

# CAPABILITY STATEMENT

## ROV ASSET INSPECTION

### THE PURPOSE

This document is composed to assist our clients and the supply chain to understand our group operating structure along with a high-level understanding of the benefits, services and specialist packages associated with our ROV capabilities.



**GEO OCEANS**

# WHO WE ARE



Geo Oceans is an award winning subsea services provider delivering innovative and disruptive ROV inspection, light IMR, survey and marine science solutions to a global client base. We specialise in developing and deploying small ROV systems and subsea robotics directly from assets or vessels of opportunity to provide clients with reliable, safe, low carbon and low cost solutions for managing subsea asset integrity.

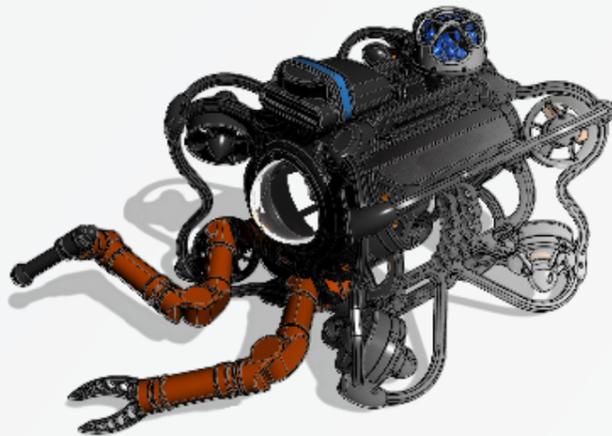
We have a team of over 100 subsea professionals globally bringing a huge amount of subsea industry knowledge and experience to all of our operations, client engagements, projects and technology developments.

Our client base is extensive and includes a range of the largest resources and energy companies globally as well as engineering consultancies, government agencies, Defence, research institutes, and universities.

We work closely with our sister companies and partners to collaboratively develop and deploy industry leading technologies and methodologies combining specialist expertise from each company to solve complex inspection problems for our clients.

We are an IMCA Member company, hold ISO accreditation for Health, Safety and Environment and ROV and RITS class inspection accreditations with Lloyds Register, Bureau Veritas, ABS, and DNV GL classification society guidelines.

Geo Oceans is committed to delivering superior ROV inspection services that meet the evolving needs of our global clients.



# WHAT WE DO

Geo Oceans is an industry-leading asset deployed underwater robotics and ROV services company. Our team is continuously striving to innovate in the subsea and environmental markets to deliver value, cost, time and safety efficiency to our customers.

Geo Oceans' ROVs can be deployed anywhere! They are specifically designed to eliminate the need for ROV support vessels and can be deployed from an asset or vessel of opportunity. Each of our ROV Classes, AUVs and Towed Camera platforms has a different specialisation and we will work with our clients to deploy the right tool for the job.

Our team continuously deliver high-quality Asset Deployed ROV services that include subsea conventional and advanced NDT, HD visual inspection, 3D modelling, high-pressure water blasting and numerous maintenance tasks across the globe.

## ROV INSPECTIONS



## MARINE SCIENCE



## ROV NDT & INSPECTION



## AUV SURVEYS



# SERVICES

## WATER BALLAST AND CARGO OIL TANK INSPECTIONS

Utilising advanced ROV inspection technologies, GVI, CVI, UTM and other NDT methods, we conduct tank inspections to meet the specific Class requirements of each asset.

Our tank inspections are performed without emptying the tank of fluid, thereby reducing facility downtime while avoiding costly and dangerous Confined Space Entry (CSE) procedures.

## HULL & MOORING UWILD / IN-WATER SURVEYS

We deploy our ROVs directly from the facility, eliminating the need for costly carbon-emitting support vessels.

Periodic or special surveys are tailored to the individual assets, considering the client's age and condition, class requirements and engineering needs.

Cleaning General and Close Visual Inspections are performed and supported with cleaning, CP, UTMs, penetration isolations, sea chest blanking, angle measurements, chain gauging and other NDT inspections as required.

Remote live data feeds can be supplied to support remote inspection and class attendance.

## JACKETS, RISERS, SUBSEA FIELD INSPECTION

We have extensive experience performing ROV inspections of jackets, caissons, risers, mooring systems and subsea infrastructure, including pipelines, spools, wellheads and anode skids. We can deploy directly from platforms or vessels of opportunity.

Inspections and ROV interventions include anything from GVI/CVI, freespan, CP, UTM, FMD, marine growth assessment and spot cleaning to bulk cleaning, dredging, advanced NDT inspections (e.g. corrosion mapping, crack detection) and subsea repairs.

## SUBSEA ADVANCED NDT INSPECTION

Working in collaboration with Sonomatic, Geo Oceans has extensive experience in the development and ROV deployment of miniaturised subsea advanced NDT inspection tools to create high-accuracy corrosion maps of sections of pipelines, spools, hulls, infrastructure or to survey critical welds.

## PHOTOGRAMMETRY AND 3D MODELLING

We are able to capture and process 3D photogrammetry models of subsea structures and infrastructure to support asset integrity and engineering decisions. A camera array (stereo or mono) acquires high-definition video and still images that can be processed for scaled measurements and 3D modelling.

The 3D models can be hosted on our AUAV inSite™ online software platform and used for a range of purposes giving our clients highly value data insights.

## MARINE HABITAT SURVEYS USING GO VISIONSTM

Geo Oceans has an award-winning benthic habitat mapping and monitoring capability utilising the GO Visions™ software to support regulatory environmental approvals for new construction projects (wharves, jetties, pipelines, offshore wind farms) or for decommissioning projects (pipelines, subsea cables, wells, jackets, nearshore infrastructure).



# ROV SPECIFICATIONS

## SPECIALIST ROV UNITS

Geo Oceans own and operate a fleet of more than 35 small ROV Systems and AUVs, with the fleet growing by the day! ROVs can be deployed anywhere, they are specifically designed to eliminate the need for ROV support vessels and can be deployed from an asset or vessel of opportunity. Each of our ROV systems has a different specialisation and we will work with our clients to deploy the right ROV for the job.



### SEABOTIX VLBV300 MINI ROV

The vLBV is a proven and versatile small ROV suited to inspections, cleaning and NDT in many hazardous environments, particularly with restricted access. The vLBV is fiber optic supplying full HD topside and is ideal for internal tank inspections or protected water operations.

- ✔ Spot cleaning for inspection
- ✔ UTM, CP, FMD NDT
- ✔ Light tooling
- ✔ 30kg



### OCEANBOTICS SRV-8 ROV

Our SRV8 systems are a small, portable and practical ROV for rapid deployments for inshore projects such as marine science, ports, harbours and jetties scopes. With battery power and minimal topside footprint they can be mobilized onto small vessels and deployed easily by hand.

- ✔ Advanced manipulation NDT & cleaning
- ✔ Pitch control



### SAAB SEAEYE FALCON ROV

Our Seaeye Falcon ROVs are our open water work horses, excelling at inspection of subsea jacket structures, FPSO hulls and subsea field infrastructure either asset or vessel deployed. Our Falcons are heavily upgraded and support cleaning applications, NDT and deployment of secondary robotic tools for Advanced NDT and corrosion mapping scopes. Fibre Optic tethers and advanced MUX deliver the highest definition video and data capabilities in one of the most reliable ROV systems globally.

- ✔ Heaviest payload
- ✔ Longest excursions



### GO-ROV

The GO-ROV is Geo Oceans' next-generation MiniROV, custom-built for power and versatility in a compact form. Equipped with four vectored horizontal and four vertical thrusters, it offers exceptional maneuverability, pitch and roll control, and operates effectively in open or confined spaces. Dual HD cameras (front zoom/focus and rear) and three 1500-lumen lights make it ideal for asset inspections.

- ✔ Depth rating 300m (1000ft)
- ✔ Weight in air 20kg
- ✔ 5kg payload



### L3HARRIS OCEANSERVER IVER3 AUTONOMOUS UNDERWATER VEHICLE (AUV)

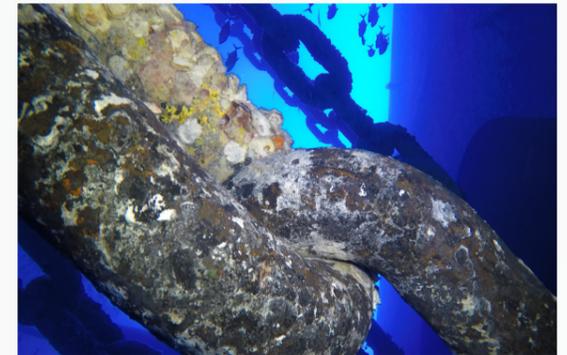
The IVER3 AUV is a proven technology, robustly engineered, is highly portable and has a modular sensor payload. This technology directly challenges traditional vessel-based survey techniques, delivering highly accurate survey data with significant reductions in project costs, time and risks.

- ✔ Depth rating 200m
- ✔ Weight in air 48kg
- ✔ 4 to 6 hours for payload, current and speed dependant

# KEY PROJECT 1

## SPECIALIST ASSET DEPLOYED ROV FPSO INSPECTION

Geo Oceans were recently contracted to complete a scope of work for a notable Oil and Gas company on their offshore FPSO facility. The facility featured a turret mooring system with one of the world's largest swivel stacks that has been engineered to date. This feature was implemented to allow the Facility to remain in-operation during cyclone conditions, which seasonally occur within the surrounding waters.



The primary challenge here being that the facility's turret had a large, submerged section which was situated below the facility's mean sea level. This area was permanently flooded with seawater due to an opening in the base of the turret. This essentially limited the client's ability to conduct inspections while the facility was in operation. Luckily however, Geo Oceans were able to utilise our mini-ROV Inspection Technology to perform visual and NDT inspection tasks within the submerged areas of the Turret.



Overall, twelve different inspection locations were identified by the client for inspection and methodology evaluation. Of these twelve, six locations were inside the turret, with the remaining six being outside. The external locations required our ROV to fly through the annulus at the base of the turret and perform inspection tasks below the turret and hull, presenting an additional challenge due to the strong currents and water conditions surrounding the entry. The main factor impacting ROV access to the areas of interest was the space permitted for inspection within the structure due to the close proximity of equipment inside the turret, making it extremely congested.

In-water surge and visibility were also considered as possible factors, which could influence ROV accessibility, but these did not present any challenges during the campaign due to our equipment's advanced in-flight capabilities. In total, eight different inspection techniques were used within the inspection process. These methods ranged from GVI and CVI inspections in open areas, to advanced methods such as ACFM trials in very restricted access areas and external locations below the turret. In addition to this, Cathodic Protection (CP) and Ultrasonic Testing (UT) was also conducted, allowing for 3D modelling on areas such as the Mooring Chain. All the testing methodologies used were accompanied by cleaning services accomplished through using a highpressure blaster equipped on our ROV. This allowed our teams to ensure that the surface of each area to be tested was correctly prepared before testing methodology was applied, enhancing the credibility and quality of results.



Overall, the execution of the project was very successful with the primary ROV used accessing all areas of interest inside and outside of the turret, including all three levels. This was an incredible outcome as it allowed our team to demonstrate the durability as well as capability of our ROVs in accessing out-of-sight, confined areas in harsher-than-usual conditions.

# KEY PROJECT 2

## JADESTONE SUBSEA FLOWLINE SCANNING

In July 2021, Geo Oceans, in collaboration with our sister company Sonomatic, were engaged by Jadestone Energy Australia to provide wall thickness scanning capabilities for use in the Montara Subsea Field. The aim of the project was to deploy tooling that would corrosion map the field joints at eight predetermined locations along the production flowline. By utilising small ROV systems to deploy the pipeline scanning tool, the system was able to be deployed from a vessel of opportunity.

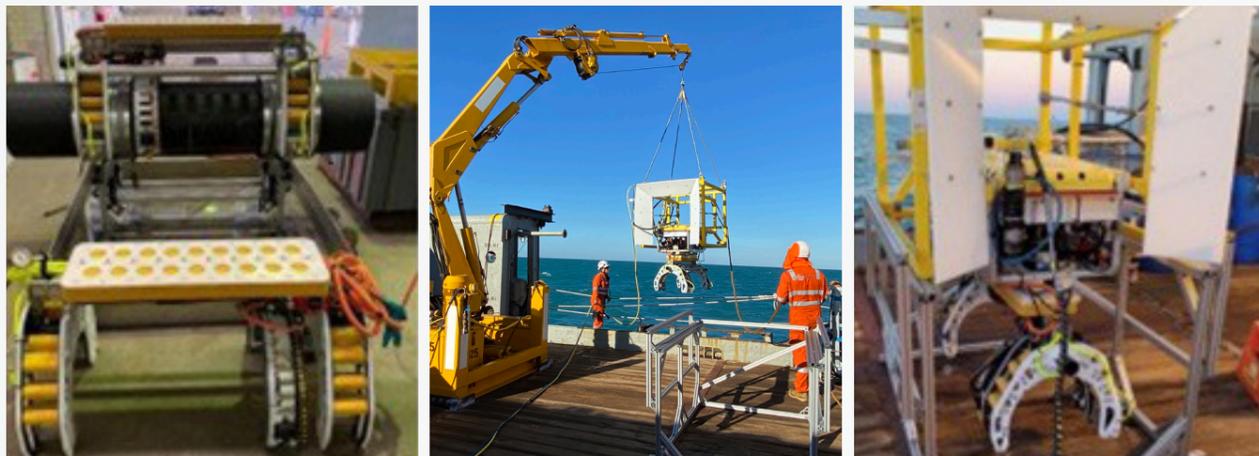


The team designed and developed an entire inspection suite that would address a range of challenges often experienced with wall thickness mapping on nonpiggable subsea pipelines, whilst also significantly reducing cost by utilising a small ROV deployed from an already in-use and positioned vessel. The capability brought together a full vessel deployed ROV inspection suite with small ROV integrated tooling for circumferentially cleaning and scanning subsea flowlines.

Miniaturisation of the tooling to suit integration with small ROVs presented considerable design challenges resulting in significant modification to the ROV system, data transmission and launch and recovery systems. This tooling system incorporated the necessary attachment mechanisms required to secure the tool to the pipe's weightcoat during scanning and provided thorough-tool cleaning for accurate marine growth removal. The need for reliable and safe deployment required the development of a bespoke launch and recovery system, unique to the small ROV and tooling.

The design philosophy for the entire tooling suite was based on the requirement to remain flexible and have the ability to rapidly mobilise and demobilise on short notice from vessels of opportunity or directly from assets. For survey positioning and support, Geo Oceans engaged Blue Ocean Marine Services who provided and operated the positioning equipment infield.

The synergy of these systems and teams enabled the successful completion of not only the project but parallel development of unique, complex technical systems that can be used for a range of applications in the future, whilst significantly reducing the cost of scanning subsea pipelines.



# ADVANCED ROV & NDT

## SUBSEA JACKET & RISER INSPECTIONS

Geo Oceans has extensive experience conducting jacket and subsea structure inspection scopes including cleaning, visual inspections, CP, UT and ACFM. Detailed experience schedules have been provided at Appendix A however a brief synopsis of our recent experience is presented in the subsequent sections below.

## SUBSEA CLEANING

Geo Oceans has extensive experience performing HP cleaning from small ROVs deployed from asset (FPSOs, CPFs, CALM Buoy's Jackets) or vessels of opportunity.

## FPSO & CPF INSPECTIONS



Over the previous 4 years, Geo Oceans have maintained a consistent inspection and intervention contract with a client to conduct asset deployed ROV inspection scopes across their two floating offshore facilities: the Ichthys Venturer FPSO and the Ichthys Explorer CPF. Our services include provision of small ROVs equipped with NDT tooling to conduct tasks such as GVI, CVI, Cathodic Protection Measurements (Contact & Proximity), Ultrasonics and ACFM down to water depths of 130m. Through our thorough planning and consistent success across multiple campaigns, Geo Oceans have been able to ensure that both offshore facilities owned by the client, FPSO & CPF, retain their Classification status to remain operational in Australian waters.

## JADESTONE ENERGY STAG & MONTARA JACKET INSPECTIONS



In 2020 & 2021 Jadestone Energy engaged with Geo Oceans to carry out a full jacket inspection of their Stag and Montara WH Platform on the North West Shelf and in the Timor Sea respectively. Geo Oceans provided both an asset deployed and vessel deployed ROV inspection solution working in challenging environmental conditions to deliver various scopes across the twofacilities and locations. The inspection of the Stag Jacket covered GVI, CVI and CP and identified a critical anomaly relating to a dislodged conductor spacer in the splash zone.

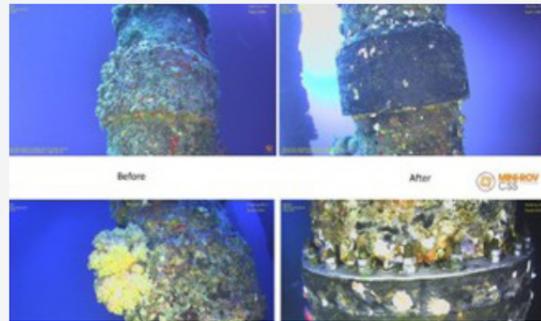
Following the campaign, Geo Oceans then engineered and proposed a diverless repair solution and later mobilised to the facility and repaired the conductor spacer using ROVs and rigging deployed from the platform without divers or a vessel. Geo Oceans also then proposed a cleaning method to present to NOPSEMA for the Stag Life Extension Programme and subsequently Geo Oceans were selected by Jadestone to provide bulk marine growth removal of the same platform. In addition to the Stag work, Geo Oceans performed complete jacket inspection on the Montara WH Platform covering GVI, some CVI and CP. Geo Oceans has extensive experience performing HP cleaning from small ROVs deployed from assets (FPSOs, CPFs, CALM Buoy's Jackets) or vessels of opportunity.

## JADESTONE STAG CPF JACKET BULK CLEANING



Geo Oceans were engaged by Jadestone energy to perform a marine growth cleaning program on the Stag CPF Jacket structure. The scope involved performing an assessment of marine growth across the entire structure, and then removing any marine growth from seawater level to mud line that protruded beyond 150mm from the structure, including through the splash zone. The Jacket has been in place for close to 30 years and has never been cleaned. It was found to have significant amounts of hard coral growth covering the structure with appurtenance up to 400mm in places. Geo Oceans are in the process of cleaning the structure using asset deployed ROV systems and HP Blasters which is providing the client with a very convenient, effective and cost efficient methodology to satisfy the facilities cleaning requirements. Once the Jacket is cleaned, Geo Oceans will be performing a GVI, some CVI, CP and FMD surveys across the Jacket Structure.

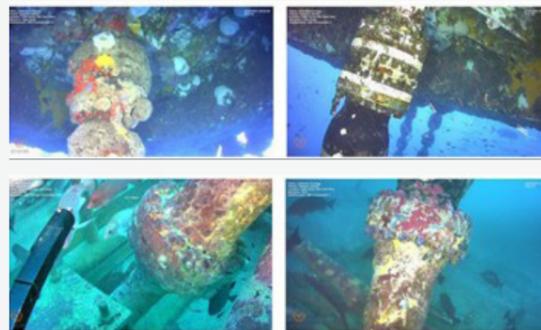
## CPF HOSE BULK CLEANING



Geo Oceans proposed to use asset deployed ROVS (Falcons) with a large HP pump solution to perform bulk cleaning of Seawater intake hoses that extend 130m below the client's CPF facility offshore WA. Geo Oceans designed a HP pump solution using 22KW motors delivering up to 4000PSI at ~30LPM.

Geo Oceans then mobilised to the facility and has been successful in the work scope. The client also engaged Geo Oceans to perform additional cleaning tasks on other hoses on the CPF and on thrusters positioned on the FPSO using the same asset deployed methods and equipment.

## CALM BUOY UNDER BUOY HOSE & SUBSEA PLEM CLEANING



Geo Oceans were engaged by a client to clean an under buoy hose (UBH) and surrounding areas prior to a dive campaign intending to change the hose.

Falcon ROVs were deployed from a vessel and performed the cleaning using HP Blasters very efficiently in the splash zone and at seabed where the UBH joins the PLEM.

## J TUBES & BOX SECTIONS CLEANING FOR ACFM



Geo Oceans performed asset deployed ROV cleaning of box sections and J Tubes on an FPSO RTM to prepare the surfaces for deployment of Sonomatic tooling for UT Corrosion Mapping and ACFM Array Probe scanning for crack detection. Geo Oceans utilised vLBV ROVs with an 18.5KW HP Pump solution for this project.

## MONTARA SUBSEA FLOWLINE CLEANING FOR ADVANCED NDT



Geo Oceans and Sonomatic worked collaboratively to develop a tool based flowline cleaning solution to enable high accuracy circumferential cleaning of sections of Montara Flowline prior to advanced NDT scanning. The images below show the tool being tested pre-dive on deck, and then pre and post clean images recorded in July 2021.

## MULTI-SITE JETTY & WHARF INSPECTION



Geo Oceans were contracted by Santos, Rio Tinto and Woodside to deliver simultaneous jetty wharf inspection campaigns. These inspections included GVI, CP and UT testing components as well as cleaning duties on selected jetty berths. All capabilities were delivered completely by our SRV-8 ROV from a vessel of opportunity, allowing for a rapid mobilisation with added ease. In addition to this, Geo Oceans also provided UAV inspections for out-of-water areas of inspection.

# COMBINED SERVICES

Geo Oceans work alongside a Group of affiliated companies that together, deliver a comprehensive range of asset integrity, inspection, maintenance and specialist access services across a wide range of industries and sectors internationally. Our shared capabilities span project management, NDT, drone and ROV inspections, 3D modelling, specialist access and maintenance, and environmental and export infrastructure services.

**Geo Oceans** – Leaders in Mini-ROV IRM and water inspection, with expertise in AUV and ASV deployment.

**Vertech** – Experts in specialist access, NDT and inspection, maintenance, and repairs.

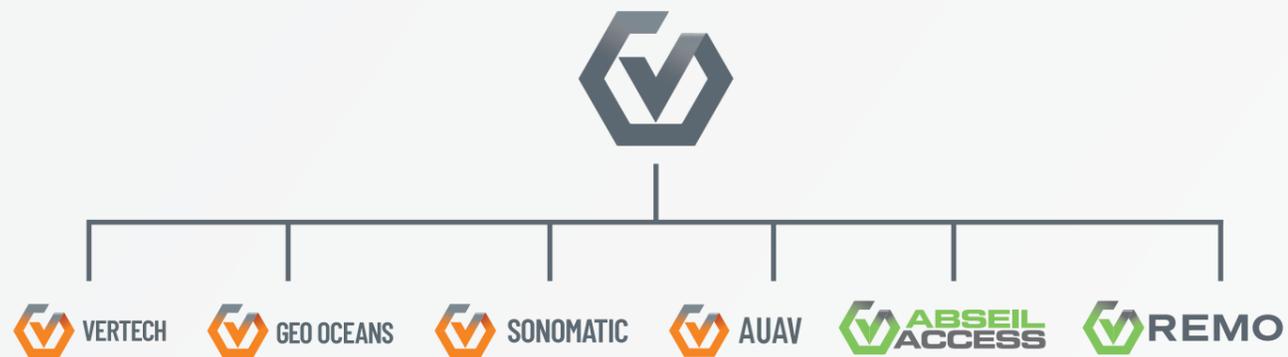
**Sonomatic** – A global leader in specialised NDT and integrity inspection solutions.

**AUAV** – Specialists in UAV, drone-based inspections, and 3D modelling.

**Remo Technical Services** – A leading supplier of turbine installation, maintenance, and inspection services.

**Abseil Access** – Specialists in bridge engineering, geotechnical slope stabilisation, rockfall protection, and rope access solutions.

Together, we deliver tailored service packages designed to meet the specific needs of each client and asset. By collaborating across our group of companies, we drive innovation, improve safety, and ensure consistent delivery of high standards across the mining and infrastructure sectors.



## OUR 4 CORE VALUES



PEOPLE



SAFETY



QUALITY



INNOVATION

# GROUP SUMMARY



Vertech provide specialist access, inspection, maintenance and engineering services across various industries. We deliver solutions to support companies managing assets and infrastructure in diverse sectors. Our expertise extends to offering advanced access systems and inspection services for maintenance, upgrades, repairs and remediation projects.



Sonomatic specialise in the design, development and application of Non-Destructive Testing (NDT) inspections. Since the company's formation in the 1980s, we have combined these NDT processes with integrity engineering capabilities to provide fully integrated inspection packages that directly meet the needs of the client.

Bringing innovative bespoke inspection solutions to the market through in-house development of equipment, software and robotics, Sonomatic resides as the global leader for ROV-deployed subsea inspection and Non-Intrusive Inspection (NII) technologies.



AUAV is a drone service provider established in 2013. We offer topographical surveys, LiDAR, inspection, 3D modelling, and bespoke projects. Our team are full-time employees, ensuring quality control. Our proprietary inSite data solution provides consulting, capture, and hosting. We're a top 20 drone service provider globally, certified by the Australian Civil Aviation Safety Authority and insured.



Remo Technical Services specialises in turbine installation, maintenance, and inspection. We offer a managed solution based on extensive experience in wind and renewable energy building on their reputation established through successful wind turbine installation and commissioning projects across Europe.



Abseil Access has supplied industry-leading services including bridge design, bridge engineering and construction, Geotechnical slope stabilisation and rockfall protection, conservation, and rope access services across a multitude of sectors since 1992. In that time, the Abseil Access team have come to understand the frequently encountered challenges our customers face and how we can provide maximum value. Our offices are located in Wellington, Christchurch, Nelson, and New Plymouth to support operations in even the most remote parts of New Zealand.

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