

Location: Tarbert Power Station, Co. Kerry		Unique ID: 240363 (from PFRA database)	
Initial OPW Designation	APSR <input type="checkbox"/>	AFRR <input type="checkbox"/>	IRR <input checked="" type="checkbox"/>
Co-ordinates	Easting: 107750	Northing: 149250	
River / Catchment / Sub-catchment	Shannon Estuary		
Type of Flooding / Flood Risk (identify all that apply)	Fluvial non-tidal <input type="checkbox"/> Fluvial tidal <input type="checkbox"/> Coastal <input checked="" type="checkbox"/>		

Stage 1: Desktop Review	
<p>1.1 Flood History (include review of Floodmaps.ie)</p>	<p>River Flow Path</p> <p>At this location the Shannon Estuary is several km wide, fully influenced by the tide rather than fluvial flows, and is therefore noted as being vulnerable to “coastal” flooding rather than “fluvial tidal” flooding.</p> <p>Flood event records</p> <p>Flood events from Floodmaps.ie are as follows:</p> <p>22 Ferry Road – Tarbert (Flood ID 3708)</p> <p>The N67 which connects Tarbert village to the Car Ferry Pier which connects to the N67 on the Clare side of the Shannon via the ferry is flooded and impassable for 1/2 hours roughly twice per year. The cause is tidal combined with wind/waves. Water is dumped over the sea wall onto the road. This flooding is remote from the Power Station.</p> <p>There are no records of flooding at the Power Station.</p>
<p>1.2 Relevant information on flooding issues from OPW and LA staff</p>	<p>PFRA database comments (<i>in italics</i>):</p> <p>OPW comments <i>No comments on ESB Power Station</i></p> <p>LA comments <i>No comments on ESB Power Station</i></p> <p>Note: For Tarbert itself, this was not designated as an APSR as it failed to reach the predictive analysis threshold, or to receive strong LA support. Minor flooding is noted.</p> <p>Meeting / discussion summary comments:</p> <p>OPW comments No comments</p> <p>LA comments No comments</p>

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)	
	Power Station	342.5	
	Total	342.5	
1.7 Stage 1 Evaluation	Aspect	Clearly IRR	Uncertain
	Flood History (1.1)		x
	OPW / LA Information (1.2)		n/a
	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: 07/09/11		
		Time: 11:30		
Names of inspection team (including OPW/LA staff if present)		Iain Blackwell		
		Peter Smyth		
2.1 Ground-truthing of Hazard Mapping	Fluvial non-tidal <input type="checkbox"/> Fluvial tidal <input type="checkbox"/> Coastal <input type="checkbox"/> Not available <input checked="" type="checkbox"/>			
	No hazard mapping for ground truthing.			
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)
	Tarbert Power Station	Tarbert Island	Y	H
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	Flood risk is from the Shannon Estuary, and therefore there are no hydraulic constrictions or conveyance routes.			

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				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		X		1000				2000			
Cultural Heritage Site	20				200				400			
Environmental Designated Site	20				200				400			
Hazardous Substances Site	50				500				1000			
Total SVRS								500				
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 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"/>											

	<p>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> <p>Other Pumping Station <input type="checkbox"/> Erosion Protection <input checked="" type="checkbox"/> Sand Dunes <input type="checkbox"/></p> <p>Additional notes (if required): The site is very exposed to wave action, particularly from the west and northwest. There is some, although limited, erosion protection on the shoreline surrounding the site, in the form of a mixture of revetments on the embankment slopes.</p>
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2.8 Initial Potential Mitigation Measures

Non-structural measures	Planning and Development control <input type="checkbox"/> Sustainable Urban Drainage Systems <input type="checkbox"/> Flood forecasting / warning <input checked="" type="checkbox"/> Change in Operating Procedures for water level control: <input type="checkbox"/> Public awareness campaign <input type="checkbox"/> Individual property protection <input checked="" type="checkbox"/> Land use management <input type="checkbox"/>
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 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 checked="" type="checkbox"/></p> <p>Relocation of properties: <input type="checkbox"/></p> <p>Improve existing defences: <input type="checkbox"/> (describe)</p> <p>Other (describe): Any raised defences that involve embankments and walls may well require various flood gates as well, depending on access requirements around the site. Road raising (to create road humps) may also be feasible in places.</p>

Outcomes				
PFRA Designation	APSR <input type="checkbox"/> not an APSR <input type="checkbox"/> IRR <input checked="" type="checkbox"/>		FRI Score: 342.5	
Site Ground-truthing of PFRA Assessment (hazard mapping and receptors)	High Confidence (good)	Uncertain	Low Confidence (poor)	Not available
		X		
Site Visit Review Score	500			
Recommended Designation	APSR <input type="checkbox"/> not an APSR <input type="checkbox"/> IRR <input checked="" type="checkbox"/>			
Summary Comments (if required)	There are no significant flood defence assets at the site, which is very exposed. There is the potential for raised defences around the site (embankments, walls and gates), with the possibility of raising some electrical assets. The low-lying, exposed nature of the site makes it a clear IRR.			



Photo 1: Tarbert Power Station from the Ferry Road, immediately south of Tarbert Island.



Photo 2: Southwest side of Tarbert Island.



Photo 3: Tarbert Power Station from the north, taken from the Shannon Estuary Ferry.



Photo 4: Lighthouse on Tarbert Island. Erosion protection measures typical around the shoreline at the site are visible on the embankment slopes.

