Location: Annacarriga, Co. Clare		Unique ID: 250405 (from PFRA database)	
Initial OPW Designation	**APSR** ☐	**AFRR** ☒	**IRR** ☐
Co-ordinates	**Easting: 168000**	**Northing: 177750**	
River / Catchment / Sub-catchment	**Lough Derg and tributary / Shannon**		
Type of Flooding / Flood Risk (identify all that apply)	**Fluvial non-tidal** ☒ **Fluvial tidal** ☐ **Coastal** ☐		

Stage 1: Desktop Review

1.1 Flood History (include review of Floodmaps.ie)

River Flow Path

Annacarriga is located on the right bank of Lough Derg. The R463 is the main trunk road through Annacarriga and it crosses minor watercourses which are draining to Lough Derg.

Flood Event Records

There are no records of flood events for Annacarriga on floodmaps.ie.

1.2 Relevant information on flooding issues from OPW and LA staff

PFRA database comments *(in italics)*:

OPW comments
Not designated as APSR, no historical record. Some wedges - Very small community - No history of flooding - Check strength of support

LA comments
APSR Score = 459, Lakeside development, marina and Holiday Homes at risk, Local Authority agreed to leave as an APSR.

Meeting / discussion summary comments:

OPW comments

- OPW not familiar with flood risk at Annacarriga and had no formal comments.

LA comments

- No significant issues identified to date.
- The land upstream of the village is flat, marshy/boggy lands. Although the gradient of the river becomes steep through the village.

1.4 PFRA Data			
1.4.1 PFRA hazard mapping	**PFRA mapping available in GIS layer:** **Yes** ☒ No ☐ **PFRA mapping included on FRR map:** **Yes** ☒ No ☐		
1.4.2 Summary of Principal Receptors	**Type**		**FRI score (if available)**
	No principal receptors within the area for flood risk review. The FRI score is from residential and commercial properties. **Total**		**251**
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: 14:00**
Names of inspection team (including OPW/LA staff if present)	**Mathieu Valois** **James Murray**

2.1 Ground-truthing of Hazard Mapping	**Fluvial non-tidal ☒ Fluvial tidal ☐ Coastal ☐ Not available ☐** Flood risk from the tributary seems to be overestimated by the PFRA. The main flood risk identified on-site is from the River Shannon.			
2.2 Spot check ground-truthing of selected receptor vulnerability **(also note any key receptors noted during visit that are not identified by PFRA)**	**Receptor Type**	**Location description (if not obvious)**	**Exists?**	**Overall Vulnerability / Risk (L / M / H)**
	Properties – there are two separate groups of properties considered during the flood risk review	Location 1 The Marina – there are several holiday homes situated on the left bank of Lough Derg	Yes	Low
		Location 2 – further upstream on a tributary to Lough Derg, there is a small group of properties on the left bank near a bridge crossing. These are situated on high ground.	Yes	Low
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	Tributary to Lough Derg has a single arch bridge with several adjacent properties. Good capacity through bridge which is unlikely to be a constriction to flow.			

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				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				200				400			
Environmental Designated Site	20				200				400			
Hazardous Substances Site	50				500				1000			
Total SVRS								**100**				

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 ☐

Outfalls
Flapped outfall(s) into watercourse ☐ Unflapped outfall(s) into watercourse ☐
i.e. from smaller watercourses, drains etc. into river / estuary / sea
Tidal flap(s) ☐ Tidal sluice(s) ☐
i.e. from main watercourse into estuary / sea

	Other Pumping Station ☐ Erosion Protection ☐ Sand Dunes ☐ **Additional notes (if required):**

2.8 Initial Potential Mitigation Measures	
Non-structural measures	Planning and Development control ☒ Sustainable Urban Drainage Systems ☐ Flood forecasting / warning ☒ Change in Operating Procedures for water level control: ☒ Public awareness campaign ☒ Individual property protection ☐ Land use management ☒
Structural measures	**Strategic development management for floodplain development:** ☒ *(integration of measures into strategic development proposals)* **Storage:** On-line ☒ Off-line ☐ **Flow diversion:** Flood relief channel ☐ Flood relief culvert ☐ **Increase conveyance:** Bridge works ☐ Channel works ☐ Floodplain ☐ **Flood defences:** Walls ☐ Embankments ☐ **Localised works:** Defence raising ☐ In-fill gaps ☐ Trash screen ☐ **Maintenance works:** Culvert / channel clearance ☐ Asset maintenance ☐ **Relocation of properties:** ☒ **Improve existing defences:** ☐ **(describe)** **Other (describe):**

Outcomes				
PFRA Designation	**APSR ☐ not an APSR ☒ IRR ☐**		**FRI Score: 251**	
Site Ground-truthing of PFRA Assessment *(hazard mapping and receptors)*	**High Confidence (good)**	**Uncertain**	**Low Confidence (poor)**	**Not available**
		X		
Site Visit Review Score	**100**			
Recommended Designation	**APSR ☐ not an APSR ☒ IRR ☐**			
Summary Comments (if required)	All properties at the marina have raised threshold levels (1-1.5m above top of bank). Road and access may be flooded in lower return periods but the properties themselves are not at significant risk from flooding. Properties away from the marina are situated on sufficiently high ground. The nearby bridge does not pose a constriction to flow and there is no back water effect from Lough Derg. There are an insufficient number of critical receptors at significant risk of flooding to warrant designation as an APSR.			

Photo1: Bridge at location 2 (See Section 2.2)

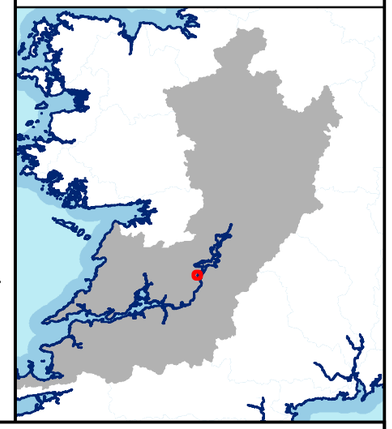
Photo 2: Marina

Photo 3: Watercourse immediately upstream of Marina

Photo 4: Lough Derg

167500
168000
168500
178000
177500
177000
N

Annacarriga



Legend

- APSR Boundary for CARs only
- Historic Flooding Incidents
- Water bodies mapped from RADARSAT-2 *
- Hydrometric Gauging Stations
- EPA River Network
- Rail Stations
- Nursing Homes
- Residential Care for the Elderly
- Schools
- Ports and Harbours
- OPW Buildings
- Health Centres
- Garda Stations
- Hospitals
- Fire Stations
- Civil Defence Head Quarters
- Airports
- Rail Network
- Roads (National Roads Authority)
- Airport Land
- OPW Embankments
- Historic Flood Data
- Architectural Heritage
- UNESCO Sites
- Special Protection Area
- Special Area for Conservation
- Proposed National Heritage Area
- National Heritage Area
- Benefiting Lands

Flood Extents (PFRA, 2010)

- 10% AEP Flood Extent (1 in 10 chance in any given year)
- 1% AEP Flood Extent (1 in 100 chance in any given year)
- 0.1% AEP Flood Extent (1 in 1000 chance in any given year)

* Data Source - Service Régional de Traitement d'Image et de Télédétection (SERTIT) (acquired on the 5th of December 2009).

The PFRA Flood Extents shown are *indicative*. They have been developed using simple and cost-effective methods that are suitable for the PFRA. They should not be used for local decision-making or any other purpose without verification.

0 0.15 0.3 0.6 Km

JACOBS

Client	OPW The Office of Public Works Oifig na nOibreacha Poiblí
Project	**Shannon CFRAM Study** Flood Risk Review Map
Title	**Annacarriga**
Drawing Status	FINAL
Job No.	32102500
Figure No.	**AFRR3**
Revision	
Scale	**1:5,000 @ A3**
	Jun 27, 2011
Drawn / Checked / Reviewed / Approved	AD/SF / JC / KK/JM / IB/PS