### Adamstown GWB: Summary of Initial Characterisation.

<table>
<thead>
<tr>
<th>Hydrometric Area Local Authority</th>
<th>Associated surface water bodies</th>
<th>Associated terrestrial ecosystems</th>
<th>Area (km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 – Coastal area, Wexford Co Co</td>
<td>Corock, Owenduff, Tintern Abbey Stream and Barrow estuary.</td>
<td>Boley Fen, Barrow River Estuary</td>
<td>181</td>
</tr>
</tbody>
</table>

#### Topography
The drainage pattern in this aquifer reflects the reduction in elevation from north to south. The highest point within the groundwater body area is Carrickbyrne Hill at 234m OD. The lowest areas in the groundwater body are to the west at the mouth of the River Barrow around Campile, which is at sea level.

#### Aquifer type(s)
Mostly: RF: Regionally Important Fractured aquifer.
With Smaller areas of:
- Li: Locally important aquifer which is moderately productive only in local zones
- Pt: Poor aquifer which is generally unproductive except for local zones

#### Main aquifer lithologies
Mostly: Ordovician Volcanics
With Smaller areas of:
- Devonian Old Red Sandstones
- Granites & other Igneous Intrusive rocks
- Ordovician Metasediments

This rock contains areas of felsic volcanic rock which are believed to be the main water-bearing components.

#### Key structures.
The bedrock is highly fractured and broken due to folding and faulting in the Caledonian Orogeny, which formed the Campile Syncline. Superimposed upon this are a series of minor folds giving rise to pronounced cleavage. The crystalline volcanic rocks will have ruptured under the mountain building forces that affected the whole area. The rock units are steeply dipping to the south.

#### Key properties
Wells tested at Adamstown and Carrickbyrne Hill have yields of 1400m³/d, specific capacities of 44.7m³/d/m and transmissivity values in the region of 150m²/d.

#### Thickness
The effective thickness of this aquifer could be quite large. Well logging data from Kilkenny shows large fractures open at depths of 50m.

#### Overlying Strata
- **Lithologies**
The Clogga Till is a stone clay sand based till containing large angular cobbles and boulders chiefly of shale and granite. There are also some significant silty alluvium deposits close to the Barrow River estuary. In places there appear to be sand and gravel layers of about 6.5m between the bedrock and the overlying silt.

- **Thickness**
Thickness has been shown to be mostly less than 10m but may increase closer to the Barrow, as alluvial deposits become thicker.

- **% area aquifer near surface**
[Information will be added at a later date]

- **Vulnerability**
[Information will be added at a later date]

#### Recharge
- **Main recharge mechanisms**
Rainfall recharges largely in the north where overlying strata may be thinner in the uplands. Also in locations like Carrickbyrne Hill which appear to coincide with areas where felsic volcanics outcrop.

- **Est. recharge rates**
[Information will be added at a later date]

#### Springs and large known abstractions (m³/d)
- Adamstown (1400), Carrigbyrne (204).

#### Discharge
- **Main discharge mechanisms**
The most likely areas for this groundwater body to discharge will be to the associated surface water bodies. This may occur mostly at the geological contact between this groundwater body and the body to the south. It is possible that water could be forced to the surface and into surface water bodies here.

- **Hydrochemical Signature**
Low mineralized nature is noteworthy. Waters monitored are shown to be moderately soft to slightly hard. Average electrical conductivity values are Carrickbyrne 418, Tellought 283 and Ballinamona 384 (µs/cm), low values which confirm low mineralised water. There is evidence of saltwater intrusion at Great Island, Wexford. The bedrock strata of this groundwater body are Siliceous.

#### Groundwater Flow Paths
Groundwater flow may be in long flowpaths from north to south. There may be a small/local groundwater divide where some flow will be to the west towards Campile and the Barrow River estuary and the rest will flow south. In areas like Carrickbyrne there will probably be elevated groundwater levels which would radiate from the peak but probably taper towards the south with the regional flow system. Groundwater flow has been estimated at 8m³/yr in the extreme west area of the body at Great Island Power Station.

#### Groundwater and surface water interactions
There is likely to be an important groundwater connection to Boley Fen, which lies on a geological contact between two groundwater bodies of differing aquifer classification. The relevance of this requires further investigation.
This groundwater body is defined to the northwest and southeast by the extent of the Campile Formation. The Barrow River defines the western boundary and the boundary of Hydrometric area 13 defines the northern boundary. Groundwater is mostly recharged in the north and at various hills in the area. Regional flow is mostly north to south. There is probably a local groundwater divide in the area east of Campile. West of this divide, groundwater discharges to the Barrow Estuary and northeast of this, probably discharges to the associated surface water bodies, especially at the geological contact at the southern boundary of the body.

### Attachments

#### Instrumentation
- Stream gauge: 14066
- Borehole Hydrograph: none
- EPA Representative Monitoring boreholes: Carrickbyrne WS (#9 - S831245), Tellerought GWS (#49 - S756214), Ballinamona (#37 - S710178).

#### Information Sources

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

<table>
<thead>
<tr>
<th>Formation Name</th>
<th>Code</th>
<th>Description</th>
<th>Rock Unit Group</th>
<th>Aquifer Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ballylane Formation</td>
<td>BY</td>
<td>Green &amp; grey slate with thin siltstone</td>
<td>Ordovician Metasediments</td>
<td>Pl</td>
</tr>
<tr>
<td>Campile Formation</td>
<td>CA</td>
<td>Rhyolitic volcanics, grey &amp; brown slates</td>
<td>Ordovician Volcanics</td>
<td>Rf</td>
</tr>
<tr>
<td>Dolerite</td>
<td>D</td>
<td>Granites &amp; other Igneous intrusive rocks</td>
<td>Granites &amp; other Igneous intrusive rocks</td>
<td>Rf</td>
</tr>
<tr>
<td>Granite (undifferentiated)</td>
<td>Gr</td>
<td>Granites &amp; other Igneous intrusive rocks</td>
<td>Granites &amp; other Igneous intrusive rocks</td>
<td>Rf</td>
</tr>
<tr>
<td>Harrylock Formation</td>
<td>HL</td>
<td>Red conglomerate, sandstone &amp; siltstone</td>
<td>Devonian Old Red Sandstones</td>
<td>L1</td>
</tr>
<tr>
<td>Maulin Formation</td>
<td>MN</td>
<td>Dark blue-grey slate, phyllite &amp; schist</td>
<td>Ordovician Metasediments</td>
<td>L1</td>
</tr>
<tr>
<td>Oaklands Formation</td>
<td>OA</td>
<td>Green, red-purple, buff slate, siltstone</td>
<td>Ordovician Metasediments</td>
<td>L1</td>
</tr>
</tbody>
</table>