Antarctica and the Southern Ocean are vitally important to New Zealand

New Zealand has significant, long-standing scientific, environmental, economic and diplomatic interests in Antarctica and the Southern Ocean.

Since 1957 our permanent presence in Antarctica has been at Scott Base. For more than 60 years Scott Base has supported high quality, short, medium and long term scientific research. This important science has been further underpinned with the establishment of the Antarctic Science Platform in 2017 where $49m will be allocated over seven years through the MBIE Strategic Scientific Investment Fund. This allows a commitment to large field projects over multiple years.

Operating safely and effectively in an environment as extreme as Antarctica is challenging, and the expectations of individuals who work and live at Scott Base are changing. The base’s infrastructure is deteriorating. Ageing life support systems are becoming harder to maintain. Failure of Scott Base’s critical systems would impact on our ability to achieve New Zealand’s strategic aims.

New Zealand was one of the 12 original signatories of the Antarctic Treaty in 1959.

We want to protect Antarctica as a natural reserve, a place devoted to peace and science. We value a healthy and productive Southern Ocean and we are committed to protecting its biodiversity.

New Zealand is the Gateway to the Ross Sea region and our ecosystems are connected to Antarctic and the Southern Ocean.

NEW ZEALAND’S PLACE IN ANTARCTICA  CONTRACTOR BRIEFING PACK REV-3
New Zealand is a leader in Antarctic Science and Environmental Protection

Antarctica covers 10% of the Earth’s surface, yet it influences the climate and ocean circulation of the entire planet. Antarctic environments are among the most sensitive on Earth. Antarctica holds the key to understanding past climates and predicting future climates.

At Scott Base, our scientists are trying to answer some of the most important questions of our time. They collaborate with scientists from around the world. Their research can inform policies that will help us plan, prepare and protect in the future.

ANTARCTICA’S PAST HELPS US UNDERSTAND OUR FUTURE

By analysing ancient ice and sediments our scientists can trace back in time. Seeing what the world was like in the past helps us understand what our planet’s future might hold.

ANTARCTICA’S BIOLOGY GIVES US AN EARLY WARNING SIGNAL

Antarctic biology is highly sensitive to changes in the environment. By measuring changes in the biology, such as the behaviour of fauna, microbes and animals, our scientists can detect early warning signs of our changing world.

LONG TERM DATA SETS THAT INFORM INTERNATIONAL POLICY

Geo-magnetic, atmospheric, oceanographic and other long term scientific measurements have been recorded at Scott Base since 1957. These provide some of the longest records in Antarctica and are used to inform the United Nations Framework Convention of Climate Change and other national and international policies.

This vital work is being done in the most challenging environment on Earth.
Scott Base is New Zealand’s Antarctic research station

Comprising a group of 11 buildings, it stands at Pram Point on the southern edge of Ross Island: 4,086km south of Wellington, 1,350km from the South Pole.

Scott Base was established in 1957 when the first building was constructed by a team led by Sir Edmund Hillary as part of the famous Commonwealth Trans-Antarctic Expedition.

The base has recorded valuable scientific data sets ever since.

NEW ZEALAND CONTINUES ITS SIGNIFICANT COMMITMENT TO ANTARCTICA

Today, Scott Base is a workplace and a home for up to 100 people including scientists and support personnel. Some can spend up to 13 months living and working here.

An ever-changing community of the brightest and best working in fields such as climatology, paleoclimatology, atmospheric research, biology, oceanography and more.

OUR SCIENTISTS, OUR SUPPORT PEOPLE, OUR ACHIEVEMENTS

Sixty-two years after Scott Base was established, the high quality science being carried out here is more important than ever. But getting it done is becoming more difficult than ever.

AN ENVIRONMENT LIKE NOTHING ELSE ON EARTH

Winter temperatures can plunge to -57 degrees and sit there for weeks. During the fleeting Summer, they can just about touch zero. Antarctica is the coldest and driest place on Earth.

During those sunless winters the region is blasted by winds in excess of 200kph which can rage for days on end. Over time, this extreme environment has taken its toll on Scott Base.

The last significant upgrade to Scott Base’s infrastructure was nearly forty years ago through the early 1980’s. Now Scott Base’s outdated buildings, facilities and systems that keep its residents alive are deteriorating each day.

New Zealand needs a continuous, safe presence at Scott Base that is fit for future generations and appropriate to support future science and environmental protection needs.
Scott Base is under pressure

If we want to make a meaningful contribution to the world’s understanding of Antarctica and its impact on the Earth’s future, urgent work needs to be carried out at Scott Base.

SOME OF THE ISSUES PEOPLE HERE FACE:

- Crammed into a room with five other people makes sleeping difficult, and fatigue sets in. At times, the base is so crowded that some have to sleep outside in modified shipping containers.
- Some building cladding around the base is now 40 years old and leaking, which increases demands on heating systems and fuel reserves.
- When the base’s outdated water production system fails it can require water rationing while repairs are made. Critical water tanks holding the base supply are now twenty years beyond their design life and have started to fail.
- With its ageing electrical systems, the risk of a devastating fire at Scott Base is forever present.
- Critical life support systems are housed next to each other. The only water production plant is next to two generators and if these caught fire, the base would be closed down for several years.
- Getting equipment repaired is a constant challenge. Scientific expeditions are delayed because maintenance crew must prioritise repairs to ageing life-support systems. Accessing the infrastructure can be almost impossible in some circumstances with it housed in tight underfloor cavities.
- Using shared preparation areas delays expeditions because equipment can’t be assembled while waiting for others to clear the space.
- A lack of purpose-built stores means that locating stored equipment can be time-consuming, frustrating and expedition-ending if the parts are found to not be on base. A failure of Scott Base’s critical systems would impact the base’s ability to achieve the goals of the Strategic Science Investment Fund.

We need to act now if we want to ensure our ability to contribute high quality science and assure our presence in Antarctica.
Scott Base for the next 50 years

Those who live and work in Antarctica know from experience what is really needed for Scott Base to continue delivering high quality science into the future.

A SAFE AND MODERN WORKPLACE
Areas to work and live in that meet modern standards ensuring people are safe, whatever the weather.

COMFORTABLE ACCOMMODATION
Quiet, dark and comfortable rooms because a good night’s sleep is critical to recover and prepare for the next day.

DAY-TO-DAY SUPPORT
Fit-for-purpose work areas for all. Required meals, training, equipment and help is on-hand when needed. A base that is clean, relaxing and inspiring.

ENGINEERING SUPPORT
Safe, well-equipped workshops for repairing equipment. Fresh water and reliable heating and power. Engineering services that enable high quality science.

EASY TO USE
The layout of the base supports all activities in it, and makes it easy for people to focus on their work.

ADEQUATE SPACE
Clean, safe areas to prepare and test equipment. The ability to spread out and check everything before going into the deep field for months or deploying the monitoring equipment for years.

GOOD LOGISTICS
Everyone has access to reliable assets they need, which are well-maintained and housed in modern fit-for-purpose facilities protected from the elements.

INTERNATIONAL COLLABORATION
A redeveloped base will enable more opportunity to collaborate with other national Antarctic programmes, which will mean better research and stronger international relationships.
The proposed design

This creates a fit-for-purpose Scott Base, attracting and enabling high-quality science for the next 50 years.

All current buildings would be demolished and removed. A new base would be constructed, larger than the existing, to provide safe working areas for critical services and plant, along with accommodation at a standard that’s expected for a remote worker in New Zealand.

**SUBSTANTIAL IMPROVEMENTS IN SCIENCE CAPABILITIES**

There will be larger working spaces, modern labs and adequate staging area for traverse and deep field expeditions. New capabilities to support current and future science user requirements include preparation areas for gliders, drones and small boats. Stores will be internal and centralised to enable unrestricted access, protection from the weather and sound inventory management. Bio-security controlled zones will manage inter- and intra-continental contamination risks.

**EXCELLENT IMPROVEMENTS FOR WELL-BEING OF PERSONNEL**

Long stay winter-over staff will have single bedrooms which include adequate storage for personal property, a desk and a wardrobe. Summer staff will have smaller single rooms. Short-stay staff and visitors will be quartered in single and twin rooms. There will be four segregated rooms for medical isolation or security purposes. There will be sufficient storage for larger personal items and this will create more space in bedrooms. The ratio of showers and toilets will be increased and the bathrooms will be safer and functional.

**HIGH LEVELS OF RESILIENCE**

Life-support systems will have built-in multiple redundancy so that operations can continue in the event of a single system failure. All life-critical systems will have extremely high reliability and availability, providing absolutely no impact on operations for a minimum of 72 hours after a failure.

**SIGNIFICANT ENVIRONMENTAL PROTECTION**

This option will take an ‘energy excellence’ approach to sustainability. Buildings will be rated to Green Star® Level 5 or higher. Power and heating will be provided by a combined system which will maximise renewable energy generation.
### Timeline

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**Legend:**
- **Completed work**
- **Funding approval**
- **Proposed work**
What do we want from our contractor?

We are looking for an organisation who can bring innovative thinking to a complex project.

Our intent is to work with organisations who can offer input and advice on how best to deliver the final design and collaboration with logistics. We want to ensure buildability, assurance of asset maintainability and that the final design provides a balance of innovation and value for money.

To work with us, you must have a proven capability in fields such as construction in polar or other extreme/adverse environments; the ability to integrate complex systems and programmes; a track record with projects requiring challenging logistics to remote areas for example. We encourage you to consider a partnering approach, working with other organisations as required to provide turnkey capability for the delivery of the construction phase of our programme.

Following initial involvement with you during the design phase, we will down select in order to appoint the construction partner for the redevelopment of Scott Base.

Through the New Zealand Government Electronic Tendering System (www.gets.govt.nz), we will launch our procurement process in the last half of 2019. This process will include involvement of a shortlisted group travelling to Scott Base in February 2020 to carry out a site familiarisation visit. It is essential that you consider from the outset how you will be able to deliver on the New Zealand Government’s requirement to achieve broader outcomes through procurement, including improving New Zealand’s domestic construction sector workforce.

More details can be found here.
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