

# *Drilling Fluids Return Pipeline, Whenuapai Sewer Syphon, Auckland.*

PipeWorks is a specialist contractor with the capability and resources to upgrade industrial and utility pipelines using state-of-the-art trenchless technology. It specialises in trenchless pipeline rehabilitation and new pipeline construction.

## **Project Overview**

Watercare Services recently contracted PipeWorks to install a new waste water pipeline under the Henderson Creek through a mangrove salt marsh using their Vermeer D100 x 120 horizontal directional drill rig.

The pipeline alignment had limited man access where the mangrove swamp environment made working conditions difficult. The drill rig was established at the northern end of the project. A number of ream passes were required to be completed with mud mixing occurring near the drill rig site. A mud return line was required to return the drill mud for recycling and reuse.

## **Temporary Pipeline**

During early site establishment the need for a temporary 150mm I.D. above ground flexible pipeline was identified. PipeWorks completed a pipe material mitigation evaluation process. They wanted a light weight, easily handled, fused pipeline material where Novafuse™ Fusible PVC™ pipe was chosen. Fusible PVC™ pipe is an American Technology and has been used in North America for more than a decade. Iplex Pipelines NZ Ltd holds a licence to manufacture pipe and to provide Fusion Jointing services, jointing is completed by licensed and trained fusion technicians.

## **Novafuse™ Fusible PVC pipe**

Novafuse™ was manufactured in 7m lengths for this project as the Fusion staging area had extremely limited space. The pipes were hand lifted onto the fusion platform where 43 fusion joints were completed using a McElroy 2-8 wheeled butt fusion machine. The McElroy DataLogger™ provided the contractor with electronic logging of the fusion conditions.

Initially, the pipeline was pulled out into the mangrove swamp by hand as the Novafuse™ option was much lighter in weight when compared to traditional Polyethylene pipe. Eventually a tracked bobcat pulled the pipe into the mangrove swamp to its final position.

Once in place the contractor was able to complete cold solvent cement joint flange connections to connect to other pipe work in the swamp, electrofusion jointing would have required a generator to be floated .

David Murphy Site Superintendant commented; *"Although the butt fusion parameters are different to fusion jointing of PE pipe the fusion jointing process took about the same timeframe overall to complete".*

The installation took place during May 2012.



*Low profile fusion bead joining two pipe ends.*



*Typical radius of curvature during construction.*





*Fusion jointing staging platform.*



*McElroy 2-8 Wheeled Fusion machine complete with Trimble Recon hand held DataLogger™*



*Novafuse print and fusion joint in the mangrove salt marsh.*



*Typical radius of curvature during construction.*



*Fusible PVC™ Pipe String twisting its way through the Mangrove salt marsh*

**Contractor:** Pipeworks, Auckland.

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