

Newton Poppleford Mains Replacement Scheme

replacement of 1km of 3" asbestos cement main along the main street through Newton Poppleford in east Devon

In Devon and Cornwall, DG3 mains replacement schemes are part of an annual South West Water programme to remove burst liabilities from around 10km of potable water mains every year. One such project was the replacement of approximately 1km of 3" asbestos cement main along the main street through Newton Poppleford in east Devon. The existing main has a very poor burst history, and any repairs affect not only the local customers, but also the highway users. Initial plans for the scheme, working within current Highways legislation and local highway authority rulings, determined that there was the potential for these works to last up to 5 months. As part of the current programme, Kier Services, working as a member of South West Water's H₂O Delivery Alliance, was tasked with the undertaking.



The top cutter in operation - Courtesy of Kier MG

Planning

As this work was to be on one of the main commuter routes into Exeter, it had the potential for traffic chaos and huge numbers of complaints as it involved a full closure on a particularly narrow section of the highway, followed by traffic light control for the remaining sections.

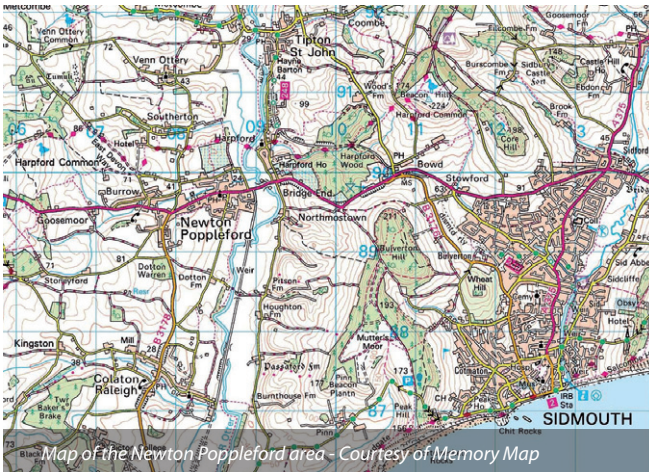
The layout of the local road network necessitated a 39 miles diversion for the duration of the road closure. This would have been unprecedented and required months of planning with the local authority to try and mitigate the impact.

However, excellent communication by key members of the H₂O team with 3rd parties, namely the residents, bus companies and highway authorities, and flexibility from these 3rd parties, meant that the programme could be compressed to less than 3 months creating the least amount of disruption possible.

Issues to overcome included:

- The diversion routes proposed by Devon County Council were extremely long, being twelve miles for light vehicles, and thirty miles for heavy goods vehicles.
- Initial contact determined that up to eleven buses per hour use the road, including numerous school buses.
- Numerous businesses within the village that could be disrupted.
- Programme length, which required detailed negotiation with Highways for them to be able to relax their requirements to ensure maximum production outputs could be achieved to minimise the works timescale.

Planning by the team determined that the first length of main to be replaced was in a section of highway that was too narrow to work in safely without a full road closure. The remainder of the works,



although in a narrow highway, could be safely undertaken using traffic light control, but vehicle usage would be restricted to light vehicles and buses only. Heavy goods vehicles would not have access through the village for the full duration of the works.

The Highways Authority soon realised that dispensations in standard traffic management procedures would have to be given to enable the works to progress in the quickest programme time, including increasing maximum lengths of traffic light controlled sections, and enabling works to proceed adjacent to closed road sections.

With these dispensations in mind, the works were reprogrammed, and the time on the road was reduced to a three-week road closure at the commencement of the scheme, followed by traffic light control for the remaining eight weeks, taking at least 2 months off the initial programme.

However, to meet this revised programme the working practices had to move from more traditional installation methods to swifter alternative solutions wherever possible.

The existing tarmac surface on this Type 2 highway was around 300mm thick, and being the main highway through the village, contained a number of existing other utilities.

Works commenced on site in October 2013

A 'top-cutter' was used to remove the existing surface for the duration of the scheme. This is a mobile rotating rock wheel that pulverises the existing surface to a set depth, enabling the planings to be easily removed and leaving a clean trench through the surface. Whilst reasonably noisy, on a par with a mechanical breaker, the timescale that it needs to be used compared to traditional methods is far shorter, and thus creates far less nuisance disruption for the residents.

A lorry-mounted vacuum excavator was used to remove the planings quickly, and because of the large number of existing utilities, it was used to safely excavate all around these utilities, leaving them exposed and thus clearly visible to personal carrying out follow-up works. The advantages of using the vacuum excavator are:

- It allows positive visual identification of services without making physical contact with them.
- It is faster than hand excavation.
- Less surface damage.
- Excavated spoil is removed from the site immediately leaving the area clear.
- A reduction in manual handling injuries reducing the occupational health and safety issues for staff.

Traditional excavation techniques could be utilised between the uncovered utilities in the knowledge that the ground was clear and thus progressed far faster than normal.

Backfilling

To speed up backfilling operations once the new main had been installed, foam concrete was used throughout as backfill material, which also minimised risk of any reinstatement defects due to settlement, taking into account the autumnal weather conditions, and the potential quality of standard imported stone during prolonged periods of wet weather. The advantages of utilizing foam concrete on this project were:

- Total void-fill.
- Ease and speed of placement - Up to 250m³ a day was poured.
- Good energy absorbing qualities - minimised the risk of any reinstatement defect.





Local resident Janice Voce being presented with flowers as a thank you for providing refreshments for the site team - Courtesy of Kier MG

The works progressed as per programme, and this difficult scheme was completed on schedule before Christmas 2013.

Customer contact

The nature of the works means that there is daily close contact with customers, and whilst the team prides itself of excellent customer care, and the extremely low number of unwanted customer contacts, there have been several specific customer service elements undertaken within this scheme to minimise any potential customer issues. These included:

- An early well publicised and well attended public meeting staffed by all the major stakeholders which enabled ideas from everyone on local road diversions, and bus route variations, to be highlighted and acted upon before plans and programmed were finalised.
- With agreement of Highways, proposals for 1-way local diversion routes were implemented, thus minimising disruption for all customers in the village.
- A dedicated full time customer liaison officer made personal contact with all directly affected customers in the village, and in the wider east Devon area (Sidmouth Chamber of Commerce, for example)
- A South West Water customer service caravan was sited in centre of the village to give information to anyone who

was interested, and acted as a focal point for customer service initiatives.

- A Scheme progress update, in clear, easy-to-understand, graphical format, was produced weekly by the contractor, and published on the South West Water website and two scheme notice boards sited within the village, every Monday morning whilst the scheme was live.
- Before the road closure was lifted, a window cleaning service was offered to everyone in the closure section.

Conclusion

The good rapport between the workforce and the community has been demonstrated by one of the residents, Janice Voce, who set up a gazebo in her front garden and kindly kept the site crew in tea and biscuits!

These specific customer service initiatives have insured that the customer contacts have been well managed, and are extremely low for a scheme of this size in this location. Works on site were able to progress smoothly, and the scheme drew praise rather than complaint.

The Editor & Publishers would like to thank Kier Services and the South West Water H₂O Alliance for providing the above article for publication.