Appendix I
Public Consultation

I1	**Brochure**
I2	**Questionnaire**
I3	**Posters**

What Happens Next?

All comments received in response to this Public Information Event will be considered by the OPW and will be taken into account in the preparation of the first stage in the Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool And Ballyvolane) Environmental Impact Assessment and the Engineering Study.

The Environmental Impact Assessment and Engineering Study for the Lower Lee (Cork City) Flood Relief Scheme will be delivered in the following Stages:

Environmental Impact Assessment			Engineering Study	
Stage I	Part 1	Constraints Study (*this stage*)	Stage I	Scheme Development
	Part 2	Screening for Appropriate Assessment		Data Gathering and Surveying
Stage II	Part 1	Environmental Assessment of Viable Options		Hydrology Study & Hydraulic Modelling
	Part 2	Appropriate Assessment		Site Investigations
Stage III		Environmental Impact Statement		Flood Risk Assessments
Stage IV		Public Exhibition		Flood Risk Management Options
				Cost Benefit Analysis
				Selection of Preferred Option
				Flood Risk Management Plan
			Stage II	Public Exhibition
			Stage III	Detailed Design
			Stage IV	Construction

Your Opportunity to Take Part

The Office of Public Works wishes to consider all viewpoints in relation to the Study Area being examined. This is your opportunity to take part at the early stages of the planning of the Flood Relief Scheme. Time spent communicating your views to the Office of Public Works is appreciated.

The general public and all interested parties are invited to give their opinions on the Study Area. Please examine the Study Area shown overleaf and let your views be known by either completing the enclosed questionnaire or writing to the address below, giving your comments. Your opinion will be appreciated and given full consideration.

Completed questionnaires may be handed in at the exhibition or posted to the address below using the stamped and addressed envelope provided, by **Friday** 26th July 2013.

Further Information

All queries, questionnaires and comments in relation to this project can be addressed to:

Contact Name: Brian Keville
Contact Title: Project Manager
McCarthy Keville O'Sullivan Ltd.
Planning & Environmental Consultants
Block 1, G.F.S.C., Moneenageisha Road,
Galway

Tel: +353 (091) 735611
Fax: +353 (091) 771279
Email: bkeville@mccarthykos.ie

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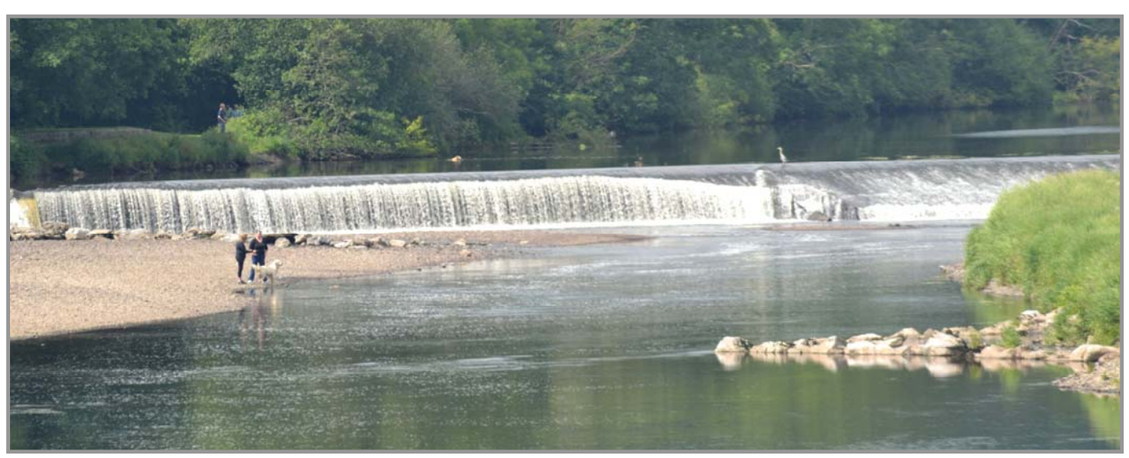
CORK COUNTY COUNCIL 1899

Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool And Ballyvolane)

ARUP
JBA consulting
McCarthy Keville O'Sullivan
RYAN HANLEY

Public Consultation

July 2013



Ryan Hanley in association with McCarthy Keville O'Sullivan has been appointed by the Office of Public Works to carry out an Environmental Assessment of the proposed Lower Lee (Cork City) Flood Relief Scheme.

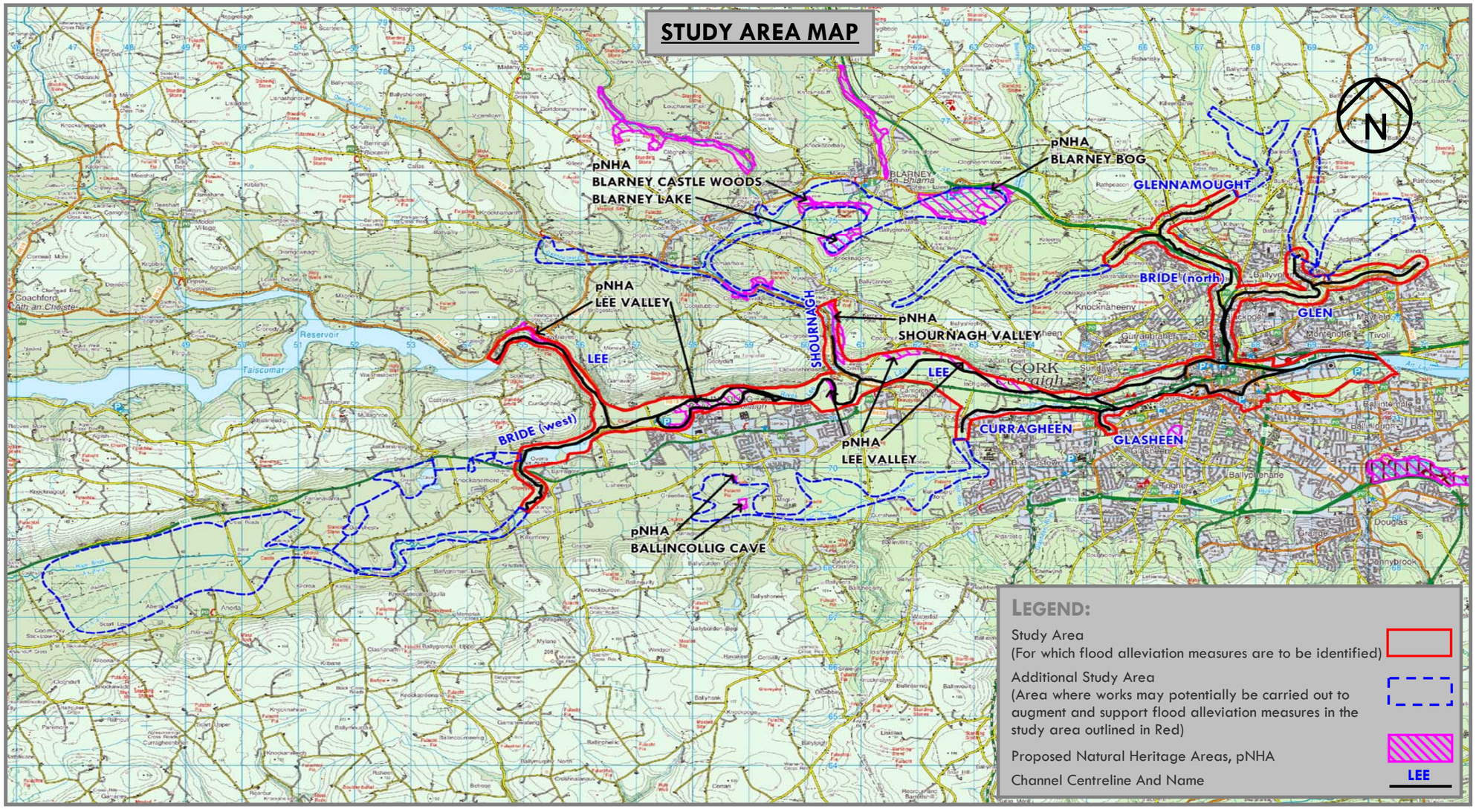
This is the first public consultation; its objective is to seek initial views from the public in relation to the key issues that the study should address, and highlight points of local importance that may constrain the design of potential flood alleviation measures.

Purpose of the Project

The purpose of the Lower Lee (Cork City) Flood Relief Scheme is to assess and develop a viable, cost-effective and sustainable Flood Relief Scheme to alleviate flooding in Cork City, based on preferred options already identified in the Lee CFRAM Study. The Blackpool and Ballyvolane areas on the River Bride (north) will also be assessed for flood relief measures as part of the Flood Relief Scheme.

Current Position

Following on from the Lee CFRAMS and the publication of the draft CFRMP, the next stage is the commencement of the Lower Lee Flood Relief Scheme. The first phase of the scheme is the identification of a study area and the preparation of a Constraints Study as part of the Environmental Impact Assessment for the scheme. The Study Areas for the project are shown on the map above outlined in red and blue.



What is a Constraints Study?

A Constraints study identifies the key environmental issues in a study area which may be impacted upon by possible flood alleviation measures and/ or which may impose constraints on the viability and/ or design of these measures.

Engineering Study

An Engineering Study is being advanced in parallel with the Environmental Assessment of the Flood Relief Scheme.

The range of engineering measures typically considered for possible flood alleviation schemes in an Engineering Study include, but are not limited to those listed in the box to the right.

It is not possible at this stage to define the number of scheme options that will require study, although a typical Engineering Study of this nature will identify between three and five viable options.

Potential Flood Alleviation Measures (non exhaustive list)

a) Do Nothing (i.e., implement no new flood alleviation measures)
b) Non-Structural Measures (e.g. flood warning system or individual property protection)
c) Relocation of Properties and/or infrastructure
d) Reconstruction of Properties and/or infrastructure to a higher level
e) Flow Diversion (e.g. river diversion or flood flow bypass channel)
f) Flow Reduction (e.g. upstream catchment management or flood storage)
g) Flood Containment through Construction of Flood Defences
h) Increase Conveyance of Channel (upstream and/or through and/or downstream of the town)
i) Sediment Deposition and Possible Sediment Traps
j) Pump storm waters from behind flood defences
k) For Lower Lee specifically, works to facilitate a revised operating regime for Carrigadrohid and Inniscarra dams for the purposes of flood risk management

Landscape & Visual Amenity

Comment:

Angling, Tourism & Recreation

Comment:

Other

Comment:

The Office of Public Works (OPW) undertakes to hold any information provided to it by individuals or others on a confidential basis, subject to the OPW's obligations under law, including the Freedom of Information Act. If, for any reason, it is intended that information provided to the OPW should not be disclosed due to the sensitive nature of such information, it is incumbent on the person or body supplying the information to make clear this wish and to specify the reasons for the information's sensitivity. The OPW will consult with any individual or body so supplying sensitive information before making a decision on any freedom of information request received.

THANK YOU FOR YOUR CO-OPERATION

LOWER LEE (CORK CITY) FLOOD RELIEF SCHEME (INCLUDING BLACKPOOL AND BALLYVOLANE)

PUBLIC CONSULTATION NO.1 - CONSTRAINTS STUDY QUESTIONNAIRE

(Please complete this questionnaire and return to Brian Keville, McCarthy Keville O'Sullivan, Block 1 GFSC, Moneenageisha Road, Galway or bkeville@mccarthykos.ie by Friday 26th July 2013)

1. Name *(optional)*: _____

   Address: _____

   _____

   _____

   Phone *(optional)*: _____ Email *(optional)*: _____

2. Are you aware of the Lee Catchment Flood Risk Assessment and Management Study, CFRAMS and its findings or recommendations? Yes ☐ No ☐

3. Do you own, rent or occupy a property within the study area being considered? Yes ☐ No ☐

4. Address of property (if different from home address)

   _____

   _____

5. Have you had any personal experience of flooding? Yes ☐ No ☐

6. If yes, please give date(s): Most recent _____

   Previous _____

   Previous _____

7. Type of property flooded:

Residential	☐	Retail	☐
Office	☐	Workshop	☐
Open Space	☐	Other	☐

If other, please describe: _____

8. Approximate maximum depth of flooding: _____

9. Source of Flooding:

Directly from River/ Stream	☐
From Drains	☐
Overground flow (surface water)	☐

10. Do you have photographs of flooding? Yes ☐ No ☐

11. If you do, may the OPW have permission to use them? Yes ☐ No ☐

    Note: Photographs will be collected at a later date

12. Have you put in place measures to prevent or reduce the impact of flooding? Yes ☐ No ☐

If so, please describe:

13. Please indicate, in order of preference, your preferred flood defence works:
(please score from 1-11 as appropriate)

No Works (Do Nothing)		Non-Structural Measures (e.g. flood warning system or individual property protection)	
Relocation of Properties and/or infrastructure		Reconstruction of Properties and/or infrastructure to a higher level	
Flow Diversion (e.g. river diversion or flood flow bypass channel)		For Lower Lee specifically, Works to facilitate a revised operating regime for Carrigadrohid and Inniscarra dams for the purposes of flood risk management	
Flood Containment through Construction of Flood Defences		Increase Conveyance of Channel (upstream and/or through and/or downstream of the town)	
Sediment Deposition and Possible Sediment Traps		Pump storm waters from behind flood defences	
Flow Reduction (e.g. upstream catchment management or flood storage)			

14. How do you think the issue of flooding can be resolved?

15. In your opinion, how important are the following environmental constraints to the proposed Flood Relief Scheme for Cork City? *(please tick appropriate boxes)*

Issue	Very Important	Important	Moderately Important	Of Little Importance	Unimportant
Flora and Fauna	☐	☐	☐	☐	☐
Local Fisheries	☐	☐	☐	☐	☐
Habitats	☐	☐	☐	☐	☐
Water Quality	☐	☐	☐	☐	☐
Architectural and Cultural Heritage	☐	☐	☐	☐	☐
Landscape and Visual Amenity	☐	☐	☐	☐	☐
Angling, Tourism & Recreation	☐	☐	☐	☐	☐

If you have any comments relating to the proposed scheme or the constraints, please record them here:

Flora and Fauna

Comment:

Local Fisheries

Comment:

Habitats

Comment:

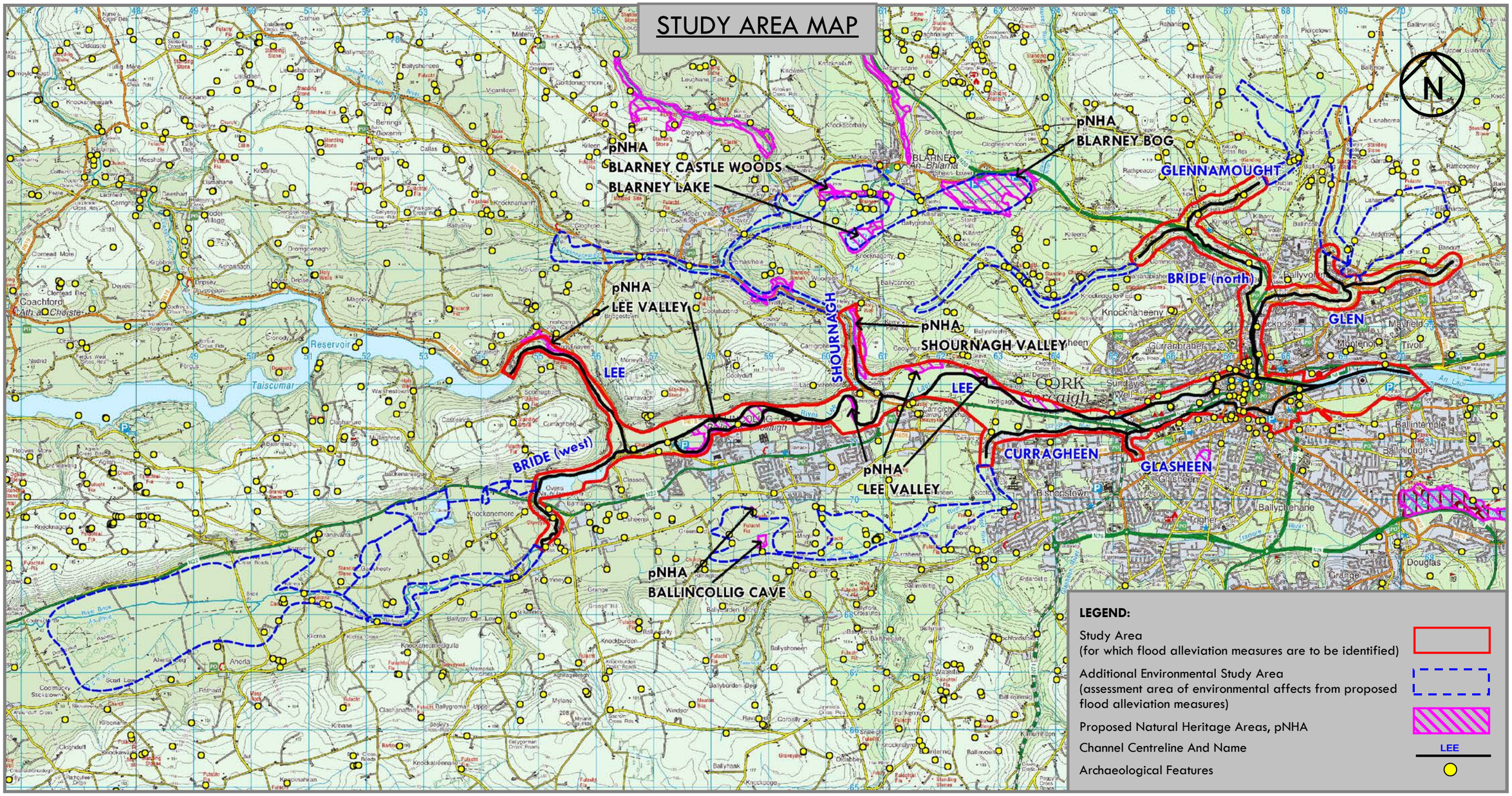
Water Quality

Comment:

Architectural & Cultural Heritage

Comment:

Lower Lee (Cork City) Flood Relief Scheme
(Including Blackpool and Ballyvolane)



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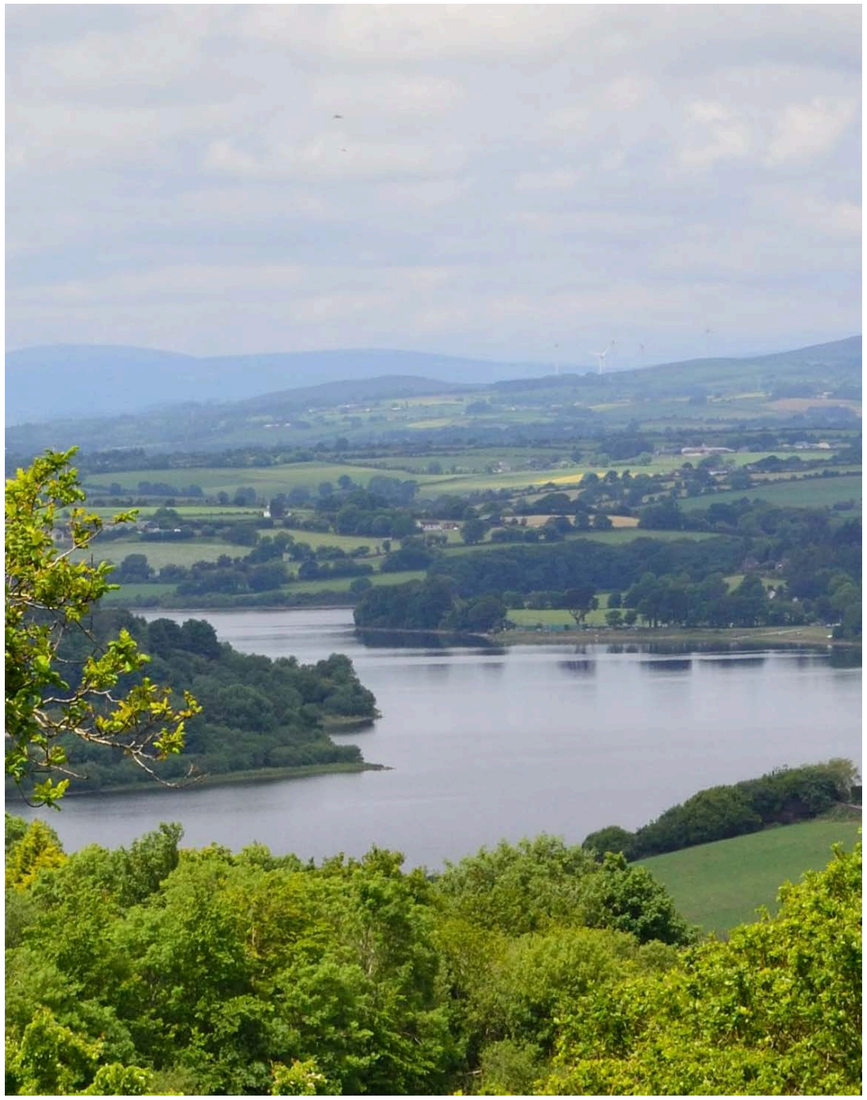
Consulting Engineers

Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool and Ballyvolane)



Constraints Study

A Constraints Study is currently being undertaken by the project Environmental Consultants. The purpose of the Constraints Study is to determine and document the constraints that may inform the selection and design of the proposed Flood Alleviation Measures.

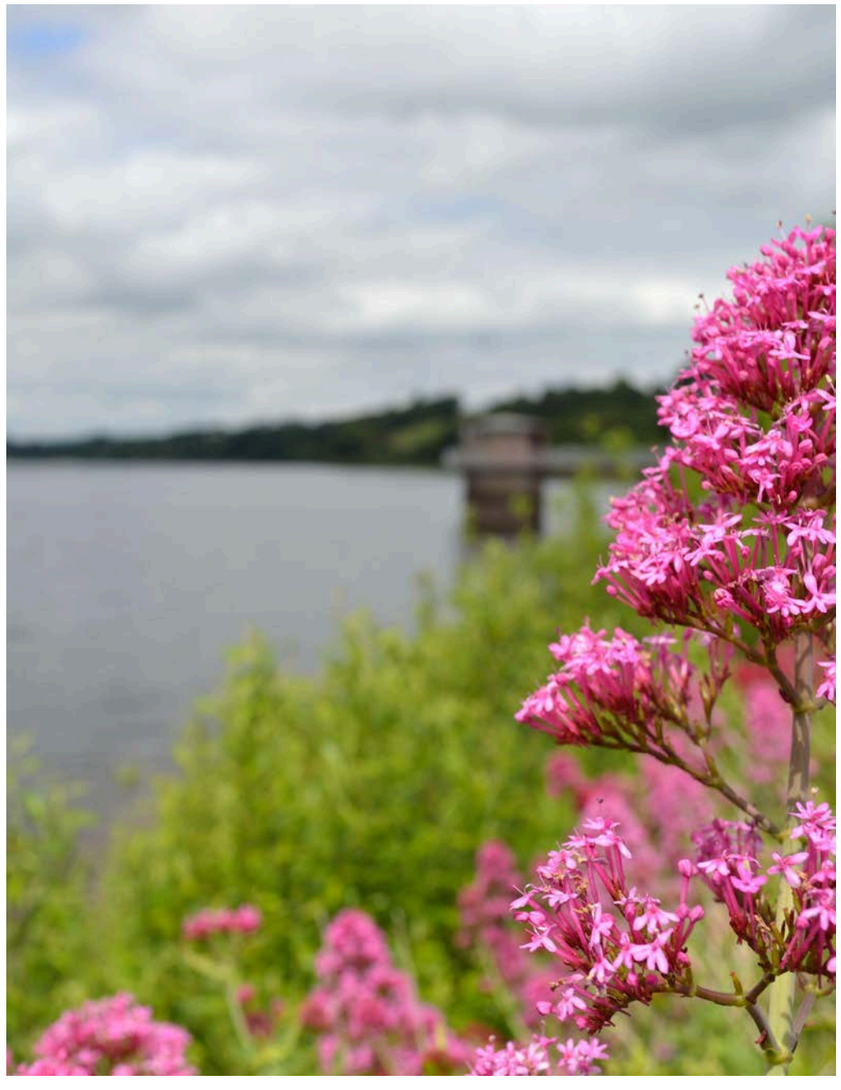
Primary Constraints

A range of constraints are being considered under the following categories:

- **Flora and Fauna**
- **Fisheries**
- **Habitats**
- **Water Quality**
- **Archaeological, Architectural and Cultural Heritage**
- **Landscape and Visual Amenity**
- **Angling, Tourism and Recreational Use**
- **Flood Related Socio-Economic and Social Issues**

Planning & Environmental Consultants

Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool and Ballyvolane)



Public Involvement

Consultation will be undertaken throughout the process to ensure that the views of the public and other stakeholders are taken into account.

The purpose of this initial Information Gathering Day is to:

- Provide information about the Objectives of the Scheme
- Outline the Design and Statutory Process
- Provide an Opportunity for Comment at a preliminary stage
- Gather information about Environmental Constraints
- Obtain other information relevant to the Scheme

Following this initial public consultation, there will be further opportunities for involvement through attendance at future information days, when updates on the scheme progress will be presented. A questionnaire is available for you to complete and return with your own comments.

Members of the project teams are present today to answer any questions you have, or take note of any relevant information.

Cork City Council

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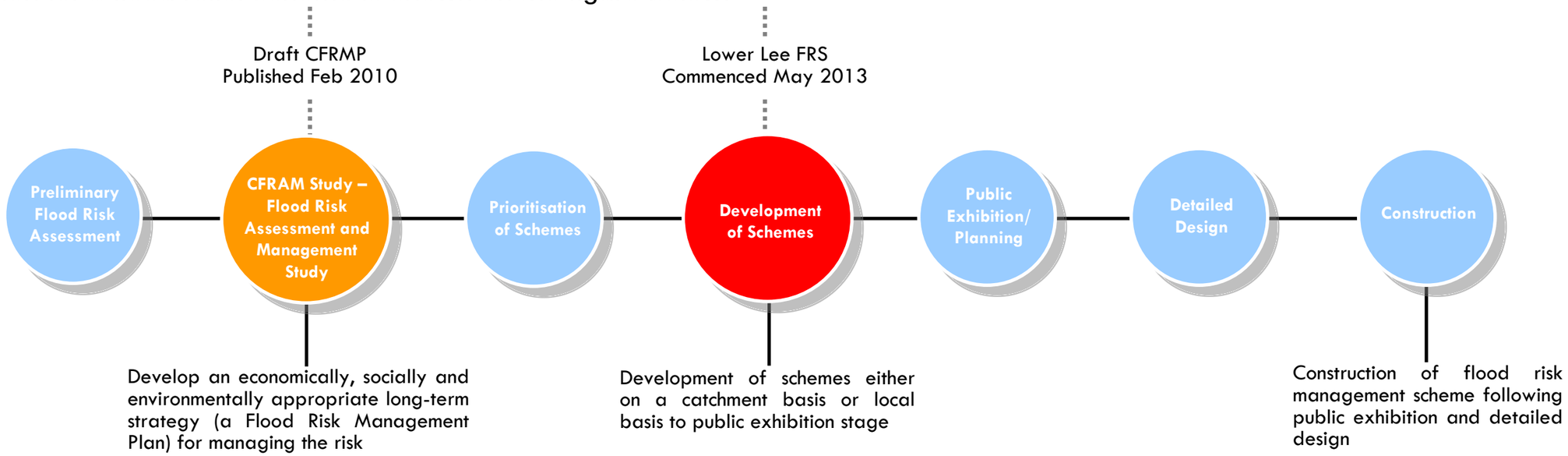
Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool and Ballyvolane)

Scheme Objectives & Overview

The Office of Public Works, OPW have carried out a Catchment Flood Risk Assessment and Management (CFRAM) Study for the Lee Catchment. From this study, the draft Catchment Flood Risk Management Plan, published in February 2010, set out a range of potential flood risk management options for particular areas within the catchment including the Lower Lee (Cork City).

The OPW has now commissioned Engineering and Environmental Studies to assess and develop a viable, cost-effective and sustainable Flood Relief Scheme, based on the preferred option from the Lee CFRAM Study. A report will be prepared describing the findings of the Engineering Study, which will include a description of the measures and scheme options assessed and the justification for its selection.

The Project Team includes a Design Team made up of consulting engineers, the OPW, Cork City Council and Cork County Council in addition to the Environmental Team. A study area has been identified and the initial stages of the Lower Lee flood relief scheme have commenced, including Constraints Study and Preliminary Design Surveys. An Indicative Flow chart showing the process from inception through to construction for a flood relief scheme is shown on the figure below:



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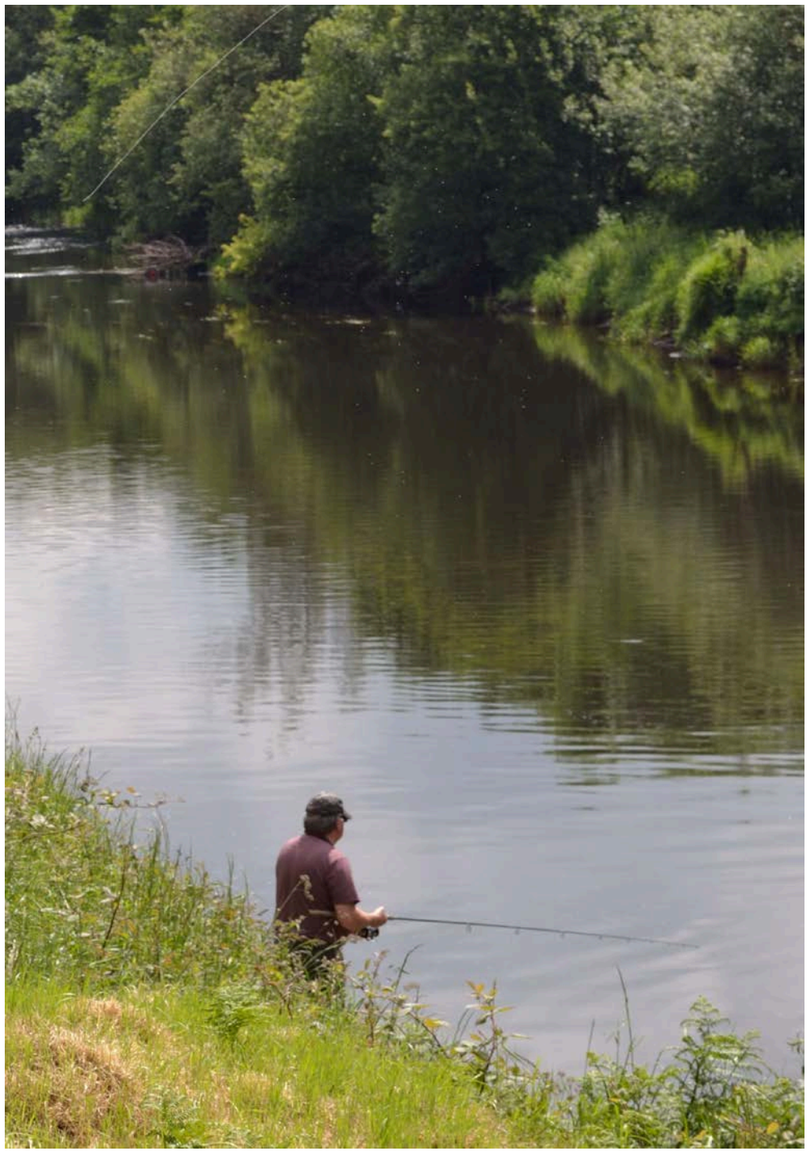
Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool and Ballyvolane)



Formal Public Exhibition Process

Once a preferred Flood Relief Scheme has been determined and an outline design completed, the OPW will formally publicly exhibit the proposed scheme in accordance with the Arterial Drainage Acts.

This statutory process includes a four week Public Exhibition, during which the plans and particulars of the proposed scheme will be put on Public Display.

Representatives of the Project Team will attend the Public Exhibition on various dates to explain the scheme to members of the public and to address queries.

Copies of the EIS for the scheme will be available to the public during this time.

Members of the public will be invited to submit written observations which will be considered and responded to.

An Exhibition Report, including all observations received will be sent to the Minister for Public Expenditure and Reform before formal approval of the Scheme.

Statio Bene Fida Carinis

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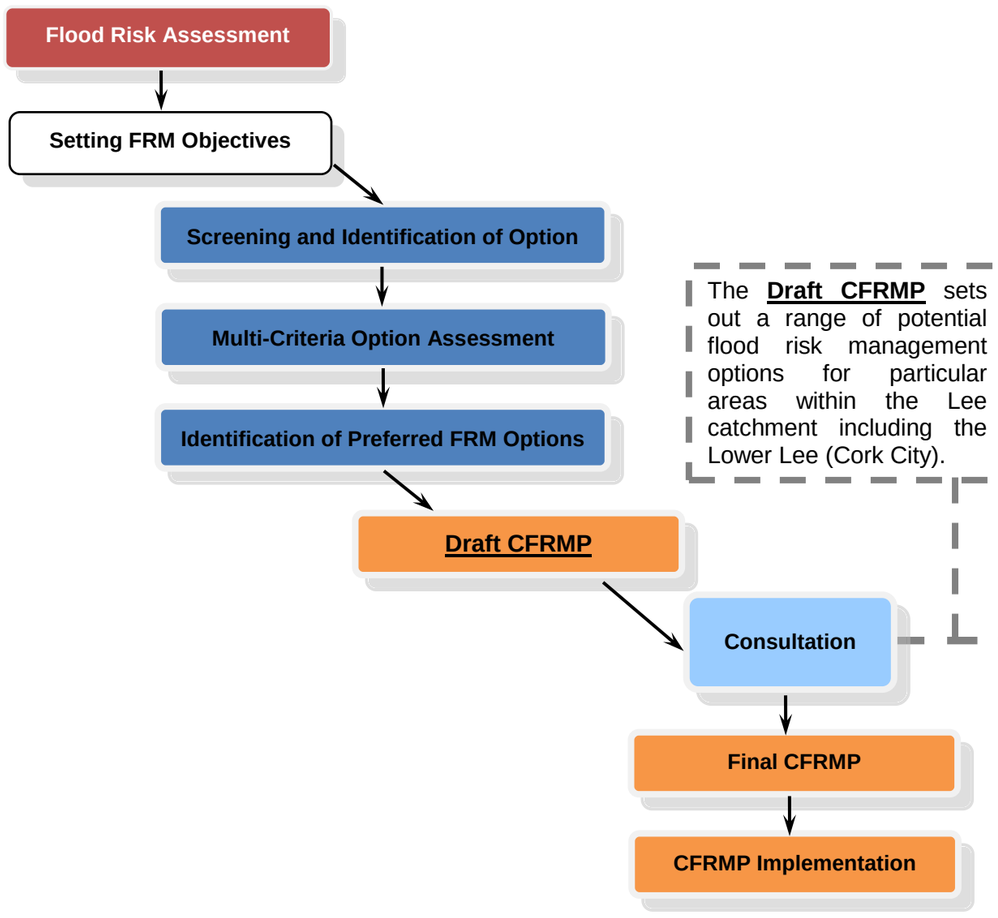
Lower Lee (Cork City) Flood Relief Scheme

CFRMP Process



The **Draft CFRMP** sets out a range of potential flood risk management options for particular areas within the Lee catchment including the Lower Lee (Cork City).

Lee Catchment Flood Risk Assessment and Management Study (Lee CFRAMS)

Catchment Flood Risk Assessment and Management Studies (CFRAMS) and their product - Catchment Flood Risk Management Plans (CFRMP) - are at the core of this new national policy for flood risk management and the strategy for its implementation.

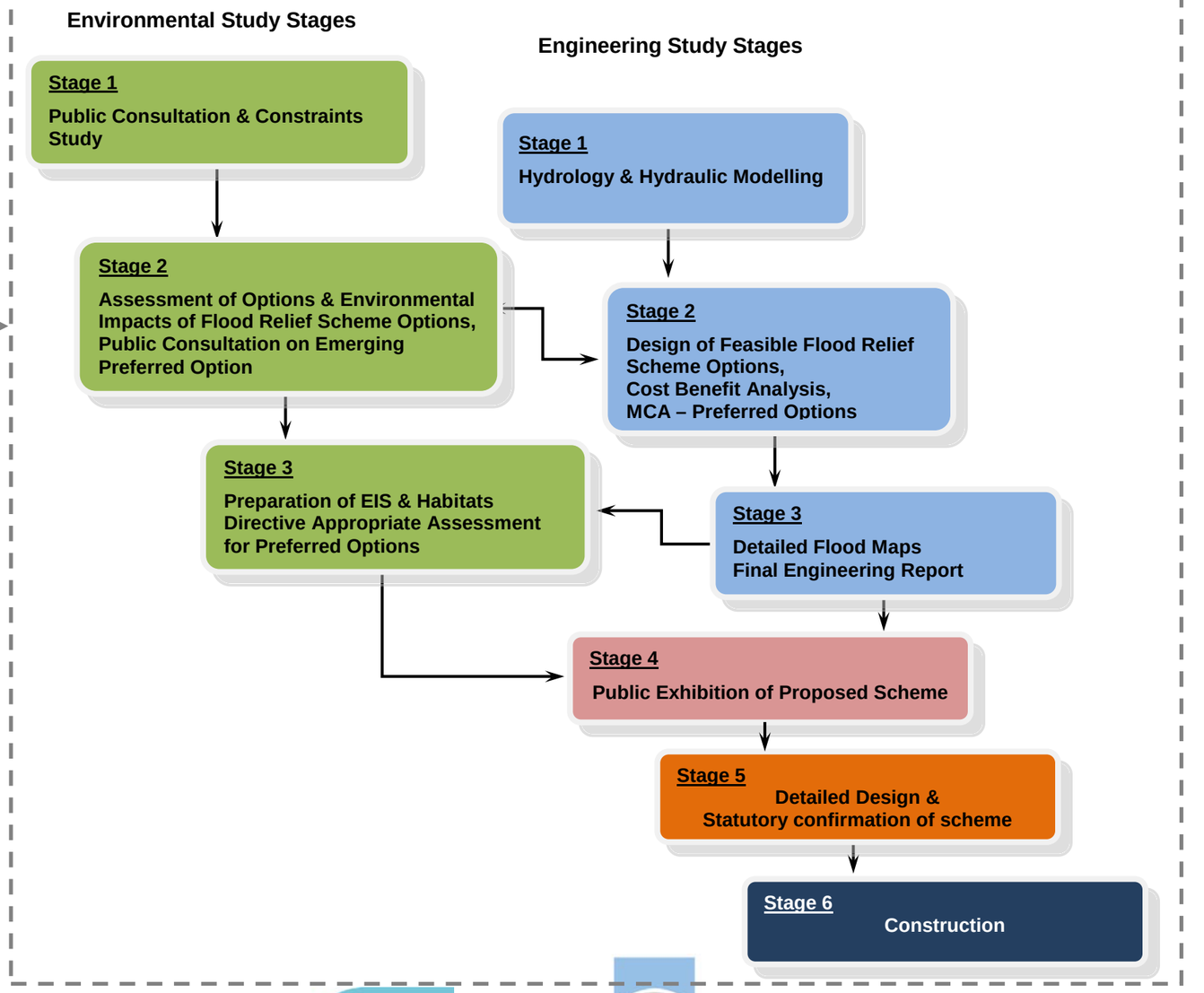
The Lee CFRAM Study was the first pilot CFRAM Study for the new Flood Risk Assessment and Management Programme. The **CFRMP Process** chart above shows how the range of potential flood risk management options identified in the draft CFRMP (for the Lower Lee) progress to the Lower Lee (Cork City) Flood Relief Scheme as part of the overall **Lee CFRAMS**.

Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool & Ballyvolane)

The Office of Public Works has employed consulting engineering companies to undertake an Engineering Study of the flooding problems along the Lower Lee downstream of Inniscarra reservoir to Cork City and on the River Bride in the Blackpool and Ballyvolane areas in Cork.

The chart below shows how the Lower Lee (Cork City) Flood Relief Scheme follows on from the Lee CFRAMS and details the interaction between the Environmental Study Stages and the Engineering Study Stages for the Scheme.

Lower Lee (Cork City) Flood Relief Scheme Process



ARUP

JBA consulting

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Planning & Environmental Consultants

RYAN HANLEY
Consulting Engineers

Lower Lee (Cork City) Flood Relief Scheme

History of Flooding in Cork City

The Irish Times - Saturday, November 18, 1916 - Page 5

THE IRISH TIMES

STORM AND FLOODS.

GREAT DAMAGE IN THE PROVINCES.

ENORMOUS DAMAGE IN CORK.

Accompanied by torrential rains, a storm has been sweeping over Cork for the past twenty-four hours, and up to 10 a.m. yesterday the gale, which was from the south-east, blew with hurricane force. It caused enormous damage to property, and has been the worst storm experienced there for twenty years. To the west of the city the River Lee overflowed its banks to a depth in some places of six feet, and, sweeping with great force over the grazing lands which lie on either bank, carried away horses, cattle, and sheep, notwithstanding the efforts of the owners to save them. University College football grounds were covered with four feet of water, and here a number of sheep are stated to have been lost. The caretaker's house was severely flooded. Indeed, the valley of the Lee extending westwards was one huge lake. The Cork and Muskerry Railway, which traverses this district, was inundated to a depth of several feet, and the train service had to be suspended yesterday, with great inconvenience to the public. The Cork cricket grounds upon the Mardyke were swept by the tide early in the morning, and the waters rose with such rapidity that the residents of the pavilion were considered in danger, and a pleasure boat manned by local gentlemen went to their assistance, and rescued them. Houses on the Mardyke Walk and Western road suffered flooding to the extent of from three to four feet. The Fitzgerald Park was also under water. The district of Blackpool, which is low-lying, was ravaged by the floods, which ran down some of the streets like a fair-sized river, and so bad was the flooding that bread van drivers had in places to deliver their bread on the top of poles into the upper windows of the flooded houses. On St. Patrick's Bridge and other bridges which span the north channel, hundreds of people stood watching the flood as it brought down dead cattle and tree trunks. The river steamer Roslellan, of Cork, Blackrock, and Passage Railway Co., was torn from its moorings at Merchant's quay and dashed against the city railway bridge, sustaining serious damage. It afterwards ran aground lower down the river.

The great floods in Cork reached their climax at nine o'clock last night, when the water rose to five feet in the vicinity of the courthouse and to four and five feet in the western and northern districts. The river presented a wonderful spectacle as the enormous volume of water surged down, with waves seven feet high and the torrent breaking itself against the houses on either bank of the river. People gathered on the bridges were perturbed to see a sealed coffin with a breastplate tossed about in the torrent, and a Cork undertaker gave it as his opinion that it had been washed out of the Innisearra graveyard.

Courtesy
The Irish Times

Irish Examiner

(Previously the Cork Examiner) Friday Evening November 4 1853 "The Late Dreadful Flood"

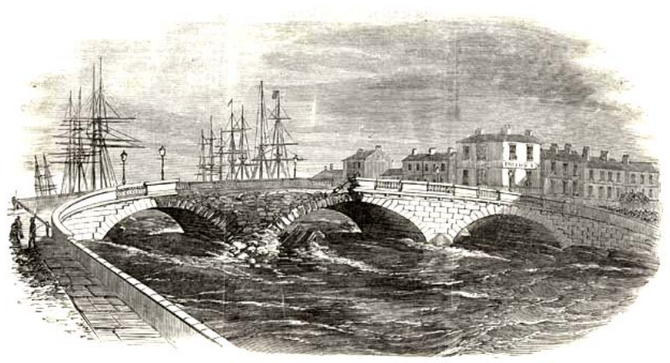
CONSIDERABLE doubt still exists as to the number of persons who lost their lives by the sad accident on Patrick's Bridge, but the general opinion is that the number did not exceed seven or eight. Amongst those who fell in was a tradesman named Murphy, who struck out manfully and was fortunately rescued some distance below the Custom House.

In the latter part of the day, the gate-house or lodge of the Munster Model farm at Inchigaggin was carried away and conveyed down the Western Road but it subsequently floated to Parliament Bridge where it was picked up and removed to the Constabulary station in Dunbar Street.

The house which fell down in Fishamble Lane was one in the occupation of a person named Hingston. The inhabitants fortunately perceived the danger that impended over them in time to escape with their lives into the next house and no accident happened beyond the destruction of whatever property the house contained.

In a short time, the house in which they took refuge was threatened with the same fate that had befallen the adjoining tenement, but the Officers of the Courthouse procured a boat into which the parties got and were then conveyed to the Courthouse. They were placed in the Grand Jury Room and were supplied with fire, provisions and every other comfort that their miserable circumstances required.

In rescuing them from their perilous situation and removing them to the Courthouse — Constable Carey exerted himself with great courage and activity and narrowly escaped with his life. He was carried away by the force of the water as far as Broad Lane and was in imminent danger of being swept into the river when a gingle man reached him the handle of his whip and thereby rescued him.



THE calamitous inundation of which we gave intelligence in our publication of Wednesday has from the City at least subsided, and the waters have returned to their usual course, leaving still however, a rapid and dangerous fresh in the river.

This flood, the largest that has been ever known in this city, since the year 1769, it is needless to say, resulted from the enormous rains which fell during the last month.

From the meteorological observations of Mr Humphreys, of the Cork Institution, which we publish in another part of the paper, it will be seen that the number of wet days out of the preceding month amounted to the very large number of 23, and the rain in inches reached an enormous quantity.

On Tuesday evening, a portion of the city was flooded, but chiefly the low grounds such as the Mardyke and the City Park, and of course little alarm of apprehension was excited as such occurrences have been very common. But before this had subsided, another inundation followed, which soon caused feelings of a very different character to be excited.

Towards the morning of Wednesday, the river which had hitherto borne a turbid and angry appearance, but which at the approach of winter caused little surprise, soon rose to a height that caused some alarm to those living in the neighbourhood of the Western Road, the Mardyke, and the lower part of Sunday's Well, but that feeling was not at all shared by those living further in towards the city.

Before eight o'clock, the water below Wellington Bridge, which for a long time previously had overflowed its banks, now rose steadily, higher and higher, until the water formed in a tremendous stream across the fields and found an access for itself in the Western Road and Mardyke, which became like the bed of a torrent and swept along in an eastward direction until all parts between those and North Gate Bridge were completely covered.

The main stream came right down along Great George's Street, which by 10 o'clock was hopelessly flooded — hence through the Parade along Patrick Street and the South Mall, until, by 12 o'clock, the whole flat of the city was submerged.

At the time the flood came first into the city, the condition of North Gate Bridge, whose construction and the number of small arches by which the rush of water through it is impeded has been so often condensed, began to excite serious apprehension, and certainly, by any spectator it would be supposed that no apprehension was too great.

The river, which makes a bend in Grenville Place, from that rushes upon a considerable slope down to that with tremendous velocity, and some idea of its appearance may be formed from the fact, that while on the eastern of lower side the water did not reach to within eight feet of the top of the arch, on the other side it was completely covered and the form of the waters actually springing over the parapets.

Below the bridge, the waters, which came through it in a fall of five or six feet, leaped and roared in enormous waves, and rushed through the channel at a rate whose rapidity was tremendous. At an early hour chains accordingly were placed across the North bridge to prevent further traffic upon it, as it was considered dangerous to human life to permit cars of passengers upon it.

But the danger came where it was least expected, and the surprise that was felt through the city nearly equalled the horror with which the intelligence was heard of the breaking of Patrick's Bridge and the sacrifices of eleven human lives.

The fall of Patrick's Bridge of course compelled the necessity of allowing traffic to be resumed, but cautiously on North Bridge.

At 12 o'clock, the appearance of the western portion of the city from the heights above was that of a broad and disturbed lake. For miles along the course of the river its natural bed

THE baths known as Welstead's were the first to suffer, the whole of the wooden erections there having been borne away along the Western Road, and not a vestige left to mark where they stood.

The inhabitants of the houses along the Mardyke, were for the entire day, confine to upper stories, as the lower portion were filled with water, which in some cases reached the fearful height of nine feet, actually touching the drawing room floors.

Along the high hedge which separated Mr Heath's garden from the Mardyke there can be yet seen straw and vegetable matter, deposited on the tops by the subsiding of the water which had rolled above it. But a deposit of a rather more extraordinary character was made in Mr Heath's garden in the shape of a 20 ton sand barge, which was buried into the middle of it by the force of the flood.

This matter may indeed be accounted on exceedingly fortunate circumstances, for had the lighter been carried down the channel of the river, in all human probability it would have smashed the piers of North-bridge, or else acted as a dam to the terrific stream, and forced the waters in a more fearful deluge through the city.

The little street which joins the Mardyke with the Western Road was flooded at an early hour, so much so that at 10 o'clock a gentleman requiring to leave his home had to mount on the top of a gingle from the window of his drawing room and progress from the lower part being completely barred by the progress of the flood.

Owing to the enormous rapidity with which the water rushed through the streets, the depth of the water in places of nearly the same elevation varied considerably. On Grenville place it averaged about four feet. Great damage was done to shopkeepers, particularly to those in the grocery trade, their goods being particularly liable to being spoiled by the action of water.

At present it is impossible to arrive at anything resembling a just calculation or estimate of the damage done. but taking into account the injuries to public and private property in and about the city it is believed that it will exceed £80,000.

Courtesy Irish Examiner

Planning & Environmental Consultants