Gas protection and waterproofing systems from Visqueen have been specified for Fresh Wharf, a development of 900 homes being built on reclaimed industrial land next to the River Roding in Barking, east London.

The mix of one, two and three-bedroom apartments, and a number of townhouses, is being developed in two phases by Countryside Properties, in partnership with Notting Hill Housing, and is to be completed by 2026. The membrane installation contractor is NEA Contracts Ltd.

Monitoring of the 10-acre site, a former industrial estate, revealed a cocktail of potentially hazardous ground gases that, when coupled with hydrostatic water pressure from the river, presented a number of technical challenges that needed to be overcome at the design stage.

Paul Vincent, Technical Support Manager for Visqueen, said the combination of a brownfield site with a river bank location meant it was critical to work closely with the architect, main contractor and membrane installation contractor early on to ensure a good understanding of each building and enable specification of the right products and systems to protect the development in the long term.

Paul said: “Available green spaces for inner city developments are becoming more and more sparse, which has meant that brownfield sites have become increasingly popular in recent years, especially in places where demand for residential property is high.

“Gas monitoring of this site revealed ground gases including carbon dioxide, methane and radon, so it was imperative we had systems in place to protect the site against these harmful gases, as well as water ingress.”

For Fresh Wharf, Paul recommended the use of Visqueen Ultimate GeoSeal and Visqueen Gas Barrier, a multi-layer reinforced gas barrier solution that meets the strict criteria set out in BS 8485:2015+A1:2019 guidance documents.

Paul added: “The high ground surrounding the development and its underground elements in basements and lift pits was another key consideration during the design stage and throughout our on-site meetings with the architect and contractor. The below ground structures are subjected to multiple complex conditions such as hydrostatic water pressure and harmful ground gases, so it is paramount that the product design and product detailing cover all of these elements.”

Visqueen Ultimate GeoSeal, a pre-applied membrane, and Visqueen Gas Resistant Self-Adhesive Membrane were specified for use as a dual-purpose application in the lift pits and in the basements. This innovative solution protects against the ingress of harmful ground gases, as well as preventing water ingress, which are common issues faced when protecting underground structures.

Paul continued: “Damage to buildings is often caused by leaking junctions in pile foundation systems. Water and moisture can track its way along the steel reinforcement, leading to potential corrosion and carbonation of the steel, which carries a risk to the structural integrity of the building. Therefore implementing a solution that waterproofed the joins between the piles and building slab was a critical design element.”

Visqueen Pile Cap Sealer is a specialised formulation that, when applied to a concrete surface, causes a chemical reaction with the free lime and moisture within the concrete to form in depth, insoluble crystals that fill and block all capillaries, fissures, pores and minor cracks within the concrete.

Traditional construction membranes can’t pass through pile foundation junctions, so a Visqueen Pile Cap Sealer solution was used to waterproof the junction between the pile foundation and the floor slab. This provided an innovative non-membrane water and gas proofing solution that would last for the lifespan of the building.

Garry Tarvet MCIOB, Associate Technical Director (East London), Countryside Properties, said: “Working with Visqueen gave us complete peace of mind. They supplied everything from technical drawings and product durability statements, through to the wide range of products required to deal with protection challenges on-site. Visqueen’s total approach is first class and delivers the difference that the latest building projects now demand.”

Neil McNamara, Director at NEA Contracts Ltd, said: “Technical expertise is key for the complex waterproofing and ground gas protection experienced today on many sites. Visqueen Special Projects provides a complete solution, from identifying the specific challenges on-site, to supplying the unique combination of protection products required to meet the latest technical building standards.”