

Location: Ballymahon, Co. Longford		Unique ID: 260453 (from PFRA database)	
Initial OPW Designation	APSR <input type="checkbox"/>	AFRR <input checked="" type="checkbox"/>	IRR <input type="checkbox"/>
Co-ordinates	Easting: 215,500	Northing: 256,750	
River / Catchment / Sub-catchment	River Inny / Shannon		
Type of Flooding / Flood Risk (identify all that apply)	Fluvial non-tidal <input checked="" type="checkbox"/> Fluvial tidal <input type="checkbox"/> Coastal <input type="checkbox"/>		

Stage 1: Desktop Review	
1.1 Flood History (include review of Floodmaps.ie)	<p>River Flow Path The River Inny flows through the township of Ballymahon to the south of the town centre. The river meanders in a west-south-westerly direction until converging with Lough Ree to the west of the town.</p> <p>The River Inny is crossed by the N55 (Main Street) in Ballymahon. Numerous storm run-off drains are located within sports fields and undeveloped grassland to the north of Ballymahon, which discharge to the River Inny and canal to the north.</p> <p>Flood Event Records There are records of 2 flood events on floodmaps.ie, occurring in 1954 and 1990. Development has since occurred at Thomond Hall which is adjacent to areas that flooded during the Dec 1954 event.</p>
1.2 Relevant information on flooding issues from OPW and LA staff	<p>PFRA database comments (<i>in italics</i>):</p> <p>OPW comments <i>Not designated APSR as failed to reach predictive analysis threshold or receive strong LA support. RR requested by LA at second workshop.</i></p> <p>LA comments <i>Moy - Ballymahon. Number of houses flooded. Minor works scheme planned for the area Requested Risk Review. New Nursing Home south of town. May not have been picked up by predictive and sewage plant possibly at risk.</i></p> <p>Meeting / discussion summary comments:</p> <p>OPW comments</p> <ul style="list-style-type: none"> • There is not a major flood risk problem in Ballymahon. • Apartments upstream of the bridge on the right bank may be at risk. • Some works previously completed here (see LA comments). • Main issue is that it is not on a maintained channel, should be a minor works scheme if anything <p>LA comments</p> <ul style="list-style-type: none"> • Minor works completed on Ballybranigan bridge. PFRA mapping considered to be valid upstream of this bridge. • WWTW and nursing home potentially at risk. • A new housing area at Moy was included in PFRA assessment; this issue has since been resolved via the installation of a culvert to drain surface water. This is no longer an issue and is not watercourse-related. • The N55 is considered to be “critical” infrastructure. The meat factory on left bank downstream of the N55 has no history of flooding. The

	road isn't known to have flooded. <ul style="list-style-type: none"> The River Inny has been improved as part of the arterial drainage improvement scheme, including the placement of rock armour in some locations. 		
1.4 PFRA Data			
1.4.1 PFRA hazard mapping	PFRA mapping available in GIS layer: PFRA mapping included on FRR map:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
1.4.2 Summary of Principal Receptors	Type UWWTPLoc Exchange Arch_Local Arch_Regional Monument_LV Total	FRI score (if available) 25 1 10 10 10 199.6	
1.7 Stage 1 Evaluation	Aspect	Clearly APSR	Uncertain
	Flood History (1.1)	X	
	OPW / LA Information (1.2)		X
	PFRA Evaluation (1.4)		X
	Overall Desktop Evaluation (if any above aspect is uncertain then overall designation is uncertain)		X
1.8 Proposed level of assessment for Stage 2 site visits	Level A Site Visit	X	
	Level B Site Visit		

Stage 2: Site Inspection		Level A Assessment		
Date and Time of Inspection		Date: 2/05/11		
		Time: 14:00		
Names of inspection team (including OPW/LA staff if present)		Alan Dew		
		James Murray		
2.1 Ground-truthing of Hazard Mapping	Fluvial non-tidal <input checked="" type="checkbox"/> Fluvial tidal <input type="checkbox"/> Coastal <input type="checkbox"/> Not available <input type="checkbox"/>			
	<p>PFRA mapping indicates there is a potential for flooding from a tributary to the River Inny upstream of the N55. The primary flow, running parallel with the N55, in this location confluent with the discharge from the culvert under the N55, downstream of culvert <u>not</u> upstream as indicated on plans. The restricted floodplain in this area would reduce flood extent significantly.</p> <p>The PFRA mapping is considered to underestimate potential flood risk on the right bank upstream of Ballymahon Bridge (over the River Inny) and overestimate flood risk on right bank on immediate downstream of the bridge.</p>			
2.2 Spot check ground-truthing of selected receptor vulnerability	Receptor Type	Location description (if not obvious)	Exists?	Overall Vulnerability / Risk (L / M / H)
(also note any key receptors noted during visit that are not identified by PFRA)	Residential properties	Right bank, upstream of Ballymahon Bridge	Yes	M
	WWTW	Right bank, downstream of Ballymahon Bridge	Yes	L
	Nursing home / residential properties	Right bank, downstream of Ballymahon Bridge	Yes	L
2.3 Local knowledge - on-site comments (OPW, LA and any info volunteered by local residents during visit)	<p>WWTW staff stated that he was not aware of any properties having flooded in the vicinity of the WWTW during November 2009 event.</p>			
2.4 Comments on hydraulic constrictions (bridges, etc.) and conveyance routes	<p>The N55 culvert has good capacity and is unlikely to cause a significant constriction to flows.</p> <p>Ballymahon Bridge has good capacity but older bridges arches at centre of extended bridge (3 arch) may provide constraint. Evidence of debris collecting at 2nd arch (tree trunks). No possibility of bypassing, soffit level would not likely be reached.</p>			

2.5 SVRS Assessment Matrix

Weightings:

A - x1 - reasonable expectation of flooding

B - x2 - high expectation of flooding

C - x5 - risk to life

Approx. Number	1 to 4				5 to 20				>20			
Weighting		A	B	C		A	B	C		A	B	C
Property (domestic)	10				100	X			200			
Property (small retail or business)	20	X			200				400			
Property (large retail or business)	50				500				1000			
Road or Rail Infrastructure	30				300				600			
Critical Infrastructure (local) [hospital, school, police/fire/ambulance station, substation, WTW/WWTW, gov bldg, other (specify)]	50	X			500				1000			
Critical Infrastructure (national importance)	250				1000				2000			
Cultural Heritage Site	20				200				400			
Environmental Designated Site	20				200				400			
Hazardous Substances Site	50				500				1000			
Total SVRS									170			

2.6 Defence Assets

Formal and Informal Flood Defence Assets <i>(include effective and ineffective assets to inform asset survey and potential mitigation measures)</i>	Open Channel Watercourses Man-made river channel <input type="checkbox"/> Flood relief channel <input type="checkbox"/> Canal <input type="checkbox"/> Mill leat <input type="checkbox"/> Drainage channels / back drains <input type="checkbox"/>		
	Bridges and Culvert crossings Single Arch bridge <input type="checkbox"/> Multi-Arch bridge <input checked="" type="checkbox"/> Single Span bridge <input type="checkbox"/> Multi-Span bridge <input type="checkbox"/> Box culvert(s) <input type="checkbox"/> Pipe culvert(s) <input type="checkbox"/> Arch Culvert(s) <input type="checkbox"/>		
	Culverted Watercourses (culvert length is greater than just a crossing) Box culvert(s) <input type="checkbox"/> Pipe culvert(s) <input type="checkbox"/> Arch Culvert(s) <input type="checkbox"/> Irregular Culvert(s) <input type="checkbox"/>		
	Walls and Embankments Embankment(s) <input type="checkbox"/> Raised wall(s) <input type="checkbox"/> Retaining wall(s) <input type="checkbox"/>		
	Control Structures – weirs, gates, dams Fixed crest weir <input type="checkbox"/> Adjustable weir <input type="checkbox"/> Dam / Barrage <input type="checkbox"/> Sluice gates <input type="checkbox"/> Lock gates <input type="checkbox"/> Radial gates <input type="checkbox"/>		
	Storage On-line storage (natural) <input type="checkbox"/> On-line storage (artificial) <input type="checkbox"/> Off-line storage <input type="checkbox"/>		
	Outfalls Flapped outfall(s) into watercourse <input type="checkbox"/> Unflapped outfall(s) into watercourse <input type="checkbox"/> <i>i.e. from smaller watercourses, drains etc. into river / estuary / sea</i> Tidal flap(s) <input type="checkbox"/> Tidal sluice(s) <input type="checkbox"/> <i>i.e. from main watercourse into estuary / sea</i>		

	<p>Other</p> <p>Pumping Station <input type="checkbox"/> Erosion Protection <input type="checkbox"/> Sand Dunes <input type="checkbox"/></p> <p>Additional notes (if required):</p>
<p>2.8 Initial Potential Mitigation Measures</p>	
<p>Non-structural measures</p>	<p>Planning and Development control <input checked="" type="checkbox"/></p> <p>Sustainable Urban Drainage Systems <input type="checkbox"/></p> <p>Flood forecasting / warning <input checked="" type="checkbox"/></p> <p>Change in Operating Procedures for water level control: <input type="checkbox"/></p> <p>Public awareness campaign <input checked="" type="checkbox"/></p> <p>Individual property protection <input type="checkbox"/></p> <p>Land use management <input checked="" type="checkbox"/></p>
<p>Structural measures</p>	<p>Strategic development management for floodplain development: <input type="checkbox"/> <i>(integration of measures into strategic development proposals)</i></p> <p>Storage: On-line <input checked="" type="checkbox"/> Off-line <input type="checkbox"/></p> <p>Flow diversion: Flood relief channel <input type="checkbox"/> Flood relief culvert <input type="checkbox"/></p> <p>Increase conveyance: Bridge works <input type="checkbox"/> Channel works <input type="checkbox"/> Floodplain <input type="checkbox"/></p> <p>Flood defences: Walls <input checked="" type="checkbox"/> Embankments <input checked="" type="checkbox"/></p> <p>Localised works: Defence raising <input type="checkbox"/> In-fill gaps <input type="checkbox"/> Trash screen <input type="checkbox"/></p> <p>Maintenance works: Culvert / channel clearance <input type="checkbox"/> Asset maintenance <input type="checkbox"/></p> <p>Relocation of properties: <input type="checkbox"/></p> <p>Improve existing defences: <input type="checkbox"/> (describe)</p> <p>Other (describe):</p>

Outcomes				
PFRA Designation	APSR <input type="checkbox"/> not an APSR <input checked="" type="checkbox"/> IRR <input type="checkbox"/>		FRI Score: 199.6	
Site Ground-truthing of PFRA Assessment (hazard mapping and receptors)	High Confidence (good)	Uncertain	Low Confidence (poor)	Not available
		X		
Site Visit Review Score	170			
Recommended Designation	APSR <input checked="" type="checkbox"/> not an APSR <input type="checkbox"/> IRR <input type="checkbox"/>			
Summary Comments (if required)	<p>The reasons for the recommendation of Ballymahon as an APSR are as follows:</p> <ul style="list-style-type: none"> • History of flooding recorded in the town; and • Significant risk of flooding to critical receptors including the WWTW and nursing home which is confirmed by the PFRA, • The Inny is an extremely large river with the upstream catchment area capable of generating very large flood flows through Ballymahon, • None of the eastern Shannon catchments experienced significant flows in Nov 2009; The Inny is one such river. Therefore, because it didn't flood in Nov. 2009 is not an accurate indication that Ballymahon does not have a significant flood risk. 			

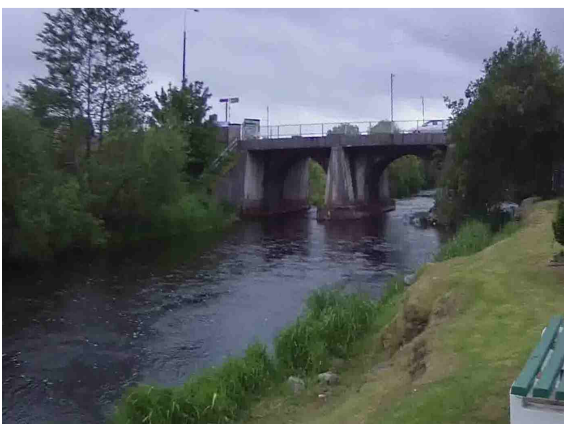


Photo 1: N55 road bridge over the River Inny from the upstream right bank



Photo 2: N55 road bridge over the River Inny from the downstream right bank



Photo 3: Confluence of tributaries to the River Inny, flowing parallel to and under the N55 north of the town centre.



Photo 4: WWTW on the right bank of the River Inny, from the left bank downstream of the N55 road bridge.

