

## Infrastructure Overview

### **Penrhos Leisure Village / Cae Glas Worker Accommodation and legacy Leisure site / Kingsland Worker Accommodation and legacy Residential site**

This is an assessment of available services undertaken by Land and Lakes consultants to inform detailed strategies for each site. These assessments based upon industry standard records for usage taking into account property type and use, occupation numbers and capacities, building regulations and energy performance targets, phased delivery and legacy implications.

**Statutory Supplies:** Following investigative work undertaken by specialist infrastructure consultants UPL, SMS and UCML between 2011 and 2018.

**Gas:** Capacity assessments undertaken to inform 'application for supply' quotations from the host Gas Transporter (GT) Wales and West. The supplier has provided firm price quotations for supply, on basis of more than capable supply capacity to serve all 3 sites, connected at locations identified by UPL (Penrhos 3,925 kw mixed commercial peak load / Cae Glas 3,325 kw mixed commercial peak load/ Kingsland 320 nr gas heated residential properties).

**Water:** DCWW undertook a Clean Water Hydraulic Modelling Assessment in February 2015 in order to establish capacity and need for network capacity enhancement, on basis of their own demand analysis, commissioned and advised by Land and Lakes. This assessment also informed DCWW's 'Waste Water Treatment Works and Sewage Pumping Station' assessment referred to below. Various options for network connection considered for each site, identifying preferred options. Existing network capacities and connection points were shown to be capable of serving each site as required. Fire flow (firefighting hydrants) was also considered and assessed to be available for each site.

**Electricity:** Capacity assessments undertaken to inform enquiries to the host Distribution Network Owner (DNO) Scottish Power Electricity Networks (SPEN). Capacity formally requested and previously secured for each site at appropriate connection points identified by UPL. SPEN issued firm priced quotations and commitment to supply to all 3 sites at capacities requested (Penrhos 1,936 kVA / Cae Glas 1,189 kVA / Kingsland 597 kVA). Forecasted electrical usage based upon anticipated space heating by gas, as available to each site, to establish SPEN applications. These usage levels do not challenge available capacity limits or require significant infrastructure enhancement.

**BT / Communications:** Investigations into area capability established no capacity issues, particularly following infrastructure installations at Parc Cybi. UPL undertook a Telecommunications Infrastructure report Sept 2014. Appropriate providers identified to be BT Open Reach and Fibre-Speed.

Penrhos and Cae Glas proposal – Commercial service connection available from either BT Openreach or AB Internet (Fibre-Speed) to be negotiated at appropriate time.

Kingsland proposal – 'Fibre to the home' (FTTP) installation via BT Openreach.

#### **Other Services:**

**Foul Drainage:** Investigations undertaken by consultants UPL, Capita and Caulmert, including consultation with DCWW leading to a 'Waste Water Treatment Works and Sewage Pumping Station' assessment undertaken by DCWW in 2015.

DCWW's assessment confirmed existing biological capacity for all 3 proposed Land and Lakes developments at the waste water treatment works located to the east of the Orthios landholding, equidistant from all 3 sites. Only additional storage capacity at the treatment works will be required. DCWW's hydrological assessment of the existing service network indicates the need for additional pumped drainage, which for both Cae Glas and Kingsland is to discharge at the existing DCWW pumping station located at Parc Cybi (to discharge subsequently at the treatment works via the existing pumped system). Penrhos Leisure Village will be served by a new pumped foul drainage system connected directly to the treatment works. This strategy developed and agreed with DCWW, as defined on UPL layout proposals.

**Surface Water drainage:** Investigations undertaken by consultants Capita and Caulmert, including consultation with adjoining landowners and DCWW, leading to investigative surface drainage capacity assessment by Caulmert in 2016.

Penrhos surface water strategy – No surface water system currently serves the site. Surface water will be discharged directly to the sea, subject to necessary protections from road and car parking discharge and other contamination risks, by use of oil traps etc. to meet current legislation and environmental protection.

Cae Glas surface water strategy – surface water drainage is provided by an existing land drainage system discharging to the sea via an extensive surface water drainage installation within the adjoining Orthios site (rights established) connected by culverts below the A55 and Network Rail line. Surface water run-off to be limited to existing 'green field' volume by use of above ground attenuation pond areas, established within site layout proposals.

Kingsland surface water strategy – surface water discharge is to be connected to the existing DCWW drainage system to the north east of the site, subject to on-site SUDS management and run-off limitation (at agreed 'green field' equivalent) by above and underground attenuation.

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