Qianjiang is located in the south eastern part of Chongqing, China’s most populous municipality with over 30 million inhabitants. While governed as a district, Qianjiang is its own city proper, surrounded by the Wulong and Zhangjiajie National Parks and far removed from the urban centre of Chongqing. To respond to a growing population, the government team has initiated the development of Qianjiang New Town, with a planned population of over 500,000. Construction of the new town is now well underway with rapid development of residential communities, schools and commercial districts.

With rapid growth comes the risk of unsustainable development and misuse of valuable natural resources. Recognising the importance of protecting its unique natural environment, a 15 hectare parcel of land was identified for lower density eco-development, providing a centre for tourism and creative industries. BuroHappold Engineering was appointed as part of the Cordish team to undertake the masterplanning of this special site, with an overriding brief to work with the natural environment, maximising quality of life and land premium.

Following an initial site inspection and meetings with the government team, we worked with WATG to develop a list of key project goals and corresponding performance indicators which allowed the assessment and communication of alternative design options. Of particular importance to our work were goals relating to flood risk management, water quality improvements, land protection, water and energy demand reductions.

With two natural watercourses running through the site and increased flows due to the surrounding urbanisation, successful flood risk management was a critical aspect of the masterplan. Following our analysis of the topography, land-use and historic rainfall data we identified a hierarchy of flows and associated channel widths ranging from the daily low flow through to rare flood events. This directly informed the spatial planning of the masterplan, preserving natural waterway corridors alongside landscaped parkland capable of flooding during extreme events.
We also incorporated natural solutions for water quality treatment, recognising the risk of increased pollution following urbanisation. These solutions, including reed-beds and wetland areas, were successfully incorporated by WATG into the landscape plans and welcomed by the government team upon their review.

The varying natural topography of the site provides its unique characteristic, but also created engineering challenges which we responded to through the masterplanning process. Our geotechnical engineers provided assessment of slope stability and set-backs, allowing development plots to be carefully located alongside ridges and valleys. Our potable water engineers designed a water distribution system able to minimise energy use and maximise supply security, despite a level variation of over 250 vertical metres. We also advised on measures to enhance the natural environment, such as the diversion of existing high voltage cables and pylons into a combined services corridor.

The growing population is already placing stresses upon water and energy supplies. To minimise the impact of our site, and also provide a positive example to the surrounding development, we presented a range of water and energy demand reduction measures for consideration by the government team. Our presentations at multiple stages through the planning process have been vital to the future success of the masterplan, ensuring buy-in and coordination with the stakeholders and future operators within a rapidly changing environment.