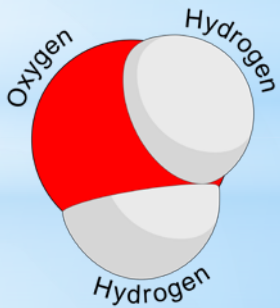
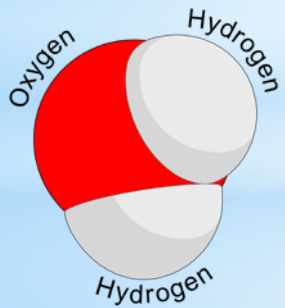


# Ensuring a Safe Future Drinking Water Supply for the Rangitaiki Plains



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*Shahbaz Sandhu - Environmental Engineer*

*Jonathan Graham - Water Infrastructure Services Leader*

*Pattle Delamore Partners Limited (PDP), Tauranga, New Zealand*



# INTRODUCTION

- \* Background of the projects
- \* Consents required
- \* Design and challenges faced
- \* Construction and problems encountered
- \* Commissioning



# EXISTING WATER SOURCES

\* Braemar Spring and Johnson Road sources contain elevated levels of Arsenic (0.023 mg/l, 0.018 mg/l and 0.11 mg/l respectively)



\* Tahuna Road and Johnson Road only have partial barriers to contamination and aren't secure

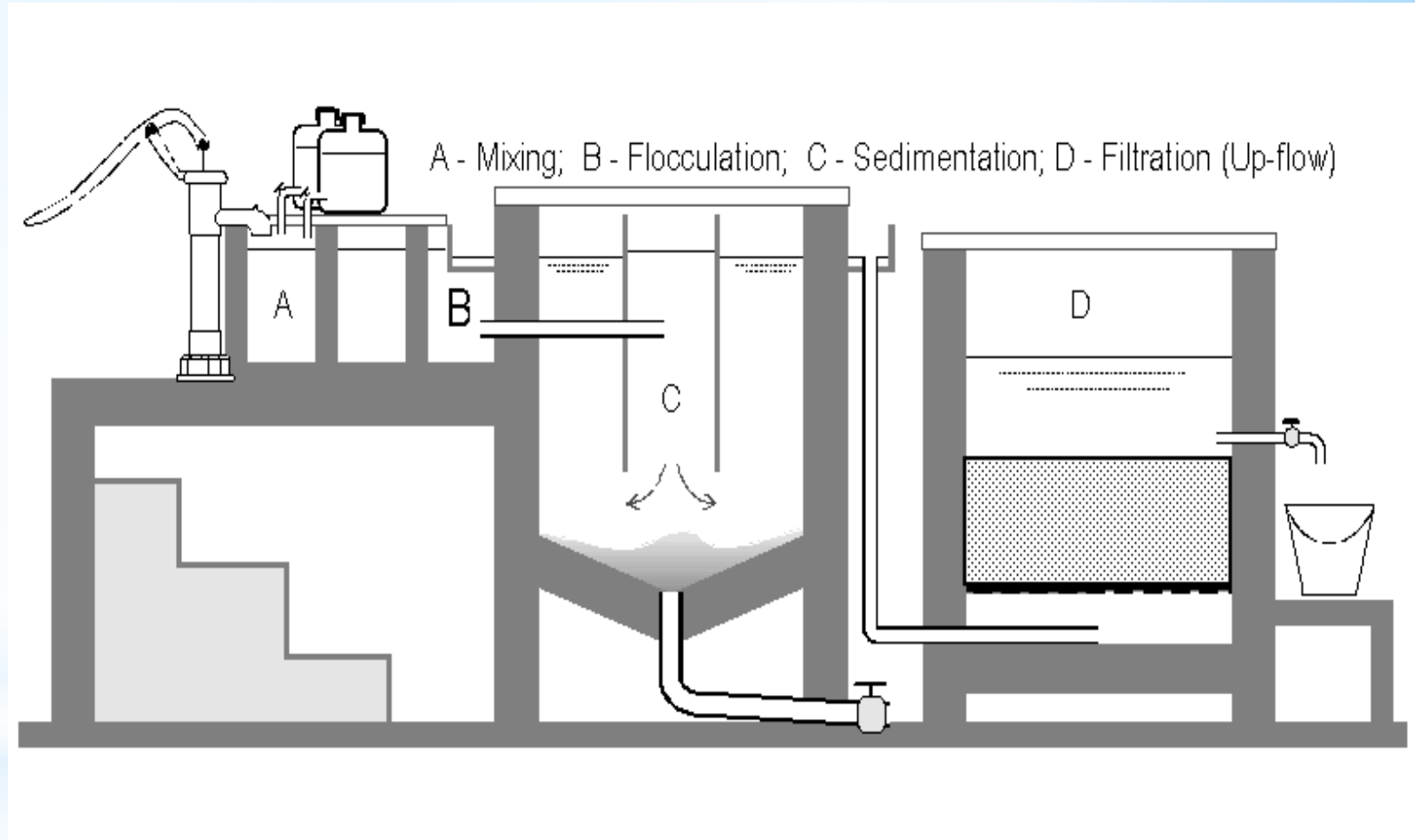
\* These sources do not comply with DWSNZ



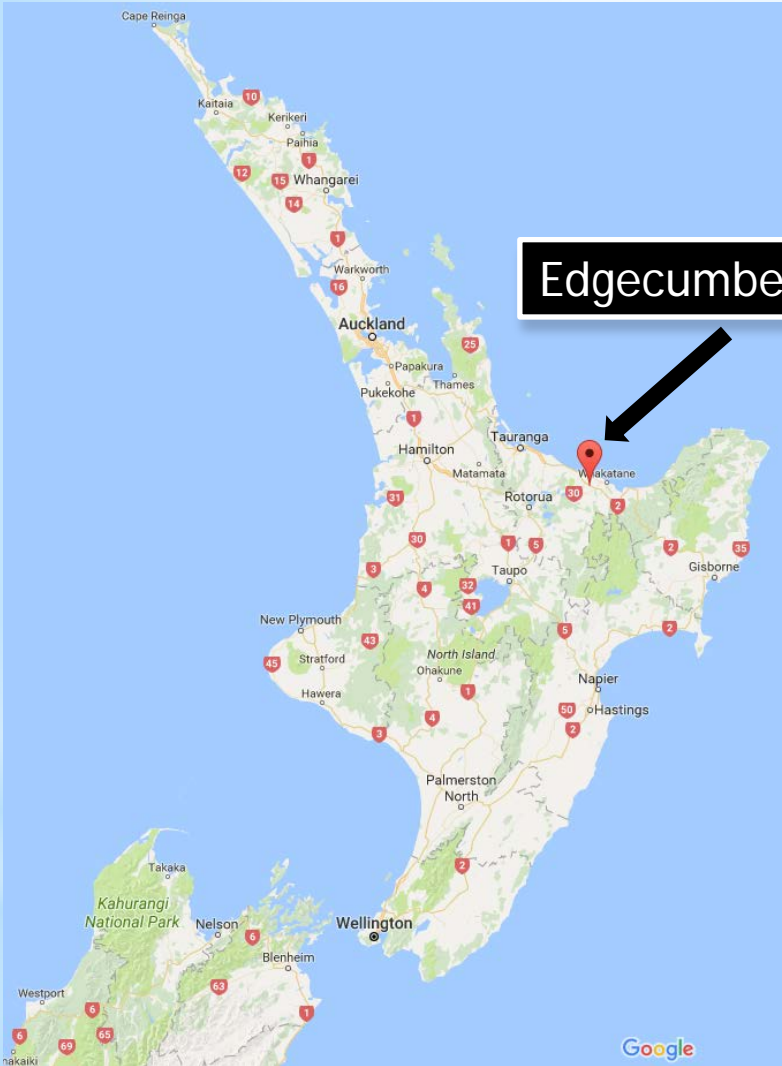
# ARSENIC REMOVAL TECHNOLOGIES

\* Coagulation followed by sedimentation, filtration and / or UV treatment

\* G2 Absorbent Media followed by UV treatment



# AREA OF SERVICE

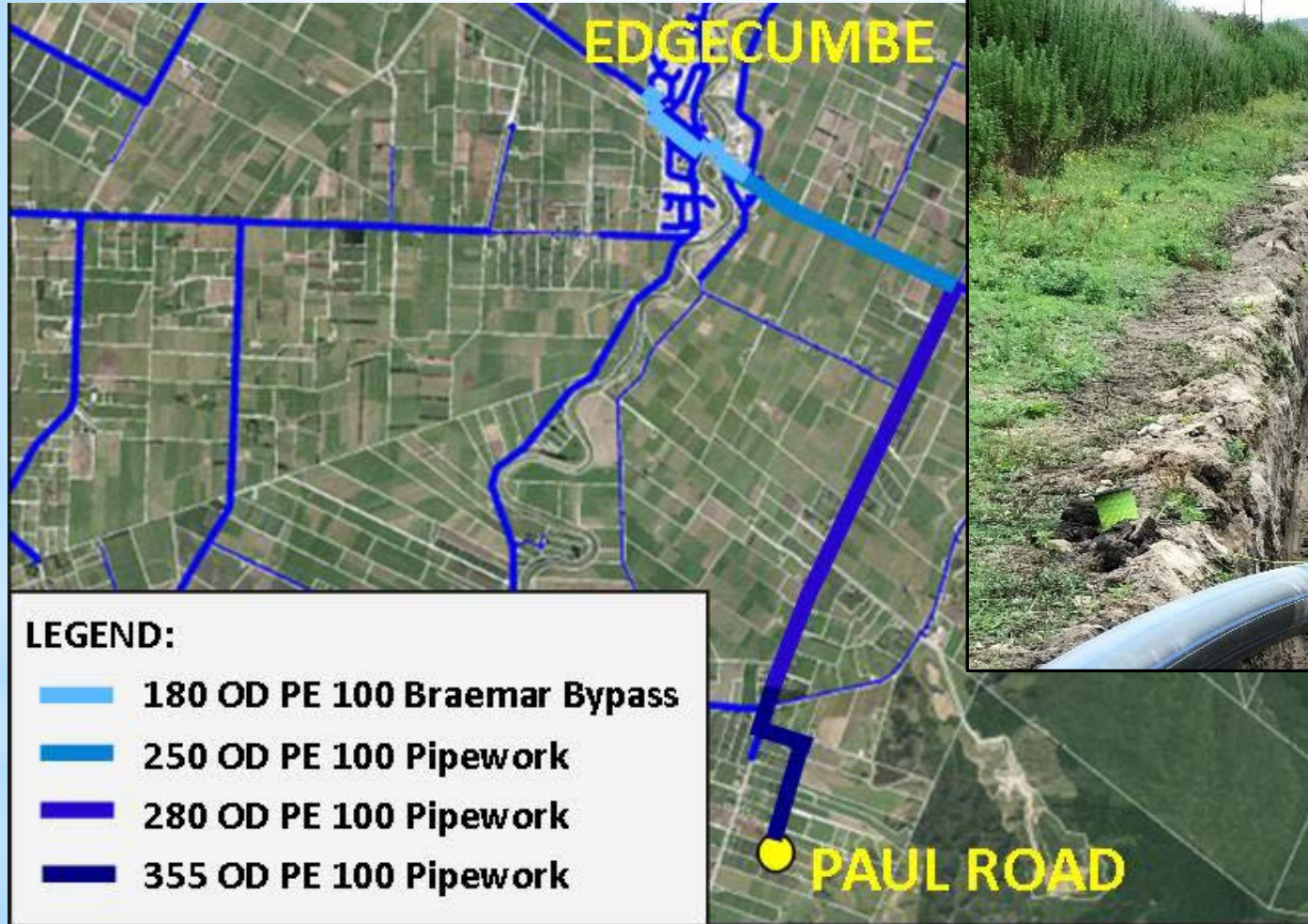


# CONSENTS ACQUIRED

- \* Building and Earthworks consent
- \* Land use consent
- \* Property consent

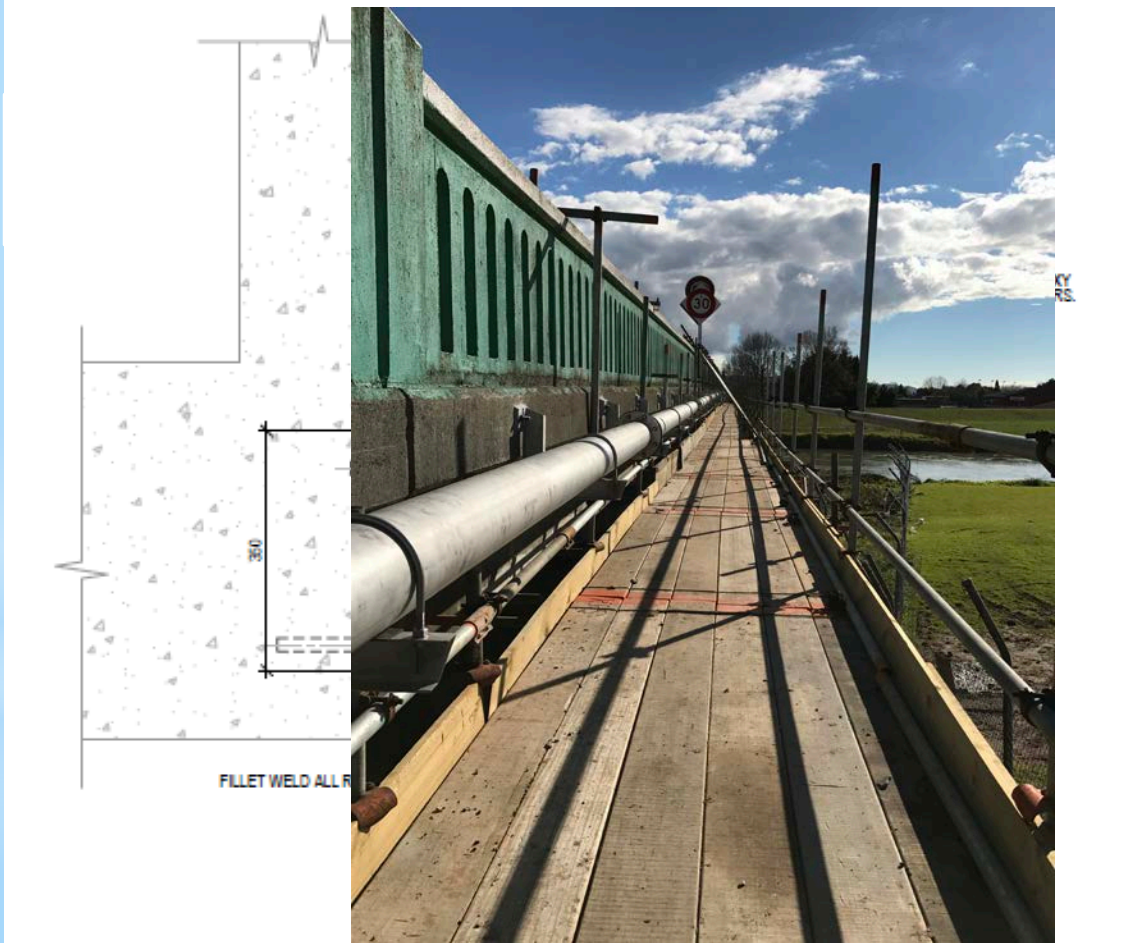


# DESIGN - Paul Road Delivery Pipeline

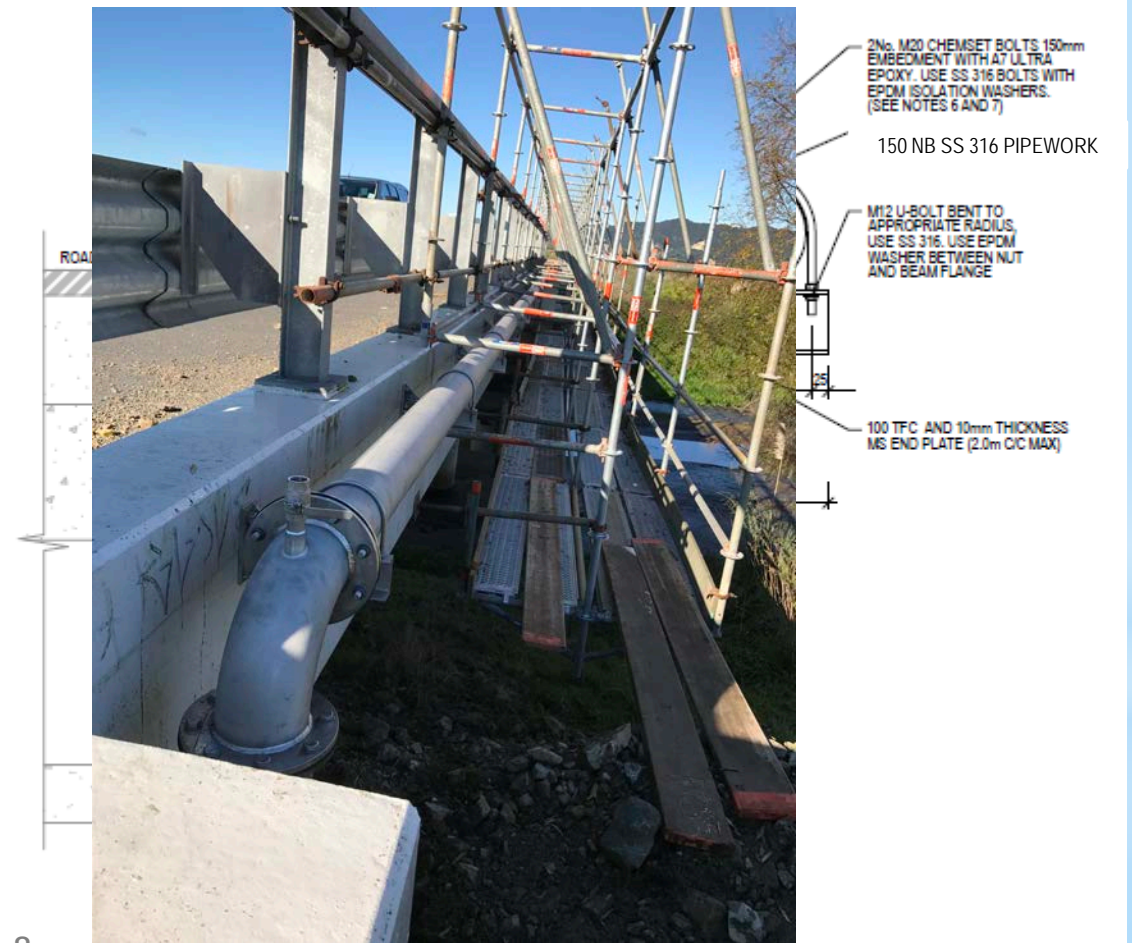


# Bridge Crossings

## Rangitaiki Bridge Pipe Crossing



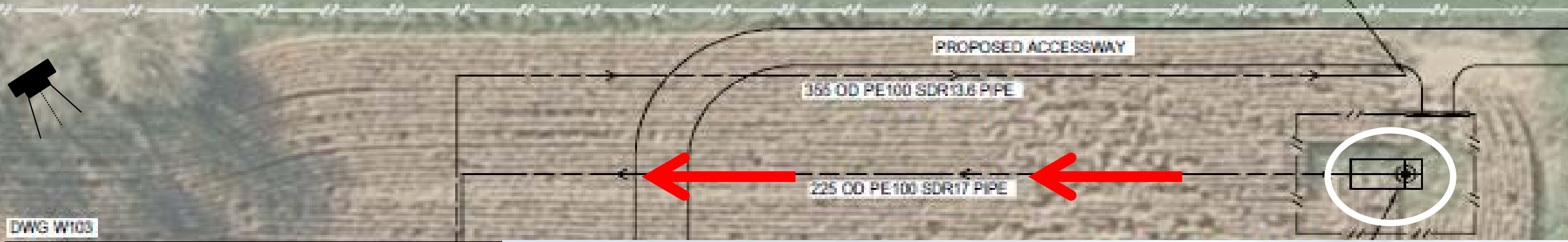
## Reids Canal Bridge Pipe Crossing





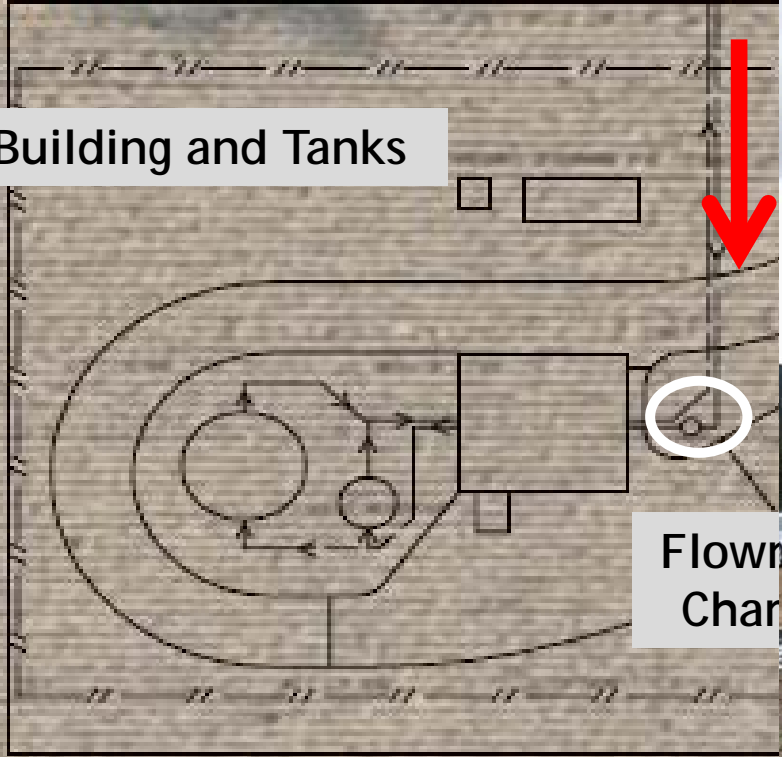
# Paul Road Water Treatment Plant

END OF CONTRACT WORKS  
CONNECT TO EXISTING 355 OD PE PIPE  
OR PROVIDE BLANK FLANGE

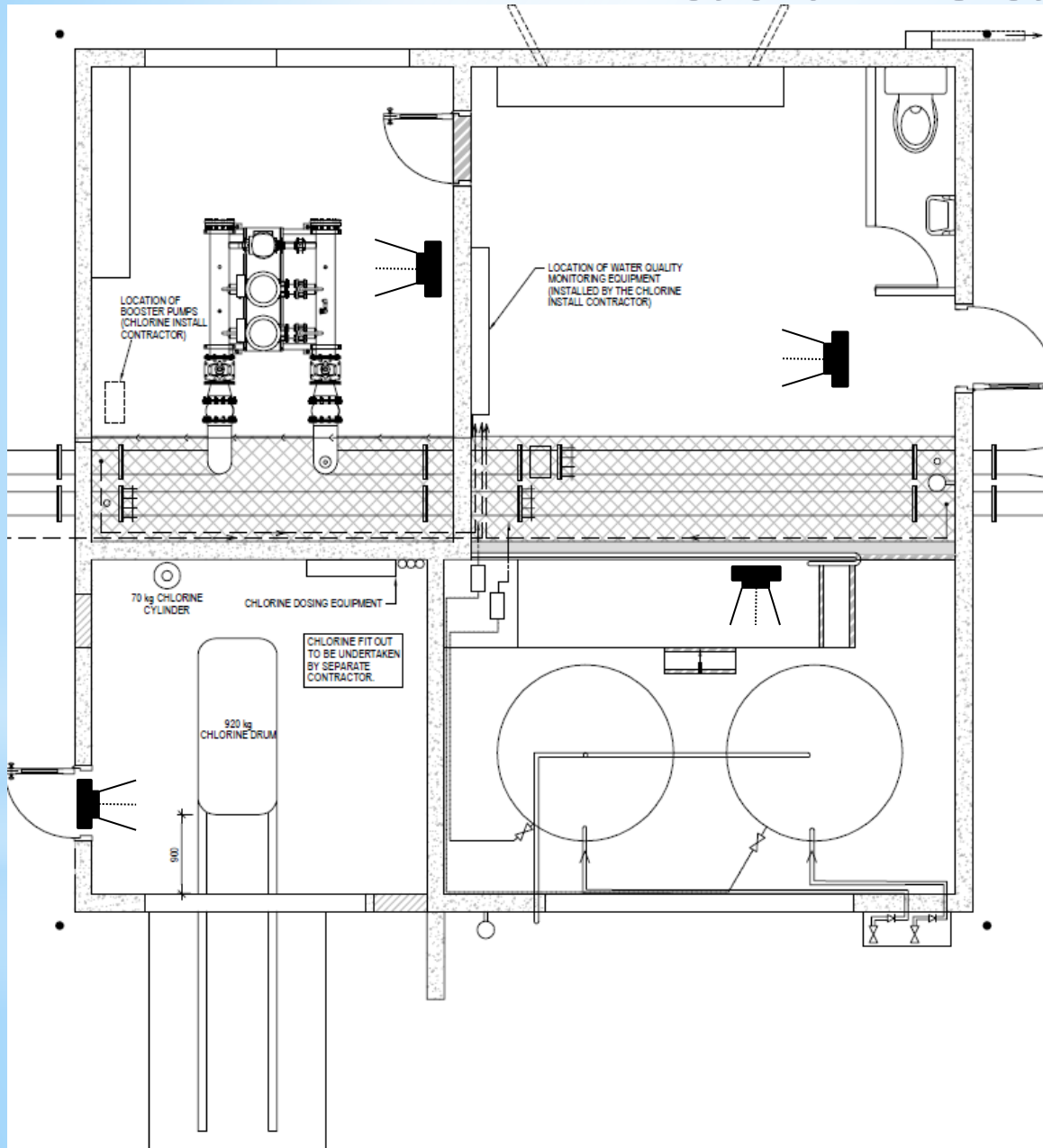


DWG W103

Building and Tanks

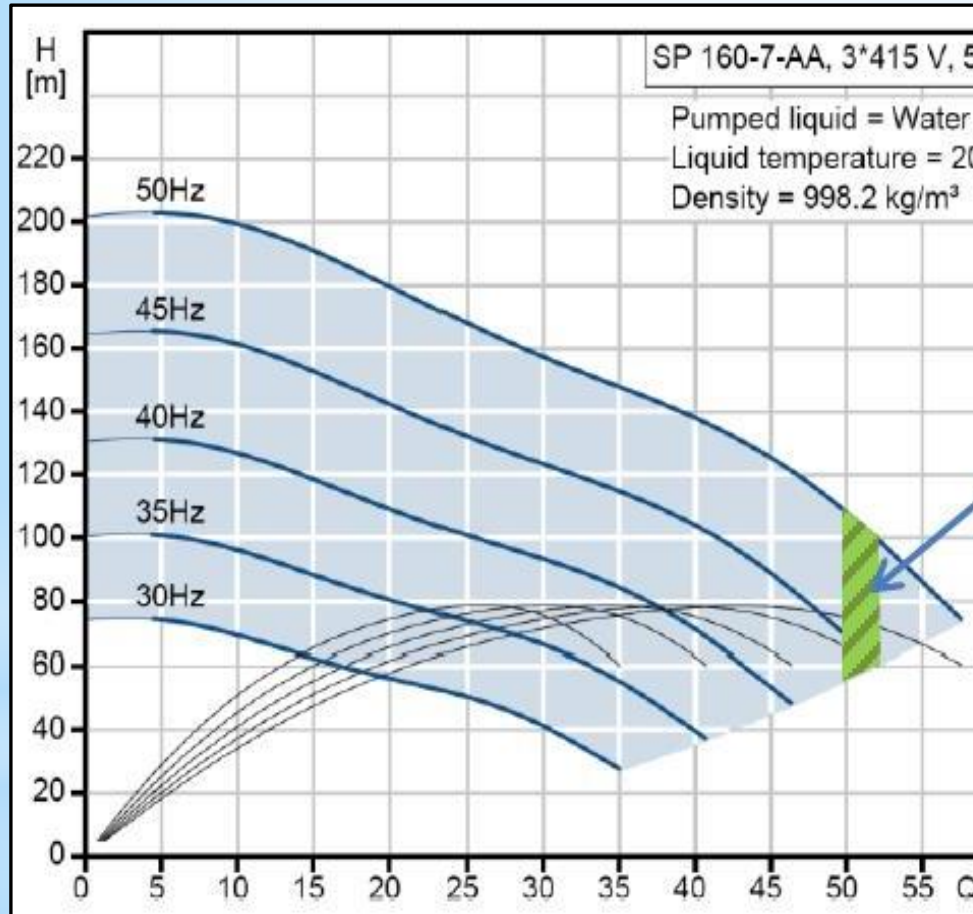


# Paul Road Building

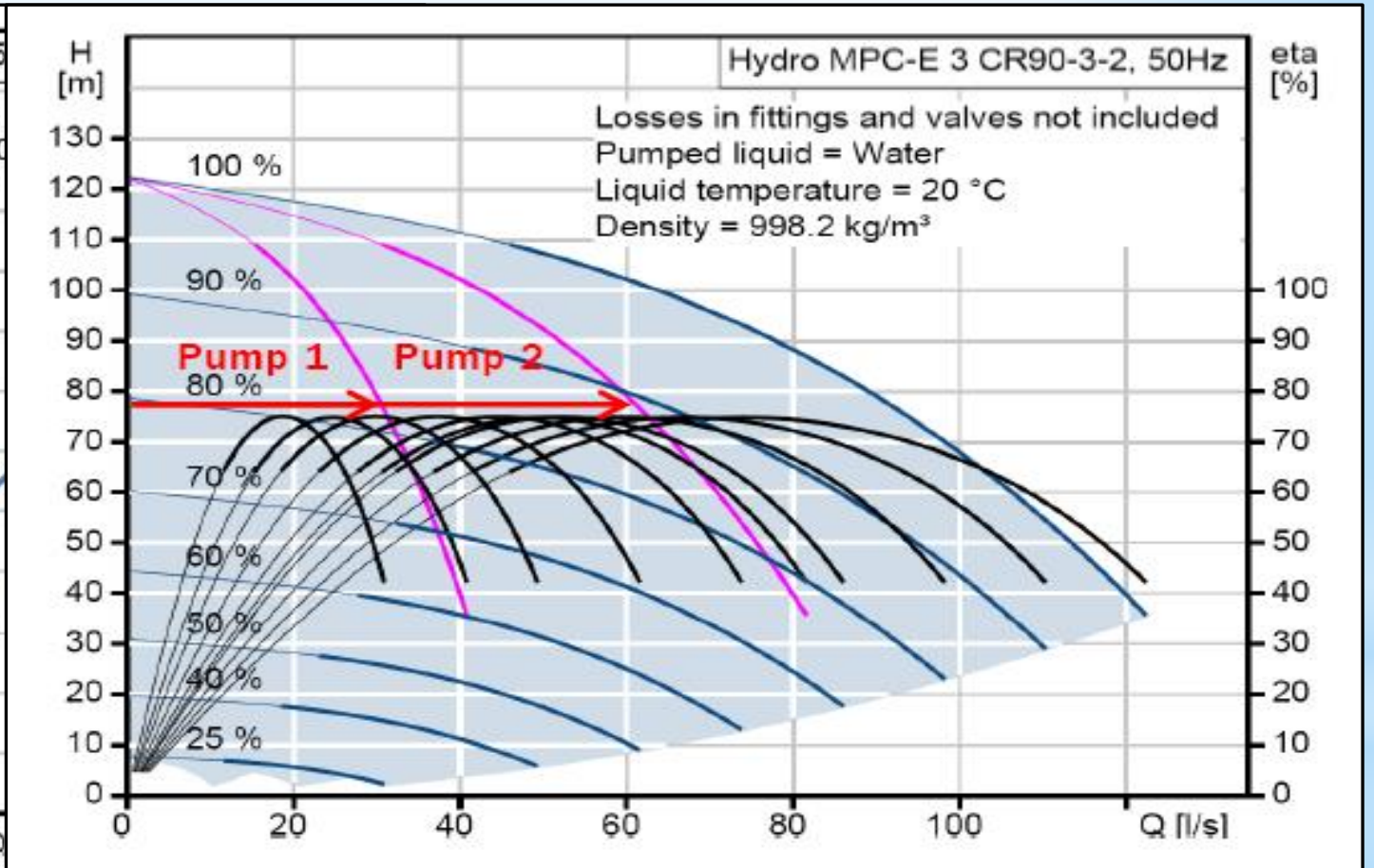


# Pump Curves

## Bore Pump Curve

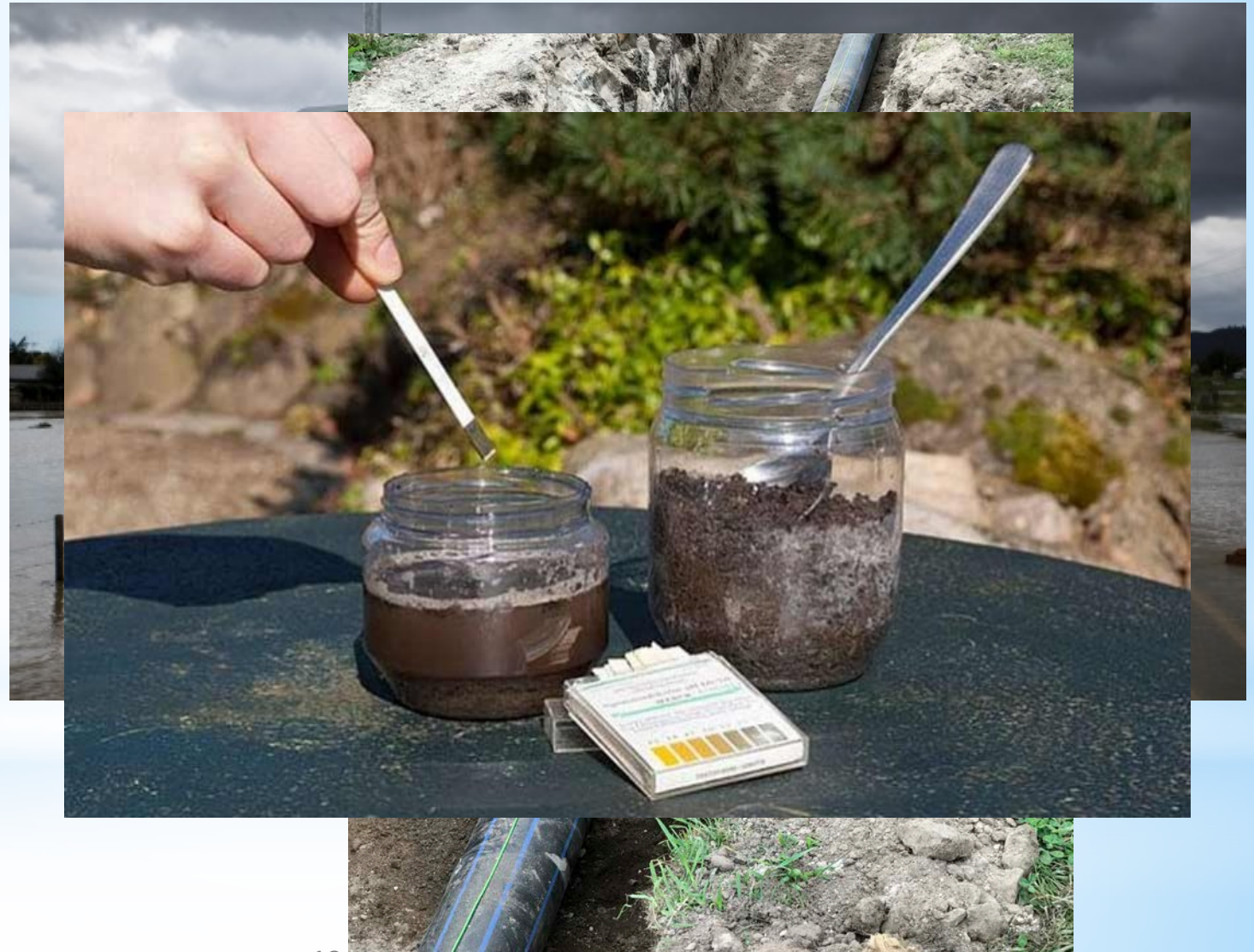


## Booster Pump Curve



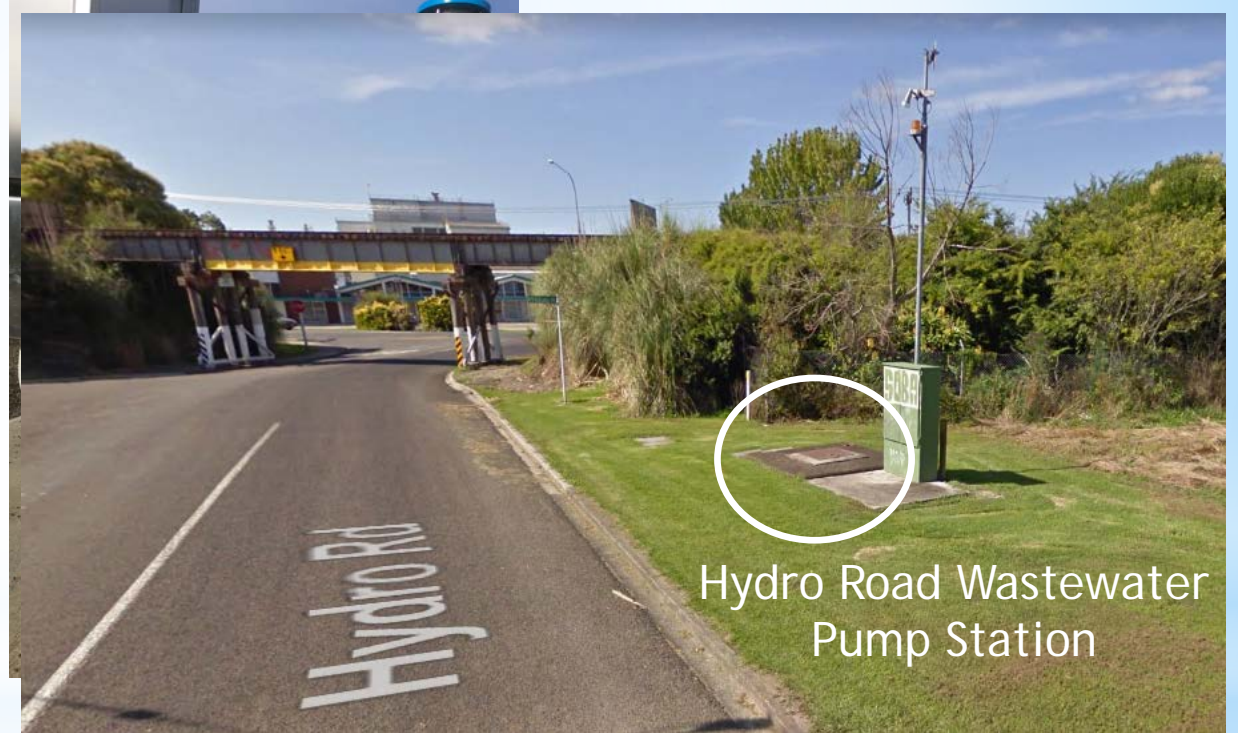
# CONSTRUCTION ISSUES

- \* Flooding
- \* Weather Delayed Programme
- \* Soil Type and Compaction Issues
- \* Acidic Groundwater Testing



# COMMISSIONING

- \* Bore Flushing
- \* Water Tank Testing and Pipeline Flushing
- \* Disinfection



# Trial Period

PIPE TO BE INSTALLED BY TRENCHLESS METHODS UNDER ROADWAY (MINIMUM COVER OF 1000mm)

INSTALL 150 VALVE ARRANGEMENT (SEE INSET 6)

ENSURE THIS VALVE REMAINS CLOSED, ALL OTHERS OPENED

180 OD PE100 SDR13.6 PIPE

OPEN THIS VALVE

NEW DN 150 DI TEES

NEW DN 150/100 REDUCER

NEW DN 100 DI TEE

EXISTING DN 100 AC

EXISTING DN 100 AC

NEW DN 900 BEND

NEW 180 OD PE100 SDR13.6

NEW 250 OD PE100 SDR13.6

4 No. DN 150 GATE VALVES

**INSET 6**  
(N.T.S.)

\* Gradual separation of Braemar and Tahuna Rd

\* Edgecumbe solely supplied from Paul Road

2A

2

14

1

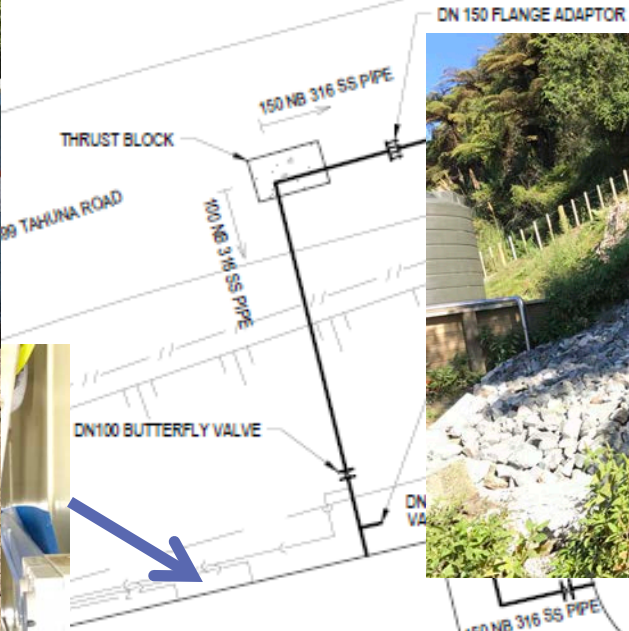
HYDRO ROAD

# Tahuna Road Water Supply Upgrade

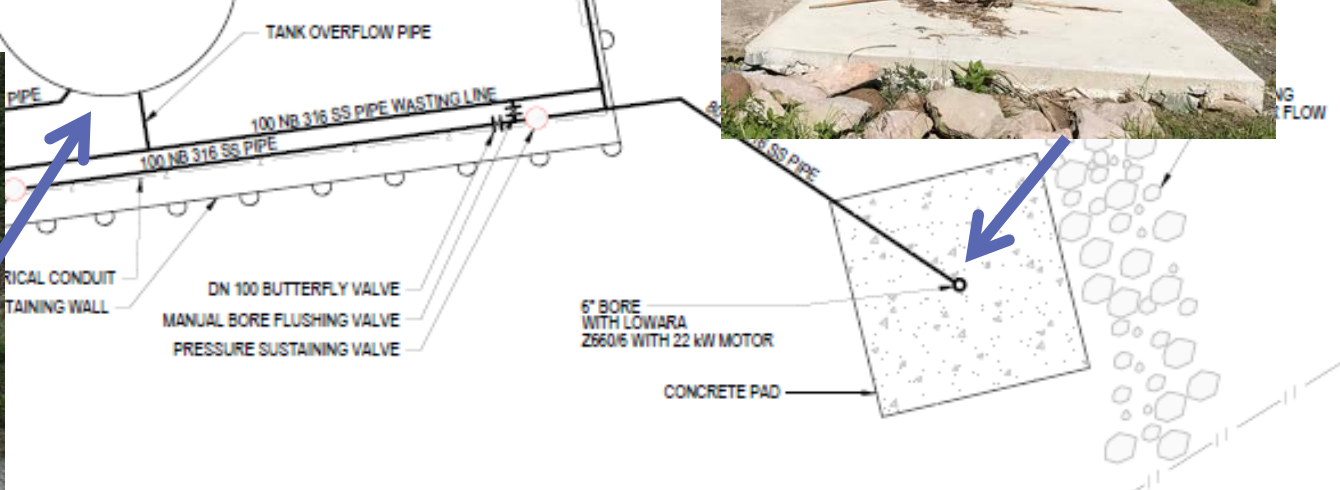
- \* A larger capacity bore pump and new high-lift pumps
- \* Two stage cartridge filtration system
- \* New UV unit
- \* Conversion to Chlorine gas
- \* New 31 m<sup>3</sup> Plastic Tank



# Tahuna Road Water Treatment Plant



CHLORINATION SYSTEM IN PRE CAST CONCRETE BUILDING. 70KG CHLORINATION GAS SYSTEM WITH V-NOTCH MOTORIZED VALVE, PANEL HEATER AND WEIGH SCALE!





# Tahuna Road Drinking Water Compliance with DWSNZ

- \* Bore was raised 500mm above 100 year flood level
- \* UV unit provides 3 log credits
- \* Cartridge Filtration provides 2 log credits



# \* QUESTIONS

