


**APPENDIX B2: CERTIFICATE OF SATISFACTORY EXECUTION –WORKS ONLY**

|   |  |  |                         |
|---|--|--|-------------------------|
| <b>ACTIVITY</b><br><i>(Title of Applicant Activity)</i>   | <b>Contractor Entry: Works Contractor, PSCS, Designer and PSDP</b>   |  |                         |
| <b>SITE Construction contract:</b><br><i>(Title &amp; brief description)</i>                            | <b>Roscommon GWS DBO Bundle</b><br><br>The Roscommon GWS DBO Bundle involves the design, construction and operation and maintenance of 7no Water Treatment Plants ranging in size from 25m <sup>3</sup> /hr to 123m <sup>3</sup> /hr. The contract also includes for the provision of treated water reservoirs and raw water source intake upgrades.<br><br>   |  |                         |
| Site location:  | Roscommon, various locations   |  |                         |
| Proportion of Project undertaken by the Applicant   | 100%   | Tender entity ( <i>Sole trader/ Joint Venture</i> ):                                     | Private limited company |
| <b>VALUE</b><br>Construction contract value at award stage including cost of services where applicable: | DB €7,700,000<br>O&M €11,500,000   | Construction contract value at completion (including cost of services where applicable): | Ongoing                 |
| <b>DATE</b><br>Start date:  | DB - February 2010<br>O&M - 2011   | Date of substantial completion of the works:   | September 2011          |
| Date of Issue of Defects Cert for Works Contract  | September 2012   | Handover Date:   | 2031                    |
| <b>GENERAL INFO</b><br>Role of Company in delivery of Service:  | <b><u>Scope of Works</u></b><br><br>Construction and development of the spring and borehole sources and source protection works with pumping of raw water to the treatment plant <ul style="list-style-type: none"> <li>• Installation and commissioning of 7 separate water treatment plants, comprising Multi-Media Pressure Filters, GAC Media Pressure Filters, chemical conditioning equipment, with hourly design production flow-rates from 25m<sup>3</sup>/hr to 123m<sup>3</sup>/hr of potable water to SI 244 2014</li> <li>• Construction of 7 separate water treatment plant buildings and reservoirs ranging in size from 517m<sup>3</sup> to 2200m<sup>3</sup>, site development works and landscaping</li> <li>• Installation and commissioning of UV Disinfection System, Instrumentation and raw and treated water monitoring equipment</li> <li>• Installation and commissioning of SCADA and Telemetry System</li> <li>• 20 years Operation and Maintenance</li> <li>• Acted as Works Contractor, PSCS, PSDP and Designer on all aspects of the project.</li> </ul> |  |                         |

## Process Design

The Roscommon GWS DBO Bundle consisted of the construction of 7 Water Treatment plants, with a variety of different raw water sources from boreholes to springs to lakes. Each water treatment plant was designed to meet the requirements of SI 244 of 2014 European Communities (Drinking Water) (No.2) Regulations 2014. A tabular summary is provided below describing the raw water source, the raw water design parameters and selected water treatment process.

### **1. Ballinderry GWS 72.2 m<sup>3</sup>/hr (Spring)**

| <u>Raw Water Parameters</u> | <u>Selected Water Treatment Process</u>        |
|-----------------------------|--|
| Colour : 59 Hazen           | - Oxidant Dosing                               |
| Turbidity : 3.2 NTU         | - Coagulant Dosing                             |
| Aluminum : 299 ug/l         | - 5no. 1600mm Multi-Media Pressure Filter      |
| Iron : 242ug/l              | - 3no 1800mm Granular Activated Carbon Filters |
| Manganese : 63 ug/l         | - UV disinfection unit                         |
|                             | - Disinfection (Sodium Hypochlorite) Dosing    |

### **2. Lismurtagh GWS 27.8 m<sup>3</sup>/hr (Spring)**

| <u>Raw Water Parameters</u> | <u>Selected Water Treatment Process</u>        |
|-----------------------------|--|
| Colour : 51 Hazen           | - Oxidant Dosing                               |
| Turbidity : 5 NTU           | - Coagulant Dosing                             |
| Aluminum : 344 ug/l         | - 5no. 900mm Multi-Media Pressure Filter       |
| Iron : 345 ug/l             | - 3no 1200mm Granular Activated Carbon Filters |
| Manganese : 31.5 ug/l       | - UV disinfection unit                         |
|                             | - Disinfection (Sodium Hypochlorite) Dosing    |

### **3. Lecarrow PWSS 123.0 m<sup>3</sup>/hr (Borehole)**

| <u>Raw Water Parameters</u> | <u>Selected Water Treatment Process</u>     |
|-----------------------------|---|
| Colour : 17 Hazen           | - Oxidant Dosing                            |
| Turbidity : 8 NTU           | - Coagulant Dosing                          |
| Aluminum : 1080 ug/l        | - pH adjustment and correction              |
| Iron : 188 ug/l             | - 5no. 2000mm Multi-Media Pressure Filter   |
| Manganese : 32 ug/l         | - UV disinfection unit                      |
|                             | - Disinfection (Sodium Hypochlorite) Dosing |

### **4. Knockcroghery PWSS 53.0 m<sup>3</sup>/hr (Spring)**

| <u>Raw Water Parameters</u> | <u>Selected Water Treatment Process</u>        |
|-----------------------------|--|
| Colour : 43 Hazen           | - 3no 1600mm Granular Activated Carbon Filters |
| Turbidity : 1.3 NTU         | - Disinfection (Sodium Hypochlorite) Dosing    |
| Aluminum : 224 ug/l         | - UV disinfection unit                         |
| Iron : 232 ug/l             |  |
| Manganese : 12 ug/l         |  |

### **5. Corracreigh GWS 41.6 m<sup>3</sup>/hr (Spring)**

| <u>Raw Water Parameters</u> | <u>Selected Water Treatment Process</u>        |
|-----------------------------|--|
| Colour : 60 Hazen           | - Oxidant Dosing                               |
| Turbidity : 14 NTU          | - Coagulant Dosing                             |
| Aluminum : 505 ug/l         | - pH adjustment and correction                 |
| Iron : 489 ug/l             | - 5no. 1200mm Multi-Media Pressure Filter      |
| Manganese : 40 ug/l         | - 3no 1400mm Granular Activated Carbon Filters |
|                             | - UV disinfection unit                         |
|                             | - Disinfection (Sodium Hypochlorite) Dosing    |

### **6. Oran-Ballintober GWS 55.6 m<sup>3</sup>/hr (2no Springs)**

| <u>Raw Water Parameters</u> | <u>Selected Water Treatment Process</u>        |
|-----------------------------|--|
| Colour : 53 Hazen           | - Oxidant Dosing                               |
| Turbidity : 3 NTU           | - Coagulant Dosing                             |
| Aluminum : 298 ug/l         | - 5no. 1400mm Multi-Media Pressure Filter      |
| Iron : 381 ug/l             | - 3no 1600mm Granular Activated Carbon Filters |

|                     |   |
|---------------------|---|
| Manganese : 20 ug/l | - Disinfection (Sodium Hypochlorite) Dosing<br>- UV disinfection unit |
|---------------------|---|

**7. Sliabh an Iarainn 25.0 m<sup>3</sup>/hr (Borehole)**

|   |   |
|---|---|
| <u>Raw Water Parameters</u><br>Colour : 17 Hazen<br>Turbidity : 13 NTU<br>Aluminum : 30 ug/l<br>Iron : 395 ug/l<br>Manganese : 629 ug/l | <u>Selected Water Treatment Process</u><br>- Oxidant Dosing<br>- Coagulant Dosing<br>- Potassium Permanganate Dosing<br>- 5no. 900mm Multi-Media Pressure Filter<br>- UV disinfection unit<br>- Disinfection (Sodium Hypochlorite) Dosing |
|---|---|

**Operation and Maintenance**

The design demand for each of the water treatment plants ranges from 25.0m<sup>3</sup>/hr to 123.0 m<sup>3</sup>/hr. Glan Agua Ltd also undertake the operation and maintenance of the 7 plants with a combined consumption of 7,167 m<sup>3</sup> per day and a total consumption 215,028m<sup>3</sup> per month. There is a Senior Operations Manager and 2no Operations Technicians employed on the project, which provides for a fast and efficient response time and high quality delivery of service.



**Health & Safety Apects of the Contract**

- Entry into Confined Space
- Excavations
- Structural Stability

|  |  |            |             |
|--|--|------------|-------------|
|  | <ul style="list-style-type: none"> <li>• Lifting Operations / Cranes</li> <li>• Road Works</li> <li>• Traffic Management</li> <li>• Scaffolding</li> <li>• Underground Services</li> <li>• Overhead Cables</li> <li>• Working at Heights</li> <li>• Piling</li> <li>• Vibration, Noise and Dust</li> <li>• Working with hazardous materials / live sewers</li> </ul> <p><b><u>Environmental Aspects and Impacts of the Contract</u></b></p> <p>Approximately 15 sites had to be developed through construction of a water treatment plant building, reservoir, pipework and source protection. A preliminary environmental and archaeological assessment was completed pre-tender stage, which formed part of the tender documentation. An Environmental Method Statement had to be completed for each site, and submitted for approval to NPWS prior to commencement of the construction works.</p> |            |             |
| Name & address of Contracting Authority responsible for the project:   | Roscommon County Council,<br>Court House,<br>Roscommon   |            |             |
| Contracting Authority contact name:  | Kieran Madden  | Phone no.: | 090 6632500 |
| <p><b>OTHER INFORMATION</b></p> <p>Provider of Civil Design : Glan Agua<br/> Provider of Civil and Building Construction: Glan Agua<br/> Provider of Mechanical, Electrical &amp; Process Design and Installation: Glan Agua<br/> Project Supervisor (Construction Stage): Glan Agua</p> |  |            |             |
| <b>CONTRACTORS NAME:</b>   | Glan Agua Ltd  |            |             |