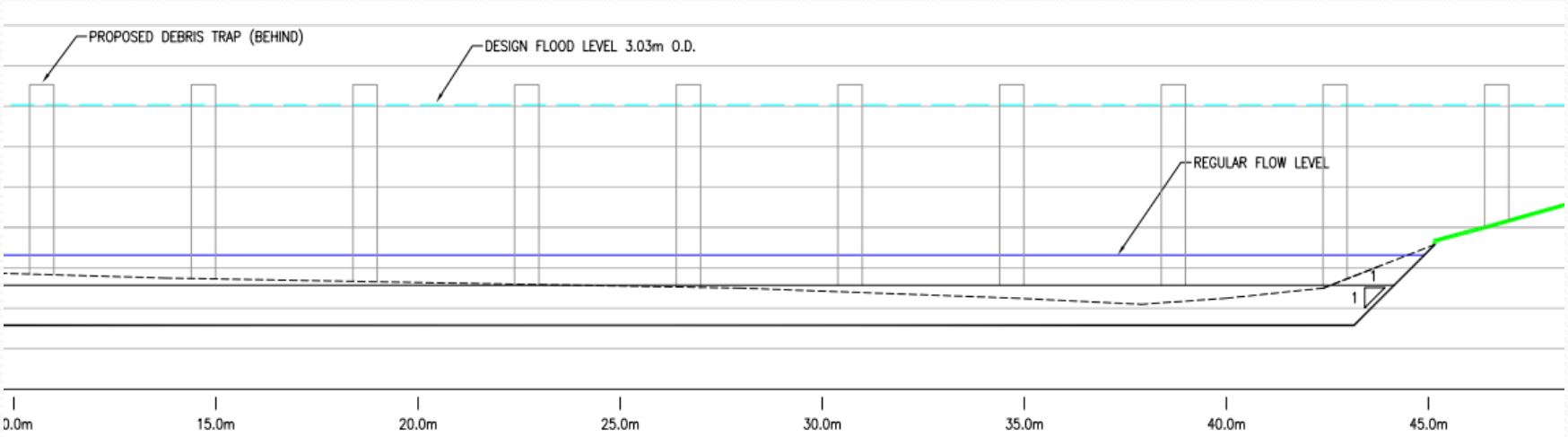
Debris and Gravel Trap

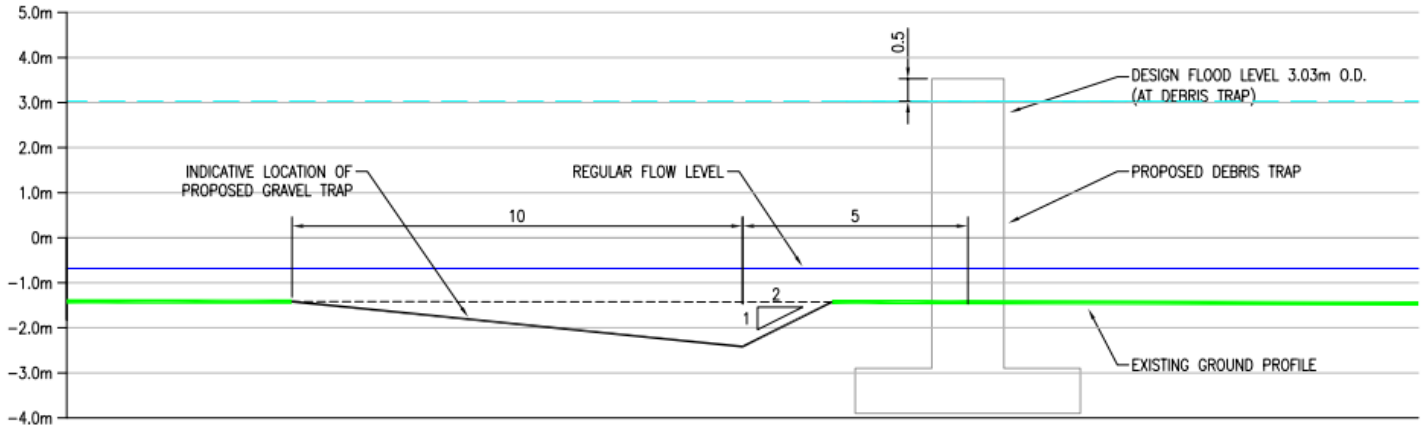
Located 370m (Gravel Trap) and 360m (Debris Trap) upstream of Arklow Bridge with Riverside Ramp for access



Debris and Gravel Traps

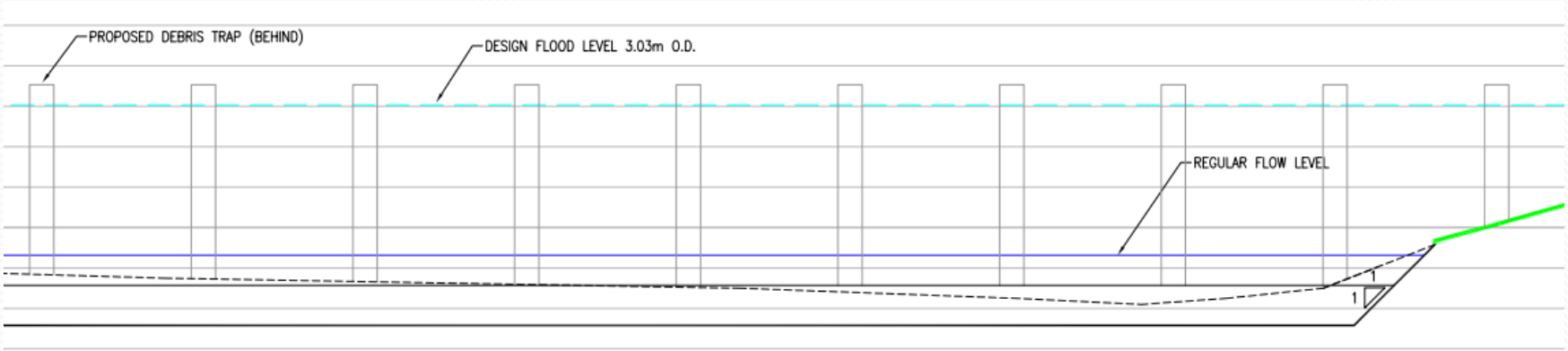
Sections





Debris and Gravel Traps

Sections

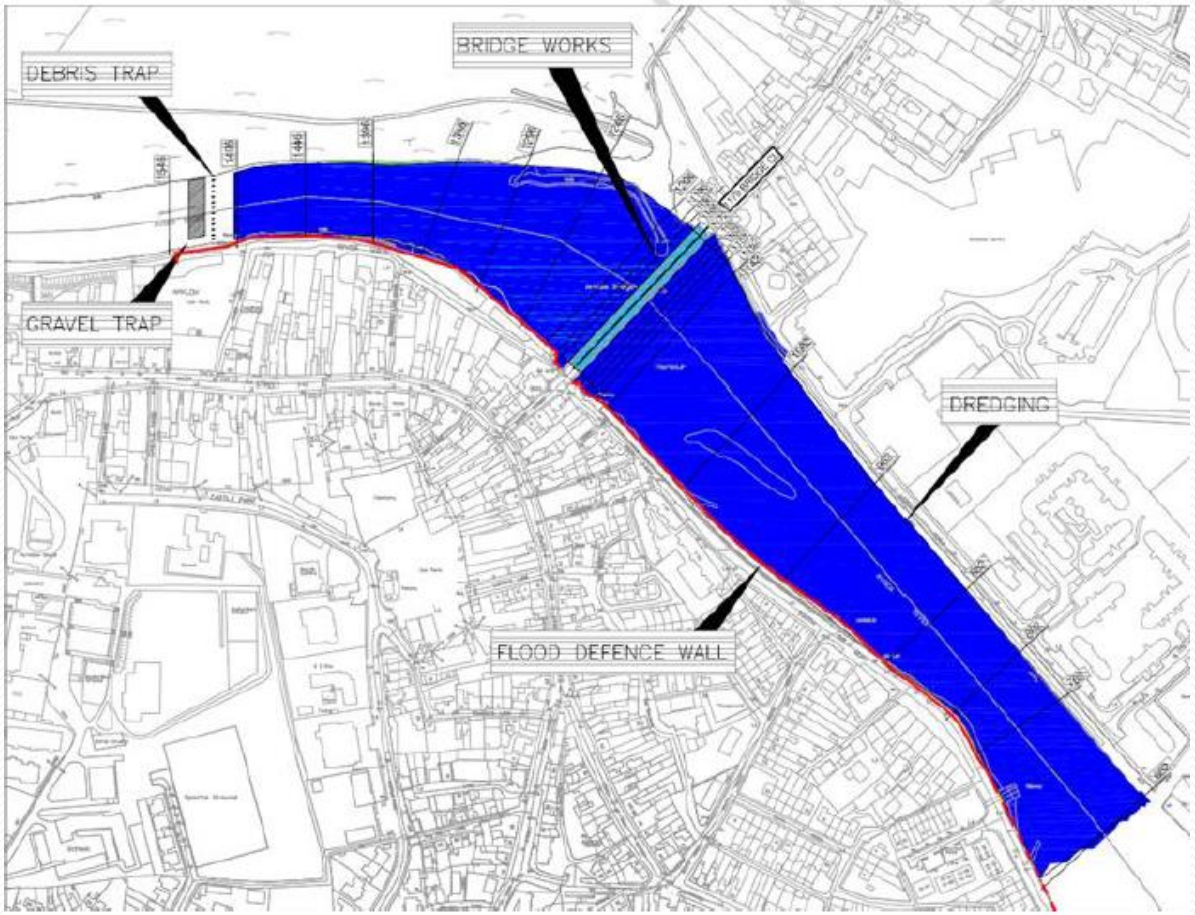


River Dredging

River Dredging

Dredging the River Channel to a varying depth (0-1m) 325m Upstream and 525m Downstream of Arklow Bridge.

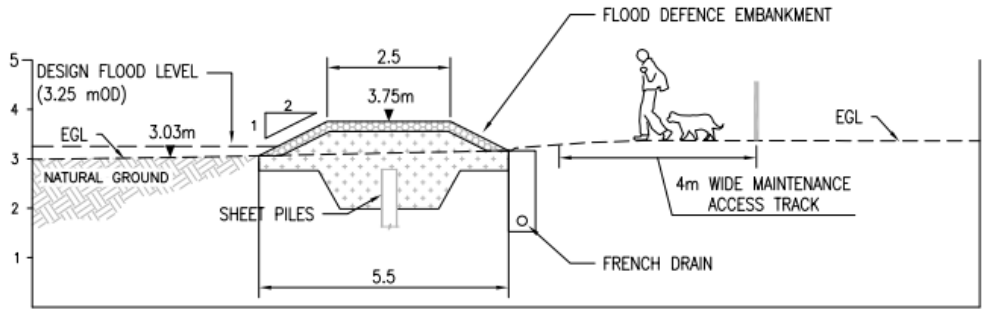
Estimated at 80,000m^3 or 150,000 Tonnes of Material



River Dredging Upstream and Downstream

River Dredging Upstream and Downstream

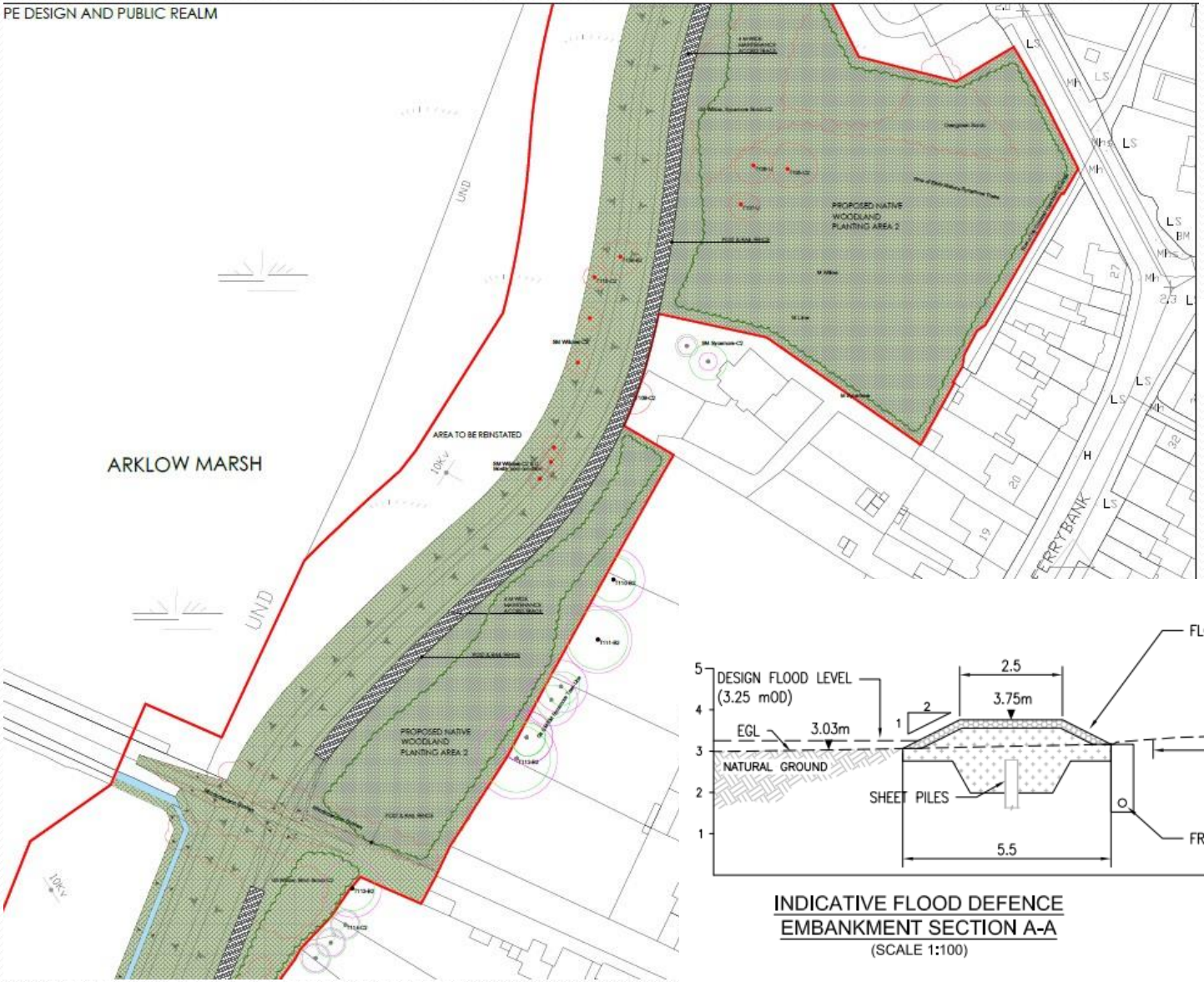
Flood Defence Wall & Embankments



INDICATIVE FLOOD DEFENCE EMBANKMENT SECTION A-A

(SCALE 1:100)

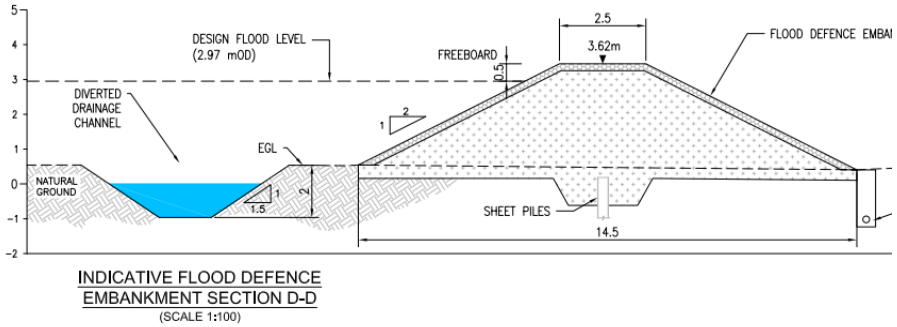
PE DESIGN AND PUBLIC REALM

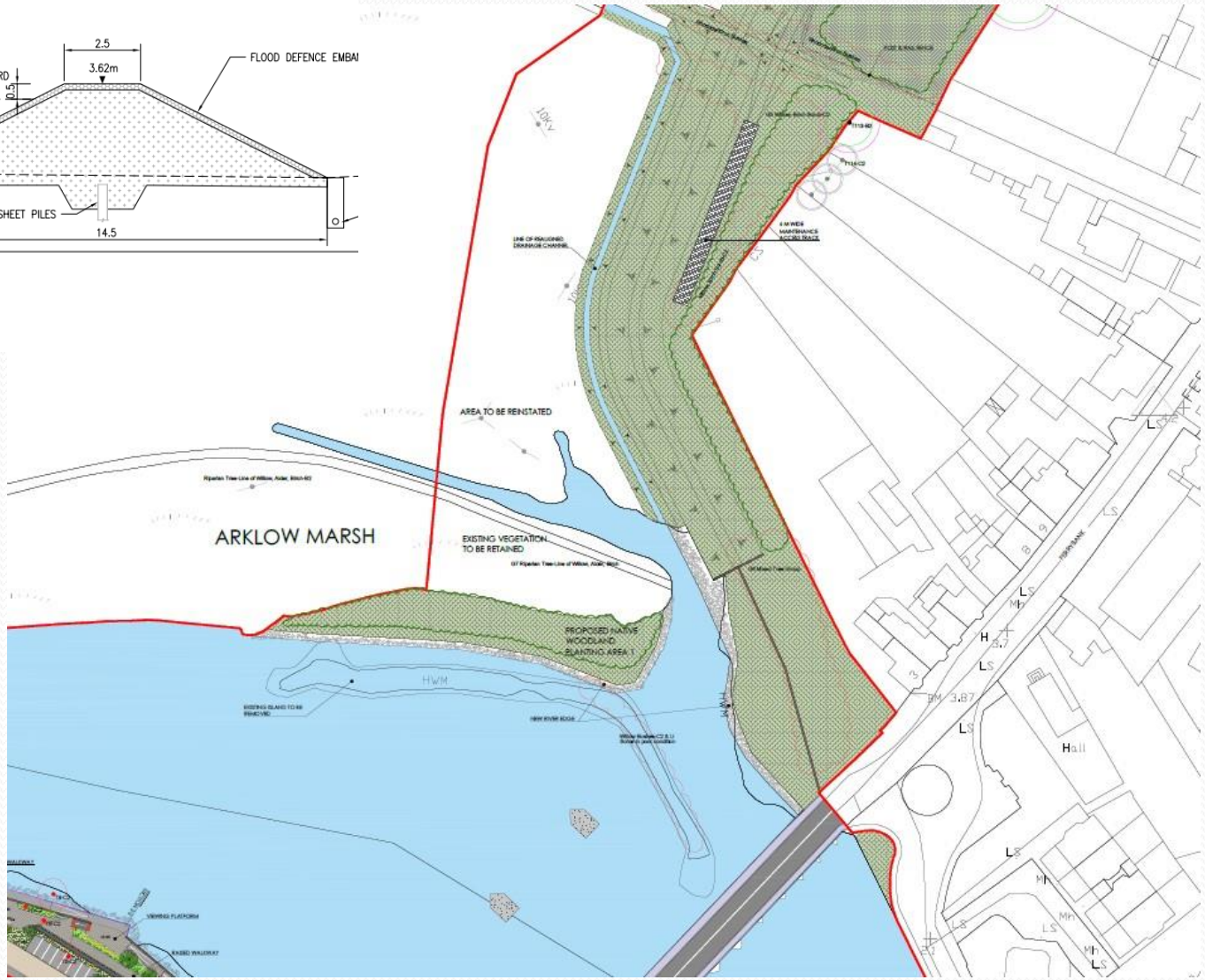


INDICATIVE FLOOD DEFENCE EMBANKMENT SECTION A-A

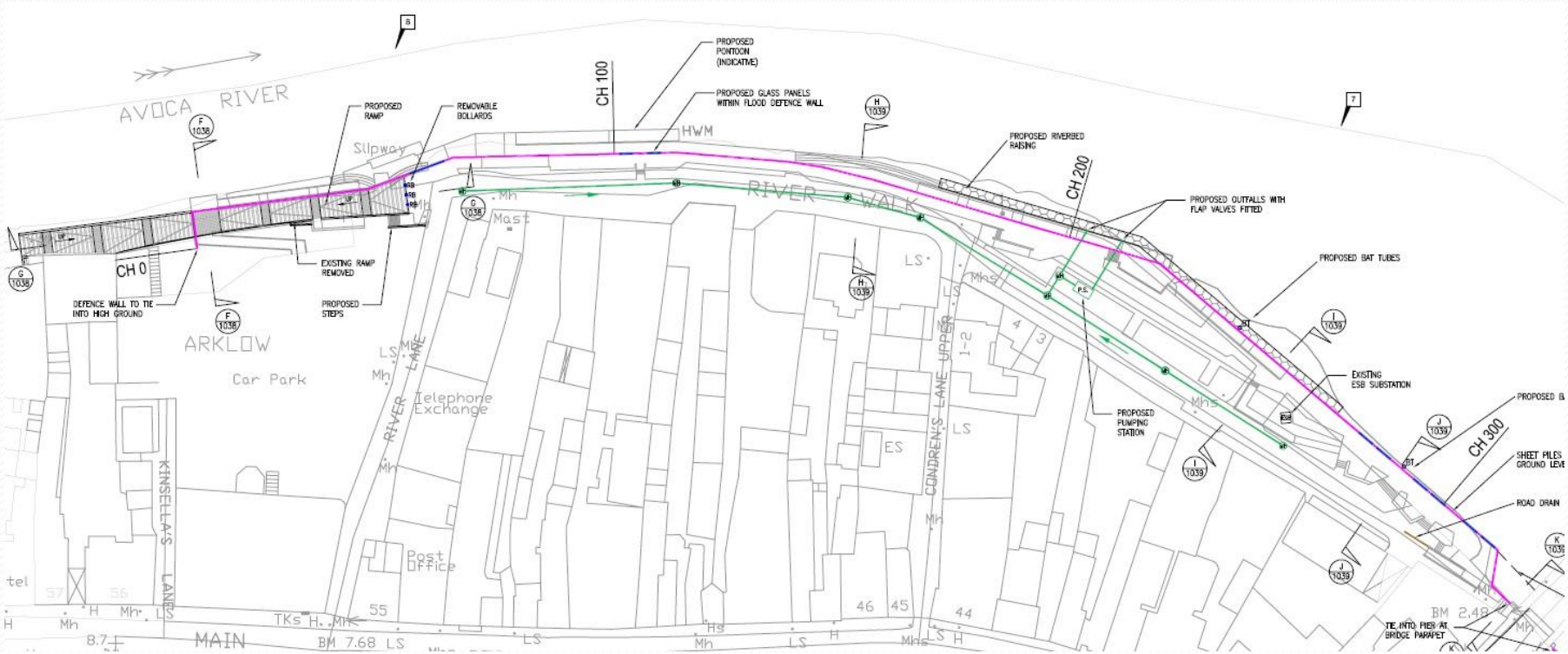
(SCALE 1:100)

Flood Defence Wall & Embankment North Bank, Upstream of Arklow Bridge

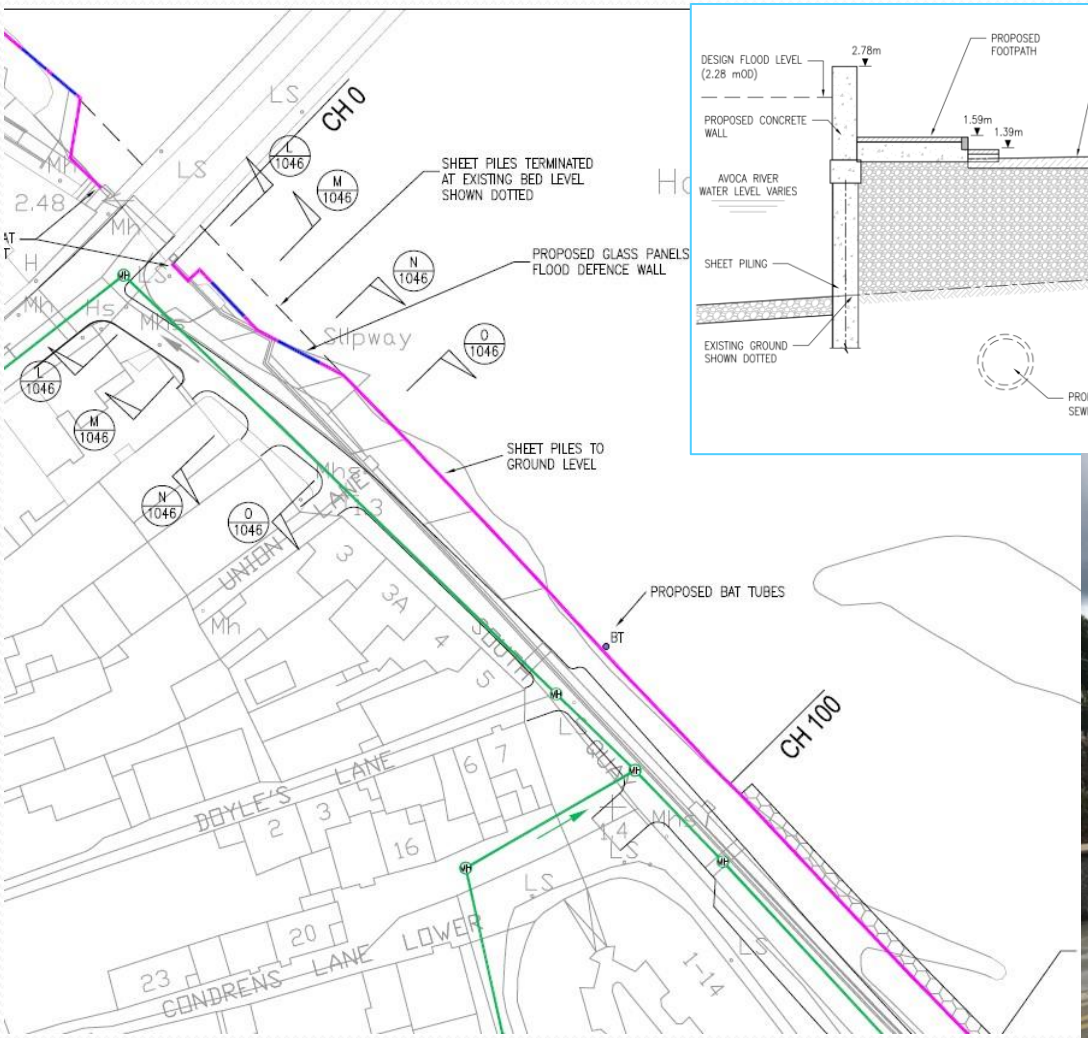


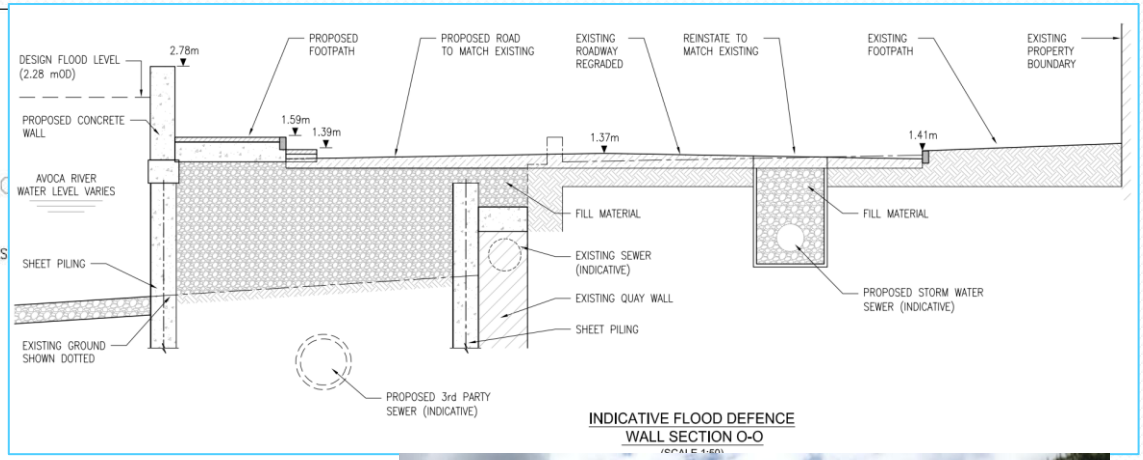


Flood Defence Walls South Bank, Upstream of Arklow Bridge



Flood Defence Walls, South Bank Downstream of Arklow Bridge

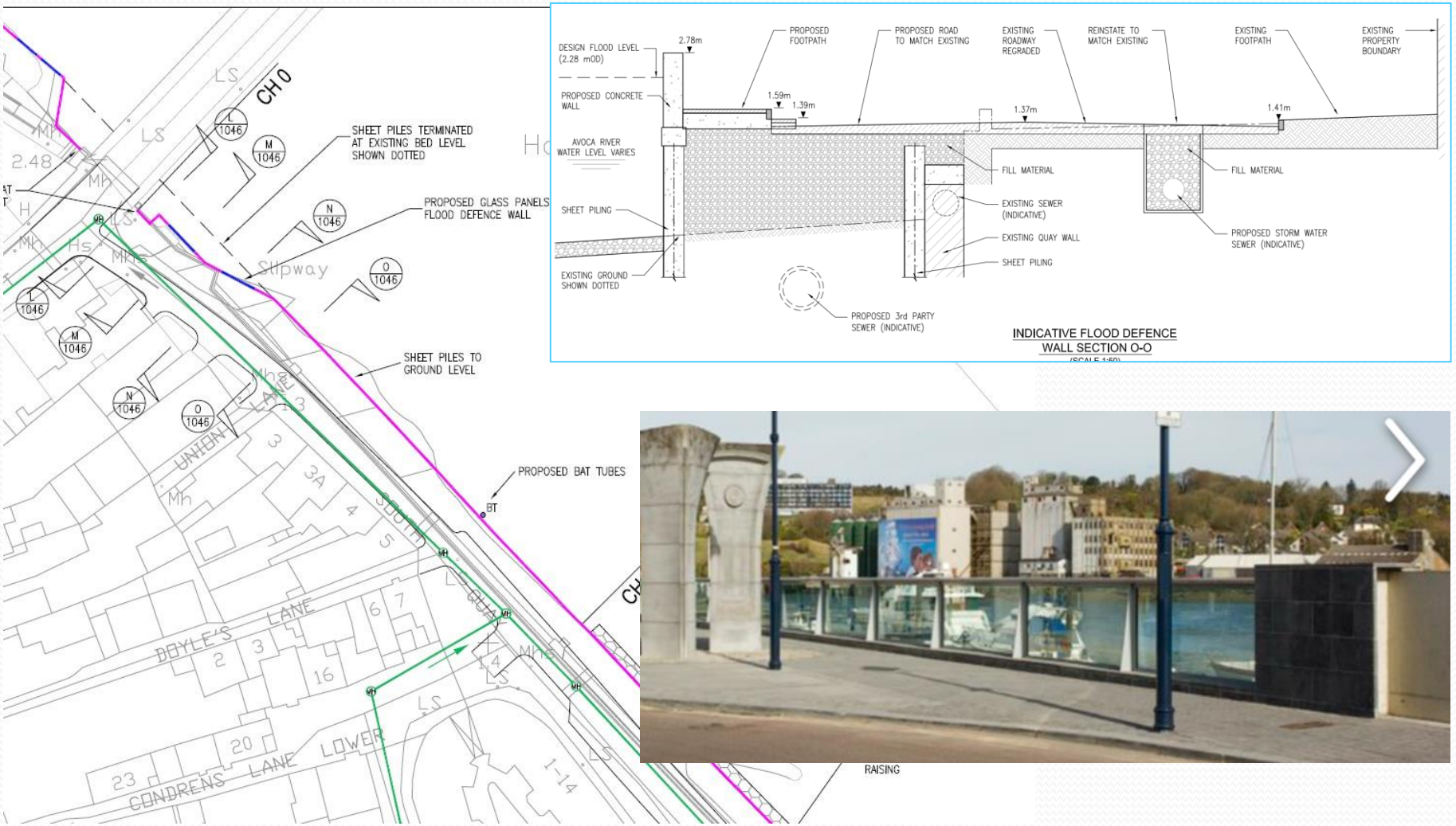


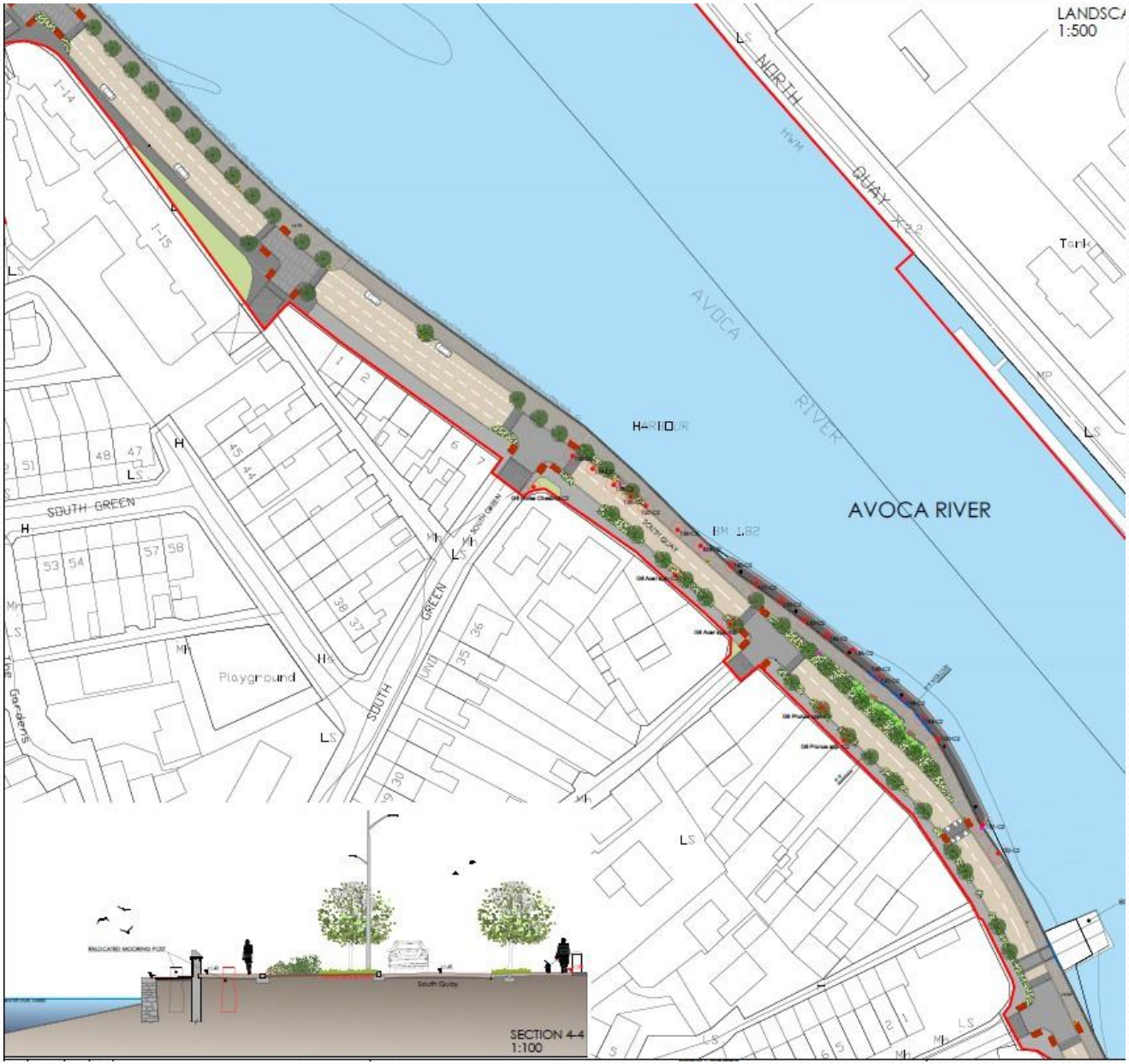


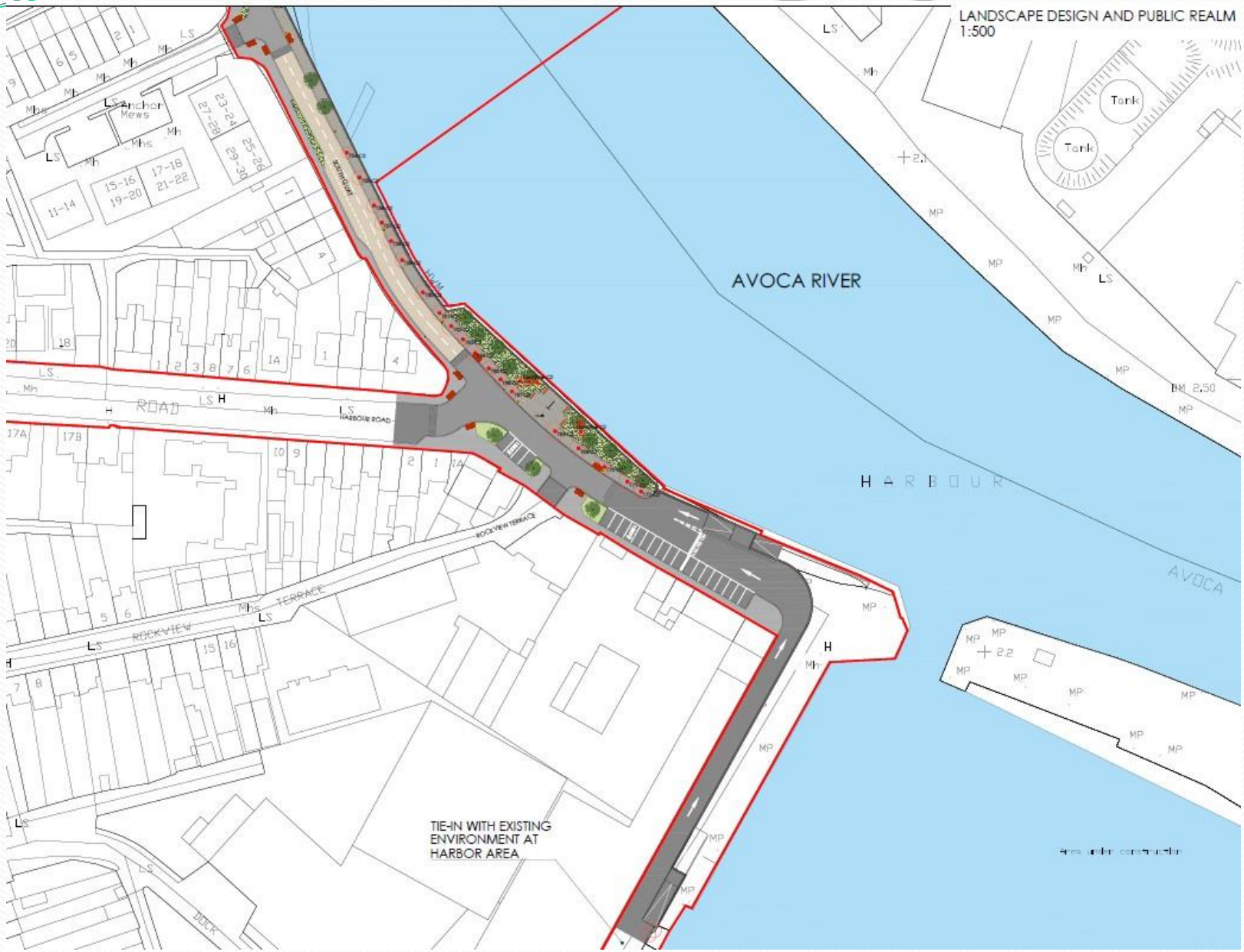
INDICATIVE FLOOD DEFENCE WALL SECTION O-O

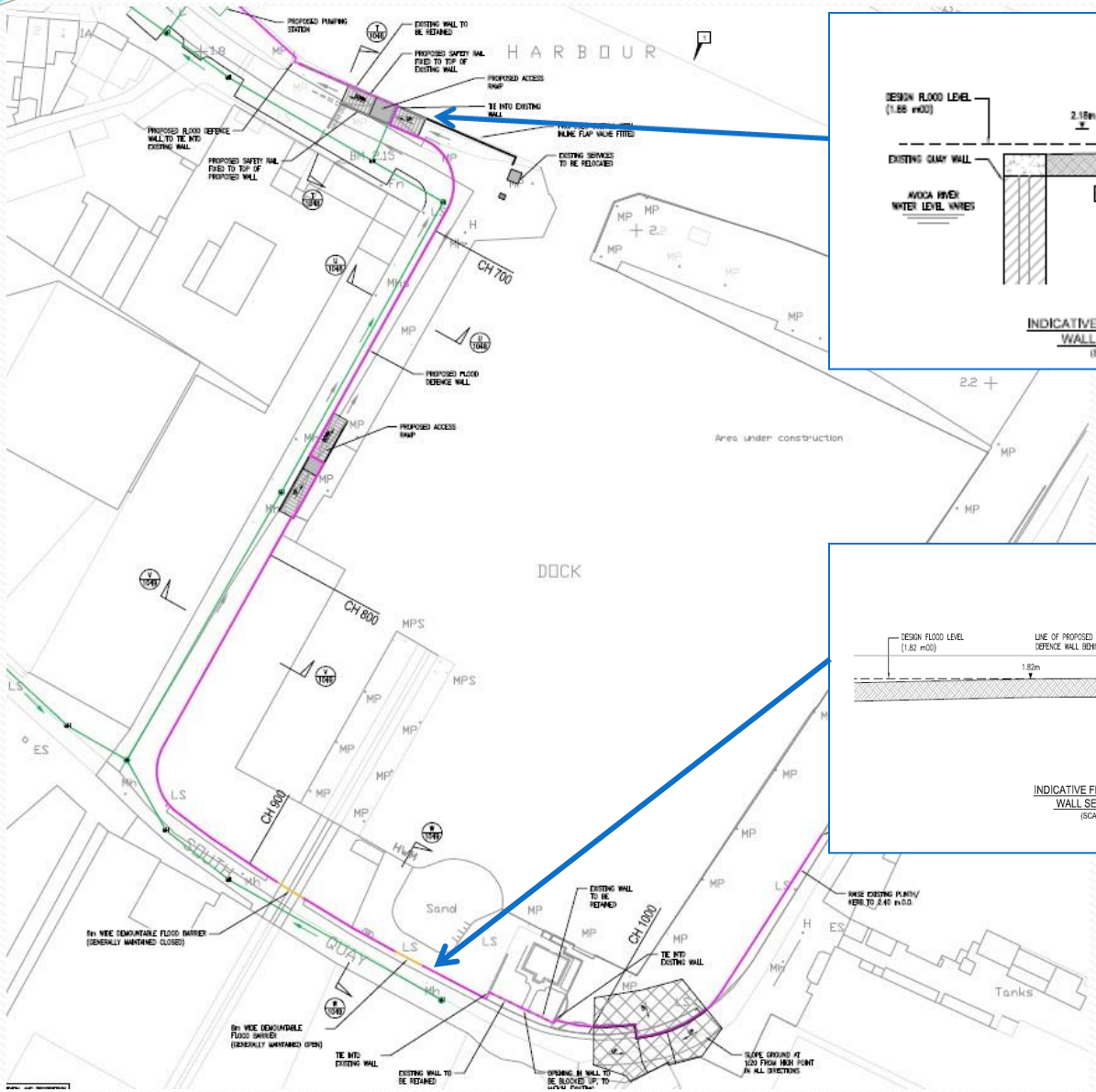
Flood Defence Walls, South Bank Downstream of Arklow Bridge

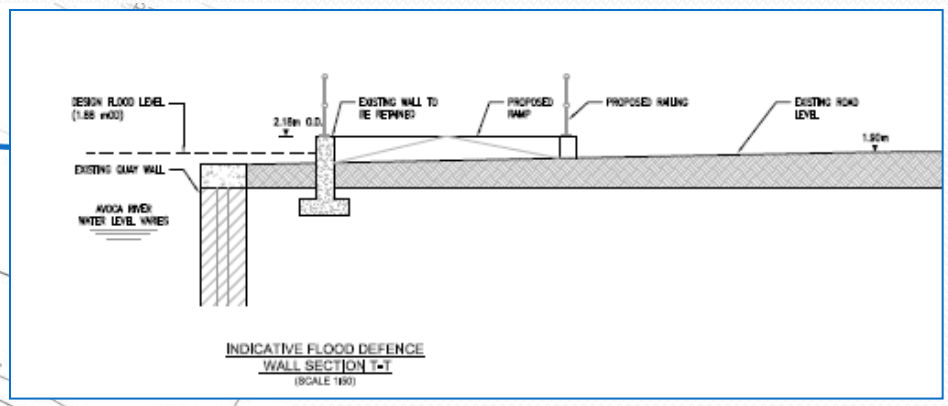
Additional Glass Panels



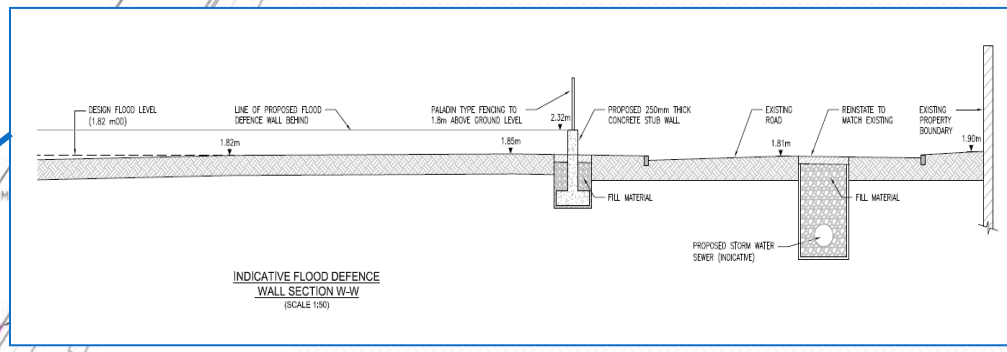

LANDSCA
1:500
NORTH QUAY
AVOCA RIVER
AVOCA RIVER
SOUTH GREEN
SOUTH GREEN
SOUTH QUAY
Playground
Tank
BM 1.82
SECTION 4-4
1:100


LANDSCAPE DESIGN AND PUBLIC REALM
1:500
AVOCA RIVER
HARBOUR
TIE-IN WITH EXISTING
ENVIRONMENT AT
HARBOR AREA
Anchor
Mews
ROAD
HARBOUR ROAD
ROCKVIEW
TERRACE
Tank
Tank
BM 2.50
AVOCA





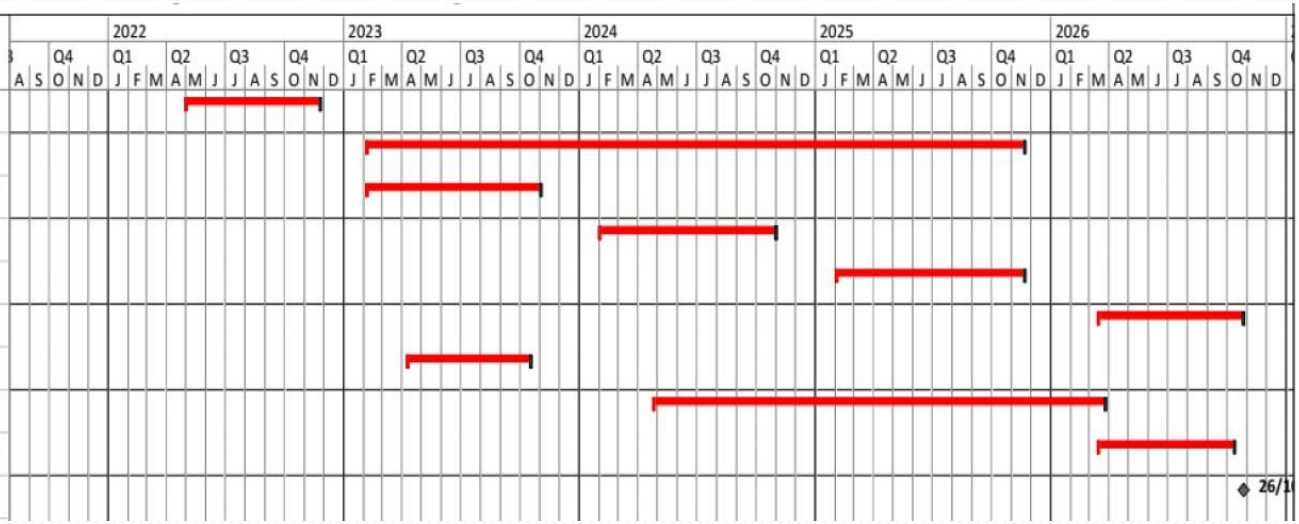
INDICATIVE FLOOD DEFENCE WALL SECTION T-T
(SCALE 1:50)



INDICATIVE FLOOD DEFENCE WALL SECTION W-W
(SCALE 1:50)

Indicative Programme

ID	Task Name	Start	Finish
1	Enabling Works	02/05/22	25/11/22
5	Work Package 1 - Arklow Bridge	06/02/23	21/11/25
6	Bridge Underpinning (Phase 1-south side)	06/02/23	02/11/23
17	Bridge Underpinning (Phase 2 Centre)	02/02/24	31/10/24
28	Bridge Underpinning (Phase 3-north side)	03/02/25	21/11/25
39	Work Package 2 - Dredging Works	16/03/26	26/10/26
47	Work Package 3 - Debris & Gravel Traps	10/04/23	17/10/23
52	Work Package 4 - Flood Defences (South Bank	26/04/24	26/03/26
59	Work Package 5 - Flood Defences (North Bank	16/03/26	12/10/26
64	Completion of Scheme	26/10/26	26/10/26



Thank You