



# Castleconnell

## Flood Relief Scheme

### Emerging Options Public Participation Day

21<sup>st</sup> September 2022



Comhairle Cathrach  
& Contae Luimnigh  
Limerick City  
& County Council



**OPW** Orifig na  
nOibrescha Poiblí  
Office of Public Works

Tionscadal Éireann  
Project Ireland  
**2040**

# Project Team

- Limerick City & County Council
- The Office of Public Works (OPW)
- JBA Consulting/JB Barry and Partners JV
- Various subconsultants and subcontractors

Limerick City & County Council appointed the JBA Consulting/JB Barry JV team to assess, develop and design a **sustainable** flood relief scheme for Castleconnell to a determined **Standard of Protection** that is **technically, socially, environmentally** and **economically** acceptable.



# Flood History

2009 Record rainfall levels led to flooding in Castleconnell Village

2012 CFRAM included Castleconnell as an Area for Further Assessment (AFA)

2015 Flood event in Castleconnell

2020 Flood event in Castleconnell

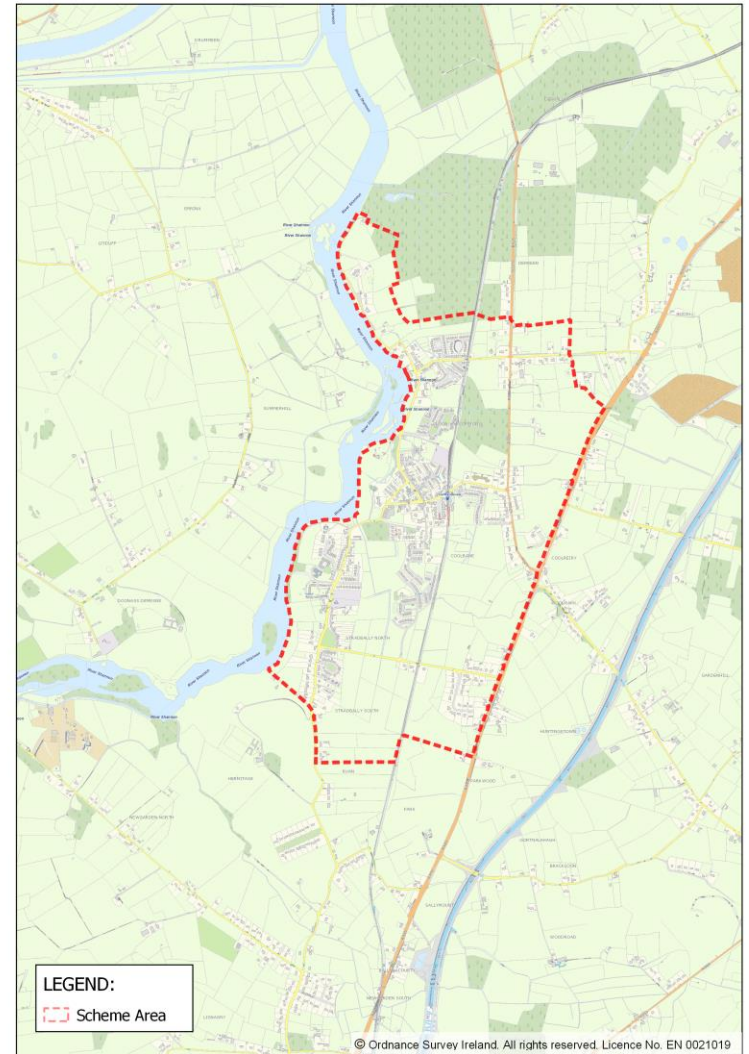


**Castleconnell**  
Flood Relief Scheme



# Introduction

- This project started in July 2019.
- The scheme is being funded by the Office of Public Works.
- The aim of the scheme is to reduce flood risk to the community to a determined standard of protection. (1 in 100-year event)





# Stages of the Scheme

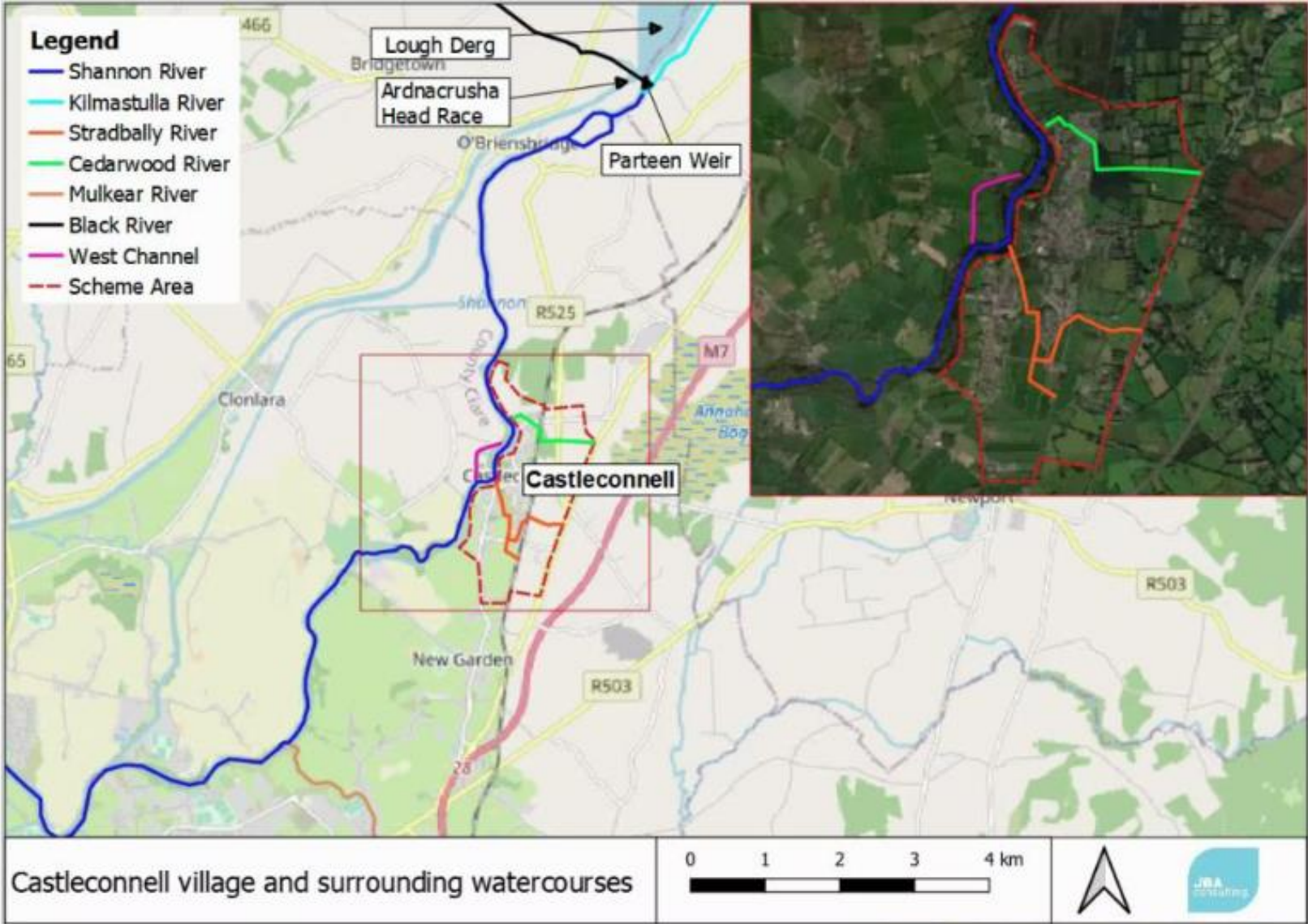
- There are five statutory phases of work. Progression to each stage relies on a successful outcome of the previous stage.
- We are progressing through Stage 1 and currently have developed a number of options for consideration
- First PCD (socially distanced due to Covid-19) in June 2020 using the information brochures and questionnaires.
- The planning submission is programmed for Q3 of 2023.

Stage	Statutory Process	
I	Scheme Development & Design	
	Data Collection & Review	
	Constraints Study	
	Baseline Surveys	←
	Hydraulic Modelling	
	Initial Public Consultation	
	Options Development	
	Further Surveys	
	Options Appraisal	←
	Environmental Assessment of viable Op	
	Public Consultation	
	Identification of Preferred Scheme	
	Preliminary Design	
	Screening for Appropriate Assessment	
	Environmental Impact Assessment Report	
	Public Consultation	
	Close out Options Report	
II	Planning	
	Collate Planning Documentation	
	Submission of Planning Application to An Bord Pleanála	
III	Detailed Design & Tender	
IV	Construction	
V	Handover to Client	

Habitat surveys  
Bat surveys  
Bird surveys  
Topographical survey  
River survey  
CCTV sewer survey  
Site investigation  
Aquatic electro-fishing survey  
Alluvial woodland survey  
Arborist survey

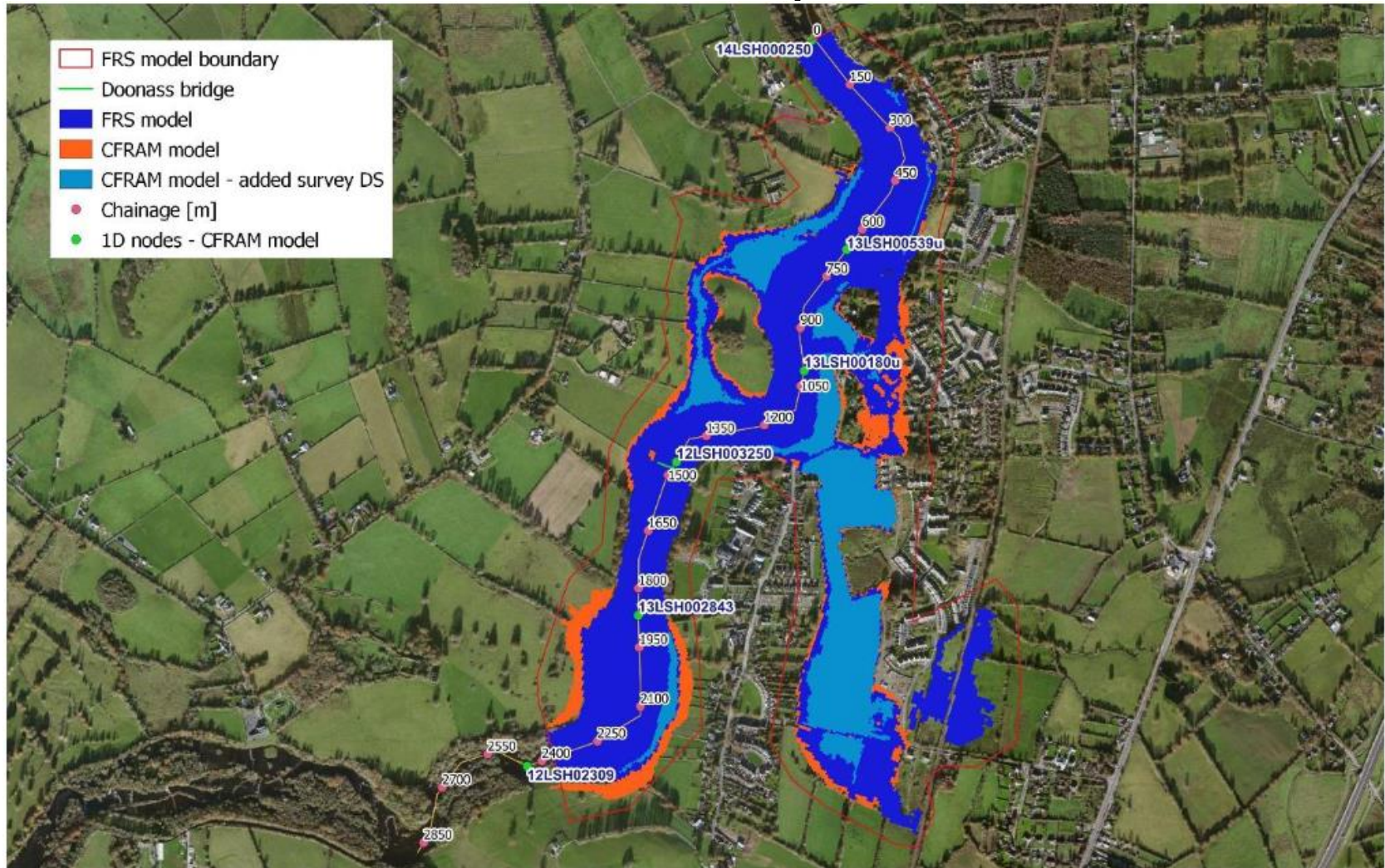
Ecological assessments  
Cultural heritage assessments  
Archaeological assessments  
Cost-benefit assessment  
Multi-criteria analysis  
Climate change adaptation plan

# Hydraulic Model





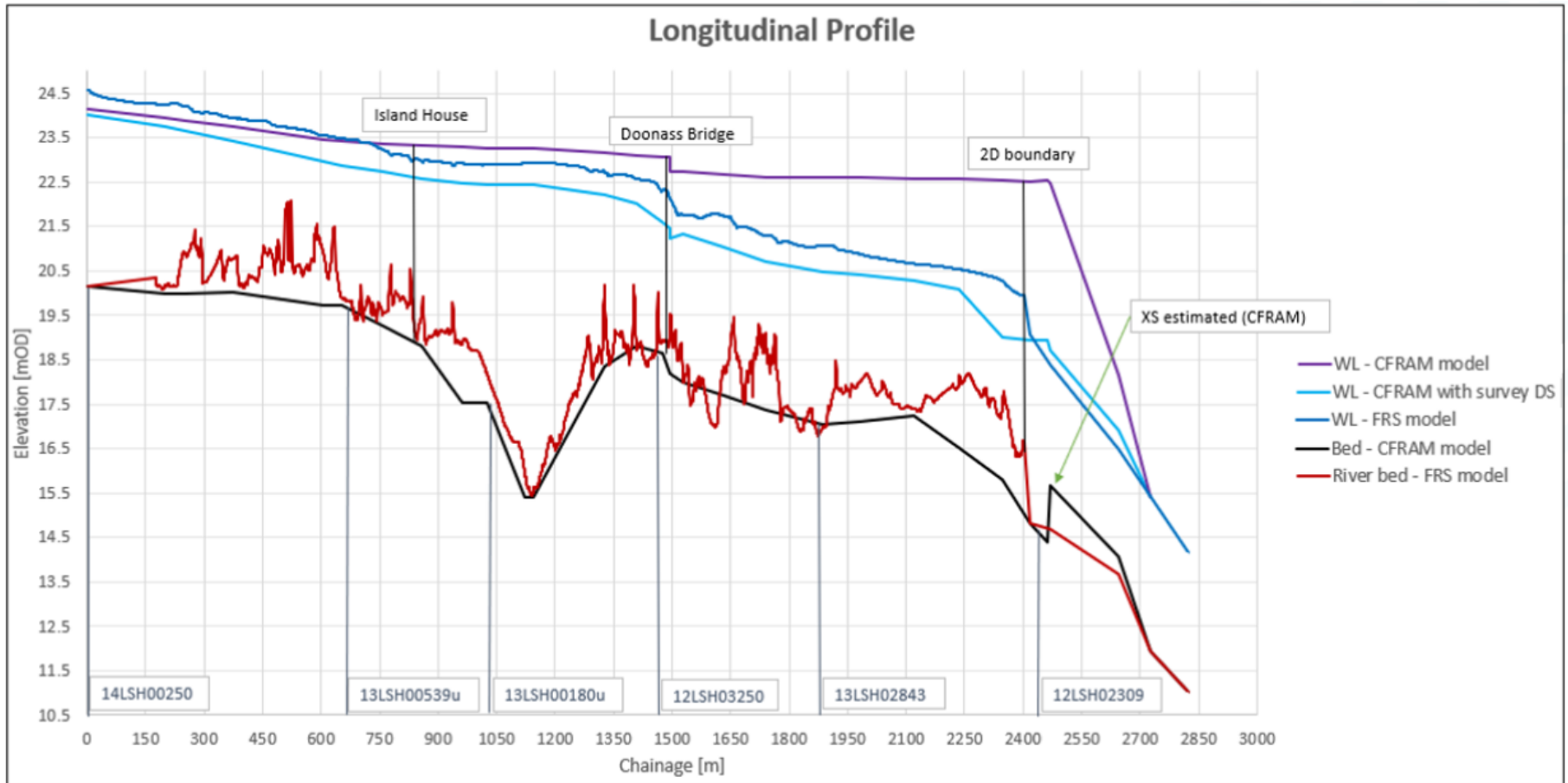
# CFRAM Model Comparison



FRS - CFRAM models  
1% AEP flood extents



# CFRAM Model Comparison





# Calibration of the model

- February 2020 event
  - Used for model calibration
  - Measured flood levels from wrack marks (temporary markings showing where the flooding came to)
- November 2009 event
  - Used for model validation.
  - Information from locals on observed water levels.



# Flood Risk Management Measures

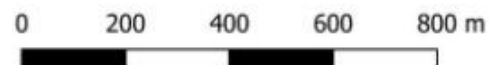
- Flood attenuation
  - Would involve a disproportionate level of investment.
- Conveyance
  - River Restoration
  - Removal of Weirs
  - Removal of Islands
  - River Bank Softening
  - Right Bank By-pass
- Containment
  - Flood Walls
  - Embankments
  - Demountable Barriers
  - Road Raising



# Conveyance

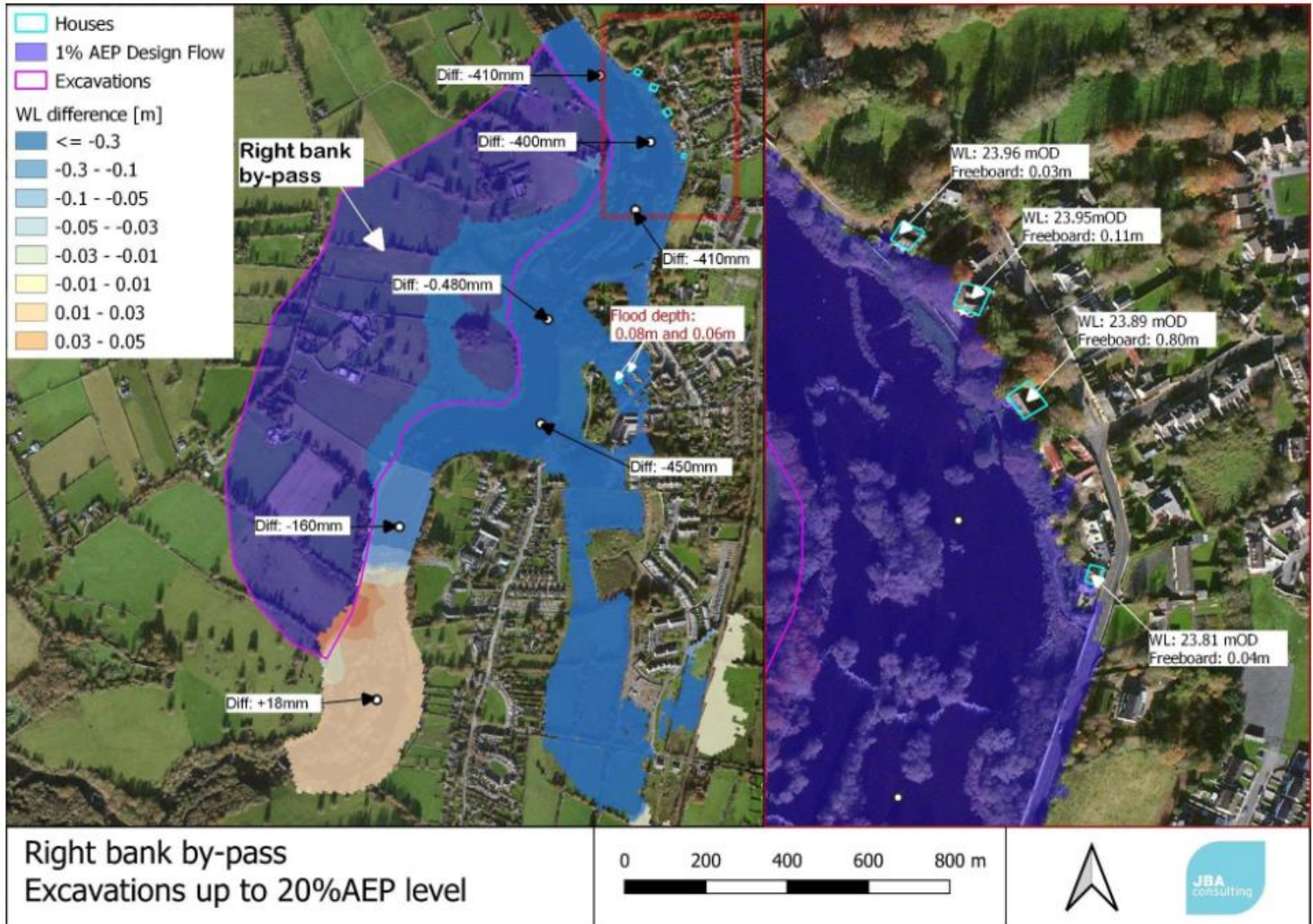


River restoration: General maintenance of riverbed and island vegetation





# Conveyance

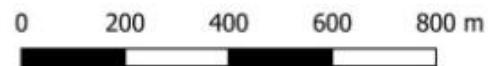




# Conveyance



**Weirs and Islands Removal  
Walls Downstream of The Elvers Rd**



# Conveyance – Doonass Bridge

- Acts as a constriction.
- A diversion channel to the west, bypassing Doonass bridge – Reduction in levels to the north was not enough and resulted in increased flood levels to the south.
- Widening of Doonass bridge – Reduction in levels was not enough to justify the cost of such works.



# Conveyance- Summary

All in-channel works:

- Did not lower levels enough to eliminate the need for hard defences, which would significantly increase scheme costs.
- Involved permanent works within a Special Area of Conservation.
- Had potential significant changes to environment & ecology.
- Would require complex enabling works during construction.

# Flood Risk Management Options

The Flood Relief Scheme will consist of one or a combination of flood risk management measures.

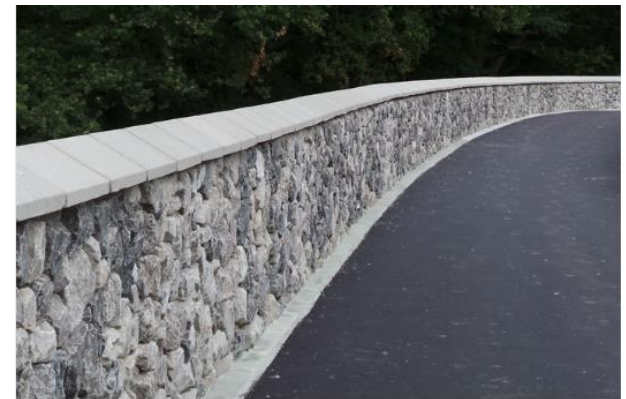
- Flood walls
- Embankments
- Road Raising
- Barriers



**Example of demountable barriers**  
(Image source: Flood Gates Ireland)



**Example of flood embankment (River Tillingham)**  
(Image copyright: N Chadwick under the licence [Creative Commons — Attribution-ShareAlike 2.0 Generic — CC BY-SA 2.0](#))



**Example of stone clad flood wall**  
(Image source: externalworxindex.co.uk)

# Environmental Constraints

- Number of ecological and environmental surveys have been undertaken or are scheduled to be undertaken in the coming months to understand the environmental and ecological constraints. These include:
  - Wintering birds survey
  - Bat surveys
  - Habitat survey
  - Electrofishing survey
  - Identify any invasive species
  - Alluvial woodland survey
  - Arborist survey





# Environmental Constraints



Lower River Shannon SAC
  Affinity to 6430
  6430 Tall-herb fen
  Affinity to Alluvial woodland
  91E0 Alluvial woodland
  Fish Survey Points

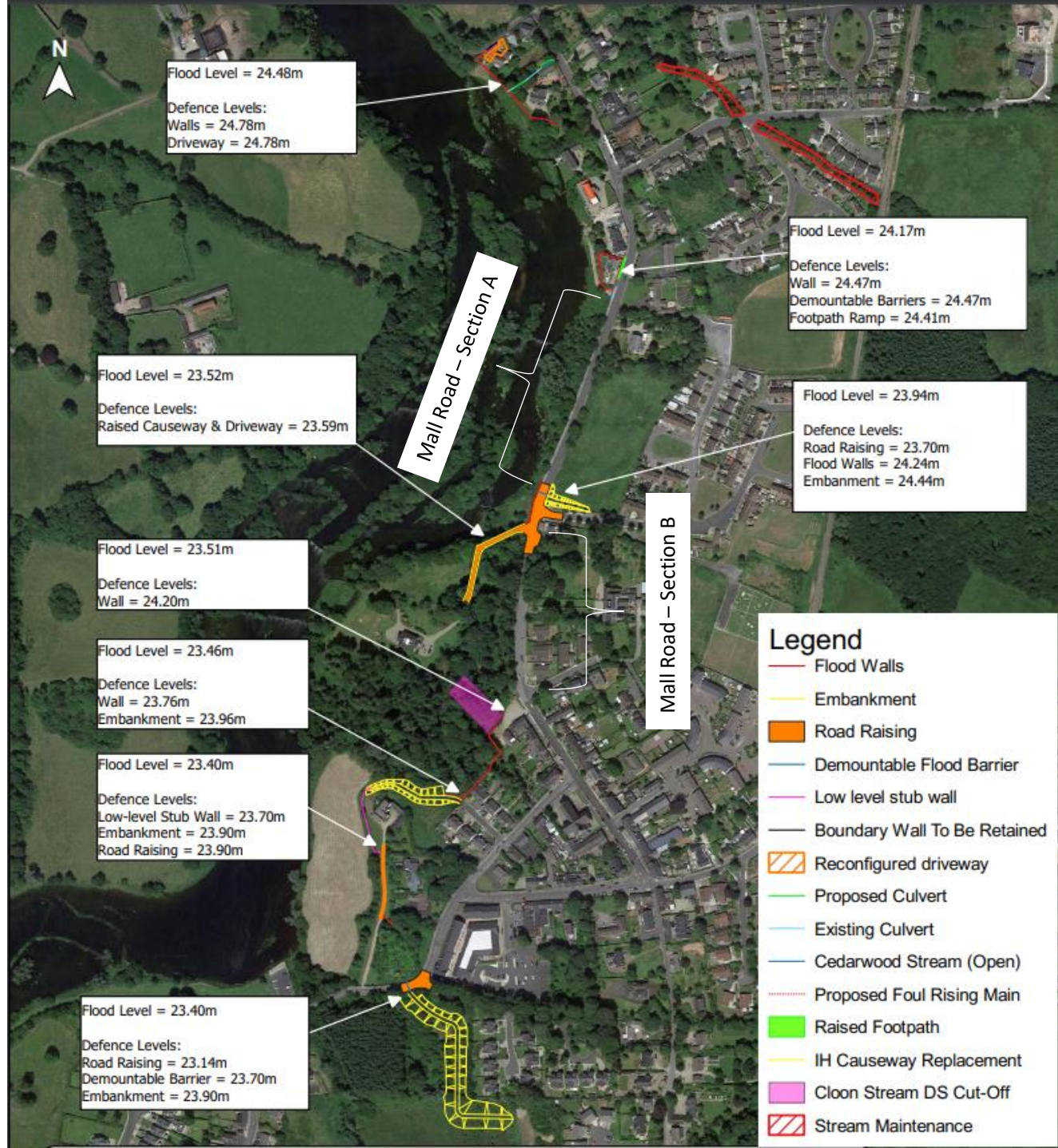


Lower River Shannon SAC
  Heronry
  Invasive Species
  Giant Hogweed
  Himalayan Balsam



# Option 1

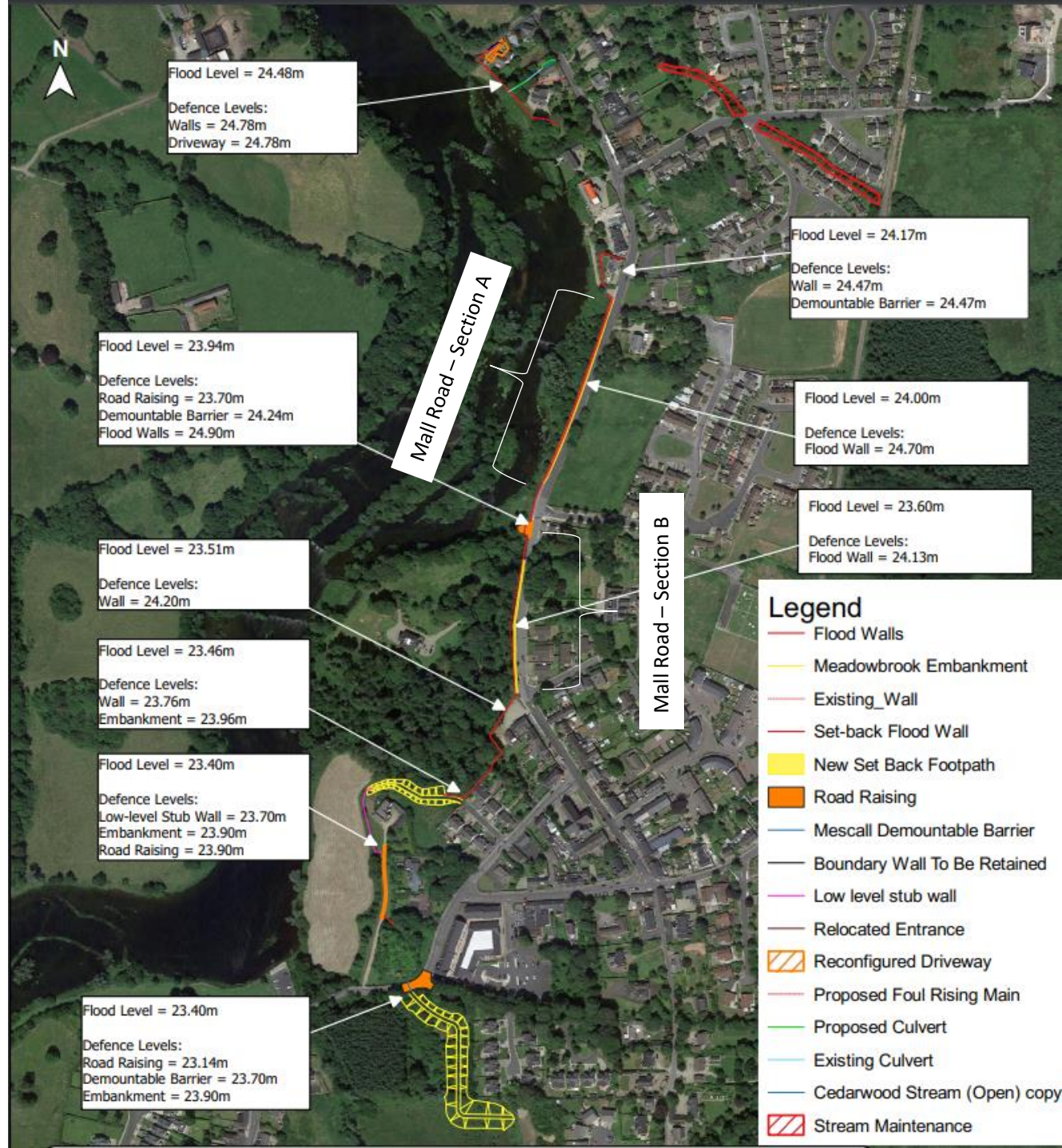
- Flood defences from Rivergrove B&B to Coolbane Woods.
- Does not include protection to the Mall Road (Section A).
- Uses Island House as part of the defences by cutting off Cloon Stream.





# Option 2

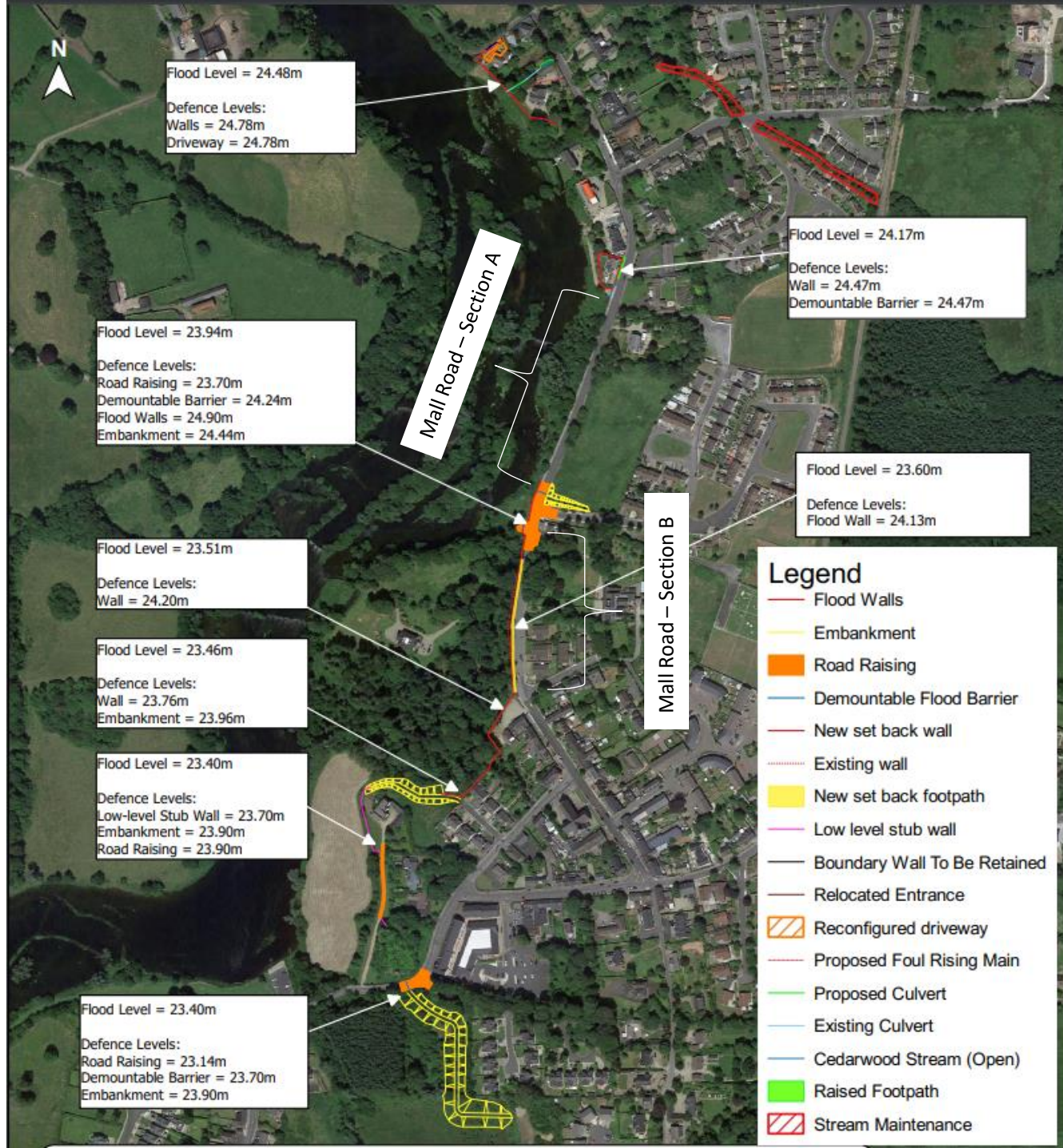
- Flood defences from Rivergrove B&B to Coolbane Woods.
- Assesses the benefit of including protection for the Mall Road (Section A).
- Does not isolate Cloon Stream.





# Option 3

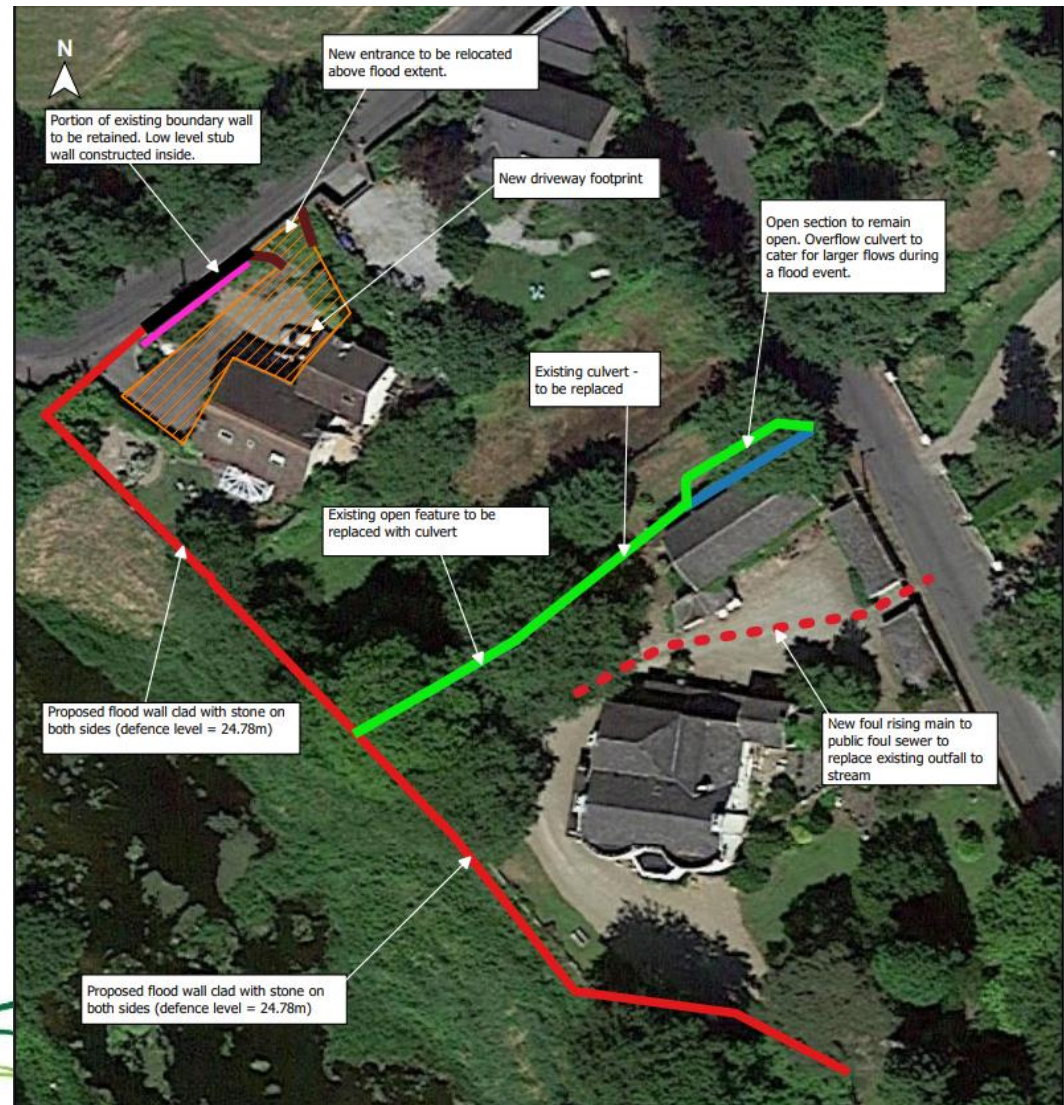
- Flood defences from Rivergrove B&B to Coolbane Woods.
- Does not include protection to the Mall Road (Section A).
- Does not isolate Cloon Stream.





# Northern Properties – All Options

- Flood wall with stone cladding.
- Height ranges 0.8m – 2.0m
- Overflow culvert on Cedarwood Stream





# The Mall Road (Section A) – Option 1 & Option 3

- No protection to Mall Road.
- Mall Road closed during flood event – Diversion Route.
- Flood wall around entire perimeter of Mall House .
- Alternative access through soccer pitch car park for 2 nr. properties during flood event.

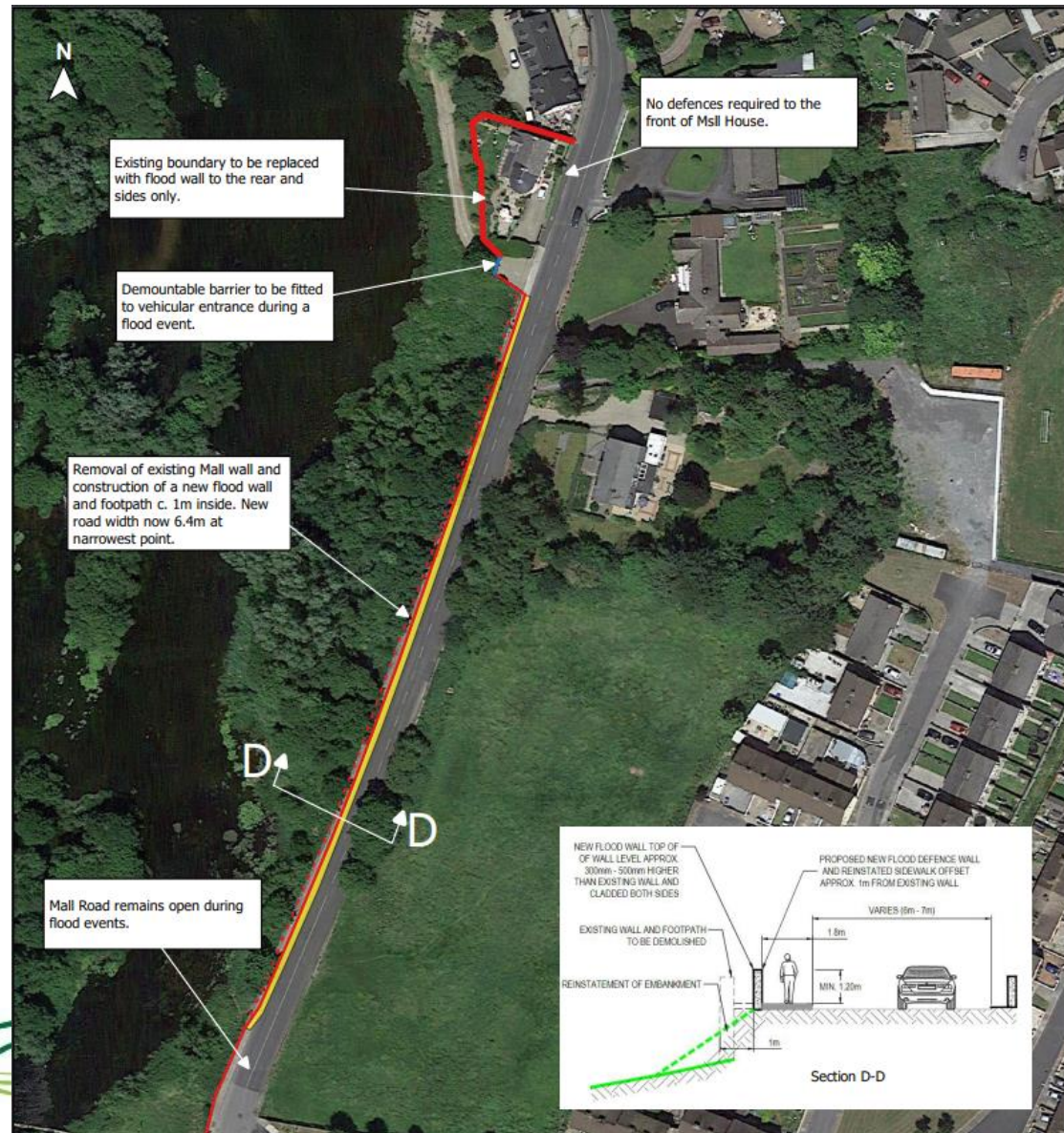




# The Mall Road (Section A)

## – Option 2

- Mall Road remains open during flood event.
- Stepped back wall avoids Alluvial Woodland and SAC.
- Unrestricted access to all properties at all times.
- Flood wall along Mall Road – significant increase in construction costs.

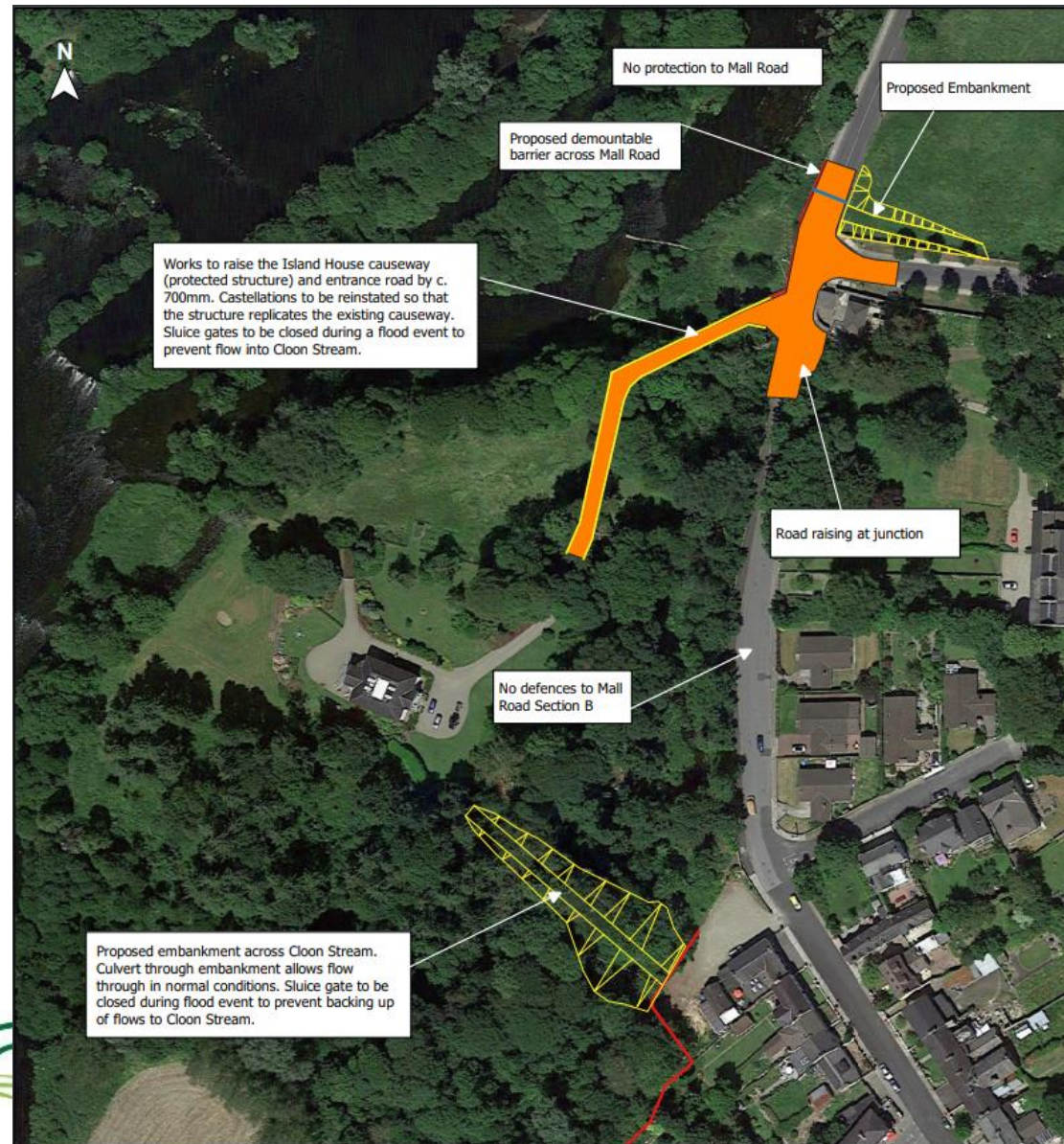




# The Mall Road (Section B)

## – Option 1

- Unrestricted access to Island House at all times.
- Defences not required between IH and Maher's Pub.
- Significant works to a protected structure.
- Significant permanent works within the SAC & near heronry.

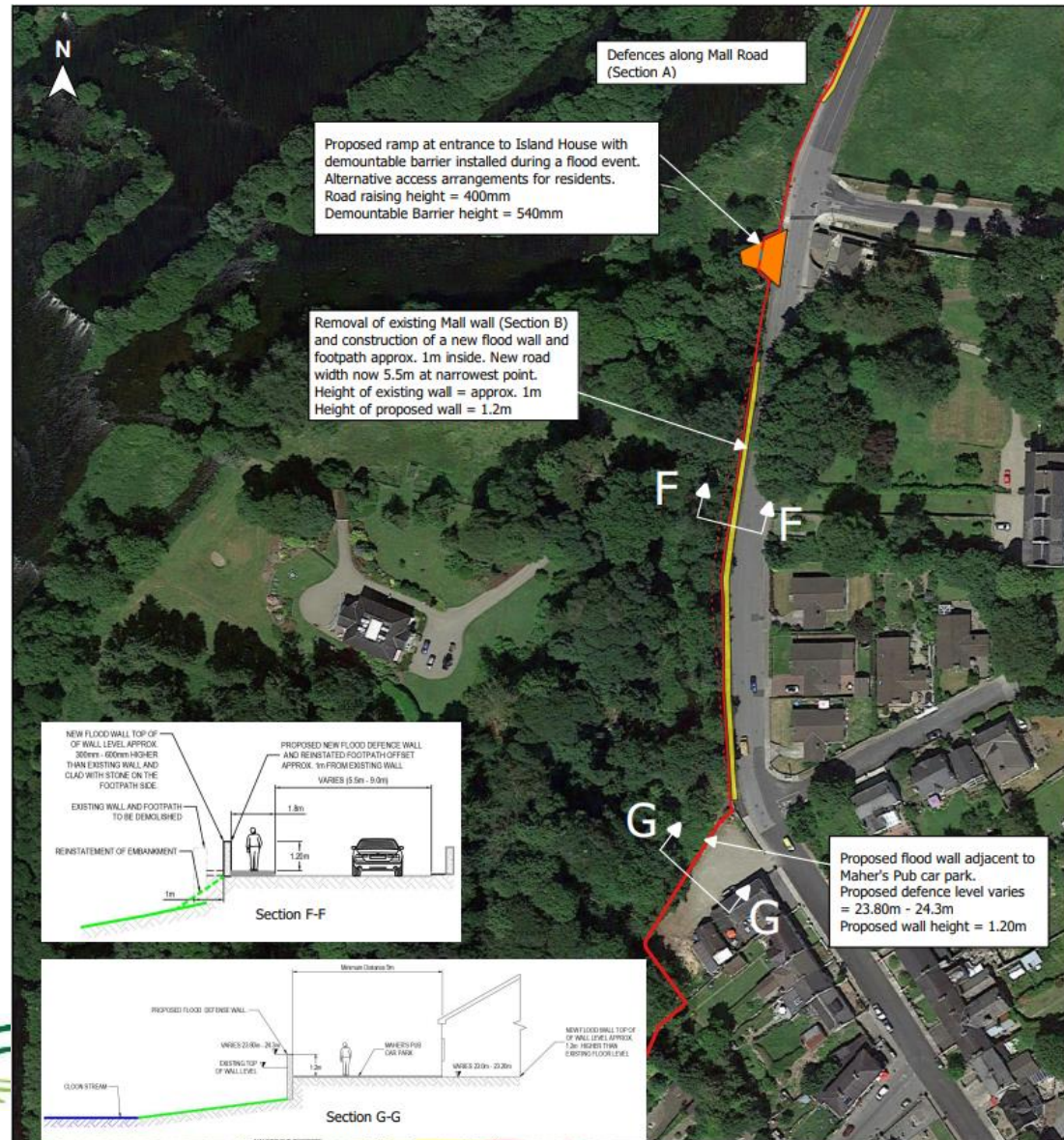




# The Mall Road (Section B)

## – Option 2

- Demountable barrier, embankment & road raising at junction not required.
- Stepped back flood wall avoids works in SAC.
- Alternative access arrangements required for IH resident.

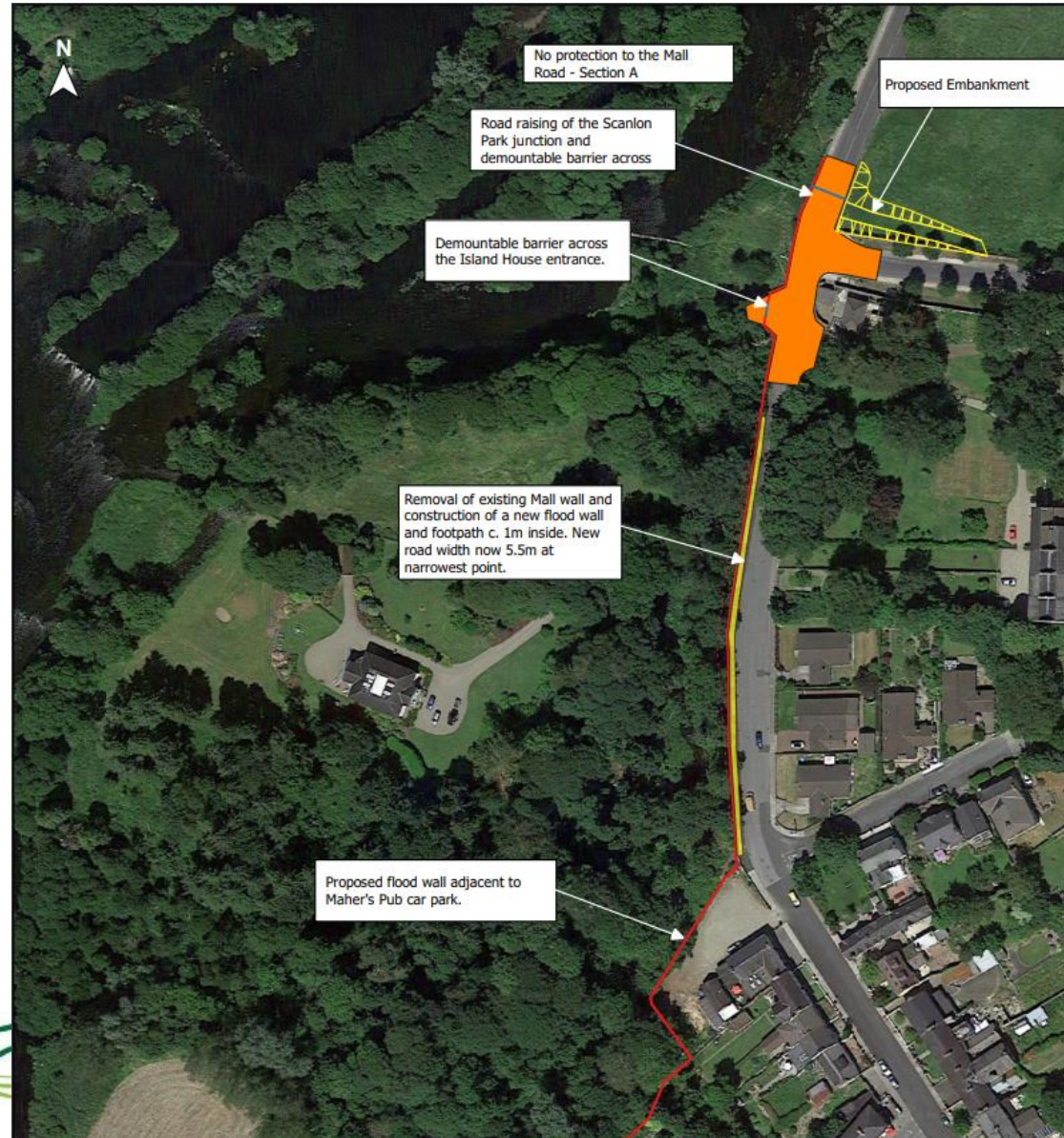




# The Mall Road (Section B)

## – Option 3

- Stepped back flood wall avoids works in SAC.
- Alternative access arrangements required for IH resident.

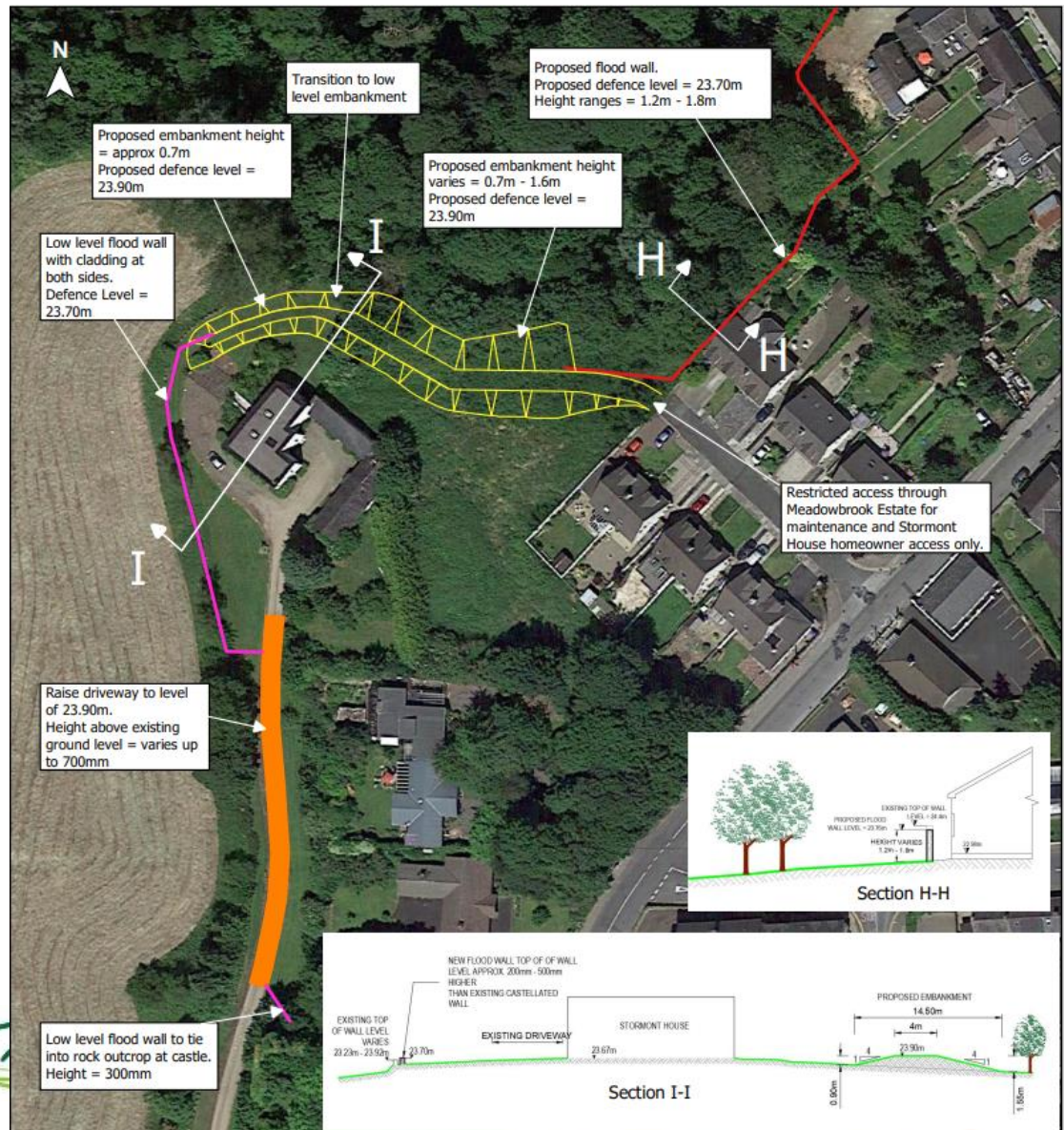




# Meadowbrook Estate to Stormont House

## – All Options

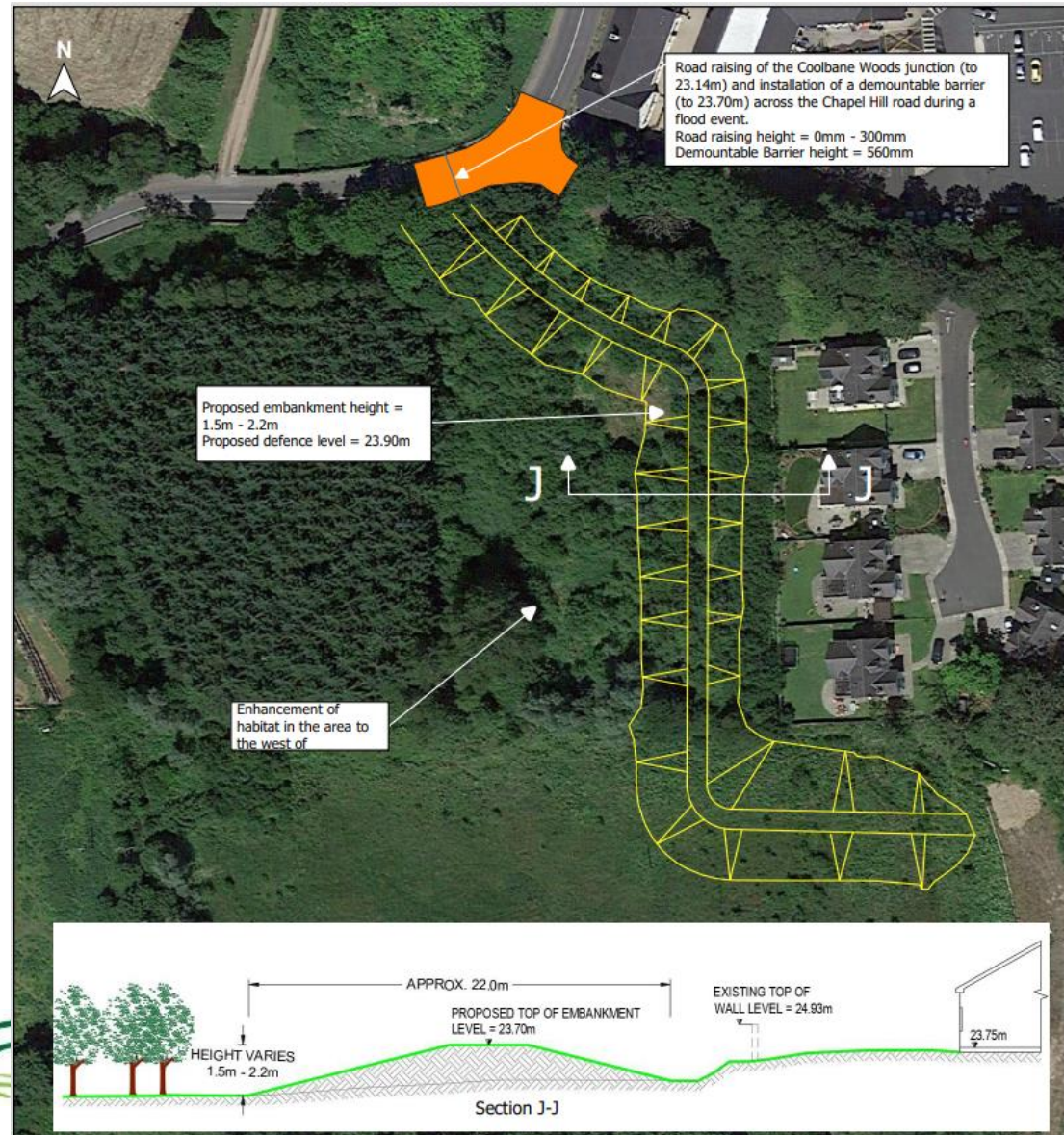
- Height of proposed wall at Meadowbrook = Height of existing wall.
- Temporary works in SAC & near heronry.





# Coolbane Woods/Castle – All Options

- Enhancement of the immature woodland west of proposed embankment.
- Proposed embankment level below existing wall level.
- Closure of the Chapel Hill Road (Diversion Route)
- Involves works in immature woodland.





# Summary

- More complex scheme than CFRAMS
- Limited available benefits

	Option 1	Option 2	Option 3
<b>Approx. capital cost</b>	€8.1m	€8.4m	€7m
<b>Environment/Ecology</b>	Permanent works in SAC. Impact on tree habitat.	Involve work alongside the SAC. Impact on tree habitat.	Involve work alongside the SAC. Impact on tree habitat.
	Improvement of habitat east of Coolbane Woods	Improvement of habitat east of Coolbane Woods	Improvement of habitat east of Coolbane Woods
<b>Cultural Heritage</b>	Works to a protected structure	Re-use of existing stone on walls	Re-use of existing stone on walls.
<b>Access restrictions during flood</b>	Mall Road closed	Alternative arrangements for IH	Mall Road closed
	Chapel Hill Road closed.	Chapel Hill Road closed	Chapel Hill Road closed
			Alternative access arrangements for IH

# Next Steps

- Multi Criteria Analysis - Environmental, social and economic criteria
- Further Surveys
- AA/NIS Screening
- Options Report
- Further Public Consultation
- EIAR
- Planning Submission



# Your opportunities to take part

- We invite your feedback on the options.
- Questionnaire forms are available and can be completed today or returned by October 19<sup>th</sup>.
- We will hold another PPD as the project progresses to the preferred option stage and you will be given the chance to comment again as the scheme develops.

# Further Information

Website:

<https://mypoint.limerick.ie/>

Email:

[castleconnellfrs@jbaconsulting.ie](mailto:castleconnellfrs@jbaconsulting.ie)





# Thank you

# Any Questions?