### Slieve Bloom South GWB: Summary of Initial Characterisation

<table>
<thead>
<tr>
<th>Hydrometric Area</th>
<th>Local Authority</th>
<th>Associated surface water bodies</th>
<th>Associated terrestrial ecosystem(s)</th>
<th>Area (km²)</th>
</tr>
</thead>
</table>

### Topography
The Slieve Bloom dominates the topography of this area in the Midlands. The highest peak is Arderin (527 m AOD), which is halfway along the eastern boundary of the groundwater body. The land surface drops off to the west, and southwest very sharply to elevations of around 140 m AOD. The lower slopes are shallower in the south of the GWB. Mountain streams draining the hillside cut deep valleys.

### Aquifer categories
- **LI**: Locally important aquifer which is moderately productive only in local zones, generally unproductive except for local zones.
- **PI**: Poor aquifer which is

### Main aquifer lithologies
Devonian Old Red Sandstone, Silurian Metasediments and Volcanics.

### Key structures
The rocks in the GWB are part of the core of a large NE-SW oriented anticline. The strata dip at 10–20°, radially outwards from northwest to south. A number of faults with a NE-SW direction are mapped in the centre of the GWB, with one major fault crossing the entire Slieve Bloom range. Large faults in this orientation dissect the surrounding Bredagh GWB. Compression during the folding caused some fracturing and jointing of the rocks.

### Key properties
These aquifers are considered to have low transmissivity and storativity. The transmissivity of the Devonian ORS aquifer will, on average, be better than that of the Silurian strata. Groundwater gradients, following topography, will be steep (0.05-0.15).

### Geology and Aquifers

<table>
<thead>
<tr>
<th>Overlying Strata</th>
<th>Lithologies</th>
<th>Thickness</th>
<th>% area aquifer near surface</th>
<th>Vulnerability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The lithology of the subsoil varies with the elevation. There is peat on the elevated slopes of the mountains, lower down the mountain there is Limestone Till. Gravel lenses capable of providing drinking water supplies exist in the till, as evidenced by the Clareen GWS spring.</td>
<td>There are no depth to bedrock data for this area. Rock outcrops patchily across the GWB, and along streams.</td>
<td>[Information will be added at a later date]</td>
<td>Groundwater vulnerability is Extreme over the majority of the GWB. Probable vulnerability is High in the southwest corner, with just a very small area of Moderate vulnerability.</td>
</tr>
</tbody>
</table>

### Recharge
Main recharge mechanisms: Diffuse recharge will occur over the entire groundwater body via rainfall soaking through the subsoil. A large percentage of rainfall will not recharge the aquifer, but will runoff to the surface water bodies.

### Springs and large known abstractions (m³/d)
Roscomroe (17 m³/d), Clareen (400 m³/d) – this abstracts water from the overlying strata which are not currently defined as a gravel aquifer.

### Groundwater Flow Paths
These rocks are devoid of intergranular permeability; groundwater flow occurs in fractures and faults. Flows in the aquifer are likely to be concentrated in a thin zone at the top of the rock; the weathered zone may be up to 3 m thick, with a connected fractured zone a further 10 m, below which is a generally poorly fractured zone.

### Groundwater & Surface water interactions
Due to the shallow groundwater flow in this aquifer the groundwater and surface waters are closely linked. The aquifer discharges readily to the overlying (gaining) streams. The lack of storage in the aquifer will mean that baseflows during the summer will be very low.
### Conceptual model
- The groundwater body is bounded to the east and south by the Brosna catchment boundaries, and to the north and west by the contact with the Clonaslee Sandstones of the Clonaslee West GWB, under which this aquifer passes. The topography is mountainous and highly dissected by the streams running off the uplands.
- The groundwater body is comprised of low transmissivity and storativity rocks.
- Flow occurs along fractures, joints and major faults. Flows in the aquifer are concentrated in a thin zone at the top of the rock.
- Recharge occurs particularly in the upland areas where rock outcrops, or subsoils are thin. Much of the potential recharge runs off.
- Depending upon topography, the water table can vary between a few metres up to >10 m below ground surface. Overall, groundwater flow follows topography, radiating north and northwestwards outwards from Slieve Bloom. Locally, groundwater flows to the surface water bodies. Flow path lengths in the upland areas are short (≤ 300 m). 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.
- Groundwater discharges to the numerous streams and rivers crossing the aquifer.

### Attachments
None.

### Instrumentation
- Stream gauges: 25125, 25151, 25152.
- EPA Representative Monitoring boreholes: Clareen (OFF4) – in overlying gravel deposit.

### Information Sources
- ORS Aquifer chapter
- SIL Aquifer chapter

### Disclaimer
Note that all calculation and interpretations presented in this report represent estimations based on the information sources described above and established hydrogeological formulae.
### Rock units in GWB

<table>
<thead>
<tr>
<th>Rock unit name and code</th>
<th>Description</th>
<th>Rock unit group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadamstown Formation (CW)</td>
<td>Yellow &amp; red sandstone &amp; green mudstone</td>
<td>Devonian Old Red Sandstone</td>
</tr>
<tr>
<td>Capard Formation (CP)</td>
<td>Silurian Greywacke</td>
<td>Silurian Metasediments and Volcanics</td>
</tr>
</tbody>
</table>