

Stradbally GWB: Summary of Initial Characterisation.

Hydrometric Area Local Authority		Associated surface water bodies	Associated terrestrial ecosystems	Area (km ²)
14 – Barrow Laois Co Co		Stradbally	None	15
Topography		This area is very flat low-lying topography. The Castlecomer Plateau rises south of this area. The surface water drainage is to the northeast, from the Plateau, to the River Barrow.		
Geology and Aquifers	Aquifer type(s)	Lg : Locally Important Sand/Gravel Aquifer		
	Main aquifer lithologies	Sand & Gravel.		
	Key structures.			
	Key properties	No site-specific data are available but permeability tends to be high in sand & gravels are often in the order of 20-70 m/d. Conservative estimates of the porosity of sand & gravel aquifers tend to be about 0.07-0.08, based on porosity values other parts of the country.		
Thickness	The thickness of the deposits in this area is over 10m.			
Overlying Strata	Lithologies	There are no deposits overlying this aquifer.		
	Thickness			
	% area aquifer near surface	100%		
	Vulnerability	HIGH		
Recharge	Main recharge mechanisms	The subsoils are dominated by gravels, which have high rates of infiltration. This is supported by the free draining nature of the land. Therefore recharge is generated from rainfall that falls directly on the groundwater body. A representative value for the proportion of runoff generated from effective rainfall is estimated to be in the order to 20%.		
	Est. recharge rates	<i>[Information to be added at a later date]</i>		
Discharge	Springs and large known abstractions (m ³ /d)	Garrymaddock Spring (Rossmore)		
	Main discharge mechanisms	The dominant types of discharge mechanisms in this groundwater body are likely to be baseflow to streams and seepages at the extremities of the sand and gravel deposit. Springs are likely to occur at a point where the ground slope becomes very gentle or where the subsoils change from gravels to peat or boulder clay downstream.		
	Hydrochemical Signature	The deposits in this aquifer are Calcareous . The hydrochemical analyses are expected to show that the water is moderately hard and has high electrical conductivity values. These values are typical of those from limestone rock units or sand & gravel deposits.		
Groundwater Flow Paths		Water levels are close to the ground surface in the low-lying area in the vicinity of springs. Water levels elsewhere are considered to be in the region of 3-7 m below ground level. Groundwater gradients in sand & gravel are expected to be quite flat. Data from other parts of the country indicate that gradients in gravel aquifers are in the order of 0.002 to 0.004. Groundwater flow through the aquifer is diffuse. The direction of groundwater flow will be towards the east in the direction of the River Barrow.		
Groundwater & surface water interactions		It is expected that the aquifer contributes significant baseflow to the River Stradbally which crosses the groundwater body.		
Conceptual model	This groundwater body is defined by the extent of the gravel deposits north of Stradbally. The groundwater body is considered to be a locally important gravel aquifer. There are no overlying deposits and therefore a high proportion of effective rainfall will infiltrate through the permeable deposits to the water table. This also means that the vulnerability of the groundwater resource is high. The groundwater flow will be diffuse and the direction of groundwater flow is to the northeast. The groundwater body will discharge as baseflow to the associated surface water bodies and also as seepages and springs.			
Attachments				
Instrumentation	Stream gauge: None Borehole Hydrograph: None EPA Representative Monitoring boreholes: None			
Information Sources	Daly EP (1983) Water in the Landscape: Groundwater Resources in Laois. In: "Laois, an environmental history". Ed. Feehan, J. Ballykilcavan Press. Deakin J, Fitzsimons V, Gately C, Wright G (2002) <i>County Laois Groundwater Protection Scheme</i> . Geological Survey of Ireland.			
Disclaimer	Note that all calculation and interpretations presented in this report represent estimations based on the information sources described above and established hydrogeological formulae			