

### Ashford GWB: Summary of Initial Characterisation.

Hydrometric Area Local Authority		Associated surface water bodies	Associated terrestrial ecosystems	Area (km <sup>2</sup> )
Wicklow Co. Co. Hydrometric Area 10		Vartry	None	4
<b>Topography</b>		This GWB is located around the village of Ashford, Co. Wicklow. The highest elevations, around 100 m OD, are in the northwest, with the land sloping down to the southeast to about 30 m OD. The topographic gradient increases towards the valley of the River Vartry, which crosses the aquifer to the southwest.		
<b>Geology and Aquifers</b>	Aquifer type(s) Main aquifer lithologies	<b>Lg:</b> Locally Important Gravel Aquifer Sand and Gravel		
	Key structures.	N/A		
	Key properties	Though permeability testing data are limited, productivity, borehole logging and quarry data tend to indicate that coarse material predominates and that the permeability and storativity in the aquifer are high.		
	Thickness	By definition (DELG/EPA/GSI, 1999) this gravel deposit must be at least 10 m thick. Drilling evidence suggests the thickness of this deposit varies from 10 to 30 m		
<b>Overlying Strata</b>	Lithologies	None		
	Thickness	N/A		
	% Area aquifer near surface	High		
	Vulnerability	High		
<b>Recharge</b>	Main recharge mechanisms	This GWB is recharged from rainwater percolating through the topsoil and unsaturated sand and gravel deposits. Surface runoff is probably less than 20% of effective rainfall. The presence of less permeable layers in the deposit, even if thin, can create perched water tables and prevent recharge of the true water table. Where the water table lies below the local river network it is likely that some stream water may pass into the aquifer. This will be most likely in the higher elevations where a river flows onto the aquifer from where it has previously been flowing over impermeable subsoil or bedrock.		
	Est. recharge rates	[Information to be added at a later date]		
<b>Discharge</b>	Springs and large known abstractions	The Waterford Co-op well outside Ashford indicated gravels to depths greater than 12 m and an estimated yield of 500 m <sup>3</sup> /d.		
	Main discharge mechanisms	Groundwater will leave this aquifer where the water table is above river stage and a permeable riverbed exists. There is also likely to be groundwater seepage from the extremities of the gravel body at the lower elevations, which may appear as springs, seeps or a rise in baseflow to a river. Water may also come to the surface where there is a boundary to groundwater flow, e.g. a less permeable layer of till within the gravel deposit.		
	Hydrochemical Signature	There is no information on the hydrochemical nature of the groundwater.		
<b>Groundwater Flow Paths</b>		Although the aquifer is permeable, groundwater velocity is slow, because storativity is high and water table elevations are generally subdued. This also means that discharge to rivers will not be flashy and will be sustained through drier periods of the year.		
<b>Groundwater &amp; surface water interactions</b>		The interaction between surface water and groundwater through out this aquifer is complex and will depend on the position of the water table. The nature of this interaction will not be uniform over the area of the body. For instance it is likely that surface water will discharge into the GWB along the western, more elevated areas of the body, whereas in the east near the coast groundwater must exit the aquifer, to become surface water as the gravel deposits finger out.		
<b>Conceptual model</b>	This aquifer is located around Ashford, Co. Wicklow. The highest elevations, around 100 m OD, are in the northwest, with the land sloping down to the southeast to about 30 m OD. The extent of the body is defined by the presence of gravel deposits more than 10m thick. The GWB is composed of permeable sand and gravel deposits, with a high storativity. Recharge occurs diffusely through the overlying topsoil. The aquifer is generally unconfined, but may become locally confined where lower permeability deposits overlie the gravels. The water table within gravel aquifers is usually flat and therefore the depth to water will depend on the topography of the area. The flow paths within the aquifer are constrained by the extent of the deposit and therefore will not develop to a regional scale. Groundwater discharge will occur via springs and seeps along the lowest boundary of the body and also along river courses. There may also be discharge to rivers as baseflow where the water table lies above the river stage.			
<b>Attachments</b>				
<b>Instrumentation</b>	Stream gauge: None Borehole Hydrograph: None EPA Representative Monitoring boreholes: None			
<b>Information Sources</b>	Wright GR, Woods L (2003) <i>County Wicklow Groundwater Protection Scheme</i> . Report to Wicklow County Council. Geological Survey of Ireland			
<b>Disclaimer</b>	Note that all calculation and interpretations presented in this report represent estimations based on the information sources described above and established hydrogeological formulae			

