

# SHANNON CREEK HDD

OIL/GAS | SEWER | STORMWATER | **POWER** | **WATER** | TELCO

## PROJECT OVERVIEW

The Shannon Creek Storage Facility project undertaken by CPB Contractors on behalf of the Clarence Valley Council and North Coast Water provides 30,000 megalitres of water storage for Coffs Harbour and Grafton in northern NSW. The population of this region is projected to grow from 90,000 to 220,000 by the year 2050. An environmentally protected escarpment – 50 to 60 metres in height – forms one wall of the dam, which presented an engineering challenge as a natural barrier to bringing communications and power services into the dam, as well as taking water away.



### LOCATION

Shannon Creek, Nr Grafton NSW



### CLIENT

CPB Contractors



### PIPE

900mm SDR 11 polyethylene



### GEOLOGY

Hard sandstone & quartz



### LENGTH

320 metres



### TECHNIQUE

HDD

## SCOPE OF WORKS

- Four HDD installations of 330 metres in sandstone utilising wire line tracking systems due to depth greater than 20 metres
- 1 x 110mm PE communications conduit
- 2 x 140mm PE electrical conduits
- 1 x 900mm PE water main

## CHALLENGES

Due to environmental constraints, a geotechnical investigation could only be conducted in the valley areas. The sandstone outcrop surrounding the Shannon Creek area was estimated at 40-60 Mpa (5800-8700 psi). The project was ideal for UEA's 300,000-pound HDD rig, as the rail could be positioned horizontally against the vertical face of the escarpment, facilitating the six percent upward grade required for the bore. A Digitrak Eclipse Steering Tool was used to guide the pilot bores through the escarpment to the exit point. While drilling the pilot bores, UEA encountered harder than expected ground conditions, and based on these findings, the intended style of reamer for the large diameter cut was inadequate. A 42" (1066mm) hole opener was used to cut through the 120 Mpa (17,400 psi) rock. The grade of the bore hole ensured



that it was self-cleaning, which eliminated the need for complex drilling muds. Although the water pipe had a 90 tonne dead weight pull back, force did not exceed 10 tonnes during the installation.

## **COMPLETION**

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Despite the changing ground conditions and difficult location, UEA was able to deliver the project within the required timeframe and to a very high standard.