

Utilities Network Replacement in a Geothermal Active Area in Rotorua

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The urban area of Rotorua has extensive areas of geothermal activity which has caused accelerated deterioration of both above and below ground utilities infrastructure.

One of these areas is the Ohinemutu area on the western shores of Lake Rotorua. The geothermal activity within this area is apparent with steam coming out of the catchpits and vents. Underground temperature within the area ranges from 80° C to 100° C. The availability of geothermal heated water makes the use of thermal pools in individual properties very popular. The above conditions contributed to the rapid deterioration of the existing wastewater manholes and pipelines resulting in structural failures in some sections of the network after their installation. The above issue highlighted the need to choose the correct pipe material to replace the existing wastewater network and withstand these extreme conditions for the 50 year asset design life.

This paper will outline the evaluation process that the Rotorua District Council undertook in choosing the preferred pipe material for the application which involved both desktop studies and field trials. It will also present the difficulties encountered in undertaking the pipeline replacement work in a very active geothermal area. Although this condition could be unique in New Zealand to Rotorua it will provide asset managers and utilities operators an insight on undertaking utilities replacement work in difficult conditions