

Location: Bunratty, Co. Clare		Unique ID: 270471 (from PFRA database)	
Initial OPW Designation	APSR <input checked="" type="checkbox"/>	AFRR <input type="checkbox"/>	IRR <input type="checkbox"/>
Co-ordinates	Easting: 1445308.14	Northing: 160869.02	
River / Catchment / Sub-catchment	Owengarney (Ratty) River / Shannon Estuary		
Type of Flooding / Flood Risk (identify all that apply)	Fluvial non-tidal <input type="checkbox"/> Fluvial tidal <input checked="" type="checkbox"/> Coastal <input type="checkbox"/>		

Stage 1: Desktop Review

1.1 Flood History (include review of Floodmaps.ie)

River Flow Path

Lands in the centre of the Bunratty are relatively low-lying and level. Lands rise steeply to the north and northwest of the settlement. The Owengarney River (also called the Ratty River) discharge to the Shannon estuary south of Bunratty. There is an extensive network of drainage ditches on either side of the river.

Flood event records

Six flood records are listed 4 recurring and 2 singular events.

- Reports dated 1995-2005.

Flooding occurrences are reported to be as a result of tidal & pluvial influences, areas to note from the floodmaps.ie reports include:

- Embankment location north on hill Road Bridge which overtopped in 1995.
- North of the settlement the L3040 to Bunratty flooded in 2005
- The L3040 adjacent to Bunratty Castle has also been flooded over a localised area due to high tide combined with winds.
- East of Bunratty at Moyhill openings in the parapet threatened properties (Recurring)
- Deerpark Housing Estate There is a low point on road in this housing estate. The road floods to a maximum depth of about 100mm but is passable. The drainage from road gullies in this estate is into soak pits. These soak pits are not able to cope with heavy rainfall. Frequency is one in two years.

1.2 Relevant information on flooding issues from OPW and LA staff

PFRA database comments (*in italics*):

OPW comments

LA comments

APSR Score of 1251, Tidal residential score = 870, Local Authority would regard more commercial properties at risk as most residential properties are on high ground. – Site of Important Tourism. Clare county council would consider area to be an APSR

Meeting / discussion summary comments: OPW comments <ul style="list-style-type: none"> This area is below tidal level and at risk. There is some recent development constructed on very low ground west of Bunratty Castle that may have not been assessed by the PFRA. Also, the PFRA seems to be underestimating the flood extents and it is thought that effect of the sluice at the mouth of the tributary was not considered in this assessment. The CFRAMS study needs to determine if the existing embankments are adequate for current flood risk. Dirty Nellies Pub, Meadows & Byrnes and Bunratty Castle have all flooded. An embankment is now in place on the right bank, next to Meadows & Byrnes. LA comments <ul style="list-style-type: none"> The area surrounding (agricultural) Dirty Nelly's has flooded in past. No significant risk. Several Flood risk management schemes have been submitted to OPW 			
1.4 PFRA Data			
1.4.1 PFRA hazard mapping	PFRA mapping available in GIS layer: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> PFRA mapping included on FRR map: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
1.4.2 Summary of Principal Receptors	Type		FRI score (if available)
	Arch_Regional_Weighted_T_E		1.37
	Monument_LV_Weighted_T_E		100
	Total		1249.71
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: 07/06/11		
		Time: 10:30		
Names of inspection team (including OPW/LA staff if present)		Iain Blackwell		
		Lewis Maani		
2.1 Ground-truthing of Hazard Mapping	Fluvial non-tidal <input type="checkbox"/> Fluvial tidal <input checked="" type="checkbox"/> Coastal <input type="checkbox"/> Not available <input type="checkbox"/>			
	The flood hazard mapping does not appear to show any properties in the area at risk of flooding. The flood extent shown is based on the small tributary to the Ratty River, rather than the Ratty River itself. The flood risk from this tributary is considered to be low, but the flood outline appears reasonable i.e. it does not show properties flooding.			
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)	Houses	Along road on the right bank of the river	Y	L
	B&B / Guesthouses	Along road on the right bank of the river	Y	L
	Bunratty Castle		Y	L
	Commercial (Dirty Nelly's, Tourist centre)	Near bridge / very low lying at risk of tidal / fluvial events	Y	M
2.3 Local knowledge - on-site comments (OPW, LA and any info volunteered by local residents during visit)	No on site comments			
2.4 Comments on hydraulic constrictions (bridges, etc.) and conveyance routes	There are three bridge crossings of the river close to Bunratty castle.			

2.5 SVRS Assessment Matrix

Weightings:

A - x1 - reasonable expectation of flooding

B - x2 - high expectation of flooding
or flooding is tidal (any risk)

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				500				1000			
Critical Infrastructure (national importance)	250				1000				2000			
Cultural Heritage Site	20		X		200				400			
Environmental Designated Site	20				200				400			
Hazardous Substances Site	50				500				1000			
Total SVRS									280			

2.6 Defence Assets

Formal and Informal Flood Defence Assets

(include effective and ineffective assets to inform asset survey and potential mitigation measures)

Open Channel Watercourses

Man-made river channel ☒ Flood relief channel ☐ Canal ☐
Mill leat ☐ Drainage channels / back drains ☒

Bridges and Culvert crossings

Single Arch bridge ☐ Multi-Arch bridge ☒
Single Span bridge ☐ Multi-Span bridge ☒
Box culvert(s) ☐ Pipe culvert(s) ☐ Arch Culvert(s) ☐

Culverted Watercourses (culvert length is greater than just a crossing)

Box culvert(s) ☐ Pipe culvert(s) ☒ Arch Culvert(s) ☐ Irregular Culvert(s) ☐

Walls and Embankments

Embankment(s) ☒ Raised wall(s) ☐ Retaining wall(s) ☐

Control Structures – weirs, gates, dams

Fixed crest weir ☐ Adjustable weir ☐ Dam / Barrage ☐
Sluice gates ☐ Lock gates ☐ Radial gates ☐

Storage

On-line storage (natural) ☐ On-line storage (artificial) ☐ Off-line storage ☐

	<p>Outfalls</p> <p>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></p> <p>Tidal flap(s) <input type="checkbox"/> Tidal sluice(s) <input type="checkbox"/> <i>i.e. from main watercourse into estuary / sea</i></p> <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>Informal flood defence exists at the Woollen Mills constructed from railway timber with raised ground behind but is limited in its effectiveness due to gaps at the upstream end of the development towards the road.</p>
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2.8 Initial Potential Mitigation Measures

Non-structural measures	<p>Planning and Development control <input 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 type="checkbox"/></p> <p>Individual property protection <input type="checkbox"/></p> <p>Land use management <input type="checkbox"/></p>
Structural measures	<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 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 type="checkbox"/> Embankments <input checked="" type="checkbox"/></p> <p>Localised works: Defence raising <input type="checkbox"/> In-fill gaps <input checked="" type="checkbox"/> Trash screen <input type="checkbox"/></p> <p>Maintenance works: Culvert / channel clearance <input type="checkbox"/> Asset maintenance <input checked="" 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 checked="" type="checkbox"/> not an APSR <input type="checkbox"/> IRR <input type="checkbox"/>		FRI Score: 1249.71	
Site Ground-truthing of PFRA Assessment (hazard mapping and receptors)	High Confidence (good)	Uncertain	Low Confidence (poor)	Not available
		X		
Site Visit Review Score	280			
Recommended Designation	APSR <input checked="" type="checkbox"/> not an APSR <input type="checkbox"/> IRR <input type="checkbox"/>			
Summary Comments (if required)	This site is identified as an APSR on the basis of the flood risk in the event of a breach of the embankments, rather than the current flood risk with the embankments in place.			



Photo 1: U/s of Bunratty on the right bank of the Owengarney (Ratty) River where the river has large raised embankments



Photo 2: Embankment on right bank of Owengarney (Ratty) River adjacent to Bunratty Castle & Folk Park



Photo 3: Owengarney (Ratty) River adjacent to Bunratty Castle



Photo 4: Bunratty Castle



Photo 5: Bridge crossing of the Owengarney (Ratty) River



Photo 6: Bridge crossing of the Owengarney (Ratty) River



Photo 7: Informal, ineffective flood defence (can be outflanked) next to Blarney Woollen Mills

