



Management Plan

For Antarctic Specially Protected Area No. 157 BACKDOOR BAY, CAPE ROYDS, ROSS ISLAND

(including Historic Site and Monument No. 15, the historic Nimrod hut of Sir Ernest Shackleton and its precincts)

Introduction

The Area is located at Backdoor Bay, Cape Royds, Ross Island, and covers an area of ~4 ha centred at 166° 10' 16"E, 77° 33' 11"S. The Area was originally designated for its significant historic values associated with the hut built by the British Antarctic (*Nimrod*) Expedition of 1907–09 led by Sir Ernest Shackleton, which was listed as Historic Site and Monument No. 15 in Recommendation 9 (1972). The Area was designated as Specially Protected Area No. 27 through Measure 1 (1998) and renamed and renumbered as Antarctic Specially Protected Area (ASPA) No. 157 by Decision 1 (2002). Revisions to the Management Plan were adopted through Measure 1 (2002), Measure 2 (2005), Measure 9 (2010), and Measure 12 (2015).

1. Description of values to be protected

The hut (Historic Site and Monument (HSM) No. 15) on which the Area is focussed was built at Cape Royds (Maps 1 and 2) in February 1908 by the British Antarctic (*Nimrod*) Expedition of 1907–09 which was led by Sir Ernest Shackleton. It was also periodically used by the Ross Sea party of Shackleton's Imperial Trans-Antarctic Expedition of 1914–17.

Structures associated with the hut include stables, kennels, a latrine and a garage created for the first motor vehicle in Antarctica. Other significant relics in the Area include an instrument shelter, supply depots, and a rubbish site. Numerous additional artefacts are distributed around the Area.

Cape Royds is one of the principal areas of early human activity in Antarctica. It is an important symbol of the Heroic Age of Antarctic exploration and, as such, has considerable historical significance. Some of the earliest advances in the study of earth sciences, meteorology, flora and fauna in Antarctica are associated with the *Nimrod* Expedition which was based at this site. The history of these activities and the contribution they have made to the understanding and awareness of Antarctica give this Area significant scientific, aesthetic and historic value.

Cape Royds is situated in Environment S – McMurdo South Victoria Land geologic based on the Environmental Domains Analysis for Antarctica (Resolution 3 (2008)) and in Region 9 – South Victoria Land based on the Antarctic Conservation Biogeographic Regions (Resolution 6 (2012)).

2. Aims and objectives

The aim of the Management Plan is to provide protection for the Area and its features so that its values can be preserved. The objectives of the Management Plan are to:

- avoid degradation of, or substantial risk to, the values of the Area;
- maintain the historic values of the Area through planned conservation work which may include:
 - a. an annual 'on-site' maintenance programme;
 - b. programme of monitoring the condition of artefacts and structures, and the factors that affect them;
 - c. a programme of site, building and artefact conservation which may occur on or off site;
 - d. mapping and otherwise recording the disposition of historic items in the hut environs; and
 - e. recording other relevant historic data.
- minimise human disturbance to the Area, its features and artefacts whilst allowing for managed access to Shackleton's *Nimrod* Hut and other parts of the Area; and
- Allow visits for management purposes in support of the aims of the Management Plan.



3. Management activities

The following management activities shall be undertaken to protect the values of the Area:

- Notices showing the location of the Area (stating the special restrictions that apply) shall be displayed prominently, and a copy of this management plan shall be kept available, at all permanent scientific stations located on Ross Island;
- Copies of this management plan shall be made available to the principal permit holder of all groups visiting the Area and/or the leader of any groups operating in the adjacent vicinity at Cape Royds;
- National Antarctic Programmes shall take steps to ensure the boundaries of the Area and the restrictions that apply within are marked on relevant maps and nautical / aeronautical charts;
- Personnel (national program staff, field expeditions, tourist expedition leaders and pilots) operating in the adjacent vicinity of, accessing or flying over the Area shall be specifically instructed by their national programme, tour operator or appropriate national authority to observe the provisions and contents of the Management Plan, including on the location, boundaries and restrictions applying to access and landings within the Area;
- Markers or signs erected within or near the boundary of the Area or in nearby facilities shall be secured and maintained in good condition, and removed when no longer required;
- A regular programme of conservation work shall be undertaken on Shackleton's *Nimrod* hut and associated artefacts within the Area;
- Systematic monitoring shall be carried out to assess the impacts of visits, and the results and any related management recommendations on limits to the number of visitors allowed over any given period shall be included in reviews of this Management Plan;
- Interested National Antarctic Programmes and relevant interested groups and organisations should consult together and coordinate to ensure:
 - a) skills and resources, particularly those related to conservation techniques, are developed and deployed to assist with protection of the historic values of the Area;
 - b) the defined limits on visitor numbers are not exceeded; and
 - c) the above management activities are implemented.

4. Period of designation

Designated for an indefinite period.

5. Maps

Map 1: ASPA No. 157 Backdoor Bay: overview.

Projection: Lambert Conformal Conic; Standard parallels: 1st 77° 33' 10"S, 2nd 77° 33' 30"S; Central Meridian: 166° 10' 00"E; Latitude of origin: 78° 00' 00"S; Spheroid: WGS84.

Data sources: The base map and contours are derived from an orthophotograph using aerial imagery acquired by USGS/DoSLI (SN7847) 16 November 1993 prepared at 1:2500 with a positional accuracy of ±1.25 m (horizontal) and ±2.5 m (vertical) and an on-ground pixel resolution of 0.4 m. Signposts: UNAVCO (Jan 2014). ASPA boundary: ERA (Jan 2014). Survey markers: LINZ (2011). Viewing areas and AWS (approx.): ERA (Jan 2014). Approximate penguin nesting area digitized from georeferenced aerial image acquired 19 Jan 2005 and supplied by P. Lyver pers. comm. 2014, updated D. Ainley pers. comm. 2019. Contours (interval 10 m) and other infrastructure supplied by Gateway Antarctica (2009).

Inset 1: Ross Sea region, showing location of Inset 2.

Inset 2: Ross Island region, showing location of Map 1, Cape Royds and McMurdo Station (US) and Scott Base (NZ).

Map 2: ASPA No. 157 Backdoor Bay: air access.

Map 3: ASPA No. 157 Backdoor Bay: topography. Map specifications as per Map 1, except the contour interval is 2 m.



6. Description of the Area

6(i) Geographical coordinates, boundary markers and natural features

Overview

Cape Royds is an ice-free area at the western extremity of Ross Island, approximately 40 km to the south of Cape Bird and 35 km to the north of Hut Point Peninsula. The ice-free area is composed of till covered basalt bedrock. The designated Area is located to the northeast of Cape Royds adjacent to Backdoor Bay. It is immediately to the east of ASPA No. 121, an Adélie penguin colony. Shackleton's *Nimrod* Expedition hut lies ~30 m from the western boundary of the Area.

South polar skuas (*Stercorarius maccormicki*) nest in the vicinity of the Area and Adélie penguins (*Pygoscelis adeliae*) from the adjacent colony at Cape Royds often transit the Area.

Boundaries

The eastern and southern boundary consists of the shoreline of the eastern coast of Cape Royds from an unmarked point in Backdoor Bay (77° 33' 07.5"S, 166° 10' 32.6"E) to an unmarked point in Arrival Bay (77° 33' 15.8"S, 166° 10' 06.6"E).

The western boundary follows the boundary of ASPA 121 from the coastline at Arrival Bay (77° 33' 15.8"S, 166° 10' 06.6"E) 18 m northwest to a signpost at the southern end of the penguin viewing area (77° 33' 15.2" S, 166° 10' 05.7" E), a further 74 m to a signpost (77° 33' 12.9"S, 166° 10' 01.9"E) on the northern end of the penguin viewing area and a further 42 m to a signpost (77° 33' 11.8"S, 166° 09' 59.0"E) east of Pony Lake.

The boundary then extends northwest from the signpost east of Pony Lake (77° 33' 11.8"S, 166° 09' 59.0"E) along a gully leading to an unmarked point (77° 33' 07.5" S, 166° 10' 12.9" E) adjacent to the New Zealand refuge hut.

The northern boundary extends due east from the New Zealand shelter (from the unmarked point at 77° 33' 07.5" S) to the coastline of Backdoor Bay (77° 33' 07.5"S, 166° 10' 32.6"E).

Human activities

A regular and multi-year programme of conservation has been carried out on Shackleton's *Nimrod* hut by New Zealand since the 1950s. The New Zealand based non-governmental organisation Antarctic Heritage Trust has undertaken conservation of Shackleton's *Nimrod* hut and associated artefacts for over 30 years in coordination with National Antarctic Programmes operating in the region.

National programme personnel from nearby McMurdo Station (US) and Scott Base (NZ) and tourist groups regularly visit Shackleton's *Nimrod* hut and the nearby vicinity. Numbers of visitors may fluctuate depending on a range of factors, including sea ice and weather conditions, available logistics, and the number of tour operators in any given year.

6(ii) Access to the Area

The Area may be accessed by first travelling to locations adjacent to but outside of the boundaries by either helicopter, vehicle, small boat, or on foot. All access into and within the Area is on foot. Particular routes have been designated for access to the Area. The specific conditions for access by pedestrians, vehicles, small boats, and aircraft are set out in Section 7(ii).

6(iii) Location of structures within and adjacent to the Area

A major feature of the Area is Shackleton's *Nimrod* Expedition hut located in a sheltered basin near the western boundary at 77° 33' 10.68"S, 166° 10' 6.37"E. The hut is surrounded by many other historic relics including an instrument shelter, supply depots, and a dump site. Numerous additional artefacts are distributed around the site. All structures within the Area are of historic origin, apart from a plaque erected to commemorate HSM No.15, which is located ~35 m east of Shackleton's *Nimrod* hut at 77° 33' 10.87"S, 166° 10' 12.54"E.

A New Zealand refuge hut and camp site are located near the northwest boundary corner of the Area and lie outside of the Area (Map 3).

The nearest permanent scientific stations to the Area are McMurdo (US) and Scott Base (NZ), which are located ~35 km south of the Area (Map 1, Inset 2).

6(iv) Location of other protected areas in the vicinity

Nearby protected areas, all located on Ross Island (Map 1, Inset 2), are:

- ASPA No. 121 Cape Royds, immediately adjacent to the Area and designated to protect the penguin colony.
- ASPA No. 155 Cape Evans, 11 km south of Cape Royds.
- ASPA No. 158 Hut Point and ASPA No. 122 Arrival Heights, which lie on Hut Point Peninsula, ~35 km south of Cape Royds.

6(v) Special zones within the Area

There are no special zones within the Area.



7. Terms and conditions for entry permits

7(i) General permit conditions

Entry into the Area is prohibited except in accordance with a permit issued by an appropriate national authority. A permit may be issued by a national authority to cover a number of visits in a season. Conditions for issuing a permit for entry to the Area are that:

- The activities are related to conservation, research and/or monitoring purposes, or are for reasons essential to the management of the Area, or are activities related to education, outreach or recreation, including tourism, provided they do not conflict with the objectives of this Management Plan;
- The activities permitted are in accordance with this Management Plan;
- The activities permitted will give due consideration via the environmental impact assessment process to the continued protection of the historic values of the Area;
- The permit shall be issued for a finite period; and
- The permit, or a copy, shall be carried by the principal permit holder, or their designated representative, when visiting the Area.

7(ii) Access to, and movement within or over, the Area

Access into the Area shall be on foot. Vehicles and aircraft landings are prohibited within the Area.

Foot access and movement within the Area

- 1) Pedestrian access into the Area should proceed from the north of the Area, and follow the established path or route from the designated helicopter landing sites, or from the designated small boat landing site in Backdoor Bay (Maps 1 and 3). The path or route proceeds from this elevated location past the shelter hut (NZ) and preferred campsite, ~100 m down a shallow valley parallel to the western boundary of the Area, to the access point northeast of Pony Lake, approximately 30 m northwest from Shackleton's *Nimrod* hut.
- 2) Movement within the Area shall be in accordance with the Code of Conduct in Section 7(iii).
- 3) Access to Shackleton's *Nimrod* hut should be made from the front of the building. Care should be exercised when walking around the hut or nearby, as delicate artefacts may be present on the ground, perhaps obscured by a thin snow covering, and may be difficult to see.
- 4) Pedestrians may follow the designated path extending southward past Shackleton's *Nimrod* Hut to the designated penguin viewing area lying on the boundary with ASPA No. 121 (Map 3).
- 5) Alternative pedestrian access to / from Backdoor Bay may be made following the designated path extending over the southern slopes of the low hill to the southeast and above Shackleton's *Nimrod* hut (Map 3), approaching near Derrick Point and to the coast at Backdoor Bay ~100 m south of the designated small boat landing site.
- 6) Alternative pedestrian access to / from the northwest of the Area should conditions dictate that small boat landings are made to the McMurdo Sound coastline north ASPA No. 121 (Map 1). The Area should be accessed using the designated path extending from the penguin viewing area situated to the north of ASPA No. 121 (Map 3).

Small boat and vehicle access

- 1) Access by small boat (when there is open water), or vehicle (when safe sea ice conditions exist), may be made to the coastline in Backdoor Bay at 77° 33.106' S, 166° 10.59' E, which lies outside of the Area, and thence access shall be made on foot following the designated routes (Maps 1 and 3).
- 2) An alternative small boat landing site is located at 77° 33.14' S 166° 09. 35' E on the western shoreline of Cape Royds, ~100 m north of the northern boundary of ASPA No. 121 Cape Royds.
- 3) Small boats may be beached or moored in Backdoor Bay or at the alternative landing site on the western shoreline of Cape Royds, and shall not be taken into the marine area of ASPA No. 121 unless authorised by permit (Map 1).
- 4) On occasions when sea ice conditions dictate that the recommended landing sites cannot be used, access may be made to an alternate access site in Backdoor Bay ~100 m to the south. A designated walking path extends from the location: see item (5) above on pedestrian access to the Area. On the western shore of the Cape Royds coastline, alternate landing sites may be sought further to the north of the recommended site indicated on Map 1.
- 5) Vehicles shall not be taken onto land and shall be parked on sea ice in Backdoor Bay, except when necessary for essential management purposes. Vehicles shall not be taken into the marine area of ASPA No. 121 even when sea ice is present unless authorised by permit (Map 1).



Aircraft access and overflight

Taking into account the historic values as well as local concentrations of breeding birds, aircraft within and near the Area shall operate according to strict observance of the following conditions (refer Map 2):

- 1) Helicopter landings within the Area are prohibited. Helicopter landings result in rotor wash, which can cause damage to the historic features.
- 2) Overflight of the Area by piloted aircraft below 2000 ft (~610 m) Above Ground Level is prohibited, except in accordance with a permit issued by an appropriate national authority.
- 3) Overflight / landings of all aircraft within ½ nautical mile (~930 m) of ASPA No. 121 are strongly discouraged, except for scientific or management purposes (Map 2).
- 4) Helicopters should land at the Primary landing site (77° 33.06' S 166° 10.38' E) (Maps 1 - 3) 250 m northeast of Shackleton's *Nimrod* hut, and ~125 m north of the New Zealand refuge hut.
- 5) A Secondary landing site is located at 77° 33.11'S, 166° 10.24'E, ~100 m SW of the Primary landing site (Maps 2 and 3), which should be avoided when the penguin colony is occupied (01 November through 01 March). Another Secondary landing site, which may be used year-round, is located adjacent to the seasonal field camp (US) ~200 m north of the Primary landing site.
- 6) Overflight below 2000 ft (610 m) and landings within the Area by Remotely Piloted Aircraft Systems (RPAS) are prohibited except in accordance with a permit issued by an appropriate national authority. RPAS use within the Area should follow the Environmental Guidelines for Operation of Remotely Piloted Aircraft Systems (RPAS) in Antarctica (Resolution 4 (2018)).

Limits to the number of people allowed within the Area

Control of the number of people and movement within the Area, both at any given time and cumulatively over time, is necessary to minimise damage and deterioration precipitated by:

- a) physical foot traffic of visitors across the vulnerable features of the Area and inside Shackleton's *Nimrod* hut in particular; and
 - b) measurable changes in ambient conditions (i.e. temperature and humidity) inside Shackleton's *Nimrod* hut.
- The maximum number in the Area at any time (including guides and those within the hut) shall be: 40 people.
 - The maximum number within the hut at any time (including guides) shall be: 8 people.
 - The annual maximum number of visitors shall be: 2,000 people.
 - The observed effects of monitored visitor levels suggest that significant adverse impacts could be caused by exceeding the maximums specified above.
 - These limits have been set based on the best advice available from conservation advisory agencies (which include conservators, archaeologists, historians, museologists and other heritage protection professionals). These limits shall be reconsidered at each management plan review, when the limit may be adjusted based on the monitored impacts at the site.
 - All educational, outreach and recreational (including tourism) visits shall be supervised by a trained guide nominated by the operator (refer Section 7(x)). Adequate supervision of visits to the Area is necessary to prevent damage caused by crowding and by actions inconsistent with the Code of Conduct in Section 7(iii).



7(iii) Activities that may be conducted within the Area

- Visits for conservation or management purposes;
- Educational, outreach and/or recreational visits, including tourism; and
- Scientific activity that does not detract from or damage the values of the Area.

Visitors should adhere to the following Code of Conduct for site visits, except where conservation, research, monitoring or management activities specified in the permit require otherwise:

Code of Conduct

- Smoking or the use of any naked flames in the Area, and particularly in or around Shackleton's *Nimrod* hut, is strictly prohibited, as fire is a major risk;
- Hazardous materials, such as asbestos, chemicals, mould, etc., are present on site. Avoid handling anything within the protected area and huts.
- Thoroughly clean grit, dirt, guano, ice and snow from boots using the brushes provided before entering Shackleton's *Nimrod* hut to reduce floor abrasion. Larger groups are recommended to lay the tarpaulin provided outside to keep footwear and personal items clean whilst waiting to enter the building;
- Remove any clothing made wet by sea water, and any sea ice crystals from boots, as salt particles accelerate corrosion of metal objects;
- Do not touch, move or sit on any items or furniture in the huts – handling artefacts causes damage;
- As many areas are cramped and artefacts can be accidentally bumped, do not take bags or wear packs inside, do not use 'selfie' sticks for photos, and avoid tripods or monopods when the maximum number of visitors (8) are in the hut at one time;
- Only use tripods or monopods with flat bottomed rubber bases as opposed to those with metal spikes which can damage the hut floor;
- When moving around the site, take great care not to tread on any artefacts, which may be difficult to see;
- Use the preferred walking routes; and
- Visits should be recorded in the visitor book provided. This allows data on times and numbers of visitors to be correlated with temperature and humidity data automatically logged inside the hut.

7(iv) Installation, modification or removal of structures / equipment

- Existing structures shall not be altered, and new structures shall not be erected in the Area, or scientific equipment installed, except when authorised by permit for conservation, educational or scientific purposes that do not detract from or damage the values of the Area as specified in Section 1.
- Historic items shall not be removed from the Area, unless specified in a permit issued in accordance with the provisions of Section 7(viii).

7(v) Location of field camps

- Shackleton's *Nimrod* hut shall not be used for living purposes.
- Camping is prohibited within the Area.
- Camping is permitted at the location of the New Zealand shelter hut at the northwestern boundary of the Area (Map 3).
- A seasonal field camp (US) used in support of science is located ~300 m north of the Area.
- Camping is also allowed at other sites in the vicinity in accordance with national procedures provided these are outside of the Area.



7(vi) Restrictions on materials and organisms that may be brought into the Area

In addition to the requirements of the Protocol on Environmental Protection to the Antarctic Treaty, the following are restrictions on materials and organisms that may be brought into the area:

- Deliberate introduction of animals, plant material, micro-organisms or soils into the Area is prohibited;
- Visitors shall take precautions to prevent the accidental introduction of animals, plant material, micro-organisms and soils by ensuring that their equipment brought into the Area is clean. To the maximum extent practicable, footwear and other equipment used or brought into the area (including backpacks, carry-bags and other equipment) shall be thoroughly cleaned before entering the Area;
- Food shall not be consumed within the Area;
- Fuel, food, chemicals, and other materials shall not be introduced or stored within the Area, unless specifically authorised by permit for essential purposes connected with the conservation of the historic structures or the associated artefacts, and shall be stored and handled in a way that minimises the risk of their accidental introduction into the environment;
- All materials introduced shall be for a stated period only and shall be removed by the end of that stated period; and
- If release occurs which is likely to compromise the values of the Area, removal is encouraged only where the impact of removal is not likely to be greater than that of leaving the material in situ.

7(vii) Taking or harmful interference with native flora and fauna

Taking or harmful interference with native flora and fauna is prohibited, except in accordance with a permit issued under Article 3 of Annex II of the Protocol on Environmental Protection to the Antarctic Treaty. Where animal taking or harmful interference is involved, this should, as a minimum standard, be in accordance with the SCAR Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica

7(viii) Collection of anything not imported by the permit holder

- 1) Material may be collected and removed from the Area for conservation or scientific reasons consistent with the objectives of this Management Plan only in accordance with a permit issued by an appropriate national authority.
- 2) Materials that pose a threat to the historic values of the Area, environment or human health may be removed from the Area for disposal, in accordance with a permit, where they meet one or more of the following criteria:
 - i. the artefact presents a threat to the historic values, environment, wildlife or human health and safety;
 - ii. it is in such poor condition that it is not reasonably possible to conserve it;
 - iii. it does not contribute in any significant way to our understanding of the hut, its occupants, other artefacts, or the history of Antarctica;
 - iv. it does not contribute to, or it detracts from, the visual qualities of the site or the hut;
 - v. it is not a unique or rare item;

and where such action is:

- vi. undertaken by parties with appropriate heritage conservation expertise; and
 - vii. part of an overall plan for conservation work at the site.
- 3) National authorities should ensure that any removal of artefacts and assessment against the above criteria is carried out by personnel with appropriate heritage conservation expertise.
 - 4) Artefacts judged to be of high historic value, which cannot be conserved on site with currently available techniques, may be removed in accordance with a permit for storage in a controlled environment until such time as they can safely be returned to the Area, which should be the preferred outcome unless there is a high risk that return would be likely to damage or destroy the integrity of the artefact(s).
 - 5) Samples of soil and other natural materials may be removed for scientific purposes only in accordance with permit issued by an appropriate national authority.

7(ix) Disposal of waste

All human waste, grey water and other waste generated by work parties or visitors shall be removed from the Area.



7(x) Measures that may be necessary to continue to meet the aims of the Management Plan

- Information on the requirements of this Management Plan shall be provided to all visitors.
- The Code of Conduct set out in Section 7(iii) shall be followed by all visitors, except where conservation, research, monitoring or management purposes require otherwise.
- Operators facilitating educational, outreach and recreational visits (including tourism) to the Area shall, prior to commencement of the summer season, nominate people with a working knowledge of both the site and this Management Plan to act as guides during visits and provide training appropriate to ensure they are capable of fulfilling their roles.
- All educational, outreach and recreational visits, including tourism, shall be supervised by a nominated guide, who is responsible for briefing visitors on the Code of Conduct and the requirements of this Management Plan and for ensuring their full compliance. The guide(s) shall actively monitor visitor activity within the Area, and in particular within Shackleton's *Nimrod* hut, and take corrective actions against any potential or actual breaches of the Management Plan and Code of Conduct.

7(xi) Requirements for reports

- The principal permit holder for each visit to the Area shall submit a report to the appropriate national authority after the visit has been completed in accordance with national procedures and permit conditions.
- Such reports should include, as appropriate, the information identified in the visit report form contained in the Guide to the Preparation of Management Plans for Antarctic Specially Protected Areas (Resolution 2 (2011)). If appropriate, the national authority should also forward a copy of the visit report to the Party that proposed the Management Plan, to assist in managing the Area and reviewing the Management Plan.
- Any removal of materials in accordance with Section 7(viii) shall be detailed in the report, including the reason for removal and the current location of the items or the date of disposal. Any return of such items to the site shall also be reported to the appropriate national authority.
- Parties should, wherever possible, deposit originals or copies of such original visit reports in a publicly accessible archive to maintain a record of usage, for the purpose of any review of the Management Plan and in organising the scientific use of the Area.
- The appropriate authority should be notified of any activities / measures undertaken, and / or of any materials released and not removed, that were not included in the authorised permit.

8. Supporting documentation

Antarctic Heritage Trust 2003. *Conservation Report: Shackleton's Hut British Antarctic Expedition 1907-1909*. NZ Antarctic Heritage Trust, Christchurch.

Antarctic Heritage Trust 2018. *Antarctic historic huts of the Ross Sea region*. NZ Antarctic Heritage Trust, Christchurch.

Antarctic Treaty Parties. Guidelines for handling of pre-1958 historic remains whose existence or present location is not known. Resolution 5 (2001).

Antarctic Treaty Parties. Guidelines for the designation and protection of Historic Sites and Monuments. Resolution 3 (2009).

Antarctic Treaty Parties. Guidelines for the assessment and management of heritage in Antarctica. Resolution 2 (2018).

List of boundary coordinates

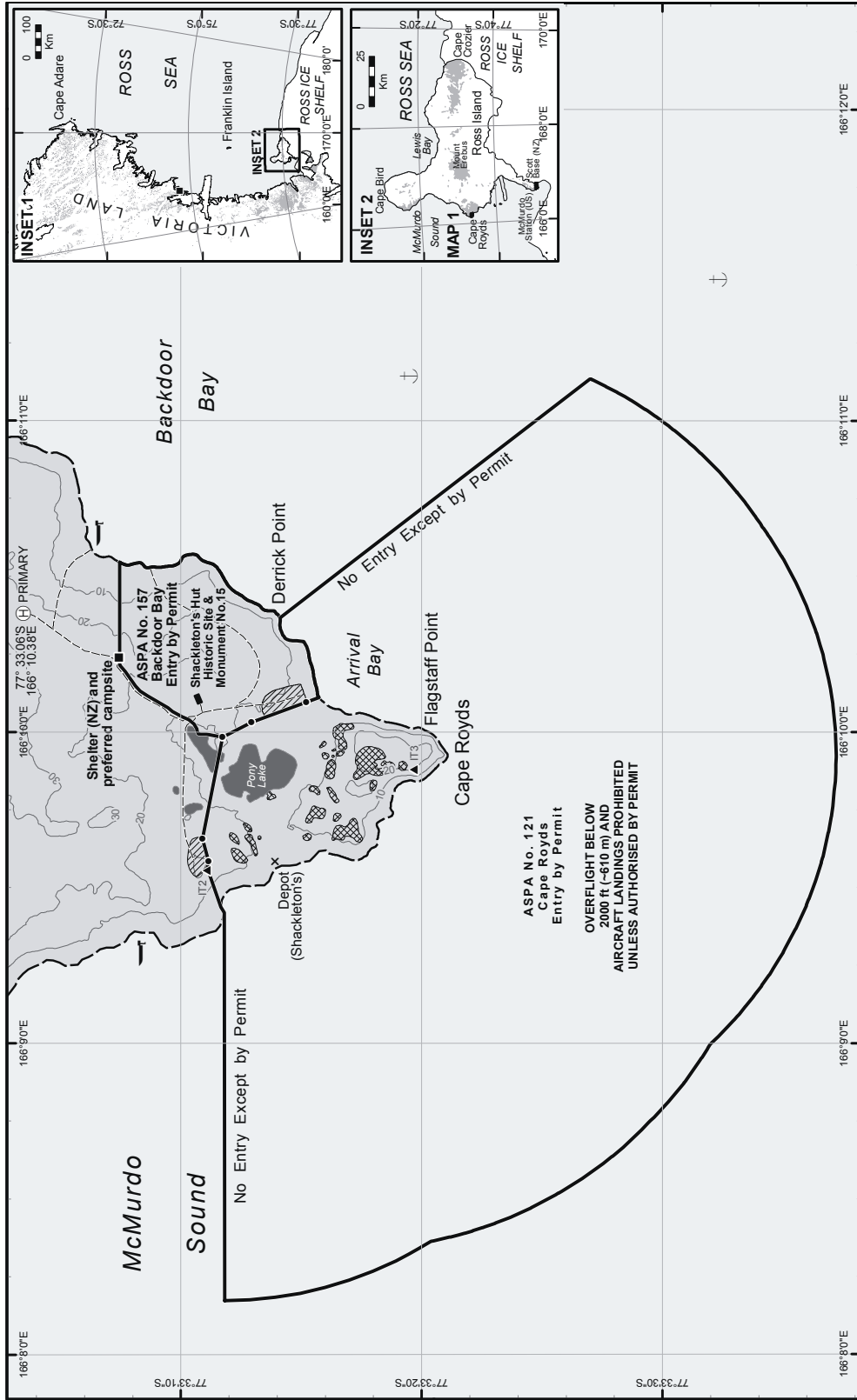
Southwestern corner (Arrival Bay): 77° 33' 15.8"S, 166° 10' 06.6"E;

Western corner (Pony Lake): 77° 33' 11.8"S, 166° 09' 59.0"E;

Northwestern corner (shelter (NZ)): 77° 33' 07.5" S, 166° 10' 12.9" E;

Northeastern corner (Backdoor Bay): 77° 33' 07.5"S, 166° 10' 32.6"E;

Southeastern corner (Derrick Point): 77° 33' 14.1" S, 166° 10' 22" E.

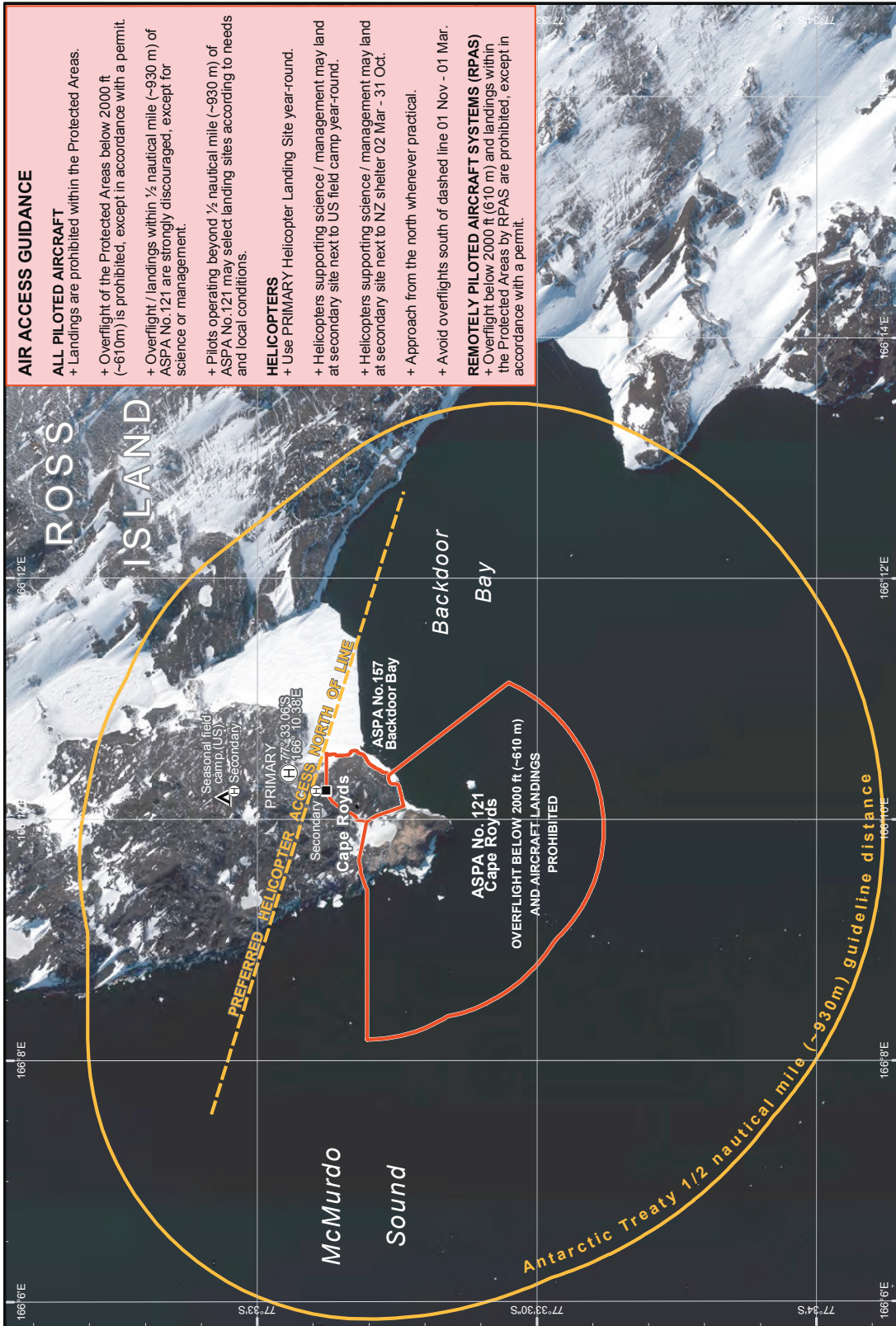


Map 1: ASPA No. 157 Backdoor Bay - overview

24 Mar 2020 (v3.0)
 Environmental Research & Assessment
 Antarctica
 New Zealand

Projection: Lambert Conformal, Spheroid: NZMG, Horizontal datum: NZMG, Data source: UNAVCO (Jan 2014); Topography & infrastructure data supplied by Antarctica NZ (2019); Penguins: aerial image (Lancaster Research 2005) digitised by ERCA, updated 2019 (Antony pers. comm).

- Coastline (approx)
- Ocean
- Permanent ice
- Ice free ground
- ASPA boundary
- Penguin nesting area (approx.)
- Penguin viewing area
- Building
- Survey marker
- Helicopter landing site
- Preferred small boat landing site
- Ship anchorage

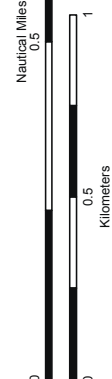


Map 2: ASPA No. 157 Backdoor Bay - air access

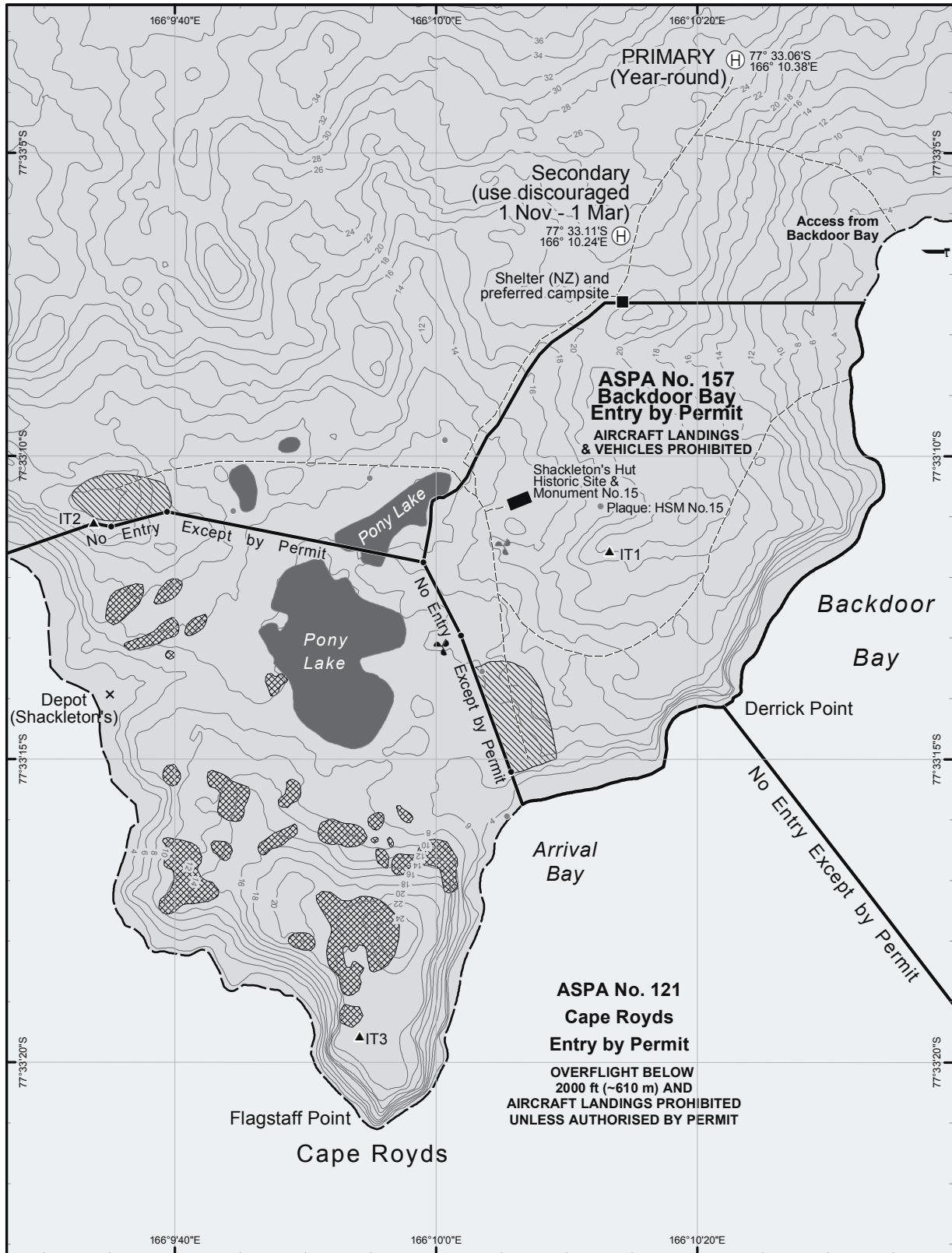
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Antarctica New Zealand / US Antarctic Program
Environmental Research & Assessment



- Antarctic Specially Protected Area (ASPA) boundary
- Recommended Aircraft Separation Distance
- Shelter (NZ)
- Primary HLS
- Secondary HLS
- Seasonal camp (US)



Projection: Lambert Conformal Conic
Spheroid: Spheroidal (datum: WGS84)
Data sources: ASPA boundaries: EPA (2020);



Map 3: ASPA No. 157 Backdoor Bay - topography

24 Mar 2020 (v1.0)
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- | | | |
|--------------------|-------------------------------------|-----------------------------------|
| Ocean | ASPAs boundary | Signpost / boundary point |
| Permanent ice | Penguin nesting area 2005 (approx.) | Signpost |
| Ice free ground | Penguin viewing area | Historic weather station |
| Lake / pond | Path | Automatic Weather Station |
| Coastline (approx) | Survey marker | Preferred small boat landing site |
| Contour (2 m) | Building | Helicopter landing site |

0 50 100 N
 Metres

Projection: Lambert Conic Conformal,
 Spheroid and horizontal datum: WGS84.
 Data sources: ASPA boundary: ERA (Jan 2014);
 Signposts: UNAVCO (Jan 2014);
 Topography & infrastructure data supplied
 by Antarctica NZ (2019);
 Penguins: aerial image (Landcare Research 2005)
 digitised by ERA, updated 2019 Ainley pers. comm.