Overcoming

the challenges of fibre deployment in historical areas

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It's no secret that demand for bandwidth is rising rapidly. The growth of video streaming and e-commerce as well as the advent of artificial intelligence and Internet of Things (IoT) are placing greater demands on the telecoms industry, and the solution providers that support them, than ever before.

In tandem, after a slow start, network operators are racing ahead in deploying full fibre across the UK. As of February 2022[1], some 33% of UK homes and businesses have access to "full fibre", representing over 10 million properties and up from 21% in February 2021. There are several architecture options available for those deploying FTTH networks, including Physical Infrastructure Access (PIA) which delivers fibre via Openreach's ducts and poles.

In PIA applications, network congestion is becoming a problem and this will only increase as more operators expand their footprints. Likewise, to support the demand for bandwidth, a lot more 5G networks will be deployed, again creating congestion challenges with a need for substantially more radios and access points.

Fibre deployment in historical areas

With this necessity to blanket the UK in fibre and 5G access points also comes a need to install terminals in UK conservation areas, of which there are approximately 10,000 in the UK. These can include anything from fishing and mining villages, 18th, 19th and 20th-century suburbs, model housing estates to historic transport links and their surroundings, such as stretches of canal and railways.

The challenges here are manifold. For operators, securing permissions – known as a wayleave agreement – is particularly

1 https://www.thinkbroadband.com/news/9177-february-2022-update-on-broadband-availability-across-the-uk-nations-and-regions

Evolv™ Terminals with Pushlok™ Technology aesthetically designed for façade installations

difficult in these areas. The local authorities, building owners and landlords, quite rightly, have a responsibility to ensure that the character and appearance of these areas are preserved and conspicuous networking equipment is rarely welcomed. Across the UK, operators are already fighting for every inch of space, deploying more and more fibre in space-constrained environments and placing terminals in many novel locations throughout our towns and cities – concealed holes, street furniture, inside lamppost monopoles, or on building façades. This leads to practical challenges in zoning and access at the best of times without the additional pressure of building in a conservation area where any installations will be subject to close scrutiny.

In addition, many of the typical characteristics of some of these areas, such as cobbled streets and large slabbed pavements, make digging a difficult and costly process and can also prohibit being able to install poles.

How is the industry responding?

Discretion and aesthetics are now particularly important and, across the industry, manufacturers of optical connectivity equipment have been focused on miniaturising and redesigning their solutions. This is not only to ease deployments in historical areas but also to meet the congestion challenges posed by today's 5G networks.

As we've discussed, installers must deploy fibre in tight spaces not originally designed for today's density of connections. They're looking for solutions that will allow them to shrink their footprint and put optical connectivity in places they couldn't have before – and all types of network operators are eager to deploy more quickly and economically.

Corning's own solution, Evolv™ Terminals and Drops with Pushlok™ Technology, was introduced recently after an intensive development period. We knew that decreasing the device's size, without compromising on connectivity, would be key. The breakthrough came when the team reorganised the terminal ports and input stub to align in a single row on the bottom of the device.

Clever work to reduce the connector's size meant we could also decrease the terminal size – critically, enabling operators to place the solution in any environment and navigate within congested conduits. Minimising the size of the terminal in multiple planes enables the product to be installed on buildings with the upmost discretion and with an overall aesthetic look.

To give an example of how this has since been employed, we supported a project in the historic city of Salisbury, home to an ancient cathedral, in a trial where the operator replaced the whole copper network with fibre. Being able to

use an extremely discrete solution that didn't compromise the appearance of the ancient buildings was instrumental in securing the permissions. Building owners are much more amenable to approving these miniaturised terminals on their walls, easing wayleave restrictions.

The Corning Evolv solution uses a simple push and click mechanism that enable installers to connect much faster than conventional equipment. This interface proves particularly intuitive for operators that may not be as familiar working with fibre optics, and the single-handed connect and disconnect operation improves safety when working at height on facades and poles.

There's also a variety of ways that money can be saved in the placement of these terminals and their connection to the device, which helps build the business case. In particular, smaller terminals can be installed on congested poles and chambers where conventional terminals won't fit which can significantly reduce the need for expensive network adjustment upgrades.

While it's still early days for 5G networks and a UK with truly widespread full fibre coverage, the future is looking bright. With the latest connectivity solutions at their disposal and more key players in the race to deploy fibre than ever before, we can ensure that digital transformation is an inclusive process and that the digital divide doesn't widen. Being able to connect the UK's much-loved historical areas without impacting their appearance is key to modernising while also paying respect to our heritage.

To learn more about Corning's Evolv Solution, visit www.corning.com/emea/evolv