

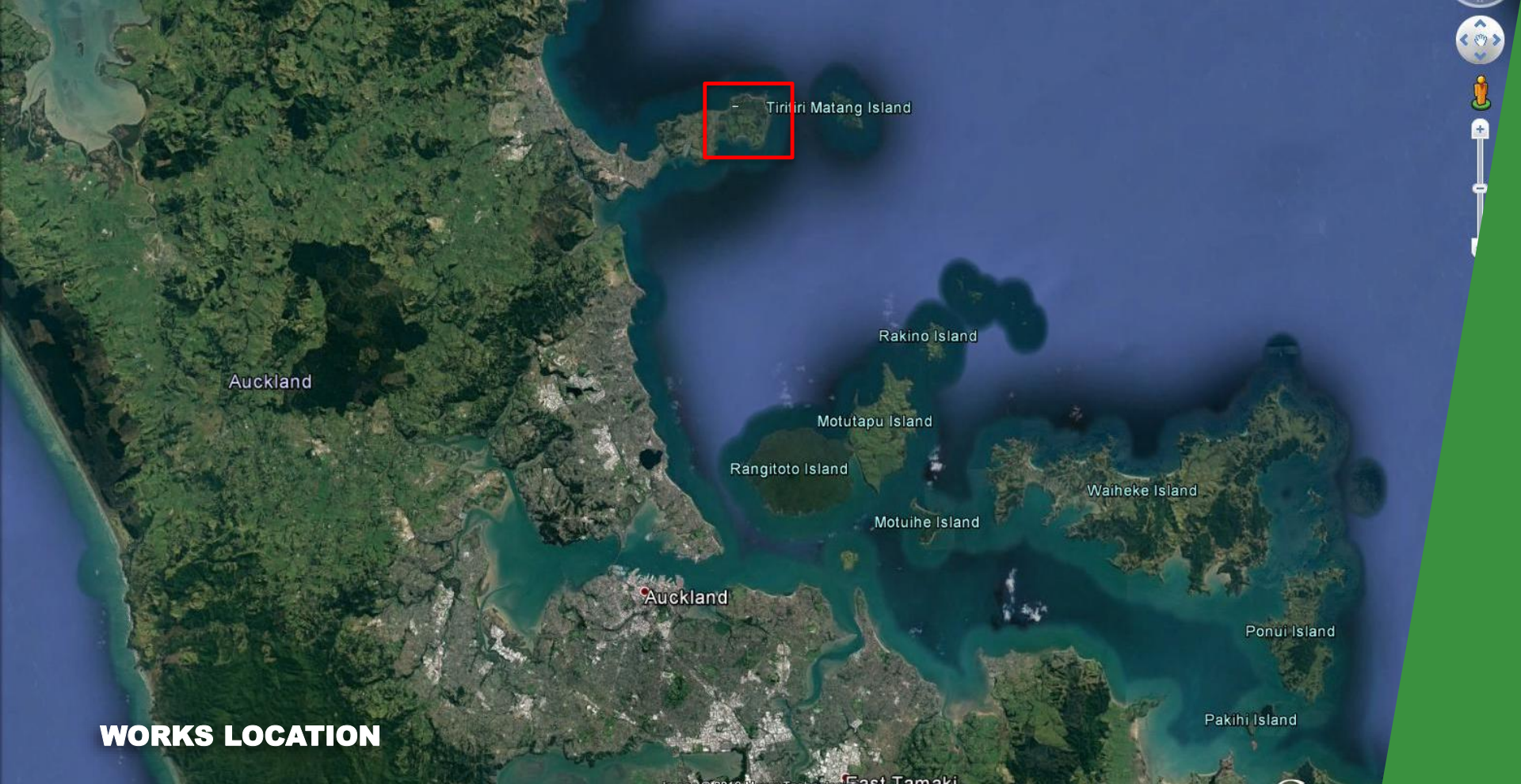
# Army Bay WWTP

## Outfall

## Record Breaking

## Innovation





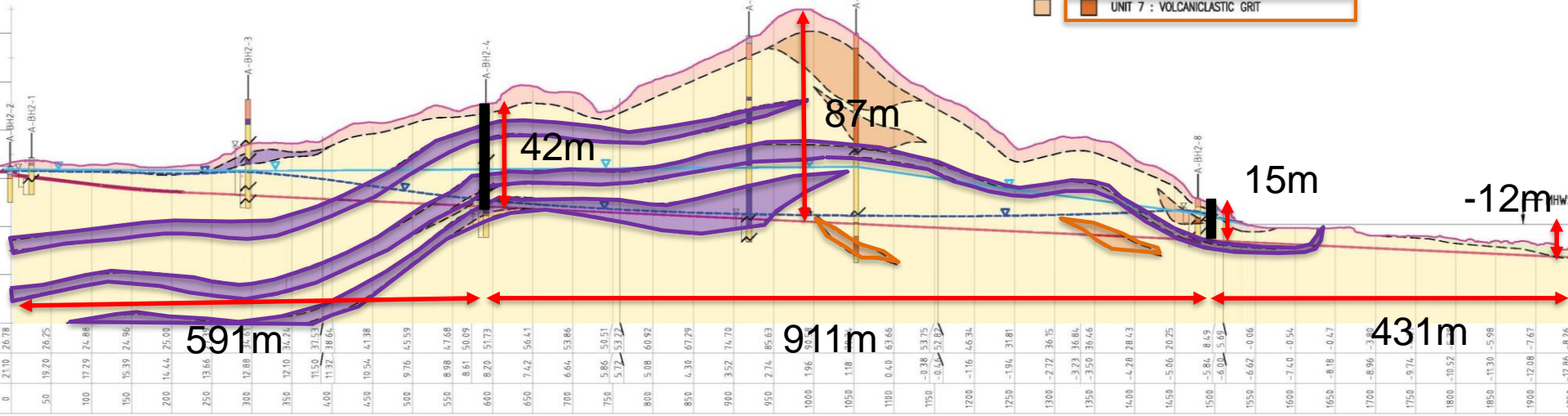
## WORKS LOCATION



**PLAN (DIRECT PIPE SECTION)**  
SCALE: 1:3000

**LEGEND**

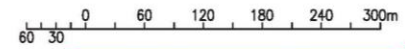
- INTERPRETATION**
- UNIT 1 : FILL
  - UNIT 2 : MARINE SEDIMENTS
  - UNIT 3 : WEATHERED ECBF
  - UNIT 4 : SILTSTONE/MUDSTONE DOMINANT ECBF
  - UNIT 5 : BEDDED ECBF/UNIT 6 : DEFORMED ECBF
  - UNIT 7 : VOLCANICLASTIC GRIT
- BORERHOLE**
- RECORDED PIEZOMETER
  - PIEZOMETER RESPONSE
  - CRUSH/SHEAR ZONE
  - INTERPOLATED GROUNDWATER
  - DESIGN GROUNDWATER



**INTRODUCTION  
GROUND CONDITIONS**

**PROFILE**  
SCALE: 1:3000 H 1:1000 V

**DIRECT PIPE®**  
HORIZONTAL SCALE 1:3000



**NOT FOR CONSTRUCTION**



**DIRECT PIPE®**

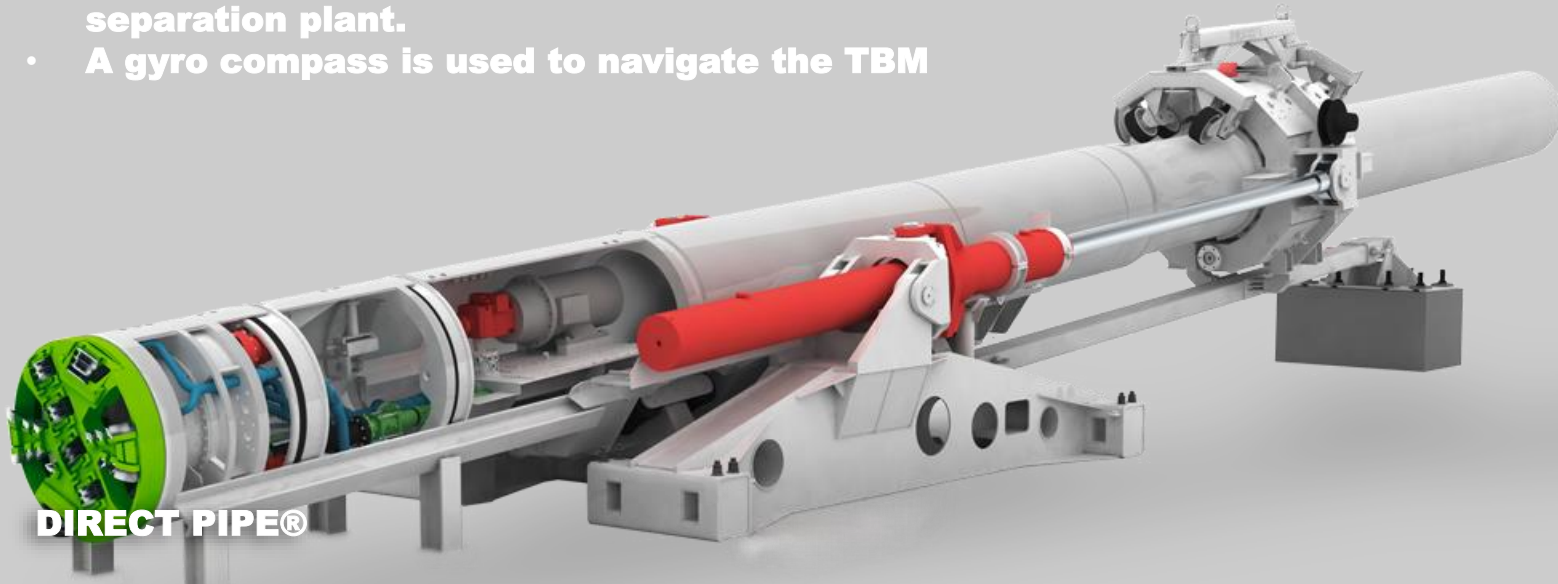
- **New UV Treatment facility (value engineered)**
- **1000mm Dia HDPE Rising main from Pump Station**
- **Pump upgrade**
- **900mm dia RCRR Overflow** Army Bay  
**from Decant Ponds**

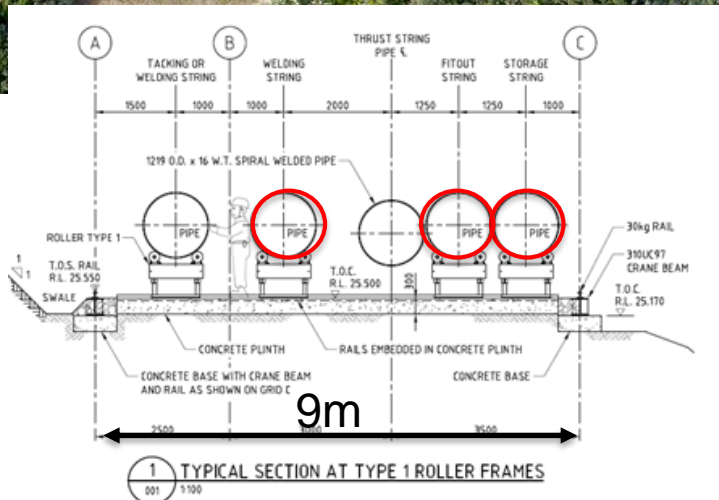


- **New Outfall**
  - **1929m of trenchless with 1200mm dia steel pipe and a 1100mm HDPE Liner**
  - **935m of marine pipe with 800mm dia HDPE and concrete ballast blocks**

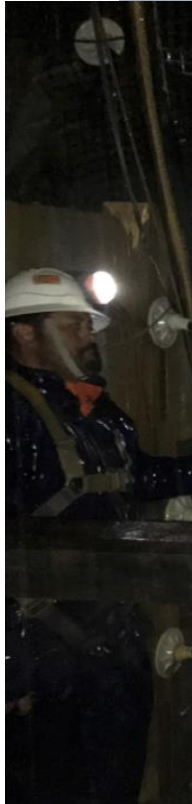
## What is Direct Pipe?

- Herrenknechts patented pipeline installation method.
- Uses a HK Micro tunnelling machine (AVN)
- Pipe string attached to the back
- Head excavates the ground while being thrust.
- Thrusters capable of 1250tonnes of force in 5m increments
- Excavated slurry transported through a pipeline to the separation plant.
- A gyro compass is used to navigate the TBM

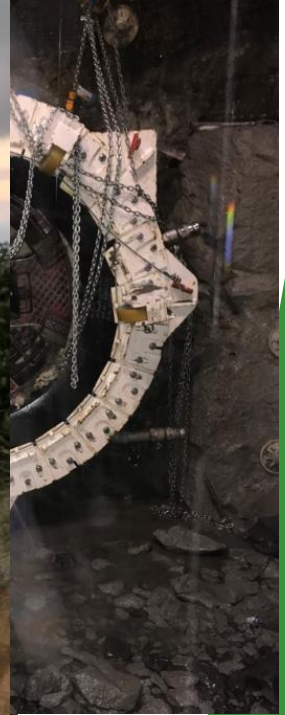








**SHAFTS**





## BLIND APPROACH



**A NEW WORLD RECORD**



## MARINE BREAKTHROUGH



## TBM RETRIEVAL



## TBM RETRIEVAL



**MARINE – PIPE FABRICATION**



## MARINE - FABRICATION





**MARINE PIPE – LAUNCH, TOW AND SINK**



## SLIPLINING

TOPHAT BLANKING FLANGE



SEAL



TOP SEAL PLATE ASSEMBLY

## TOP HAT



## PIPE INSTALLATION - WELDING



**PIPE INSTALLATION**





**SLIPLINE – FINISHED PRODUCT**



**1. Member of Club ZERO - Everybody went home safe**

**2. Happy Stakeholders**

**3. Happy Client**

**4. Award Winning**

**KEY ACHIEVEMENTS**





**McCONNELL  
DOWELL**  
CREATIVE CONSTRUCTION™

**DRIVING  
PROGRESS**

**Thank You**

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