Location: Birr, Co. Offaly		Unique ID: 250410 (from PFRA database)	
Initial OPW Designation	**APSR** ☒	**AFRR** ☐	**IRR** ☐
Co-ordinates	**Easting: 206,007**	**Northing: 204,990**	
River / Catchment / Sub-catchment	**Camcor River / Little Brosna / River 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
The Camcor River's confluence with the Little Brosna River is at Birr. The Camcor River passes through developed areas to the south of the town centre and the Little Brosna River meanders northward on the western edge of the town.

The Camcor River is crossed at three locations within the Birr town boundary; the most easterly being the R440 (Newbridge Street), the N52 (Railway Road) to the south east of the town's centre square and then Bridge Street to the south. The Little Brosna River is crossed once by Croghan Road north of the large Townparks area.

A weir is present near to the bridge crossing the Camcor River along Railway Road.

Flood Event Records
Flood records indicate that there are 2 areas of recurring flooding in the town; the northern outskirts of Birr at Goods Caravan Park on the N52 and at Cappaneale. In both cases, bridges constrain flow and the road has flooded. Siltation in minor tributaries / drains has also contributed to flooding.

A nursing home and residential housing are located within the floodplain. In addition, the low lying fields along Woodland Villas near the Lidl store have a history of flooding.

1.2 Relevant information on flooding issues from OPW and LA staff

PFRA database comments *(in italics)*:

OPW comments
Designated APSR on the basis of predictive analysis and LA comments.

LA comments
Agreed

Meeting / discussion summary comments:

OPW comments
- There is little or no historic risk of fluvial flooding in Birr.
- The N52 goes through the town, there are swallow hole systems in the area which may be a cause of flood risk.
- There may have been one dwelling flooded in the past.
- There is a public house in Riverstown at risk.

LA comments
- There is little risk in the centre of Birr but this could increase significantly with any blockages in culverts.

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)**
	Nursing_H		2500
	Hospital		250
	Arch_Local		21
	Arch_Regional		317.3
	Arch_National		25
	Monument_LV		40
	TOTAL		**4754.1**
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: 01/06/11** **Time: 16:00**
Names of inspection team (including OPW/LA staff if present)	**Alan Dew** **James Murray**

2.1 Ground-truthing of Hazard Mapping

Fluvial non-tidal ☒ **Fluvial tidal** ☐ **Coastal** ☐ **Not available** ☐

Camcor –PFRA mapping shows slightly exaggerated risk downstream of the N62 as the primary constraint to flow is the N62 road bridge culverts.
Little Brosna – PFRA mapping is good.
Tributary to Little Brosna - PFRA mapping is good.

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)
Nursing home	River Camcor - upstream, left bank of Newbridge Street	Yes	M
Residential properties	River Camcor – upstream of Bridge Street, and downstream of Newbridge Street	Yes	M
Commercial properties	River Camcor – upstream of Bridge Street, and adjacent to Railway Road	Yes	M
Commercial properties	Little Brosna - Public house at Riverstown	Yes	M
WWTW	Tributary to Little Brosna – upstream of N62 culvert	Yes	M
Commercial property	Tributary to Little Brosna – upstream of N62 culvert	Yes	M

2.3 Local knowledge - on-site comments **(OPW, LA and any info volunteered by local residents during visit)**	Little Brosna Resident on left bank upstream of N62 indicated that river level frequently rises to the bottom of his garden, but that no properties are ever affected. The river is not very flashy, but can rise quickly. The landlord of the public house on the right bank, upstream of the N62, indicated that in 2009 the river level rose to ~0.50m below his threshold level. He has been at the property for 9 years and has not known the property to be affected by flooding, however the floodplains downstream of the bridge have been inundated. He did no believe that the N52 road bridge provided a constraint to high flows.
2.4 Comments on hydraulic constrictions (bridges, etc.) and conveyance routes	Camcor The Newbridge Street bridge provides similar capacity to the Railway Road bridge further downstream. There is a sharp right bend downstream of Newbridge St which may constrain high flows. The primary constraint in the town centre is the Railway Road bridge. A weir immediately downstream of Railway Road may provide constraint, although significant additional capacity was available at time of inspection. There is an additional constraint at the Bridge St bridge, which comprises twin arches with a capacity slightly lower than the upstream and downstream channel capacities. Little Brosna The N62 crossing comprises a 4-arch bridge of medium capacity, with the reduced capacity primarily being due to large abutments rather than the arch capacity / soffit levels.

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	X			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								**350**				

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):

<table>
<tr><th colspan="5">Outcomes</th></tr>
<tr><td>PFRA Designation</td><td colspan="2">APSR ☒ not an APSR ☐ IRR ☐</td><td colspan="2">FRI Score: 4754.1</td></tr>
<tr><td rowspan="2">Site Ground-truthing of PFRA Assessment (hazard mapping and receptors)</td><td>High Confidence (good)</td><td>Uncertain</td><td>Low Confidence (poor)</td><td>Not available</td></tr>
<tr><td>X</td><td></td><td></td><td></td></tr>
<tr><td>Site Visit Review Score</td><td colspan="4">350</td></tr>
<tr><td>Recommended Designation</td><td colspan="4">APSR ☒ not an APSR ☐ IRR ☐</td></tr>
<tr><td>Summary Comments (if required)</td><td colspan="4">The reasons for the recommendation of Birr as an APSR are as follows:
• The PFRA mapping suggests a significant risk of flooding, which has been ground-truthed to be reasonably accurate; and
• The number of critical receptors potentially at significant risk of flooding.</td></tr>
</table>

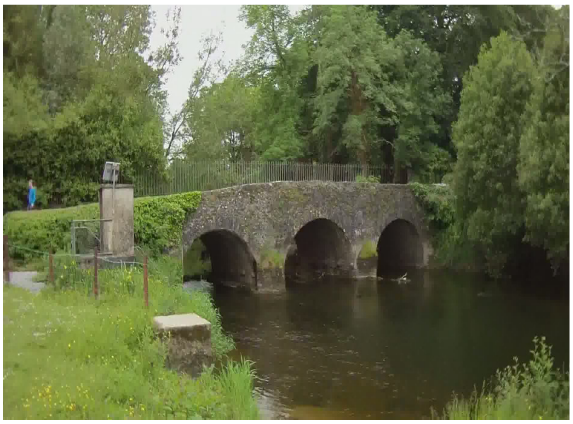

Photo1: Railway Road bridge over the River Camcor from the upstream left bank

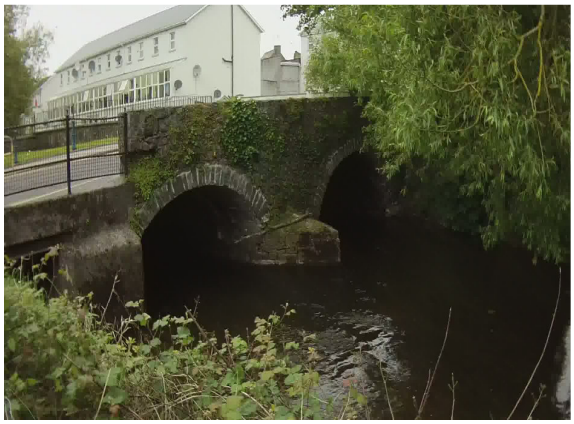

Photo 2: Bridge Street bridge over the River Camcor from the upstream left bank

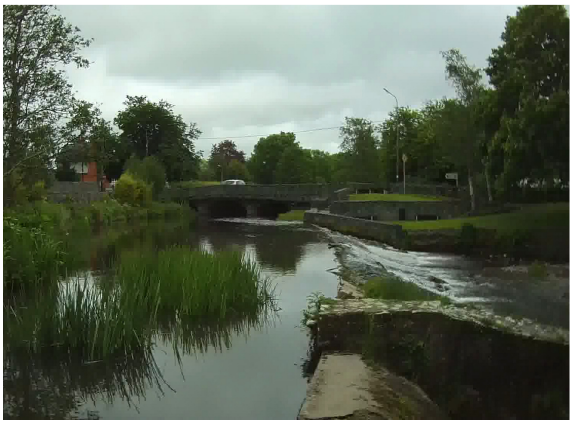

Photo 3: Weir downstream of Railway Road, looking upstream on the left bank of the former mill race.

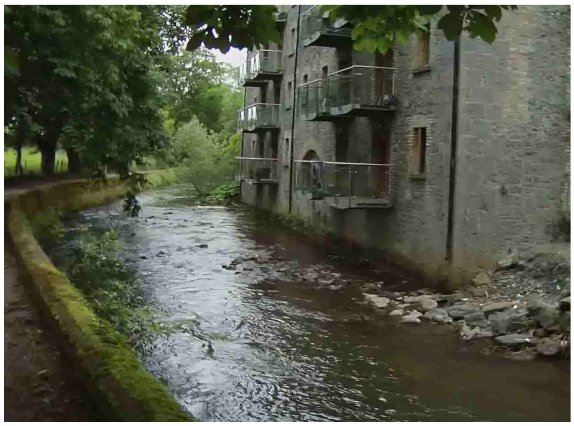

Photo 4: Renovated mill building downstream of Newbridge Street looking downstream on the left bank.