North Down Strategic Trunk Network

N Ireland's £16m North Down Trunk Mains Project

by
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Testimony to Northern Ireland Water's commitment to improving water and wastewater infrastructure and treatment facilities is the completion of the £16 million North Down Strategic Trunk Mains Project. This project services popular commuter towns and tourist havens in North Down and the Ards Peninsula where customers within this catchment area will benefit from an improved water supply through the introduction of new pressurised water mains, capable of transferring over 55 million litres of water each day from the beautiful Silent Valley, in the south-east of the province, to approximately 108,000 homes in North Down and the greater Belfast areas. Previously a number of local sources and treatment works supported by the old North Down Trunk Main were charged with this task. However, in places the existing underground infrastructure was over 100 years old and badly in need of repair.

Aerial view of pipeline route now installed *photo courtesy Northern Ireland Water*

Aerial view of pipeline route now installed *photo courtesy Northern Ireland Water*

Whilst other capital works projects are larger in scale and in investment, this one has been particularly ambitious, given the environmental sensitivities of the area, the importance of tourism to the region and the communications challenge associated with laying pipes across private land and public carriageways. The high volume of traffic flow to and from the area at peak times - on an already congested road network - provided the project team with another major consideration.

Environmental sensitivity, was a key feature of NI Water's planning. As work was taking place in an area of outstanding natural beauty (and subsequently a popular tourist trail) it was necessary to take a very methodical and environmentally responsible approach to site selection and route planning.

A detailed environmental impact assessment was undertaken at the outset of the project. The plan addressed all aspects including ecology, air quality, noise, flora and fauna, traffic issues, water quality, drainage, archaeology, cultural heritage and visual impact. The volume of carbon dioxide emitted by the construction vehicles was also monitored on a monthly basis.

The company pledged to over shadow its carbon footprint by planting trees in affected areas. Project Managers Capita calculated that in excess of 13.26 tonnes of CO2 was generated by vehicles during the construction period. In a bid to become 'carbon neutral', over 100 native trees have been planted as part of the process of reinstating boundaries on the cross country sections of the project.

The project involved the construction of 77km of new pipelines, fed via the previously constructed Aquarius trunk main, including the 17km long, 800mm diameter Ards Trunk Main. This main in turn fed water through 40km of smaller diameter trunk mains to ten service reservoirs, three of which required new chlorination plant upgrades to facilitate the new supply regime. The remaining 30km of pipelines were small diameter distribution mains required to transfer consumers of existing mains which were decommissioned as part of the finalised design solution. A variety of techniques were adopted in laying the distribution mains including directional drilling, slip-lining and twin lay, in an effort to minimise construction waste and materials. The larger diameter trunk mains were laid by open cut techniques with several large diameter auger bores utilised for major road crossings as an effort to mitigate delays to road users.

The project team consisting of NI Water staff, Project Manager, Contractor, Contractor's designers, and other key stakeholders co-ordinated the works from a centrally located hub office, resulting in a better understanding by all parties of the key roles and responsibilities held by their colleagues and counterparts. The fully integrated project team met regularly to discuss progress and plan works well in advance resulting in the completion of numerous connections to major service reservoirs with no noticeable effect on consumer supply.

The project was completed on schedule and the new trunk main is now operational. In addition to the 'usual' time and financial constraints, the project team also faced practical and logistical hurdles of engaging community and landowner support. Minimising any potential disruption within the local communities and to their tourism related industries was another major consideration for the team during the 24 month construction process.

This was achieved through close collaboration between the designers, construction, and buying teams, the plant suppliers and an operations team, and a commitment by all to apply the right skills and expertise at every stage of the project.

Projects of this nature will help NI Water meet European standards, respond to increasing demand and provide Northern Ireland with a modern service comparable with that of water companies in the UK. The fledgling water company will be investing approximately £1 million per working day over the next three years in new or upgraded water and wastewater infrastructure throughout Northern Ireland.

The main parties involved in the North Down Strategic Trunk Network are:

Client: Northern Ireland Water; Contractor: McNicholas Construction; Designers: Mulholland & Doherty; Project Managers: Capita Symonds.

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