



CLIENT REPORT
Tararua District Council
Laws Road Reservoir
Dive Inspection & Repair



CLIENT REPORT

Tararua District Council

Laws Road Reservoir – Dive Works – Remarking of Depressions and
Pinhole Repairs.



AUTHORISATIONS

Document approval and release for distribution

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LIST OF ABBREVIATIONS

DVR	Digital Video Recorder
HDPE liner	High Density Polyethylene Geomembrane
Kg	Kilogram
mm	Millimeter
m	Meter
NPUW	New Plymouth Underwater Ltd
TDC	Taranua District Council
ROV	Remotely Operated Vehicle
D	Depression
P	Pinhole
SSBA	Surface Supplied Breathing Apparatus

DIVE TEAM

Dive Supervisor	Jason Ratcliffe
Diver	Alex O'Brien
Diver	Raffy Trinidad
Diver	Lyle Munnik
Diver	Jamie Browne

This diving operation was conducted in accordance with the Australian / New Zealand Standard for Occupational Diving – AS / NZS 2299.1



NPUW Air Diving Operations Manual NPUW.IMS.04



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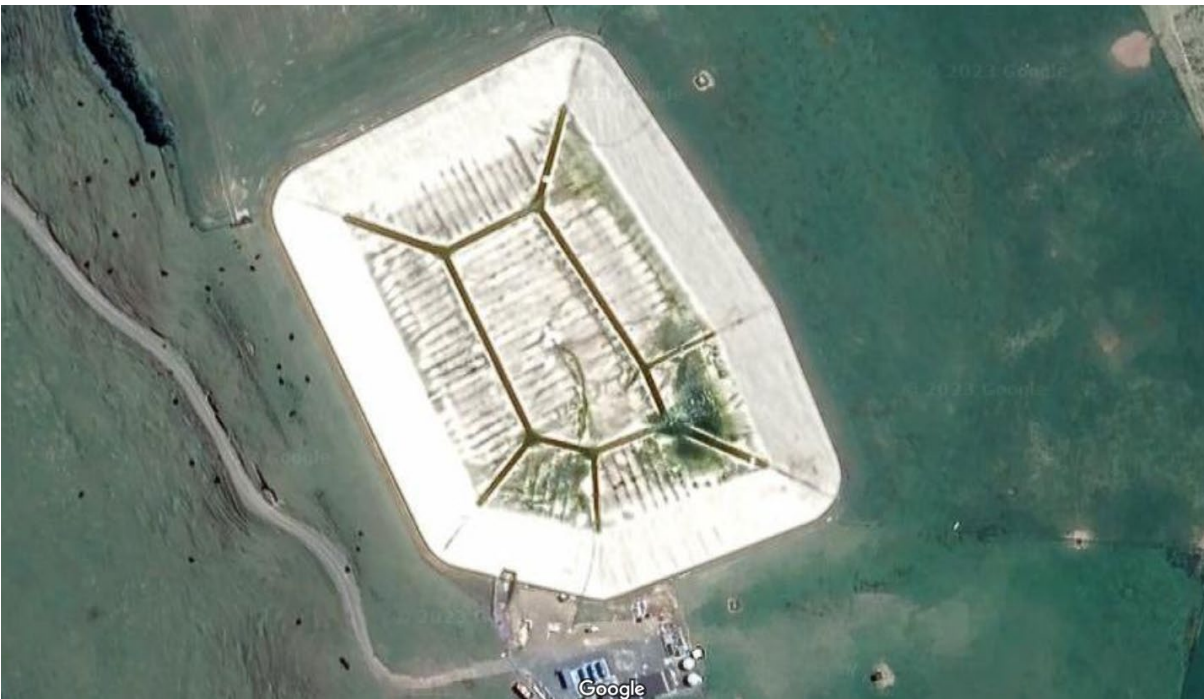
INTRODUCTION

New Plymouth Underwater Limited (NPUW) has been contracted by Mike Dunn on behalf of Taranua District Council (Client) to carry out diving services to the Laws Road reservoir, Dannevirke.

The programme for the services provided were over a period of two days, the NPUW dive team completed the following:

- permanently remark the extremities of depressions (as was previously done with chalk during the temporary repairs completed in June 2023) and anything else of significance.
- repair pinhole leaks by tape.
- identify any deterioration that has occurred on the floor since the investigation in May 2023.

A NPUW five person SSBA dive team were engaged by TDC to carry out these works on between February 11-13th 2025.



Laws Road Reservoir, Dannevirke



SURVEY OBJECTIVES

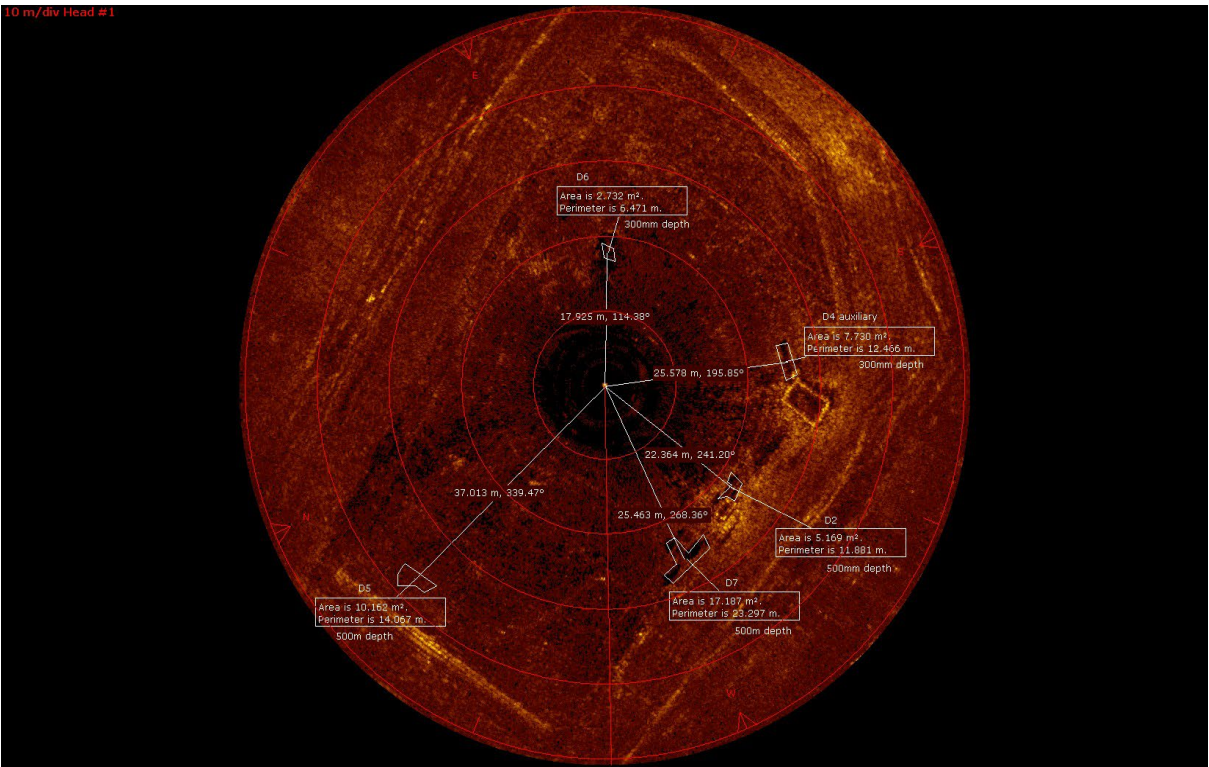
Remark the previously identified depressions D2, D4, D5 AND D6 with chalk and permanent identifier, PVC piping and Sika® MultiSeal.

Dive inspection of D7, an extremity identified by MS1000 sonar.

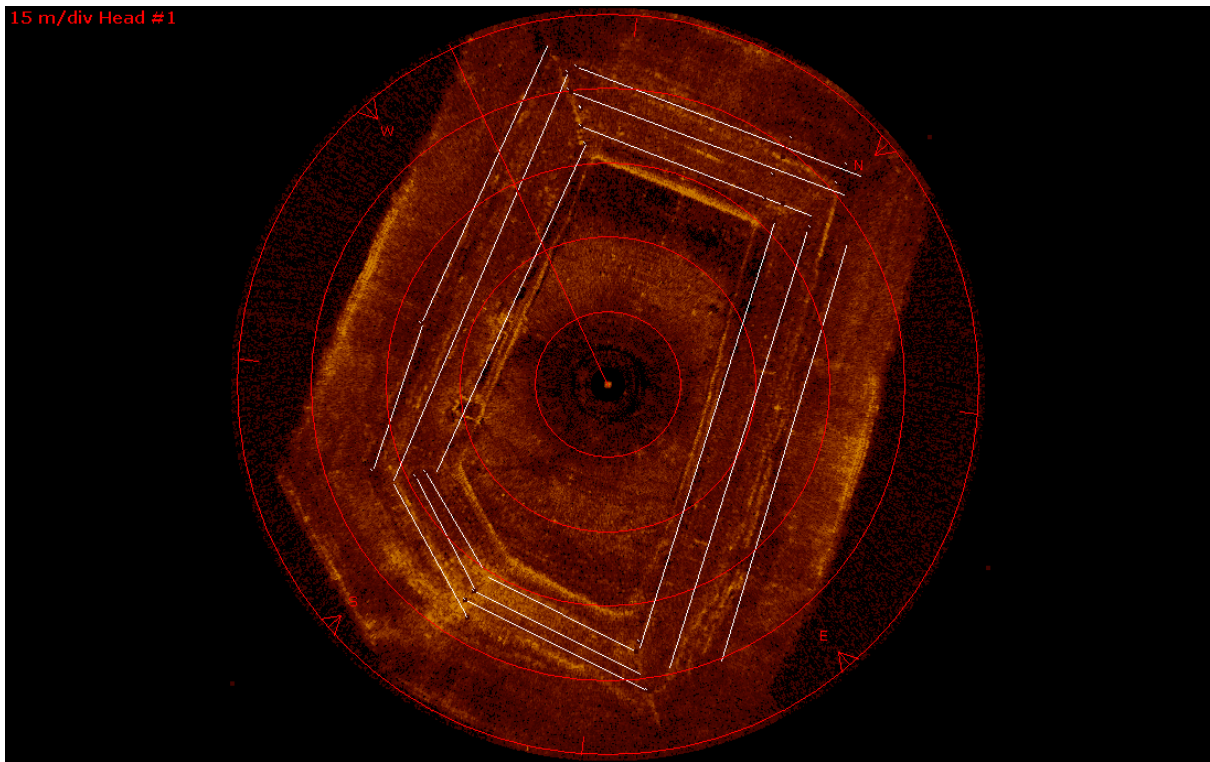
Provide media footage of the Depressions as found and as left.

The repair of existing pinholes located in D4.

The documentation of any deterioration of the floor notable since the June 2023 investigation.



Depressions Sonar Capture noting Depression 7



Depressions Lines Run Sonar Capture

METHODOLOGY

A team of five NPUW personnel mobilized to Laws Road Reservoir Dannevirke.

The purpose of the dive works was to remark the existing depressions with new pastel lines and attached raised locators. The locators were prefabricated pieces of PVC piping that were to be attached to depression ridgelines with the Sika® MultiSeal tape.

The Pinhole repairs, located in D4 had the same Sika® MultiSeal tape to be applied to seal and secure the leak, then prefabricated pieces of PVC piping attached above the leak as a raise indicator. The PVC piping provides a location target and is a suitable choice of material in the sedimented water.

A team of five SSBA divers were engaged to undertake the works, an Inshore dive spread, and project equipment were based onsite.

Divers entered the reservoir through the centre hatch, having been supplied a compass heading identified from the previous ROV survey to locate each depression.



The job scope methodology for the remarking and repair work was developed collaboratively between TDC representatives and NPUW Project Manager, Dive Supervisor and wider NPUW team members.

REMARKING THE DEPRESSIONS

Depression 2

[Depression 2](#)

Depression 2 was successfully remarked as per the brief.

Divers observed the batter-face to have collapsed into the depression, causing a ridgeline approx. 2.7m from the North end running East to West. This is consistent with the previous survey in June 2023.

The approximate measurements of the overall depression size is:

East face: 4300mm

North face: 900mm

West face: 4600mm

South face: 1300mm



Depression 2 as found



View of Depression 2 as left

Depression 4

[Depression 4](#)

Depression 4 was successfully remarked as per the brief and the overall size appeared consistent with the previous survey.

Two branching depressions were observed, one to the South West and one to South East, these were mapped and captured on video (shared media)

The approximate measurements of the newly formed South West Depression:

North width: 1000mm

South width: 700mm

South length: 2300mm

The approximate measurements of the newly formed South East Depression:

Length: 2050mm

Width: 600mm



Depression 4 South East corner as left snap shot



Depression 4 South West corner as left snap shot



Depression 5

[Depression 5](#)

Depression 5 was successfully remarked as per the brief and was consistent with the previous survey. The perimeter was marked with Chalk and PVC piping. The cardinal marks – N.E.S.W were marked with chalk.

Divers detected multiple smaller depressions running towards the batter-face and west end. This measured between approx. 250mm – 100mm. This can be observed in video footage (shared media)

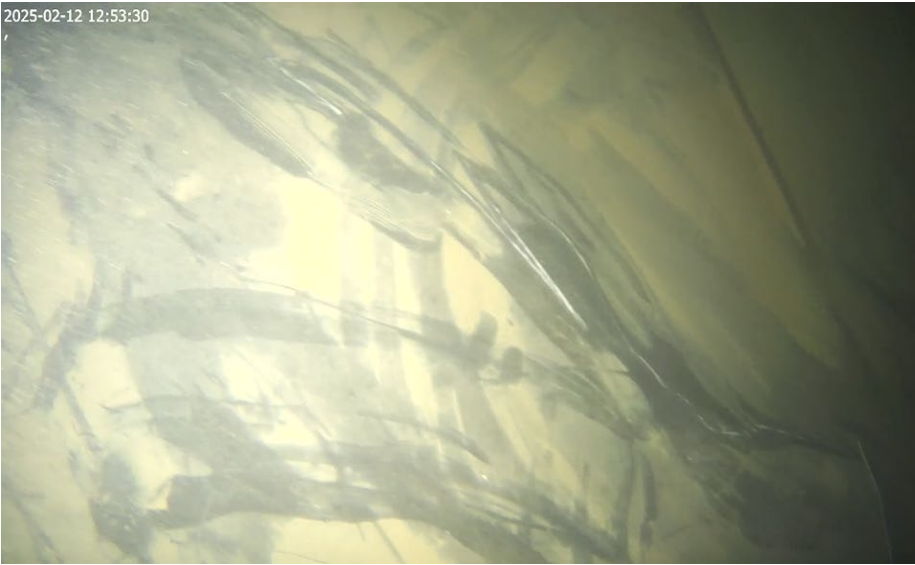
The approximate measurements of the overall depression size is:

East face: 2200mm

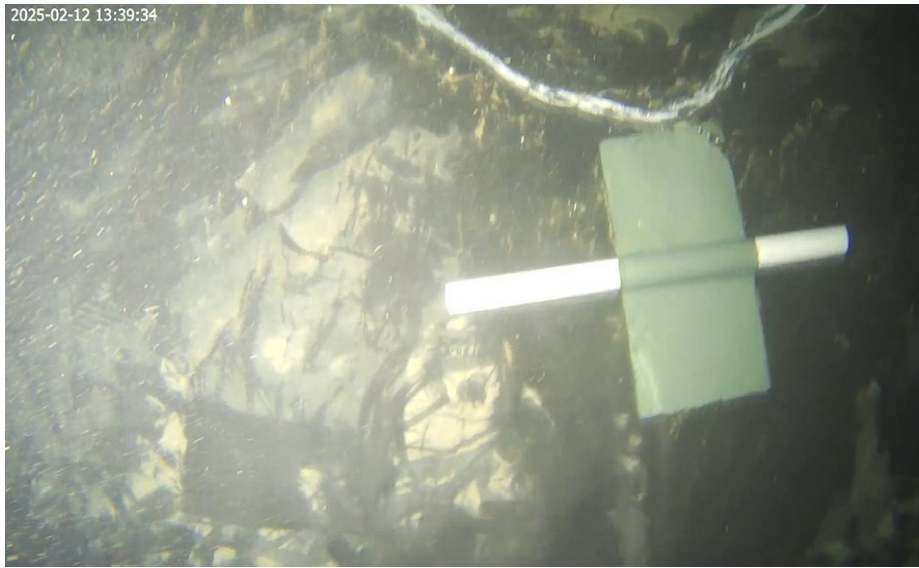
North face: 5900mm

West face: 1400mm

South face: 3900mm



Depression 5 - as found



Depression 5 – as left with fresh chalk and PVC piping

Depression 6

Depression 6

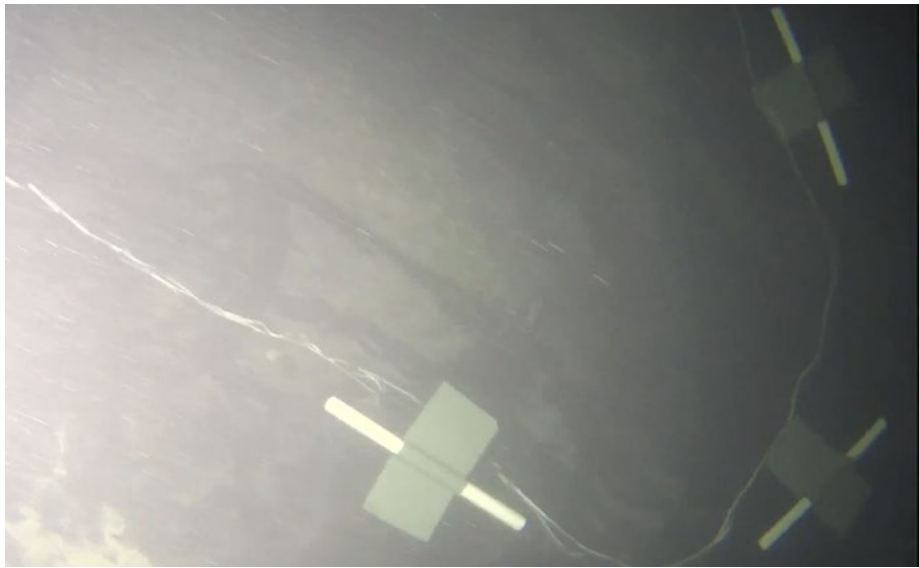
Depression 6 was successfully remarked as per the brief and was consistent with the previous survey. The perimeter was marked with Chalk and PVC piping.

Depression 6 was the first depression to be located, being the first location, the water clarity was excellent and a more obvious depth and shape was noted. Depression 6 has more circular geometry than the other depressions and an approximate depth measurement could be taken.

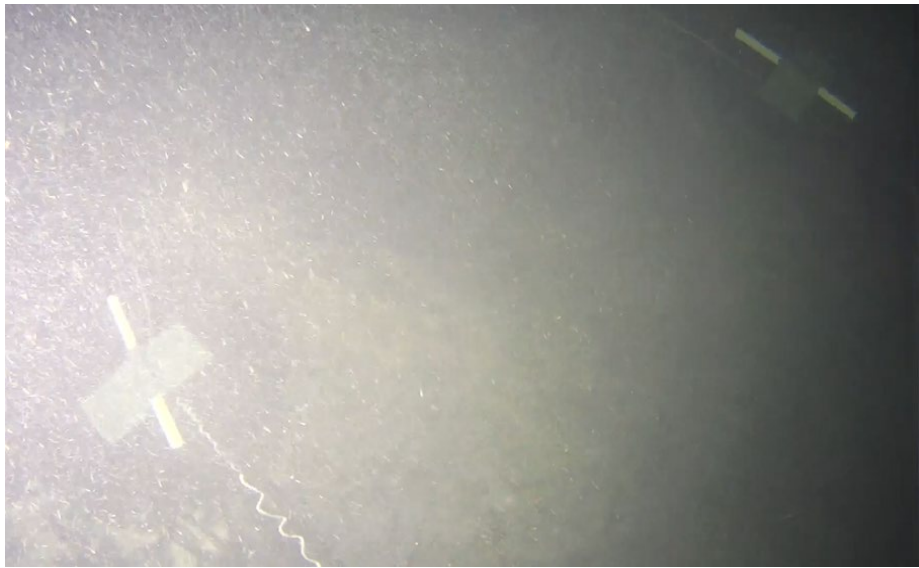
No newly formed depressions were observed.

The approximate measurements of the overall depression size is:

- North to South – East side: 1050mm
- North to South – West side: 1200mm
- East to West – North end: 2520mm
- East to West – South end: 2390mm



Depression 6 – Eastern side curve and markings



Depression 6 – Northern side markings



Depression 7

[Depression 7](#)

Depression 7 had not been mapped previously by Divers. The location was supplied by ROV imagery (page 6) Depression 7 had three locations successfully mapped, with the West face unreachable due to the depression and batter-face interface.

The accessible areas of D7 were successfully marked with chalk and PVC piping.

The perimeter of the depression was mapped. Suspended water particles reflecting off the diver's hat did not allow for too much visibility.

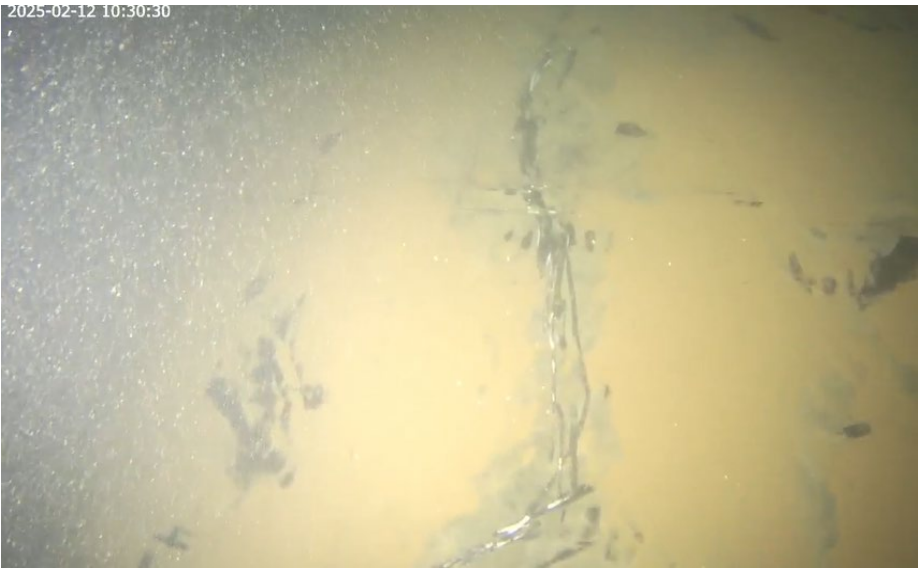
The cardinal marks – N.E.S. were marked with chalk.

The approximate measurement of the overall depression is:

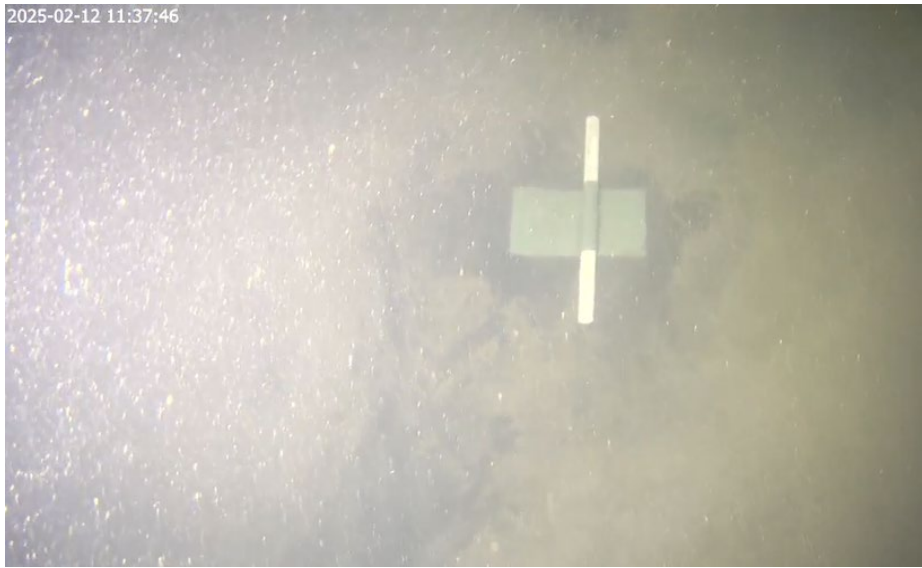
North to South - East face: 9400mm

East to West - North face: 6000mm

East to West – South face: 1000mm



Depression 7, Western batter-face marked



Depression 7 – Western batter-face marked with PVC piping

PINHOLE REPAIRS

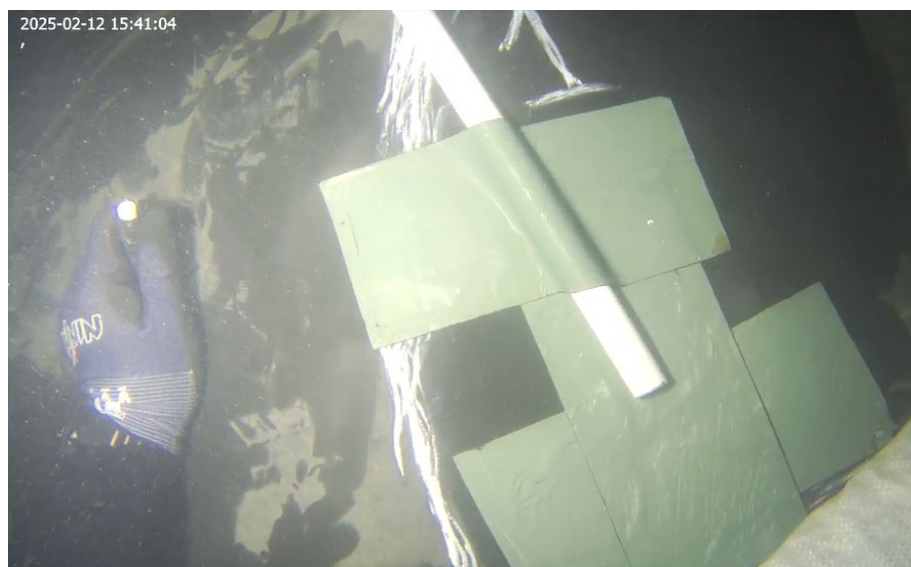
[Pinhole Repairs](#)

Depression 4 – Pinhole 1

Pinhole 1 was located on the West side of D4, the pinhole was captured in as found video footage. The pinhole has been repaired and marked.



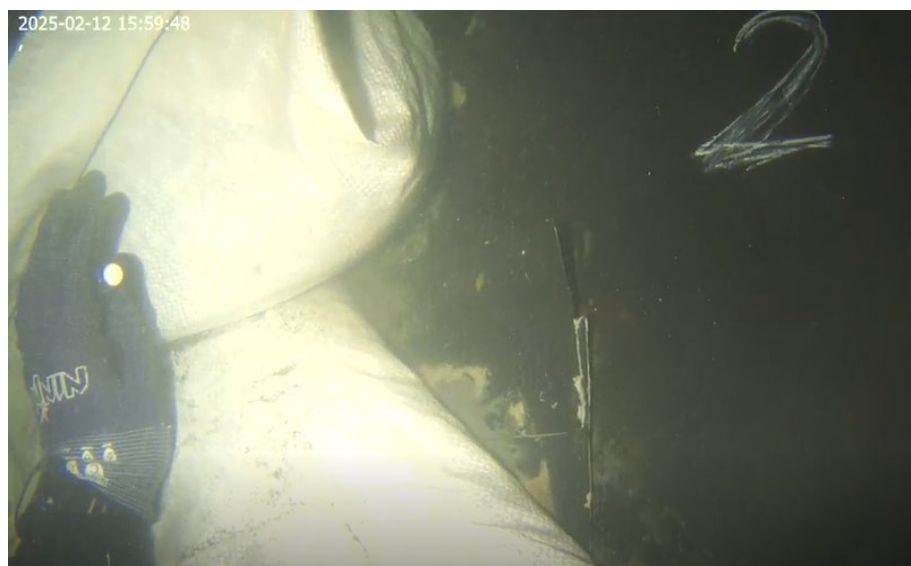
Depression 4 – Pinhole 1



Depression 4 – Pinhole 1 repaired and marked

Depression 4 – Pinhole 2

Pinhole 2 was located on the South West corner with the previous repair tape lifting. The pinhole has been repaired and marked.



Depression 4 – Pinhole 2 as found.



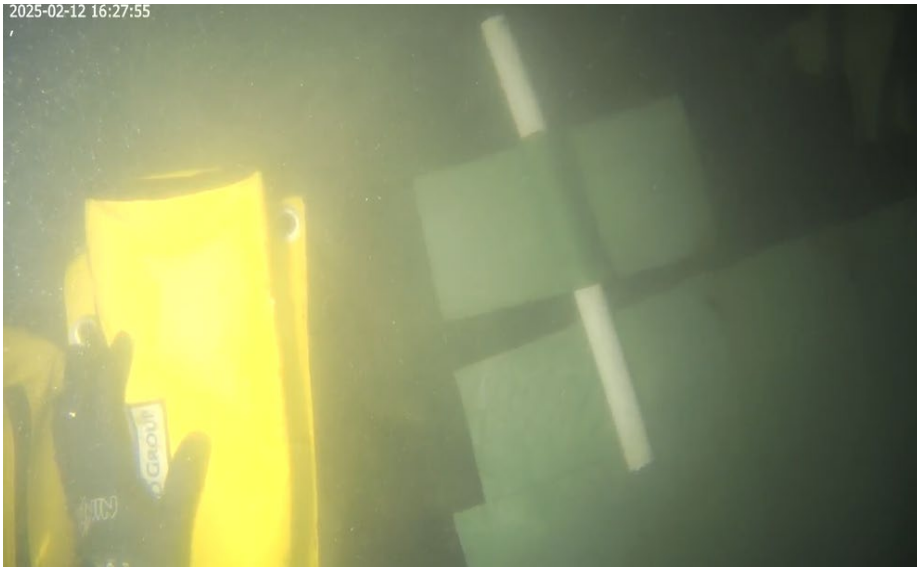
Depression 4 – Pinhole 2 repaired and marked.

Depression 4 – Pinhole 3

Pinhole 3 was located on the North West corner and repaired. The Pinhole was captured in as found video footage. Pinhole was repaired and marked.



Depression 4 – Pinhole 3



Depression 4 – Pinhole 3 repaired and marked



CONCLUSION

The diving campaign was undertaken from the 11th -12th February 2025 with the scope of remarking Depressions 4-6 and locating and marking Depression 7. All four depressions were remarked with chalk and the agreed PVC piping indicators were applied.

The Pinhole repairs were remedied with the Sika® MultiSeal and PVC piping as a locator.

The media provided via Share Point provide a good overview of as found and as left with reasonable visibility.

Suggestions prior to the next inspection would be imaging provided similar to the MS1000 photo's; media of that caliber can provide accurate measurements of the depressions, exact locations, variations to existing depressions and identify potential extremities to be examined by divers.

Suggested timeframe for annual inspection is 12 months. We would suggest an early inspection date should water flow increase to 5 liters per minute or higher.

If you have any queries regarding the documents provided, then please contact myself or Mike Sharp.

Kind regards

Signed by:
Natalie Menzies
9597D050086441F...

Natalie Menzies
Projects Coordinator on behalf of
New Plymouth Underwater