

1st Draft Inny- Drumone Gravel GWB Description November 2004

Inny - Drumone Gravel GWB: Summary of Initial Characterisation.

Hydrometric Area Local Authority		Associated surface water features	Associated terrestrial ecosystem(s)	Area (km ²)
26 Meath Co. Co.		Rivers: Lakes:	None	7
Topog- raphy	Occupying approximately 7 km ² near Drumone in the northeastern part of the Inny subcatchment are clean, coarse esker & fan sand/gravels (Kelly and Wright, 2004). The deposit is situated between 120-160 m OAD. The location and boundaries are shown in Figure 1.			
Geology and Aquifers	Aquifer categories	The sand/gravel deposit is classified as a potentially Locally Important Sand and Gravel Aquifer (Lg) (DELG/EPA/GSI (1999); Kelly and Wright, 2004).		
	Main aquifer lithologies	Clean coarse esker & fan sand/gravels.		
	Key structures	N/A		
	Key properties	There are no data in this GWB on yields, permeabilities or transmissivities, but these are expected to be high. Sand/gravel aquifers generally consist of unconsolidated coarse grained material, usually containing less than 8% fines (O'Suilleabháin, 2000) resulting in an intergranular porosity and relatively high permeabilities and storativity. Permeability is generally greater than 10 m/d (O'Suilleabháin, 2000). Typically transmissivity ranges from 200 – 1500 m ² /d. Storativity is expected to be high (10%). There are no data to calculate groundwater gradients, but these are expected to be greater than 0.001.		
	Thickness	The thickness is estimated to be 5-15 m.		
Overlying Strata	Lithologies	There are no overlying deposits.		
	Thickness	N/A		
	% area aquifer near surface	[Further Information to be added at a later date]		
	Vulnerability	[Further Information to be added at a later date]		
Recharge	Main recharge mechanisms	Diffuse recharge occurs via rainfall percolating through the unsaturated sand/gravel. Due to the high permeability of sand/gravel, a high proportion of the available recharge will percolate down to the water table.		
	Est. recharge rates	[Information to be added to and checked]		
Discharge	Large springs and large known abstractions (m³/d)	None		
	Main discharge mechanisms	Groundwater discharges to small streams that flow through and near the deposit.		
	Hydrochemical Signature	There are no data available, however alkalinity, hardness and conductivity are expected to be high. The groundwater is expected to have a calcium bicarbonate signature.		
Groundwater Flow Paths		The length of flow paths depend on the size and shape of the sand/gravel deposit. Flow paths are expected to be short (100-300 m) in the GWB. Sand/gravel has an intergranular porosity, thus groundwater flow is diffuse. Flow direction is expected to follow topography, generally to the west.		
Groundwater & Surface water interactions		In general groundwater from sand/gravel deposits discharges to small nearby streams.		
Conceptual model	<ul style="list-style-type: none"> Occupying approximately 7 km² near Drumone in the northeastern part of the Inny subcatchment are clean, coarse esker & fan sand/gravels. The deposit is situated between 120-160 m OAD. Transmissivities expected to be high. Storativity is expected to be high (10%). Groundwater is likely to be unconfined. Gradients are expected to be greater than 0.001. The thickness is estimated to be 5-15 m. Diffuse recharge occurs via rainfall percolating through the unsaturated sand/gravel. Due to the high permeability of sand/gravel, a high proportion of the available recharge will percolate down to the water table. Groundwater discharges to nearby small streams. Flow path lengths are expected to be relatively short, up to 300 m. 			
Attachments	Figure 1			
Instrumentation	Stream gauges: EPA Water Level Monitoring boreholes: EPA Representative Monitoring points:			

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Information Sources	DELG/EPA/GSI (1999) <i>Groundwater Protection Schemes</i> . Department of the Environment and Local Government, Environmental Protection Agency and Geological Survey of Ireland. Kelly, C., and Wright, G., (2004). Draft Supplementary Report Meath Groundwater Protection Scheme. Geological Survey of Ireland. O'Suilleabhain, C., (2000). Assessing the boundary between high and moderately permeable subsoils. Unpublished MSc., University of Dublin. Department of Civil, Structural and Environmental Engineering, Trinity College Dublin.
Disclaimer	Note that all calculation and interpretations presented in this report represent estimations based on the information sources described above and established hydrogeological formulae

Figure 1. Location and boundaries of Drumone GWB

