Notting Hill Genesis: Windmill Park

In London stands Windmill Park, a Notting Hill Genesis (NHG) development comprising 212 dwellings across 10 blocks. The development faced significant challenges that undermined its potential due to persistent pipework failures, joint leaks, and inadequate Heat Interface Unit (HIU) operation. Oversized pipework and subpar insulation translated into high heat losses, leading to dissatisfactory resident experiences. Recognising the need for transformation, NHG sought assistance from FairHeat, initiating strategic interventions that would rejuvenate its heat network.

Challenges and Background

Windmill Park faced a recurring problem of supply unreliability, which was a result of frequent pipework failures and joint leaks. These issues compromised the quality of service and triggered a series of maintenance callouts and resident complaints. Furthermore, the HIUs were underperforming, and the overall system inefficiencies resulted in elevated heat losses, escalating operational costs and impacting resident satisfaction.

FairHeat's Optimisation Study and HNES Demonstrator

NHG took a proactive approach to address these challenges by partnering with FairHeat and tapping into the Heat Network Efficiency Scheme (HNES) Demonstrator funding. FairHeat, a leading authority in heat network optimisation, conducted a comprehensive options appraisal. This assessment paved the way for a holistic solution encompassing several vital aspects of the heat network.

Capital Works

FairHeats proposed a multi-faceted approach, including:

- High Efficiency HIUs: Retrofitting non-leasehold HIUs with high-performance models to enhance overall efficiency.
- Risers Retrofit: Retrofitting risers within residential blocks tackled the pervasive pipework issues.
- Expansion loops: these were installed within corridors, mitigating pressure on pipework joints triggered by thermal expansion.
- Plant Room Control Strategy: A carefully devised plant room control strategy was introduced, reducing gas consumption and introducing measures to enhance water quality.

Outcomes

Notably, the heat network at Windmill Park has enjoyed uninterrupted operation since March 2022, marking a substantial step up in supply reliability. This significant improvement has been a catalyst for a substantial decrease in maintenance callouts and resident complaints, creating a more harmonious living environment.

From a technical aspect, the adoption of high-efficiency HIUs, optimised pipe sizing, upgraded insulation, and the application of a plant room control strategy have collectively led to a reduction in heat losses. These enhancements not only saved operational costs but also contributed to elevated resident comfort and satisfaction.

The plant room itself underwent an efficiency revolution. By halving the flow rate and streamlining heating distribution, the need for resources was optimised. Now, a single boiler

and two pumps effectively manage the heat distribution to the network. The orchestration of pumps and boilers based on variable demand ensures an energy-efficient operation.

"We have been able to significantly turn around our customers experience of their district heat network. The financial funding that we received from DESNZ enabled us to address the underlying causes of recurring leaks. We were able to retrofit new risers and lateral expansion loops in all blocks as well as install new high performing HIUs in our rented units. We will be investing further in Windmill Park this year, by extending the HIU replacement programme to all our leasehold units. Pre-commissioning the performance monitoring devices fitted to HIUs will help reduce installation time making the entire process quicker and more convenient." **– Jennifer Mclean, Major Works Project Manager, Notting Hill Genesis.**