Rosenallis GWB: Summary of Initial Characterisation.

Hydrometric Area Local Authority	Associated surface water bodies	Associated terrestrial ecosystems	Area (km^2)
14 – Barrow Laois Co Co	Rosenallis Stream, Barrow, Glenlahan, Owenass, Blackwater (Laois)	Slieve Bloom Mountains	40

Topography		The Slieve Bloom mountains dominate the topography of this area. The highest peak is at the SW edge of the groundwater body. The land surface then drops off to the northeast very sharply. Mountain streams cut deep valleys in the mountainside.
Geology and Aquifers	Aquifer type(s)	**Ll**: Locally Important Aquifer, moderately productive only in local zones. **Pl**: Poor aquifer, generally unproductive except in local zones.
	Main aquifer lithologies	CW : Cadamstown Formation - Yellow & red sandstone & green mudstone CP : Capard Formation – Silurian Greywacke.
	Key structures.	The strata dip northwards at 10 – 20^o. A number of faults with a N-S direction are noted in the area of the Clonaslee well field
	Key properties	This aquifer is considered to have low transmissivity and storativity.
	Thickness	The thickness of the sandstone units increases from where it pinches out at the peak of the mountain to around 500m in thickness where it becomes confined by the Lower Limestone Shale.
Overlying Strata	Lithologies	The lithology of the subsoil varies with the elevation. There is peat on the elevated slopes of the mountains, lower down the mountain we find Limestone Till. Rock outcrops both at the peak of the mountain and in an area between the peat and limestone.
	Thickness	Very low <3m
	% area aquifer near surface	Very high percentage of the area is outcrop in these upland areas.
	Vulnerability	There are areas of EXTREME vulnerability where the rock is close to surface, moderate vulnerability over the peat and HIGH to LOW vulnerability lower down in the area of the Limestone till.
Recharge	Main recharge mechanisms	Most recharge takes place where the overburden is less than 5m thick or where sands and gravels exist.
	Est. recharge rates	*[Recharge rates will be added at a later date]*
Discharge	Springs and large known abstractions (m^3/d)	There are no known Large abstractions or springs in this area.
	Main discharge mechanisms	The groundwater body discharges to over lying rivers in the area as baseflow. It is also possible that groundwater may pass from this groundwater body into the Clonaslee Sandstone.
	Hydrochemical Signature	Samples taken during the pumping tests on the production wells indicate hard waters. The hydrogeological settings would imply that softer water would be more typical of these strata. The bedrock layers of this groundwater body are **Siliceous**.
Groundwater Flow Paths		Groundwater flow in this aquifer will be concentrated in the upper weathered layers. Regional groundwater flow paths are not expected to form. Recharge / Discharge cycles will take place over small areas with the groundwater body area.
Groundwater and surface water interactions		Groundwater will discharge locally to streams and rivers crossing the aquifer and also to small springs and seeps. Owing to the poor productivity of the aquifers in this body it is unlikely that any major groundwater - surface water interactions occur. Baseflow to rivers and streams is likely to be relatively low.
Conceptual model		This aquifer is defined to the west and south by the River Barrow catchment and to the east and north by the extent of Cadamastown Formation. The aquifer recharges in the upper parts of the mountains where there is a very thin subsoil covering. The groundwater flow radiates from the elevated peaks of the Slieve Bloom Mts. The rock units within this groundwater body are considered to be poor or locally important aquifers. Groundwater flow will mostly occur in the shallow weathered zone of the aquifer. The increased hydraulic gradient, due to the sloping topography, will allow groundwater to flow faster than if it were flowing through a similar rock type in low-lying land.

Attachments	None
Instrumentation	Stream gauge: None Borehole Hydrograph: None EPA Representative Monitoring boreholes: None
Information Sources	Barber, W. (1979) Evaluation of Groundwater Resources of the Clonaslee Area Co. Offaly. Geoex Limited. Hand, M.G. (1987) Aquifer Protection Policy in Ireland - A Case Study. IAH (Irish Group) 7th Annual Groundwater Seminar. Deakin, J., Fitzsimons, V., Gately, C., Wright, G. 2002. *Laois Groundwater Protection Scheme.* 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