



Australian Government

Department of Defence

Facilities Requirements for the Maritime Patrol Aircraft Replacement Capability Project

RAAF Base Edinburgh, SA

RAAF Base Darwin, NT

RAAF Base Pearce, WA

RAAF Base Townsville, QLD

HMAS Stirling, WA

Statement of Evidence
to the
Parliamentary Standing Committee
on Public Works

Canberra, Australian Capital Territory

October 2014

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Contents

List of Attachments	3
Identification of the need	4
Capability overview	5
The AIR7000 program	6
Facilities to support AIR7000 Phase 2B	7
Need for the work	8
Detailed description of the proposed scope of works	11
Options considered to fulfil the need	11
RAAF Base Edinburgh	12
RAAF Base Darwin	17
RAAF Base Townsville	19
RAAF Base Pearce	20
HMAS Stirling	21
Reasons for adopting the proposed course of action	22
Details and reasons for site selection	23
Heritage considerations	23
Non-Indigenous heritage considerations	23
Indigenous heritage considerations	24
Environmental impact assessments	25
Flora and fauna	25
Asbestos	26
Contamination assessment	26
Key legislation	27
Impact on the local community and stakeholder consultation	28
Re-use of existing structures	29
Public transport	30
Local road and traffic concerns	30
Zoning and local approvals	30
Master and site planning	31
Planning and design concepts	31
Structural design	32

Materials and furnishings	32
Mechanical services	32
Hydraulic services	33
Electrical services	33
Security and fire protection	33
Acoustics	33
Landscaping	34
Environmental sustainability of the project	34
Energy targets	34
Measures to reduce energy and water use	35
Details of compliance with Local, State/Territory and Commonwealth water and energy policies	36
Demolition and disposal of existing structures	36
Provisions for people with disabilities	37
Childcare provisions	37
Work Health and Safety measures	37
Cost effectiveness and public value	38
Project budget	38
Details of project delivery system	38
Construction program	38
Public value	39
Revenue	39

List of Attachments

1. P-8A Poseidon specification
2. P-8A Poseidon aircraft
3. Base location plans
4. RAAF Base Edinburgh site map
5. RAAF Base Edinburgh Hangar, Maintenance and Operational Facilities – 3D
6. RAAF Base Edinburgh Hangar, Maintenance and Operational Facilities – level 1
7. RAAF Base Edinburgh Hangar, Maintenance and Operational Facilities – level 2
8. RAAF Base Edinburgh Operational Conversion Facility - level 1
9. RAAF Base Edinburgh Operational Conversion Facility - level 2
10. RAAF Base Edinburgh pavement works
11. RAAF Base Darwin site map
12. RAAF Base Darwin Hangar, Maintenance and Operational Facilities – 3D
13. RAAF Base Darwin Hangar, Maintenance and Operational Facilities – level 1
14. RAAF Base Darwin Hangar, Maintenance and Operational Facilities – level 2
15. RAAF Base Darwin pavement works
16. RAAF Base Townsville site map
17. RAAF Base Townsville pavement works
18. RAAF Base Pearce site map
19. RAAF Base Pearce pavement works
20. HMAS Stirling site map
21. Stakeholder list

Facilities Requirements for the Maritime Patrol Aircraft Replacement Capability

Identification of the need

1. Department of Defence (Defence) policy is to develop a force capable of deterring and defeating attacks on Australia and contributing to stability and security in the South Pacific and East Timor as a priority. This requires a strategy focussed on the maritime domain including the ability to achieve and maintain freedom of action through control of the sea and air approaches, and the ability to conduct operations against an adversary as far from Australia as possible.
2. Defence planning guidance calls for an Australian Defence Force (ADF) capable of long range, long endurance maritime surveillance, reconnaissance and response, and effective anti-submarine and anti-surface warfare. Additionally, as part of Australia's broader national security framework, the ADF requires comprehensive levels of situational awareness in its primary operating area, including a capability for continuous wide area surveillance in our northern approaches.
3. The 2013 Defence White Paper stated that Defence will continue to provide "effective intelligence, surveillance and reconnaissance capability across Australia's vast maritime area of interest. This will require ongoing sustainment of the frequently used but ageing AP-3C Orion fleet, along with the timely acquisition of a replacement capability"¹.
4. The White Paper identified that Government intends to replace the AP-3C Orion aircraft fleet with P-8A Poseidon aircraft, complemented by unmanned aircraft capable of undertaking broad area maritime surveillance and fleet overwatch. The goal is to provide long-range, long-endurance maritime surveillance and response and an effective anti-submarine and anti-surface warfare capability.

¹ 2013 Defence White Paper, p. 88.

Capability overview

5. The P-3 Orion aircraft has provided the ADF maritime intelligence, surveillance, reconnaissance and response capability since 1968. The primary role of the aircraft, currently operated by 92 Wing (the ADF's maritime patrol wing), is to provide maritime, surveillance, reconnaissance and strike capabilities, and to defend Australia and its national interests through the denial of sea approaches to hostile forces.
6. These capabilities further bolster Australia's capacity to undertake border protection operations, countering people smuggling, illegal fishing and piracy. The Orion fleet provides a critical element of Australia's anti-submarine warfare capability, as well as conducting maritime strike. The Orion also has capability to conduct search and deliver survival stores (an air-sea rescue package) in case of maritime emergencies.
7. The Orion has been constantly involved in Australia's border protection and security of national economic assets under Operation RESOLUTE² and Operation SOVEREIGN BORDERS³. The national Search and Rescue role and capabilities performed by the Orion have been called upon on numerous occasions by Australian and international agencies in locations as diverse as the Southern Ocean, the northern approaches, Papua New Guinea and the South Pacific. The Orion has a long involvement in multinational exercises and activities, such as RIMPAC⁴ and the Five Power Defence Arrangements (FPDA)⁵. High end war-fighting capabilities provided by the Orion underpinned 92 Wing's successful ten year deployment to the Middle East Area Operations (MEAO), which concluded in late 2012.
8. The P-3 Orion aircraft was upgraded to the AP-3C Orion configuration between 1998 and 2005 to improve the radar, intelligence gathering and computing systems. However, the AP-3C Orion faces increasingly significant life-of-type issues including airframe fatigue, aircraft system supportability challenges, and mission system obsolescence. The last aircraft is

² Contributes to the whole of government program to detect, intercept and deter vessels carrying unauthorised arrivals from entering Australia through the North-West maritime approaches.

³ Implementation of the Government's Border Protection Policy

⁴ Aimed at practising maritime operations and enhancing interoperability between nations with interests in the Pacific Rim.

⁵ Australia, Malaysia, New Zealand, Singapore and the United Kingdom are the nations linked by individual bilateral arrangements to form the Five Power Defence Arrangements (FPDA).

scheduled for withdrawal from service in 2019. After this time the aircraft would be increasingly less operationally and economically viable, due to reducing fatigue life, increasing costs and diminishing capability.

The AIR7000 program

9. The Defence Capability Plan has identified project AIR7000 to establish the Australian Defence Force's advanced Maritime Intelligence, Surveillance, Reconnaissance and Response capability. This advanced Maritime Intelligence, Surveillance, Reconnaissance and Response capability will be delivered through manned and unmanned capability phases as follows:
 - a. **Unmanned (AIR7000 Phase 1B):** acquisition of a fleet of Multi-mission Unmanned Aircraft Systems – Northrop Grumman MQ-4C Triton aircraft. This phase remains subject to Government approval.
 - b. **Manned (AIR7000 Phase 2B/2D):** acquisition of eight Boeing P-8A Poseidon Maritime Patrol Reconnaissance aircraft under Phase 2B and up to an additional four P-8A Poseidon aircraft under Phase 2D. Phase 2B was approved by Government in February 2014 with Phase 2D expected to be considered by Government in 2016.
10. As part of the advanced maritime surveillance capability, AIR7000 Phase 2B will acquire eight P-8A Poseidon aircraft through a government-to-government cooperative program with the United States of America to replace the current fleet of AP-3C Orion aircraft. The P-8A Poseidon is based on the commercial Boeing 737-800 aircraft and has been under development for many years. The P-8A Poseidon became operational in the United States Navy in 2013.
11. In June 2007, AIR7000 Phase 2B gained Australian Government First Pass Approval, permitting Australia's entry into the United States Navy P-8A Poseidon Program. Australia subsequently entered into a Memorandum of Understanding with the United States Navy for cooperative development of the P-8A Poseidon aircraft.
12. In 2012, Australia entered into a further Memorandum of Understanding with the United States Navy, which provided the framework for detailed acquisition, sustainment and development of the P-8A Poseidon aircraft. Information on the aircraft is included in Attachments 1 and 2.

13. The Maritime Intelligence, Surveillance, Reconnaissance and Response capability elements being acquired under the AIR7000 Phase 2B project include:
- a. a fleet of eight P-8A Poseidon aircraft;
 - b. armament, ammunition and counter-measures;
 - c. two Operational Flight Trainers for pilot conversion and continuation training;
 - d. two Weapons Tactics Trainers for aircrew conversion and continuation training;
 - e. a full suite of aircraft maintenance training devices for maintenance personnel training;
 - f. one Tactical Operations Centre at RAAF Base Edinburgh to accommodate mission planning, command and control, information analysis and information dissemination associated with the P-8A Poseidon aircraft; and
 - g. two Mobile Tactical Operations Centres, one of which will be stored at RAAF Base Edinburgh and used during deployed operations and the second will be permanently located at RAAF Base Darwin in support of 92 Wing border protection operations.
14. The first P-8A aircraft is expected to arrive in Australia in late 2016. Defence will continue to maintain effective intelligence, surveillance and reconnaissance capability across Australia's vast maritime area of interest through a "carefully managed transition between AP-3C and P-8A fleets".⁶ Maintaining a seamless level of capability requires concurrent P-8A Poseidon and AP-3C Orion operations throughout the transition period from 2016 to 2019.

Facilities to support AIR7000 Phase 2B

15. This Statement of Evidence to the Parliamentary Standing Committee on Public Works relates to the infrastructure, facilities and airfield works required to support the manned component of the advanced Maritime Intelligence, Surveillance, Reconnaissance and Response capability. This involves the transition from the existing Lockheed AP-3C Orion aircraft to the Boeing P-8A Poseidon aircraft.

⁶ 2013 Defence White Paper, p. 88.

16. The project will deliver facilities, infrastructure and airfield works for the introduction of the Boeing P-8A Poseidon to the Main Operating Base at RAAF Base Edinburgh (South Australia) and designated Forward Operating Bases at RAAF Bases Darwin (Northern Territory), Pearce (Western Australia) and Townsville (Queensland). In addition, works are required to refurbish the existing Torpedo Maintenance Facility, and construct new Explosive Ordnance storage at HMAS Stirling (Western Australia). The Base locations are outlined in Attachment 3.

Need for the work

17. The proposed facilities include administration, operations, simulation and training, maintenance hangars, workshops to conduct operational level maintenance, aircraft pavements, aircraft rinse facilities, explosive ordnance facilities and associated engineering services.
18. The size and weight of the P-8A aircraft will require new maintenance hangars at RAAF Bases Edinburgh and Darwin to operate and maintain these new aircraft. The P-8A aircraft is wider and heavier than the AP-3C Orion and will be more demanding, and potentially damaging, on aircraft pavements. Upgrades including strengthening of existing pavements and runway lengthening to a number of RAAF and joint user airfields are required.
19. **Security requirements.** The agreement between the USA and Australia for the supply of the P-8A aircraft requires that Australia comply with certain specific USA security requirements. These include the information and physical security of all aspects of the aircraft system, including training, maintenance and operations. The security requirements must meet the higher physical security zone requirements of the Protective Security Policy Framework. The physical security of the aircraft requires a secure apron and maintenance areas, while uninstalled components (software and hardware) require secure storage.
20. **Squadron facilities.** The command, administrative and maintenance functions for both the training and operational squadrons require facilities which physically separate secure and non-secure activities while supporting the functional requirements of a modern maritime patrol and surveillance squadron.
21. **Maintenance system.** The P-8A maintenance system includes operational maintenance before and after each flight, squadron level maintenance on the aircraft, centralised

maintenance of uninstalled aircraft components and deeper level maintenance for major repairs and upgrades. Maintenance spaces are needed for the P-8A aircraft which include storage for specialist tools and ground support equipment. Maintenance areas must provide safe separation distances around aircraft, and meet squadron deployability, security and operational requirements. Aircraft and engine wash facilities are needed to manage the effect of salt and dust on the aircraft.

22. **Hangars and maintenance areas.** Hangars and maintenance areas are required in order for personnel to perform operational level maintenance to maintain aircraft and equipment in mission capable status. To enable efficient maintenance functions, the hangar facilities should include collocated maintenance and storage areas.
23. **Simulators and other training devices.** Training devices, including high fidelity simulation systems such as aircraft mission system, cockpit and integrated maintenance trainers are required to support training for both aircrew and maintenance personnel for the P-8A. The P-8A will rely on an increased level of simulation through training and mission rehearsal, which reduces the number of aircraft flight hours allocated to training. The resulting hours can then be re-invested directly into operational tasking. The complete suite of training devices being procured, which will need to be handled in a suitable secure facility, include:
 - a. Two high-fidelity full-motion Operational Flight Trainers (OFTs) for pilot training;
 - b. Two high-fidelity Weapon and Tactics Trainers (WTTs) for mission crew training;
 - c. One Training System Support Centre (TSSC);
 - d. One suite (of up to 4 separate training components) of Virtual Maintenance Trainer (VMT) devices for maintenance training;
 - e. One Ordnance Load Trainer (OLT) for both aircrew and ordnance specialist training;
 - f. A number of computer based Flight Management Control System (FMCS) trainers; and
 - g. A number of computer based Tactical Operational Mission Software (TOMS) trainers.
24. **Runway extensions.** The P-8A Poseidon is based on the commercial Boeing 737-800 aircraft; the heaviest 737 variant. The P-8A Poseidon is taller, heavier and has a greater wingspan than the currently operated AP-3C Orion. This presents challenges in ensuring runways and aprons allow full utilisation of the P-8A capabilities.

25. The current length of the runway at RAAF Bases Edinburgh, Townsville and Pearce cannot support take off in either direction for normal operations at maximum-all-up-weight. Without runway extensions, the effectiveness of the P-8A capability would be restricted in range and endurance.
26. Without the required take off length available, the P-8A Poseidon would be required to land and refuel at nearby civilian airports that have a longer runway. Should the aircraft be carrying explosive ordnance, this would not be possible without a waiver. The additional impact of a refuelling stop is increased maintenance, aircraft fatigue, cost and response time to operations.
27. **Pavement strength (aprons, taxiways, thresholds).** The P-8A Poseidon aircraft requires higher strength pavement due to higher loading on each wheel and higher tyre pressures. The pavements designed for current aircraft are not able to withstand the additional load of the P-8A aircraft.
28. **Aircraft parking positions.** The parking apron provides an area for aircraft parking and for conducting minor aircraft maintenance. The current AP-3C Orion parking positions are not suitable for the P-8A Poseidon due to the larger wingspan and heavier loading. The larger wingspan requires a larger parking position to accommodate the required separation distances between the aircraft, with the result that fewer aircraft can be parked on the apron. The heavier loading requires either the existing pavement to be strengthened or new parking apron to be constructed.
29. **Hydrant refuelling.** Fuel hydrant lines are required to reduce aircraft refuelling times and minimise labour requirement for refuelling. New fuel hydrant lines are proposed to be installed on the RAAF Base Edinburgh and RAAF Base Darwin aprons. The P-8A Poseidon will use existing hydrant lines at RAAF Base Townsville. Refuelling at RAAF Base Pearce will be performed under the existing contractor support arrangements.
30. **Aircraft rinse facility.** The P-8A Poseidon requires regular rinsing of the aircraft to reduce the build-up of airborne contaminants on the exterior of the aircraft from low flying surveillance operations over the sea. Rinsing aircraft after flight will reduce the structural corrosion on the P-8A Poseidon caused by airborne contaminants, prolonging the life of the aircraft. A rinse facility allows the aircraft to taxi through a clean water rinse where water is sprayed over the aircraft, similar to a drive-through car wash.

31. **Ordnance loading aprons.** An Ordnance Loading Apron (OLA) is a licensed apron to allow the loading or unloading of explosive ordnance on an aircraft. As the P-8A Poseidon will carry weapons, OLAs are required for operational use. The existing OLAs at RAAF Bases Townsville and Pearce are not of sufficient size or pavement strength to support the wider and heavier P-8A Poseidon aircraft. The existing OLAs at RAAF Bases Edinburgh and Darwin are adequate for P-8A operations.
32. **Airfield lighting and navigation aids.** Current P-8A operations at RAAF Base Edinburgh are constrained by adverse weather when reduced visibility (e.g. fog) limits the ability of aircraft to land. In order to ensure maximum operational flexibility of the new P-8A capability, additional navigational aids are required for RAAF Base Edinburgh. The introduction of High Intensity Approach Lighting (HIAL) and an upgrade to the Instrument Landing System (ILS) will reduce the decision height for pilots, which will allow pilots to fly in weather where the runway is not clearly visible. This will allow flying operations to continue in poor weather, such as rain, low cloud and fog. HIAL is proposed at RAAF Base Edinburgh due to the high number of operations out of this base and the prevalence of fog that restricts current operations. HIAL is not required at RAAF Bases Townsville and Pearce as fog is less prevalent and there are fewer operations from these bases. RAAF Base Darwin has an existing HIAL system.

Detailed description of the proposed scope of works

Options considered to fulfil the need

33. Defence has completed concept design activities for the project. During this process, alternatives for reuse of existing facilities were considered. However, due to the need to maintain the AP-3C Orion in service, opportunities for reuse are limited and introduce additional costs associated with decanting AP-3C functions and unacceptable capability risks. In addition, the existing facilities at RAAF Bases Edinburgh and Darwin do not meet the higher physical security zone requirements of the Protective Security Framework for the facilities, as stipulated in the agreement between United States and Australia for the supply of the P-8A Poseidon aircraft and would require substantial improvements to achieve the required standard.

34. Options considered for runway extensions at RAAF Bases Edinburgh, Townsville and Pearce included relocating the existing runway thresholds (coincidental threshold) or adding pavement pre-threshold for take off only (displaced threshold):
- a. **Coincidental threshold.** The runway is extended by moving the threshold, which requires relocating the instrument landing systems and/or land acquisition for the required Runway End Safety Area (RESA). This is a conventional style of runway extensions that increases both the take off and landing distances available. It is named coincidental threshold as the threshold is in the same location as the end of the runway.
 - b. **Displaced threshold.** The runway is extended by constructing a pavement beyond the current threshold. This pavement is used for take off only; aircraft are still required to land using the displaced threshold, therefore the take off distance available is increased but the landing distance available remains the same. This style of runway extension removes the requirement for relocation of the landing instrumentation and the extension becomes the RESA for emergency landing. It is named displaced threshold as the threshold is displaced from the end of the runway.

RAAF Base Edinburgh

35. RAAF Base Edinburgh is located 25km north of Adelaide in South Australia and will be the main operating base for the P-8A Poseidon aircraft.
36. Constructed in 1954, RAAF Base Edinburgh was originally utilised as a support base for a joint Australian and British government agreement for weapons testing and development. The weapons development role for Edinburgh changed during 1968 with the arrival of 11 Squadron and the first P-3B Orion. 92 Wing was formed on 01 July 1977 with the arrival of 10 Squadron from Townsville. The first P-3C Orions were delivered later in the same year.
37. RAAF Base Edinburgh is now the centre of the ADF's intelligence, surveillance, reconnaissance and electronic warfare capabilities. Its relatively central location enables a response time of less than four hours to anywhere on the Australian coast.
38. 92 Wing is Australia's maritime patrol wing. 92 Wing has its headquarters at RAAF Base Edinburgh and commands operational and training squadrons, and a number of operational support and development elements.

39. 92 Wing headquarters supports flying operations, maintenance, training and logistics and its facilities are dispersed across RAAF Base Edinburgh. The existing 92 Wing flight line and operational logistics support buildings are located in the aircraft technical area adjacent to the south of the main apron and include a combination of two aircraft maintenance hangars that are approximately 50 years old.
40. Defence proposes to create a consolidated 92 Wing facility that will comprise Wing and Squadron headquarters facilities, a Hangar Maintenance and Operational Facility for conduct of maintenance, and an Operational Conversion Facility for training of aircrew and maintenance crews. Adaptive reuse of existing facilities was considered but found to be not viable. This is discussed further at paragraph 108. Two alternate options were considered for the siting of the facilities at RAAF Base Edinburgh:
- a. **Brownfield site.** The brownfield site option included demolition of existing AP-3C Orion hangars and facilities. The Hangar Maintenance and Operational Facility would be constructed in the place of the existing hangars on the south of the apron. The Operational Conversion Facility would be located east of Fisher Boulevard.

This option creates issues with the staging of the facilities and would limit 92 Wing's ability to maintain concurrent AP-3C Orion and P-8A Poseidon operations during construction and transition. This option would not be value for money as there would be increased costs and duration of the construction program. It was also assessed that the brownfield site does not provide the highly desirable collocation of 92 Wing functions.
 - b. **Greenfield site.** The greenfield site on the northern side of the main apron supports the requirement for concurrent operations during transition from AP-3C Orion to P-8A Poseidon. This site will minimise the construction program as staged development including decanting of maintenance crew and workshop accommodation is not required. This site is large enough to accommodate a single collocated facility, enabling realisation of additional efficiency benefits in the functioning of the Wing.
41. The greenfield site was considered to provide the best value for money and is the preferred option due to the ability to perform concurrent operations during transition and to collocate all functions into one precinct.

42. The proposed works will enable the unrestricted operation of the P-8A Poseidon aircraft at RAAF Base Edinburgh. It will also include facilities to accommodate the training, maintenance and headquarters requirements for 92 Wing. A RAAF Base Edinburgh site map is included in Attachment 4.
43. The proposed works at RAAF Base Edinburgh are as described below.
44. **92 Wing facility.** The proposed 92 Wing facility will provide a Hangar Maintenance and Operational Facility and an Operational Conversion Facility in a secure environment to support P-8A Poseidon operations. A perspective view of the proposed facilities is provided in Attachment 5. The proposed 92 Wing facility includes the following:
 - a. **Hangar Maintenance and Operational Facility.**
 - (1) The proposed Hangar Maintenance and Operational Facility includes two hangars (one P-8A Poseidon per hangar) in which aircraft operational level maintenance will be undertaken. Collocated with the hangars are the working accommodation for the squadrons, aircrew and maintenance crews.
 - (2) Ground support equipment, logistics supply storage and supporting information communications technology infrastructure is proposed to be collocated within the Hangar Maintenance and Operational Facility to gain operational efficiencies.
 - (3) A Mission Support Infrastructure for mission planning, briefing and intelligence support functions is proposed to be collocated within the Hangar Maintenance and Operational Facility.
 - (4) Floor plans of the proposed facilities are included in Attachments 6 and 7.
 - d. **Operational Conversion Facility (OCF).**
 - (1) The proposed OCF will provide aircrew and maintenance crew training facilities. Training facilities will include pilot training devices, crew training devices, general learning areas and classrooms, and contractor support facilities. These devices need to be collocated and linked to maximise aircraft training value, full crew interaction, interoperation, supervision, logistics support and overall training value.

(2) The OCF will also house 92 Wing headquarters as a collocated facility. The headquarters facilities will include office accommodation and briefing rooms, which will service both operational and training squadrons.

(3) Floor plans of the proposed facilities are included in Attachments 8 and 9.

45. **Airfield works.** A drawing showing the proposed scope of airfield works at RAAF Base Edinburgh is included in Attachment 10. The proposed works include the following:

- a. **Runway extension.** The runway at Edinburgh is currently 2,560 metres (8399 ft). The proposed runway extension will extend the take off distance to 2676 metres (8780ft) to the north and 2850 metres (9350ft) to the south. To achieve this length without land acquisition, a displaced threshold is proposed at both ends with a 290 metre extension to the north and a 116 metre extension to the south of the existing runway. These works will ensure sufficient runway is available to allow the P-8A Poseidon to take-off at maximum-all-up-weight at ambient temperature up to 34°C.
- b. **Taxiways and runway thresholds.** The current runway thresholds and taxiways have deteriorated and are inadequate to support the P-8A Poseidon operations. Both thresholds and the taxiways will require an overlay for strengthening due to the higher loading of the P-8A Poseidon.
- c. **High Intensity Approach Lighting.** It is proposed to install High Intensity Approach Lighting (HIAL) and an upgraded Instrument Landing System (ILS) at the northern end of the runway. Subject to the final design solution of the HIAL system, Defence may require access to non-Defence land at the northern end of the runway to facilitate the installation of the HIAL.
- d. **Apron.** The current apron is designed for AP-3C Orion aircraft and is in poor condition. The apron pavement will require a full reconstruction to a rigid pavement in order to provide the pavement strength required to support the P-8A Poseidon. The proposed parking apron is designed to accommodate up to ten P-8A Poseidon parking positions; which caters for future additional P-8A acquisition and parking for visiting squadrons. A new fuel hydrant line is proposed to be incorporated into the apron works to service six of these parking positions as this provides operational flexibility when launching and recovering P-8A Poseidon missions.

- e. **Aircraft rinse facility.** The current AP-3C aircraft rinse facility located at RAAF Base Edinburgh is inadequate in size and strength for the P-8A Poseidon aircraft. A new aircraft rinse facility sized to suit the P-8A is proposed to be constructed to provide regular rinsing of the aircraft to reduce the build up of airborne contaminants arising from low flying operations.
- 46. **Engineering infrastructure.** Site engineering infrastructure is proposed to be upgraded to support the facilities being delivered as part of the proposed works and to comply with statutory requirements.
 - a. An extension of an existing 11 kV Electrical Ring Main is required to service the new 92 Wing facilities. Sufficient capacity is available in this Ring Main to meet the demands of the new facility.
 - b. Stormwater infrastructure is required to be upgraded to accommodate the increase of impervious area on the Base. Water will be directed into the base stormwater network via new on-site detention facilities that will mitigate peak flows.
- 47. **Carparking.** Roads and a centralised car park have been designed to meet future 92 Wing workforce requirements. A car park with approximately 600 bays will be provided to support 92 Wing workforce, contractor personnel and visitors.
- 48. **Other facilities.** The following existing facilities are impacted by the proposed works:
 - a. Penfield Road is an existing unsealed public road servicing local residents and connects Argent Road and Heaslip Road. Discussions with the City of Playford Council have indicated a preference to close the road due to safety reasons (such as aircraft jet blast).
 - b. The siting of 92 Wing facilities necessitates the relocation of the existing Liquid Dry Breathing Oxygen facility. A new Liquid Dry Breathing Oxygen facility is proposed to be constructed on the western side of Fisher Boulevard.
- 49. **Temporary works.** The P-8A aircraft will arrive in Australia prior to completion of facilities. Minor works (such as temporary installation of the Tactical Operations Centre) will be required to support initial P-8A operations at RAAF Base Edinburgh until completion of the new facilities.

RAAF Base Darwin

50. RAAF Base Darwin is located north-east of the Darwin central business district (CBD), in the Northern Territory. RAAF Base Darwin will be utilised as a Forward Operating Base (FOB) for the P-8A Poseidon aircraft as it allows force projection and monitoring of the northern approaches to Australia.
51. RAAF Base Darwin was initially established in 1940 and plays an important strategic role in providing facilities and support to numerous Australian Maritime Patrol Aircraft deployments and operations each year.
52. 92 Wing currently utilises facilities that include a hangar for maintenance and a command and control building to prepare for, conduct and sustain Maritime Intelligence Surveillance Reconnaissance and Response operations in support of Australia's national interest. These facilities are degraded and of insufficient size to be suitable for adaptive reuse to meet the demand.
53. In the absence of an existing facility suitable for adaptive re-use, options for new facilities and infrastructure were considered. Three siting options were considered:
 - a. **East of the existing hangar and north of the apron.** This option is non-compliant with the airfield Obstacle Clearance Surface and the Base Zone Plan.
 - b. **West of the apron.** This option provides facilities that are compliant with the Obstacle Clearance Surface and Base Zone Plan, and offers delineation between airside and non-airside access.
 - c. **South of the existing apron and east of the air movements area.** This option is non-compliant with the airfield Obstacle Clearance Surface and Base Zone Plan.
54. The preferred option is to locate the facilities on the west of the apron, which was determined to be the most operationally efficient and compliant option.
55. A RAAF Base Darwin site map is included in Attachment 11. The proposed site works include the following:
56. **92 Wing facility.** The proposed 92 Wing facility will provide a Hangar Maintenance and Operational Facility which houses the aircrew and maintenance teams in a secure

environment to support P-8A Poseidon operations. A perspective view of the proposed facilities is provided in Attachment 12. The proposed 92 Wing facility includes the following:

a. **Hangar Maintenance and Operational facility.**

- (1) The Hangar Maintenance and Operational Facility will provide a hangar (for one P-8A aircraft) in which aircraft maintenance will be undertaken. Collocated with the hangar will be working accommodation for aircrew and maintenance crews.
- (2) Ground support equipment, logistics supply storage and supporting information communications technology infrastructure will be housed within the Hangar Maintenance and Operational Facility to gain operational efficiencies.
- (3) A Mission Support Infrastructure facility for mission planning, briefing and intelligence support functions will be collocated within the Hangar Maintenance and Operational Facility.
- (4) Floor plans of the proposed facility is included in Attachments 13 and 14.

57. **Airfield works.** There is no requirement to increase the runway length at RAAF Base Darwin as the current length and strength is adequate for P-8A operations. However, four aircraft parking positions on the existing apron require strengthening for P-8A Poseidon aircraft parking. A drawing indicating the proposed scope of airfield works at RAAF Base Darwin is included in Attachment 15. The proposed works include the following:

- a. **Aircraft rinse facility.** There is currently no aircraft rinse facility at RAAF Base Darwin. An aircraft rinse facility will be constructed to facilitate regular rinsing of the aircraft to reduce the build up of airborne contaminants arising from low flying operations.
- b. **Parking apron.** There are currently no adequate aircraft parking positions at RAAF Base Darwin to park P-8A Poseidon aircraft. The proposed four parking positions will be achieved by upgrading an existing light duty apron to accommodate four P-8A Poseidon aircraft. A small replacement light duty apron is proposed to be constructed to accommodate jet fighter parking capacity that will be displaced by the P-8A apron. The proposed four parking positions allows room for a detachment of aircraft to deploy to RAAF Base Darwin on operations or exercises.

- c. **Fuel Hydrant Line.** The existing fuel hydrant line is proposed to be extended to provide hydrant points servicing the four parking positions.
58. **Engineering infrastructure.** Site engineering infrastructure is proposed to be upgraded to support the facilities being delivered as part of the works and to comply with statutory requirements.
- a. An existing High Voltage Electrical Ring Main is proposed to be extended to provide the power for the 92 Wing facilities. Sufficient capacity is available in this Ring Main to meet the demands of the new facility.
 - b. Stormwater infrastructure will be upgraded to accommodate the increase in stormwater runoff arising from the additional apron and hardstand proposed to be constructed. The stormwater works will interface with drainage works undertaken under the separate Darwin Flood Remediation project. Stormwater runoff will be directed to existing stormwater detention basins inside the Base, before controlled discharge off the base into the local network.

RAAF Base Townsville

59. RAAF Base Townsville is located north-west of the Townsville CBD, in Queensland and will be used as a Forward Operating Base for the P-8A Poseidon.
60. Historically, RAAF Base Townsville has represented one of the most active and forward bases utilised by the RAAF. Its rapid development and associated operations during World War II are testament to its strategic value to the nation and Maritime Patrol Aircraft operations.
61. Today, RAAF Base Townsville continues to support Maritime Patrol Aircraft operations in Australia's northern region including support to regional neighbours, search and rescue, and large scale combined and joint training exercises.
62. A RAAF Base Townsville site map is included in Attachment 16 and a drawing indicating the proposed scope of airfield works at RAAF Base Townsville is included in Attachment 17. The proposed works include the following:
- a. **Runway extension.** The runway at RAAF Base Townsville is currently 2438 metres (7999ft) long. The proposed runway extension will increase the take off distance to

2844 metres (9331ft) allowing the P-8A Poseidon to take off at maximum-all-up-weight at ambient temperature up to 34°C. To achieve this length, a displaced threshold is proposed at the northern end of the runway with a 406 metre extension.

- b. **Redevelopment of existing Maritime Ordnance Loading Aprons 13 and 14.** Minor pavement extension works is proposed at the Maritime Ordnance Loading Aprons to accommodate movement of ground support equipment around the aircraft (such as power carts and tow motors). The current pavement is strong enough to accommodate the P-8A Poseidon.
- c. **Aircraft rinse facility.** The current aircraft rinse facility at RAAF Base Townsville is inadequate in size for the P-8A Poseidon aircraft. An aircraft rinse facility is proposed to be constructed to provide regular rinsing of the aircraft to reduce the build up of airborne contaminants arising from low flying operations.

RAAF Base Pearce

- 63. RAAF Base Pearce is located 35km north of Perth in Western Australia and will be an important Forward Operating Base for maritime operations over the Indian and Southern Oceans. This has recently proven to be vitally important in basing AP-3C Orion out of RAAF Base Pearce in the search for the missing Malaysian Airlines Flight MH370.
- 64. RAAF Base Pearce was established in 1939 and is the only fully manned RAAF Base in Western Australia. The base is of high strategic and operational importance, and supports deployments and transit operations for aircraft of the Surveillance and Response Group. The base is an airhead in support of Australian Middle East operations and for search-and-rescue and fisheries patrols in the Indian and Southern Oceans.
- 65. A RAAF Base Pearce site map is included at Attachment 18 and a drawing indicating the proposed scope of airfield works is included at Attachment 19. The proposed works include the following:
 - a. **Runway extension.** The runway at RAAF Base Pearce is currently 2439 metres (8002 ft) long. The proposed runway extension will extend the runway to 2960 metres (9757ft) allowing the P-8A Poseidon to take off at maximum-all-up-weight at ambient temperature up to 34°C. To achieve this length, a displaced threshold is proposed at the

northern end of the runway with a 521 metre extension. Both runway thresholds will require strengthening as the current strength of the pavements will not endure the loading of P-8A Poseidon aircraft.

- b. **Parking apron.** The only parking positions that can accommodate the P-8A Poseidon are on the existing Air Movements apron. This is a transport node for air movements in support of Defence operations at RAAF Base Pearce and is not suitable to support enduring P-8A Poseidon aircraft deployments. Construction of a new apron abutting the light duty apron is proposed in order to accommodate three P-8A Poseidon aircraft.
- c. **Aircraft rinse facility.** The current aircraft rinse facility at RAAF Base Pearce is inadequate in size and strength for the P-8A Poseidon aircraft. The existing aircraft rinse facility is proposed to be upgraded to allow P-8A Poseidon aircraft to provide regular rinsing of the aircraft to reduce the build up of airborne contaminants arising from low flying operations.
- d. **Redevelopment of the existing Ordnance Loading Apron.** The existing maritime ordnance loading apron currently does not have the strength to accommodate the P-8A Poseidon. The Ordnance Loading Apron is proposed to be upgraded to a fully rigid pavement to support P-8A Poseidon aircraft operations.

HMAS Stirling

- 66. HMAS Stirling is located on Garden Island, south of Perth in Western Australia and its primary purpose is to provide operational and logistics support to the Royal Australian Navy ships, submarines and aircraft based or deployed in Western Australia.
- 67. The planning for HMAS Stirling began in 1969 with the 4.2 km causeway linking the island with the mainland being completed in June 1973. Since its commissioning, HMAS Stirling has expanded significantly within its existing boundaries.
- 68. The P-8A Poseidon will use the MK-54 lightweight torpedo as its main weapon. This weapon will also be used by the Royal Australian Navy (RAN) MH-60R Seahawk Romeo. The P-8A operations will place an increased demand on the requirement for the torpedos which gives rise to a requirement for additional explosive ordnance storage, maintenance and testing

capacity. These facilities will be collocated with the Royal Australian Navy facilities at HMAS Stirling.

69. The existing Torpedo Maintenance Facility is the Australian Defence Force munitions facility capable of maintaining and servicing the MK-54 torpedoes.
70. The proposed works at HMAS Stirling include construction of a new earth covered building for the storage of explosive ordnance, and refurbishment to the existing torpedo maintenance facility to accommodate additional MK-54 torpedo testing and maintenance equipment. A HMAS Stirling site map is included in Attachment 20.

Reasons for adopting the proposed course of action

71. The proposed scope achieves the infrastructure and facility requirements for the P-8A Poseidon and includes:
 - a. meeting the higher physical security zone requirements of the Protective Security Policy Framework for the facilities as stipulated in the agreement between the United States Navy and Australia for the supply of the P-8A Poseidon aircraft;
 - b. providing a high degree of integration between the operational, maintenance, logistics and training elements of 92 Wing for increased efficiencies;
 - c. supporting the effective primary workflow of aircrew from the squadron facilities through the Tactical Operations Centre and Air Life Support Equipment to Flight Line Management Section and out to the apron;
 - d. optimising situational awareness by facilitating direct and efficient interactions between the squadron operations and maintenance crew administration areas;
 - e. orientating the maintenance hangars away from prevailing south westerly weather conditions to optimise Ecologically Sustainable Development outcomes;
 - f. providing 10 and 11 Squadrons access to simulation spaces to support regular use of simulators for operational needs at RAAF Base Edinburgh; and
 - g. minimising whole of life costs.

Details and reasons for site selection

72. The selection of the sites for each project element has been undertaken in accordance with the Defence Estate planning policy requirements. The site selection board process addressed Defence policy and guidance including estate development, environmental, heritage and operational considerations.
73. All sites are contained within the boundaries of the Defence Estate, being Commonwealth owned and Defence controlled land.

Heritage considerations

Non-Indigenous heritage considerations

74. A draft Heritage Management Plan for RAAF Base Edinburgh was prepared in April 2014 by an environmental consultant, which identifies the built heritage values of facilities within RAAF Base Edinburgh against the Defence Guidelines for Assessing Significance 2009.
75. The proposed scope of works includes the demolition of up to 48 existing buildings (based on the preferred greenfield site option) and structures that are no longer required after the completion of the AIR7000 works.
76. The draft Heritage Management Plan for RAAF Base Edinburgh (April 2014) has been used to assess the heritage values of the 48 buildings to be demolished under the proposed scope. This assessment has identified nine buildings which have heritage value.
77. Of the buildings which are assessed as having heritage value, buildings 425 and 426 are assessed as having high⁷ heritage value. Heritage impact assessments will be undertaken for all buildings proposed for demolition which have a heritage value, and recommended mitigation measures will be considered prior to any final demolition decision.

⁷ High Ranking - Demonstrable Commonwealth (or State) Heritage values in its own right and makes a significant contribution to the place's heritage value. Existing alterations do not detract from its heritage values. Loss or unsympathetic alteration would diminish the Commonwealth Heritage values of the place

78. There are no significant non-Indigenous heritage issues at RAAF Bases Darwin, Townsville and Pearce, and HMAS Stirling and no buildings or structures are proposed to be demolished at these sites.

Indigenous heritage considerations

79. The proposed facilities and infrastructure works have been considered against each Base Heritage Management Plan.
80. **RAAF Base Edinburgh.** The Heritage Management Plan prepared for RAAF Base Edinburgh has found a number of areas of Indigenous significance to the Kaurna Traditional Owners. The proposed works will not impact on these identified areas and appropriate buffer distances will be maintained during construction.
81. A ground survey at RAAF Base Edinburgh in the vicinity of the proposed works was undertaken and did not find any items of Indigenous heritage significance. Past experience has indicated that subterranean Indigenous remains may be uncovered during excavation. Consequently, there has been regular consultation and engagement with the Kaurna Traditional Owners during the intrusive investigations to help identify any remains or artefacts that may be excavated. Defence has also established arrangements with the Kaurna Traditional Owners for 'Chance Find' protocols and will continue to consult with appropriate stakeholders to ensure that any Indigenous heritage issues are dealt with appropriately.
82. **RAAF Base Darwin.** A ground survey at RAAF Base Darwin was undertaken and did not find any items of Indigenous heritage significance in the survey zone.
83. **RAAF Base Townsville.** A ground survey at RAAF Base Townsville was undertaken and did not find any items of Indigenous heritage significance in the survey zone. An Indigenous Land Use Agreement has been in place at the Base since 2001. The Agreement was made in conjunction with an Agreement covering an area of land in the Townsville Town Common, north of the RAAF Base.
84. Defence will undertake Indigenous consultation with the Wulgurkaba and Bindal People in accordance with the Indigenous Land Use Agreement which may impact on the redevelopment of the maritime ordnance loading aprons 13 and 14.

85. **RAAF Base Pearce.** A ground survey at RAAF Base Pearce was undertaken and did not find any items of Indigenous heritage significance in the survey zone. It was identified that the Ellen Brook catchment area is a mythological/ceremonial Indigenous site which is located approximately 500 metres from the proposed site. The recommended buffer zone will be established around the Ellen Brook catchment area to ensure that the proposed works do not compromise the Indigenous significance of the site.
86. **HMAS Stirling.** The heritage assessment of HMAS Stirling concluded that there will be minimal impact on historical, Indigenous archaeological or heritage values at the proposed site.
87. A 'Chance Find' protocol will be implemented across all sites in the unlikely event an Indigenous artefact is discovered during construction.

Environmental impact assessments

88. An environmental impact assessment for the proposed facilities works was prepared in 2010 and updated in March 2013 for all Bases. It identified the potential impact of the proposal on flora and fauna, noise, soil contamination, water quality, waste management, air quality and local traffic, as well as the potential exposure to unexploded ordnance. The assessment concluded that the impact of the proposed works is minimal. The key risks are described further below.

Flora and fauna

89. No threatened ecological communities of national significance were found in the proposed sites at RAAF Bases Edinburgh, Darwin and Townsville.
90. The EPBC Act listed endangered ecological community (EEC), *Corymbia calophylla* – *Xanthorrhoea preissii* woodlands and shrublands of the Swan Coastal Plain is present at RAAF Base Pearce east of the existing runway and associated taxiways. The runway extension at RAAF Base Pearce will remove approximately four hectares of heavily disturbed native vegetation. Although this area shares some similarities with the listed community, it is sufficiently different to be considered not part of the EEC.

91. The runway extension and associated infrastructure will have no direct or indirect impacts on the EEC and will not affect any species listed under the EPBC Act or WA legislation.
Therefore, there is no significant impact to the EEC.
92. A tree heritage assessment was undertaken at RAAF Base Edinburgh on flora that may be impacted by the proposed facilities. The investigations found that there is a cluster of trees located immediately to the east of Fisher Boulevard (adjacent to the greenfield site) that is of local heritage significance. The project will adopt the recommended buffer zone around the trees to mitigate the risk of damaging the tree cluster during construction.

Asbestos

93. Asbestos is known to exist in older buildings throughout the Defence estate. Allowances have been made for the removal of asbestos where found in those facilities identified for demolition.

Contamination assessment

94. **RAAF Base Edinburgh.** Contamination testing was undertaken at the proposed sites at RAAF Base Edinburgh. Testing indicated that there are high levels of copper around the existing battery workshop. This soil will be remediated prior to removal from or reuse on the site. No other contamination was found on the proposed sites.
95. **RAAF Base Darwin.** Contamination testing was undertaken on the proposed sites at RAAF Base Darwin. Testing found no evidence of contamination, however there is existing known contaminants including Aqueous Film Forming Foam and asbestos located near the proposed development. A national Defence remediation project is disposing of the soil contaminated by Aqueous Film Forming Foam. Asbestos contamination, if encountered, will be addressed and remediated through the delivery of this project.
96. **RAAF Base Townsville.** Contamination testing was undertaken on the proposed sites at RAAF Base Townsville. Testing indicated that there are high levels of arsenic and chrysotile along taxiway Alpha. An appropriate contingency has been included in the project budget for the remediation of this soil prior to removal from site. No other contamination was found on site.

97. **RAAF Base Pearce.** Contamination testing at RAAF Base Pearce found no contamination in the area of the proposed sites.
98. **HMAS Stirling.** There was no contamination testing undertaken under this project. However, environmental assessment undertaken for works to be delivered in the same location under a separate project (AIR9000 Phase 8 MH-60R Seahawk Facilities – March 2013) concluded that risk of contamination in the area of the proposed site is low.
99. Even though site investigations did not identify significant contamination at any of the potential work sites, experience at each site has shown that the presence of contamination is likely. The extent and nature will be determined during the construction of each facility. An allowance for remediating site contamination at all sites has been included in the project budget.

Key legislation

100. The following key legislation is relevant to this project:
 - a. Defence Act 1903 (Cth);
 - b. Native Title Act 1993 (Cth);
 - c. Environment Protection and Biodiversity Conservation (EPBC) Act 1999 (Cth);
 - d. Fair Work (Building Industry) Act 2012 (Cth);
 - e. Work Health and Safety Act (WH&S) 2011 (Cth); and
 - f. Disability Discrimination Act 1992 (Cth).
 - g.
101. The design will comply with all relevant and current Defence Standards, Australian Standards, Codes and Guidelines including, but not limited to, the following:
 - a. National Construction Code - Building Code of Australia (NCC-BCA);
 - b. Defence Aerodrome Design Manual;
 - c. Defence Manual of Fire Protection Engineering;
 - d. Defence Security Manual (eDSM); and
 - e. Defence Estate Quality Management System.

Impact on the local community and stakeholder consultation

102. Defence recognises the importance of providing local residents, local authorities and other interested stakeholders an opportunity to provide input into or raise concerns relating to major projects such as the facilities requirements for this project.
103. Defence will engage a number of stakeholders in the areas of RAAF Bases Edinburgh, Darwin, Pearce and Townsville, and HMAS Stirling. The list of stakeholders is provided in Attachment 21.
104. The project will generate a significant amount of short-term employment predominantly in the building, construction and unskilled labour markets, particularly in the areas surrounding RAAF Bases Edinburgh and Darwin. An estimated 450 personnel (up to 700 personnel during peak times) are expected to be directly employed on construction activities, as well as off-site functions for manufacturing and distribution of materials.
105. Construction traffic routes will be managed to minimise disruption to the local communities. Each site except RAAF Base Pearce is located within the current Base boundary and construction activities are not expected to cause any significant disruption to residents or businesses located in the vicinity of each Base. At RAAF Base Pearce, the runway extension necessitates the realignment of the base boundary fence to include Commonwealth land currently outside the base perimeter. This land is currently privately leased for grazing.
106. For normal operations, the P-8A Poseidon is quieter than the P-3 Orion. Defence does not anticipate any significant noise impact on nearby properties at RAAF Bases Edinburgh, Darwin, Townsville or Pearce. Current civilian operators utilise similar aircraft to the P-8A Poseidon (Boeing 737) at RAAF Bases Darwin and Townsville. At RAAF Bases Edinburgh and Pearce, there is very limited housing close to the main flight path.
107. Defence anticipates that the project will present employment and training opportunities for aboriginal people and organisations. An Indigenous training employment and supplier plan will be provided in accordance with current Indigenous Opportunity Policy.

Re-use of existing structures

108. Defence has completed concept design activities for the project. During this process, alternatives for reuse of existing facilities were considered. Due to the significant number of issues with existing buildings meaning that significant modifications would be required and the need to maintain concurrent AP-3C and P-8A operations, reuse of the current AP-3C facilities was not deemed to be value for money:
- a. **Maintain AP-3C capability through to 2019.** During the transition period 2016 to 2019, Air Force will maintain full maritime patrol operations by operating both the P-8A Poseidon and AP-3C Orion concurrently. Routine maintenance of the AP-3C Orion aircraft will continue to be conducted during this transition period requiring the retention of the existing maintenance hangars.
 - b. **Hangars.** Adaptive reuse of the current AP-3C Orion hangars for the P-8A Poseidon was considered at RAAF Bases Edinburgh and Darwin. The existing maintenance hangars are not suitable as the P-8A Poseidon is larger than the AP-3C aircraft. The existing hangars are not wide or high enough for the P-8A Poseidon and the hangar floor does not have the required strength to accommodate the heavier P-8A Poseidon aircraft. Significant and costly modifications to the structure would be required and this does not represent value for money.
 - c. The hangars are currently dislocated from other 92 Wing functions resulting in inefficient workflows for aircrew, maintenance and logistics support staff.
 - d. **Collocation at RAAF Base Edinburgh.** The current 92 Wing headquarters, training and operations support buildings are dispersed across the airside and non-airside operations/training support precincts. The existing facilities are a mix of buildings which have been constructed at various times over the continued development at RAAF Base Edinburgh.
 - e. Recent experience operating whilst deployed has demonstrated significant improvement to operational output when operations and maintenance facilities are collocated. Collocation ensures operational efficiencies and functionality including; the Tactical Operating Centre (TOC) being the epicentre of the working elements (aircrew, flight line, maintenance and simulations), movement of classified equipment and secure

documents and sharing of ground support equipment. This collocation requirement is considered to be highly desirable for the P-8A Poseidon facilities due to the high frequency of physical interactions and relationships between the functions within the facilities, and is the model adopted by Air Force as best practice.

- f. **Security.** The existing facilities at RAAF Bases Edinburgh and Darwin do not meet the higher physical security zone requirements of the Protective Security Policy Framework for the facilities, as stipulated in the agreement between the United States and Australia for the supply of the P-8A Poseidon aircraft. Although it would be possible to upgrade the security in the existing facilities to meet the required standard, this has been assessed as neither practical nor a value for money option.

Public transport

- 109. RAAF Bases Edinburgh, Darwin and Pearce are serviced by public transport to the front entrance. There are no public transport services within the Bases. Consequently, Australian Defence Force personnel are reliant on vehicles for transportation within the Base.
- 110. RAAF Base Townsville and HMAS Stirling are not directly serviced by public transport. As a result, Defence personnel use private transport or taxis to and from and within these Bases.

Local road and traffic concerns

- 111. Construction access onto the bases will be provided through alternate gates to minimise impact. Minimal impact to public transport, local road and traffic conditions is anticipated as a result of the construction activity.
- 112. Penfield Road is an existing unsealed public road servicing local residents on the outskirts of RAAF Base Edinburgh. Discussions with the City of Playford Council have indicated a preference to close the road due to safety reasons (such as aircraft jet blast). Further consultations with Council and local residents are required before a final decision is made.

Zoning and local approvals

- 113. The facilities proposed in the Project will be constructed on Commonwealth owned and Defence controlled land and therefore, no civilian authority, zoning or development approvals

are required. The proposal does not require the acquisition of private land or involve any land disposal.

- 114. There are no Native Title issues associated with this proposal.
- 115. An Indigenous Land Use Agreement has been registered over part of the land located to the north of RAAF Base Townsville which will impact the upgrade of ordnance loading apron works. Defence will consult with the Aboriginal user groups in accordance with the Agreement.
- 116. There will be no change to the existing land use conditions for any of the project sites and all proposed land uses.

Master and site planning

- 117. The proposed works comply with the relevant Defence Base Zone Plans and have been approved through a Site Selection Process. All works are fully encompassed within the Operational (Air) and/or Operational Support Zone, with the exception of the proposed works at HMAS Stirling which is to be sited within the Explosive Ordnance precinct.

Planning and design concepts

- 118. The project will provide safe, functional and cost effective facilities of energy efficient design suitable for the local climate and of a style consistent with the character of the individual sites and other comparable Defence facilities. The requirement to comply with United States Navy security requirements in the RAAF operational context is a fundamental design objective which has been balanced against other design factors.
- 119. Infrastructure services planning and structural design has been developed taking into account future flexibility. The design is based on projected demand and Defence policies for redundancy and reliability.
- 120. Where security requirements permit, buildings have been planned in such a manner as to allow ease of adaptability of internal spaces over time by utilising a structural frame with lightweight partition walls that can be modified if operational requirements change. Office spaces are in accordance with the latest Defence accommodation standards. A high ratio of open plan workstations to enclosed offices will enable greater flexibility in planning for

surges in operation. Spatial allowances are in accordance with Defence standards and comparable to other Defence facilities.

121. Where possible and appropriate, buildings have been designed and sited to allow for future expansion.

Structural design

122. Consideration has been given to each element individually to determine the structural system that offers:
- a. the best value for money;
 - b. optimum balance between prefabricated materials and in situ construction; and
 - c. suitable systems based on the outcomes of the specific geotechnical investigations undertaken.

Materials and furnishings

123. The materials and furnishings selected will be integral to forming the ultimate character of each Base. The main characteristics of materials selected will be their robustness, low maintenance requirements, low life cycle costs, ease of replacement and repair, and will be pre-fabricated, where possible.

Mechanical services

124. Consideration has been given to each element individually to determine the mechanical services that offer:
- a. the best value for money;
 - b. maximum use of Ecologically Sustainable Development initiatives;
 - c. appropriate level of climate control for the intended purpose of the facility; and
 - d. maximum flexibility for internal spaces (e.g. ducted heating/cooling, mechanical exhaust).

Hydraulic services

125. All hydraulic services have been designed in accordance with the relevant Australian Standards, National Construction Code of Australia and Defence requirements.

Electrical services

126. All electrical services have been designed in accordance with user requirements, relevant Australian Standards, the National Construction Code of Australia, the Defence Manual of Fire Protection Engineering and other Defence requirements.

Security and fire protection

127. All construction and fire protection requirements will, as a minimum, be in accordance with the provisions of the National Construction Code of Australia, the Defence Manual of Fire Protection Engineering and all other applicable Australian Codes and Standards.
128. The Security Threat Assessment has been reviewed during the design phase and the facilities will be secured as appropriate to the classification level required for activities conducted including secure zones, access control and fencing.
129. Security protection will be provided in accordance with the Defence Security Manual, United States Navy requirements and International Traffic is Arm Regulations restrictions. This requires high levels of Base physical security including enclosures and compounds, surveillance technology, security guarding and enhanced physical security measures within the 92 Wing facilities.

Acoustics

130. The proposed facilities have been sited and designed in accordance with AS2021:2000 Acoustics – Aircraft Noise Intrusion – Building Siting and Construction, and AS/NZS2017:2000 Acoustics – Recommended Design Sound Levels and Recommended Reverberation Times for Building Interiors.

Landscaping

131. Minimal landscaping design has been included in all new building elements where appropriate and functional. Landscaping works will also be completed to restore areas disturbed during construction and provide general improvement to the built environment.
132. Landscaping design will focus on a functional, low maintenance and water sensitive approach with plants that are indigenous to the area. Consideration will be given to minimise the potential for wild life attraction and associated risks in an airfield environment.
133. Precautions will be taken to avoid compromising environmental sensitivities by adopting landscaping practices in accordance with local environmental conditions. This will be detailed in the Construction Environment Management Plan to be developed by the contractor.

Environmental sustainability of the project

134. The Commonwealth is committed to Ecologically Sustainable Development (ESD) and the reduction of greenhouse gas emissions. Defence reports annually to Parliament on its energy efficiency targets established by the Government as part of its commitment to improve ESD. Defence also implements policies and strategies in energy, water and waste to improve natural resource efficiency and to support its commitment to the reduction of energy consumption, potable water consumption and waste diversion to landfill.
135. The ESD targets and requirements for Defence projects to comply with the Defence Building Energy Performance Manual have been balanced with other requirements for Defence buildings such as functional and security requirements, heritage considerations, and Work, Health and Safety. Defence ESD policies have been addressed by adopting cost-effectiveness and ESD as key objectives in the design development and delivery of new facilities.

Energy targets

136. Defence has adopted the principles of the Energy Efficiency in Government Operations policy in relation to office accommodation. For those office buildings that have a floor area greater than 2000 square metres, and the office area comprises greater than 50 per cent of the total building area, such as the Operational Conversion Facilities and Squadron headquarters, the whole building will target 4.5 stars under the National Australian Built Environment Rating

System. An Energy Management Plan will be developed for each building for implementation by Defence.

137. For all other mixed-use buildings that have an office floor area of less than 2000 square metres or where the office area does not comprise 50 per cent of the total building area, separate digital energy monitoring devices will be installed and office lighting will not exceed 10 watts per square metre.

Measures to reduce energy and water use

138. Passive design features have been embedded in the building design throughout the project including:
- a. where possible given the constraints of the site, orienting the buildings to minimise east and west solar gain;
 - b. natural light is utilised where practical and artificial lights are linked with daylight sensors to limit energy use;
 - c. 'Energy Star' compliant appliances and equipment will be installed where available;
 - d. gas hot water systems with solar pre heat will be utilised for domestic hot water;
 - e. artificial lighting in the building will utilise energy efficient lighting and incorporate lighting control systems such as daylight sensing, occupancy sensors and time switches to minimise energy usage; and
 - f. energy metering will be installed to separately monitor regulated and unregulated energy usage of each building and all the main loads. Metering will be linked back to the Building Management System to allow monitoring of energy consumption.
139. Efficient water use is a key aspect of the design. Key water saving measures will include:
- a. all taps and toilets will be water efficient and rated a minimum 4 Star Efficiency Labelling and Standards and showerheads rated as 3 Star;
 - b. pressure limiting valves will be installed to limit pressure at all appliances;
 - c. sub-metering of all major water supplies to each new building; and

- d. recycled water systems will be used to supply localised landscaping, toilet and urinal flushing, and aircraft rinse facilities.

Details of compliance with Local, State/Territory and Commonwealth water and energy policies

140. All buildings will be designed, constructed, operated and maintained in order to use energy and water as efficiently as possible and comply with the following statutory and Defence requirements:
- a. National Construction Code;
 - b. Building Code 2013;
 - c. Building Energy Performance Manual, November 2011;
 - d. The Energy Efficiency in Government Operations policy;
 - e. National Australian Built Environment Rating System;
 - f. Defence Energy Policy; and
 - g. Department of Defence Water Management Strategy.

Demolition and disposal of existing structures

141. Redundant facilities will be demolished as part of this project. The demolition works will include:
- a. the safe removal and disposal of hazardous material including asbestos;
 - b. 70% of material by weight will be targeted for recycling or reuse;
 - c. excavated material will be re-used on site where possible; and
 - d. minimal use of landfill disposal.
142. The majority of the demolition is proposed to be undertaken at RAAF Base Edinburgh. The demolition will be undertaken in accordance with the Base demolition plan and applicable statutory requirements.

Provisions for people with disabilities

- 143. All new buildings are being designed to comply with the requirements of the applicable reference documents including relevant Australian Standards for Access and Mobility. In line with Defence policy 'Disabled Access and Other Facilities for Disabled Persons', disabled access is required to all buildings.
- 144. Access to and connections between buildings and facilities on the site, including car parking, will also be designed in accordance with the relevant access standards.

Childcare provisions

- 145. This project will not increase the Base population or affect the requirement for childcare places. No additional childcare facilities are being provided under this project.

Work Health and Safety measures

- 146. The proposed facilities will comply with the requirements of the Work Health and Safety Act (2011), the Department of Defence Work Health and Safety Manual and operate in accordance with an approved Work Health and Safety Plan.
- 147. The Australian Government is committed to improving work health and safety outcomes in the building and construction industry. The Head Contractor will hold Work Health and Safety accreditation from the Office of the Federal Safety Commissioner under the Australian Government Building and Construction Occupational Health and Safety Accreditation Scheme.
- 148. The design for the works has been developed in accordance with the safety in design provisions of the Work Health and Safety Act (2011).
- 149. The construction of the works will be managed in accordance with the Work Health and Safety Act (2011).
- 150. All construction sites will be secured appropriately to prevent public access or access by unapproved Defence personnel during the construction period. No special or unusual public safety risks have been identified.

Cost effectiveness and public value

Project budget

151. The estimated out-turn cost of the project is \$707.9m, excluding Goods and Services Tax. The cost estimate includes all construction costs, management and design fees, furniture fittings and equipment, contingencies and escalation allowances.
152. An increase in the Net Personnel Operating Costs is anticipated due to the addition of new facilities and infrastructure, which will increase the associated facilities maintenance, cleaning and utilities expenses.

Details of project delivery system

153. A Project Manager/Contract Administrator has been appointed by the Commonwealth to manage the project works and the associated administration of contracts in the planning phase. Design consultants have been engaged to design the facilities and pavement requirements using the Department of Defence Design Services form of contract.
154. Subject to Parliamentary Approval of the project, a series of Head Contractors will be appointed using the Department of Defence Head Contractor form of contract to build the facilities at RAAF Bases Edinburgh, Darwin, Townsville and Pearce, and HMAS Stirling to meet the Defence requirements identified in the planning phase.
155. The Head Contractor form of delivery is well understood by the industry. It has been chosen because the scope is well defined and deemed the most suitable delivery methodology for this project. It also provides Defence maximum control over design and cost.
156. The Head Contractors will deliver the project works in accordance with, but not limited to, all current Building Code 2013 guidelines, National Construction Code – Building Code of Australia, Australian Standards, and Workplace Health and Safety legislation.

Construction program

157. Subject to Parliamentary Approval of the project, construction is expected to commence in October 2015 at RAAF Base Edinburgh and HMAS Stirling. Works at the Forward Operating

Bases are planned to commence in 2018, however, this may be delivered earlier if funding is available. All works are expected to be completed by the end of 2020.

Public value

158. The proposed works will provide workplaces that are fit for purpose and allow personnel to undertake their duties, roles and responsibilities in an environment that meets a specific task. The works are also expected to improve personnel morale and impact positively on recruitment and retention, which will support capability that delivers maritime surveillance and protection of Australian waters.

Revenue

159. No revenue is expected to be derived from the project.

P-8A Poseidon

Attachment 1



AIR7000 Phase 2B will acquire eight Boeing P-8A Poseidon Maritime Patrol Reconnaissance aircraft and up to an additional four P 8A Poseidon aircraft under Phase 2D. Phase 2B was approved by Government in February 2014 with Phase 2D expected to be considered by Government in 2016.

The P-8A Poseidon will be acquired through a government-to-government cooperative program with the United States to replace the AP-3C Orion fleet with an advanced maritime intelligence, surveillance, reconnaissance and response aircraft.



An internal fuel capacity of almost 34 tonnes, gives the P-8A an unrefueled range of over 4000 nautical miles (7,500 km) or the ability to remain on station conducting low level anti submarine warfare missions for over four hours at a range of more than 1,200 nautical miles (2,200 km) from base.

The P-8A is also air-to-air refuelable from the boom of tanker aircraft, including the RAAF KC-30A Multi Role Tanker Transport, making it possible for the aircraft to patrol Australia's isolated Southern Ocean territories.

The aircraft has an extensive communications suite with data links across the VHF, UHF, and HF spectrums.

Specifications

Manufacturer	Boeing
Role	Maritime intelligence, surveillance, reconnaissance and response
Crew	Two pilots, two Air Combat Officers, six Airborne Electronics Analysts
Engine	Two CFM56-7 BE(27) engines each with 27000 lb thrust
Airframe	Length: 39.5 m, height: 12.8 m
Wingspan	37.6 m
Weight	85,820 kg (max)
Max Speed	907 km/h
Range	7,500 km
Ceiling	41,000 feet
Capacity	Sonobuoys and 11 weapons stations
Weapons	Torpedos, anti-ship missiles and self-protection measures

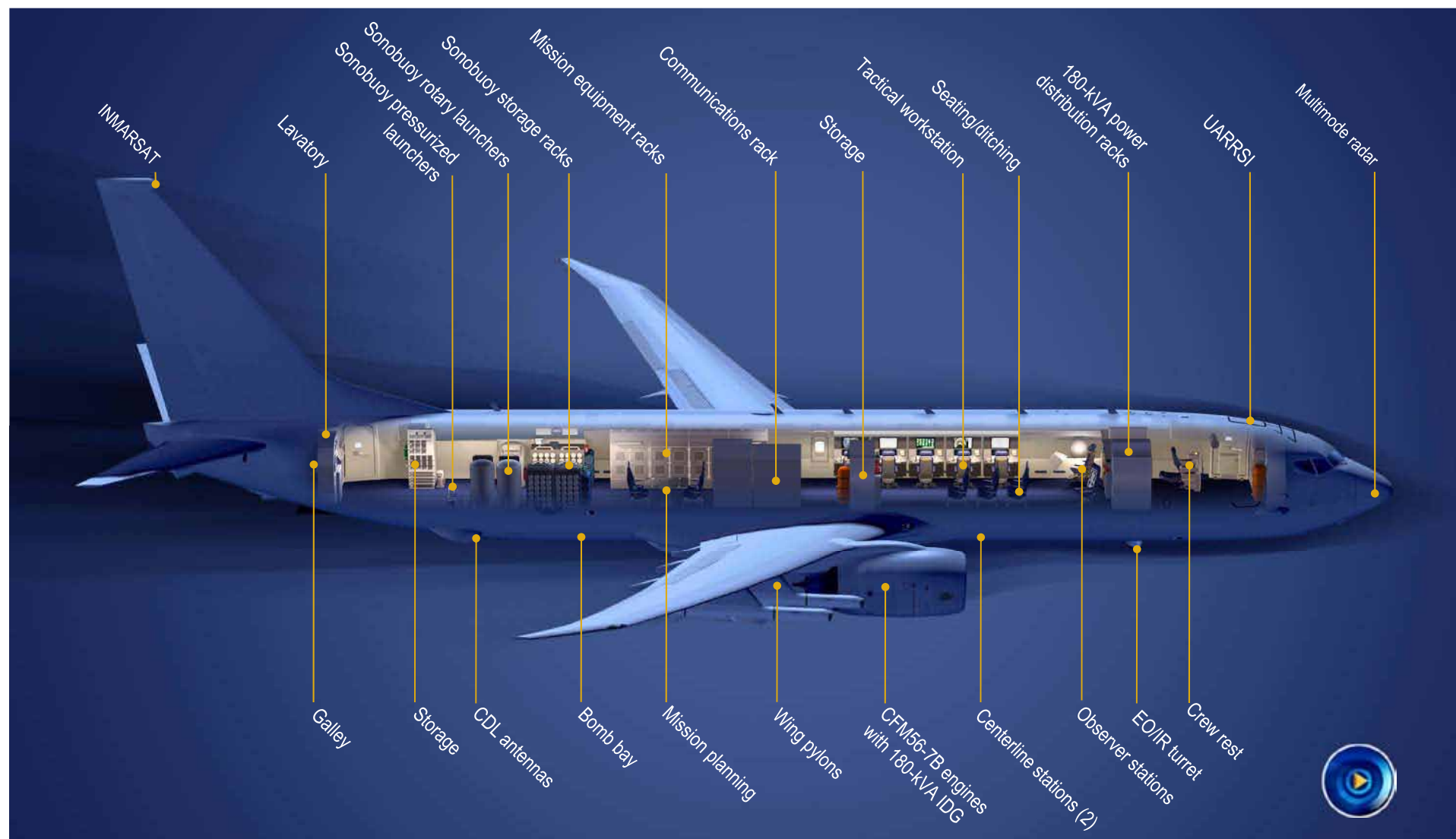


AIR FORCE

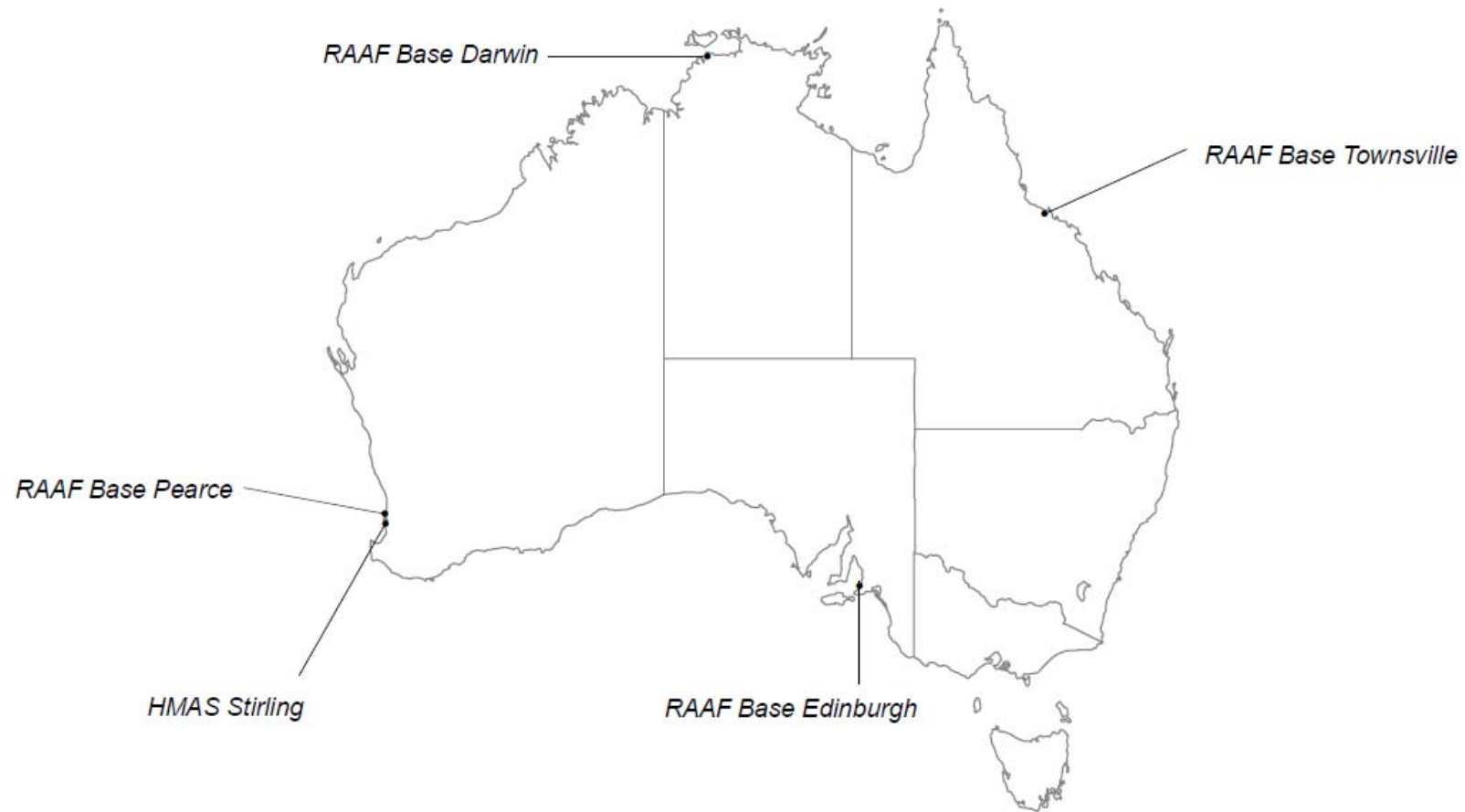


P-8A

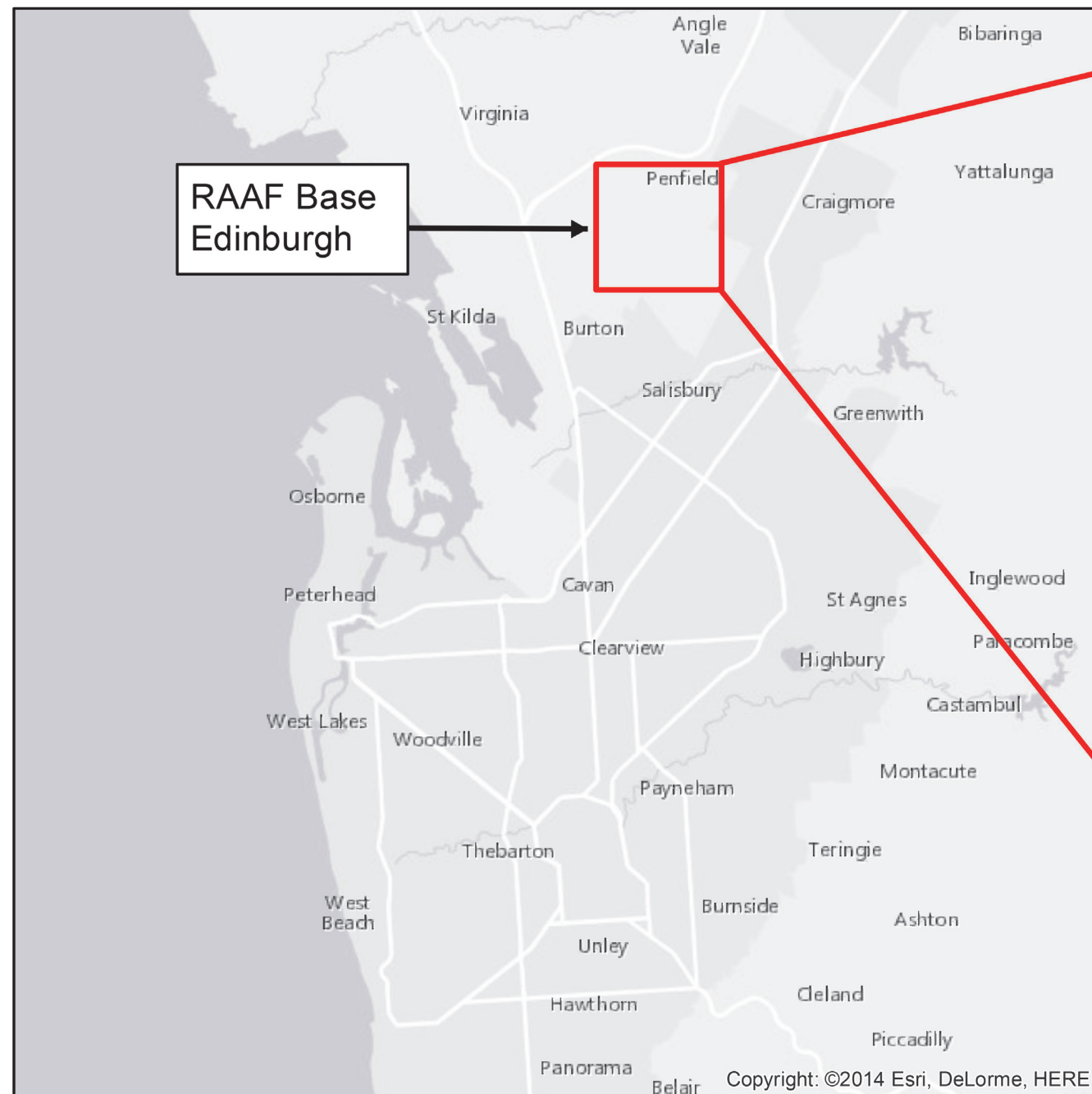
Proven, Reliable Airframe



Attachment 3



Base Locations



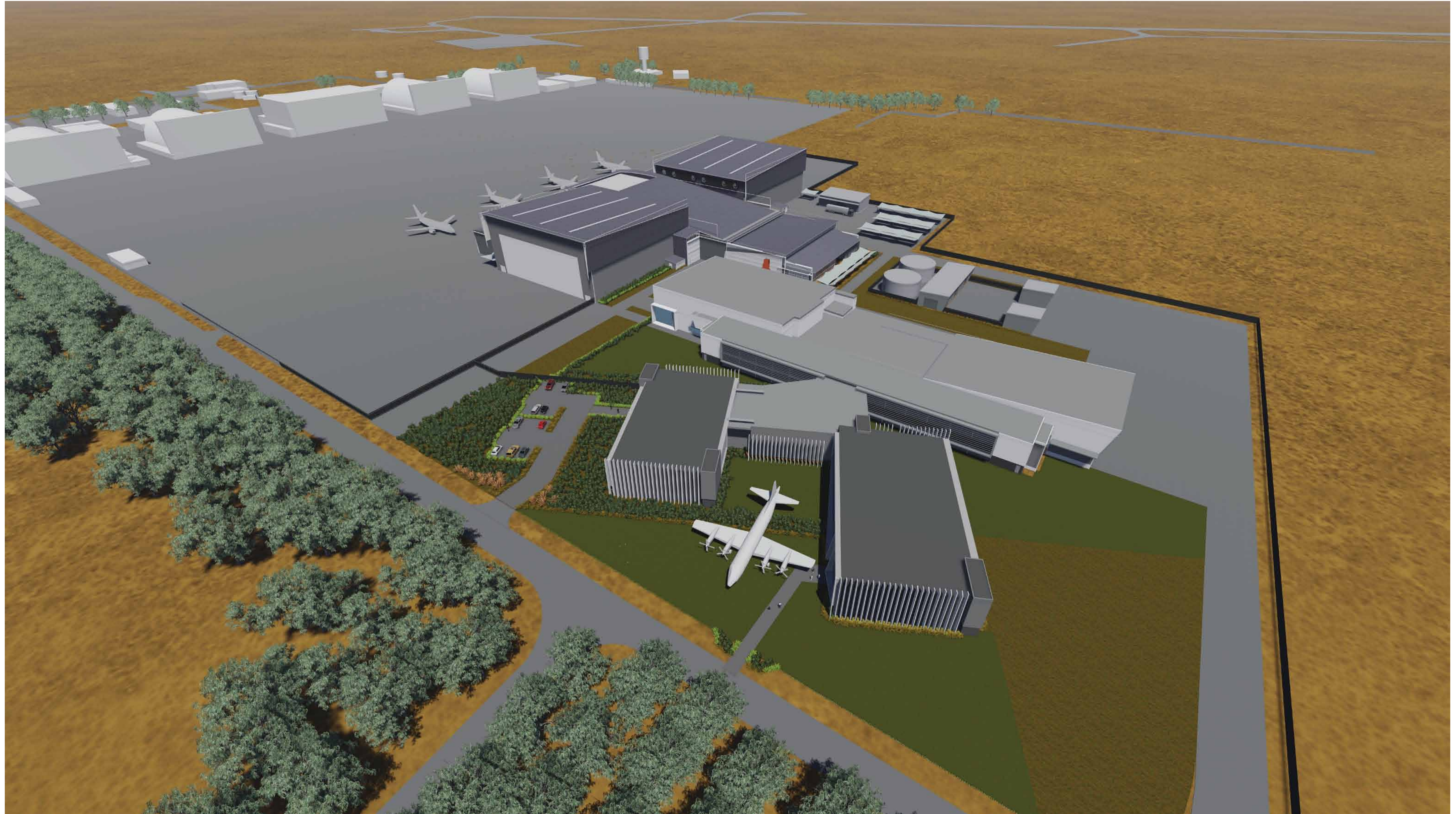
Source: ESRI



Source: Nearmap (August 27, 2014)

- RAAF Base Edinburgh Zone Plan Boundary
- Facilities Site Location

RAAF Base Edinburgh - Site Map

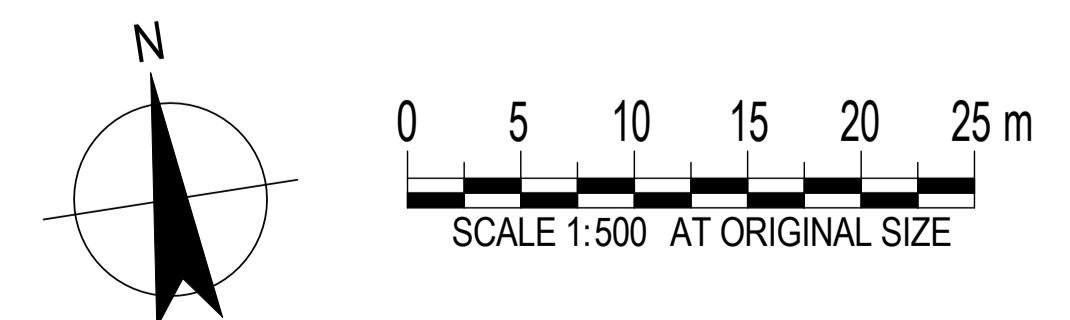


RAAF Base Edinburgh - 92WG Facilities

Attachment 6

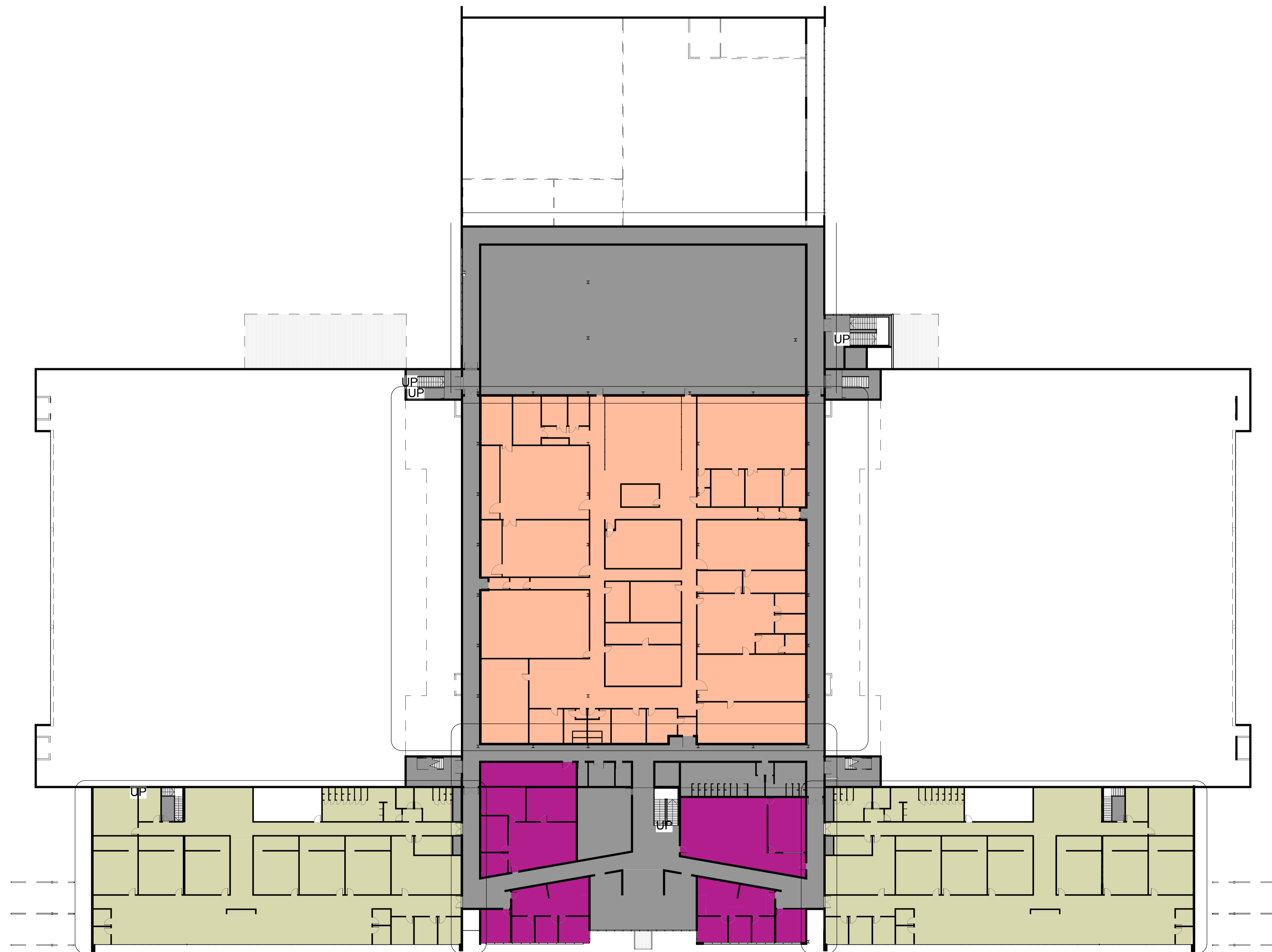


RAAF Base Edinburgh - Hangar Maintenance and Operational Facility - Ground Floor



Attachment 7

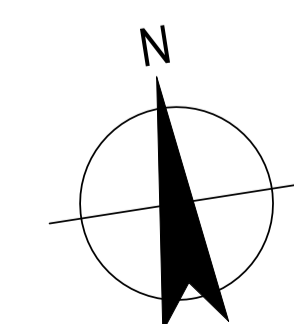
- Operations Planning
- Air Crew Facilities
- Operations Administration



KEY PLAN - FIRST FLOOR

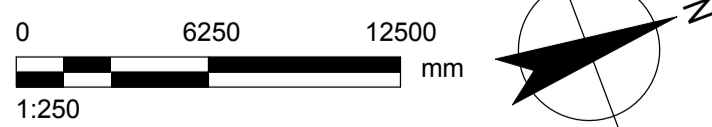
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RAAF Base Edinburgh - Hangar Maintenance and Operational Facility - First Floor

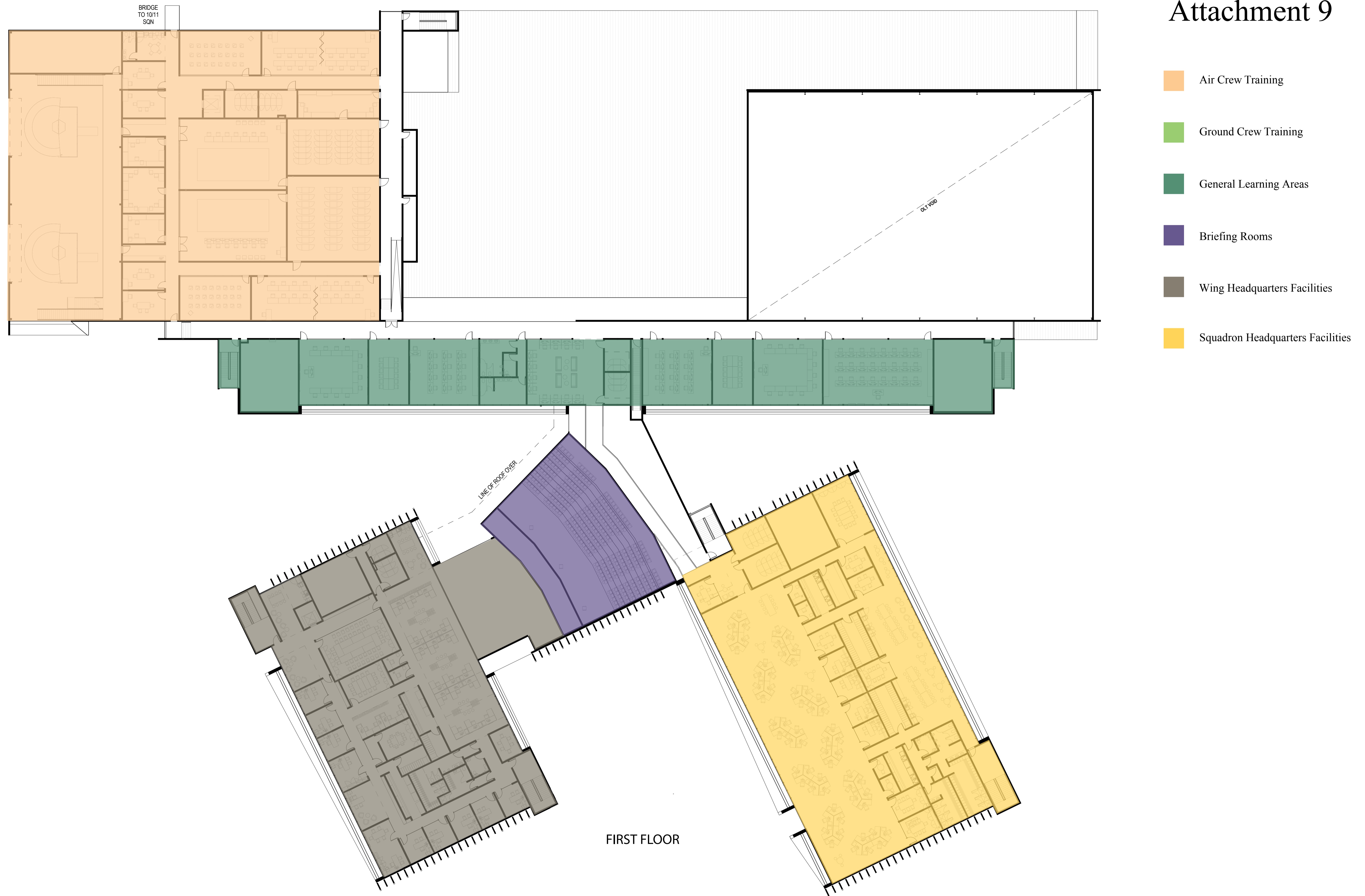




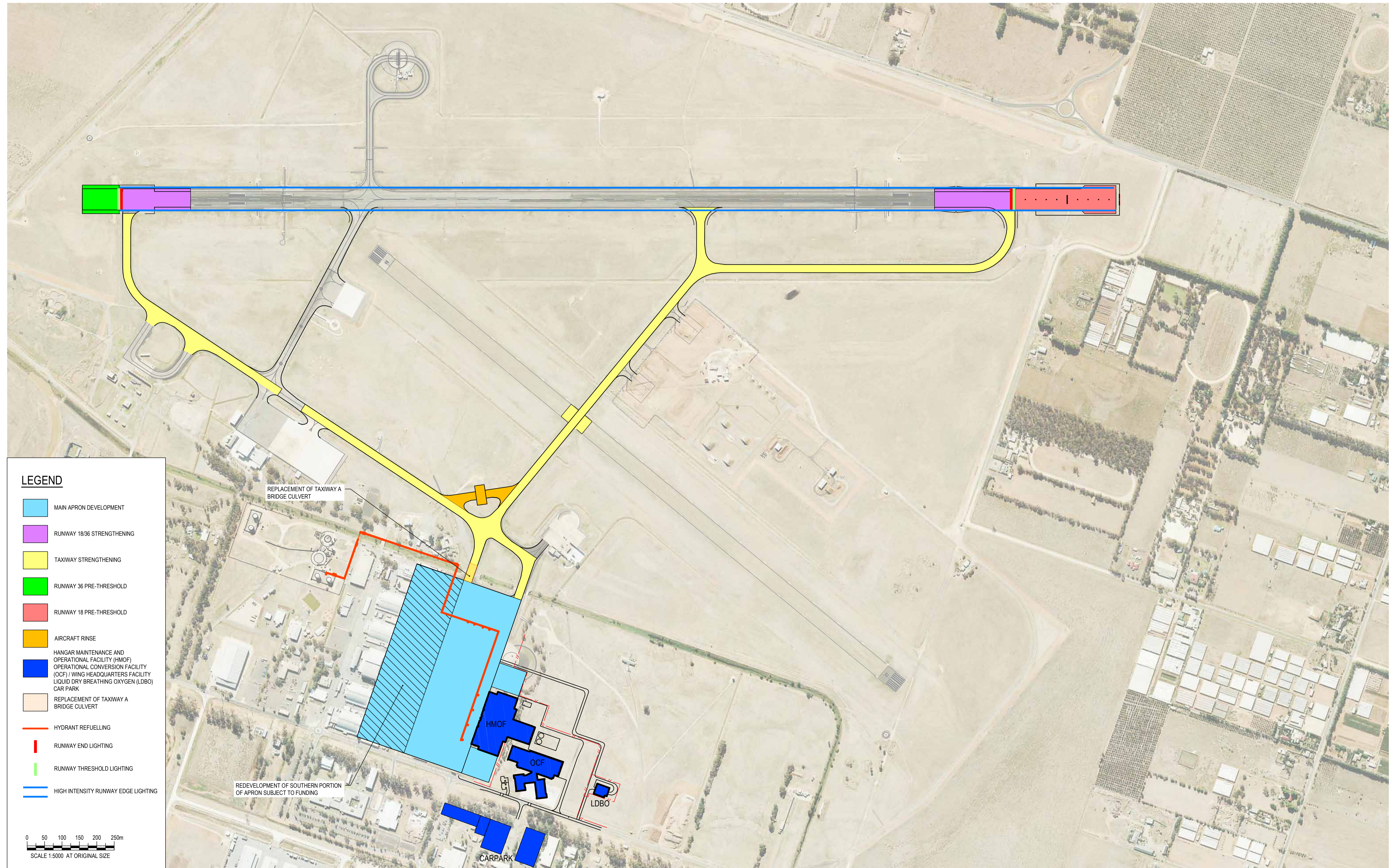
RAAF Base Edinburgh - Operational Conversion Facility - Ground Floor



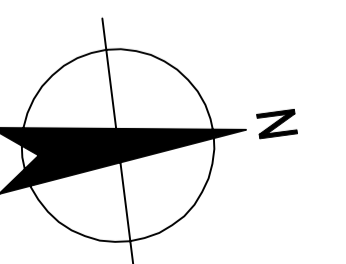
Attachment 9

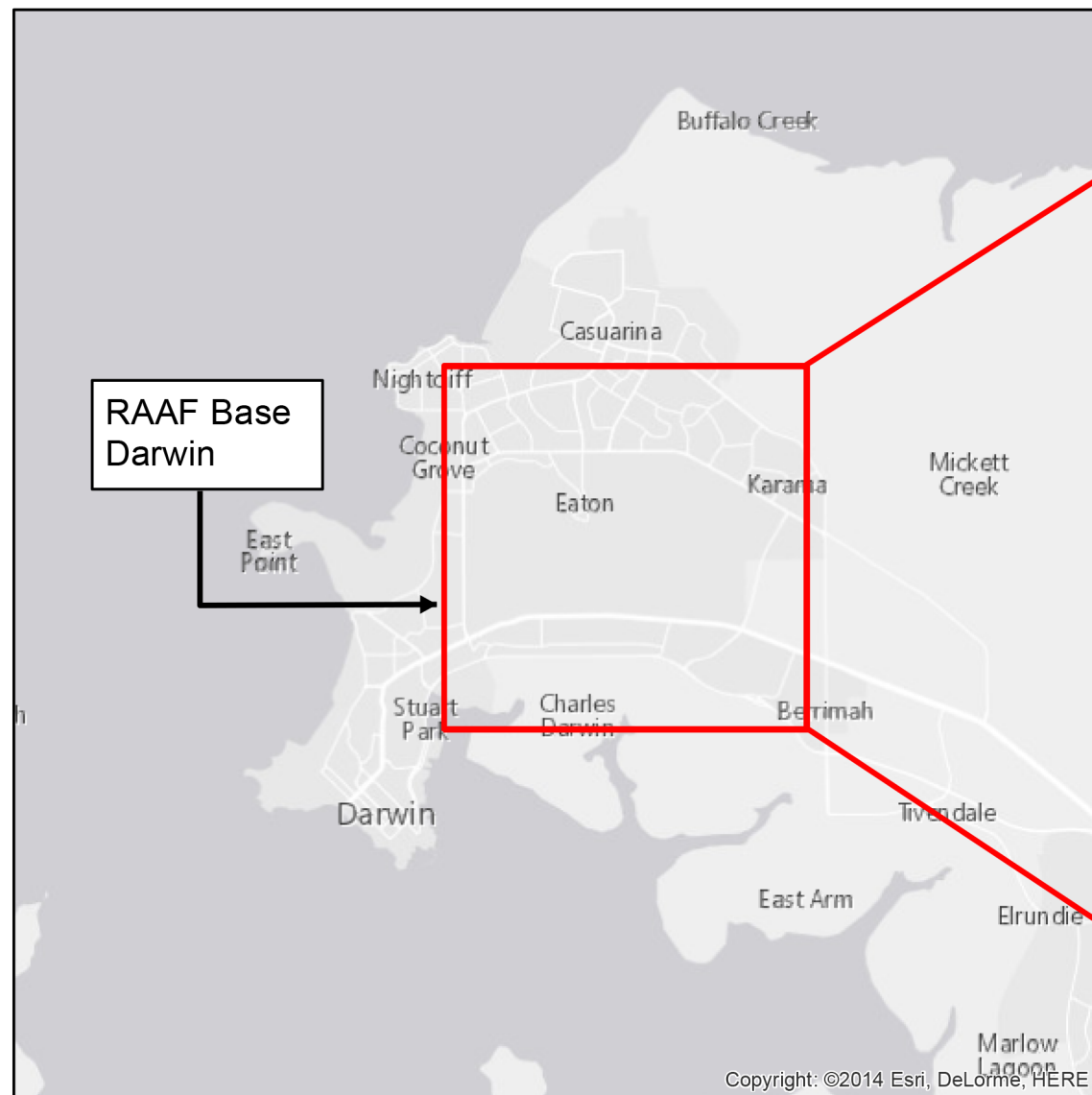


RAAF Base Edinburgh - Operational Conversion Facility - First Floor



RAAF Base Edinburgh - Pavement Works





Source: ESRI



Source: Nearmap (July 5, 2014)

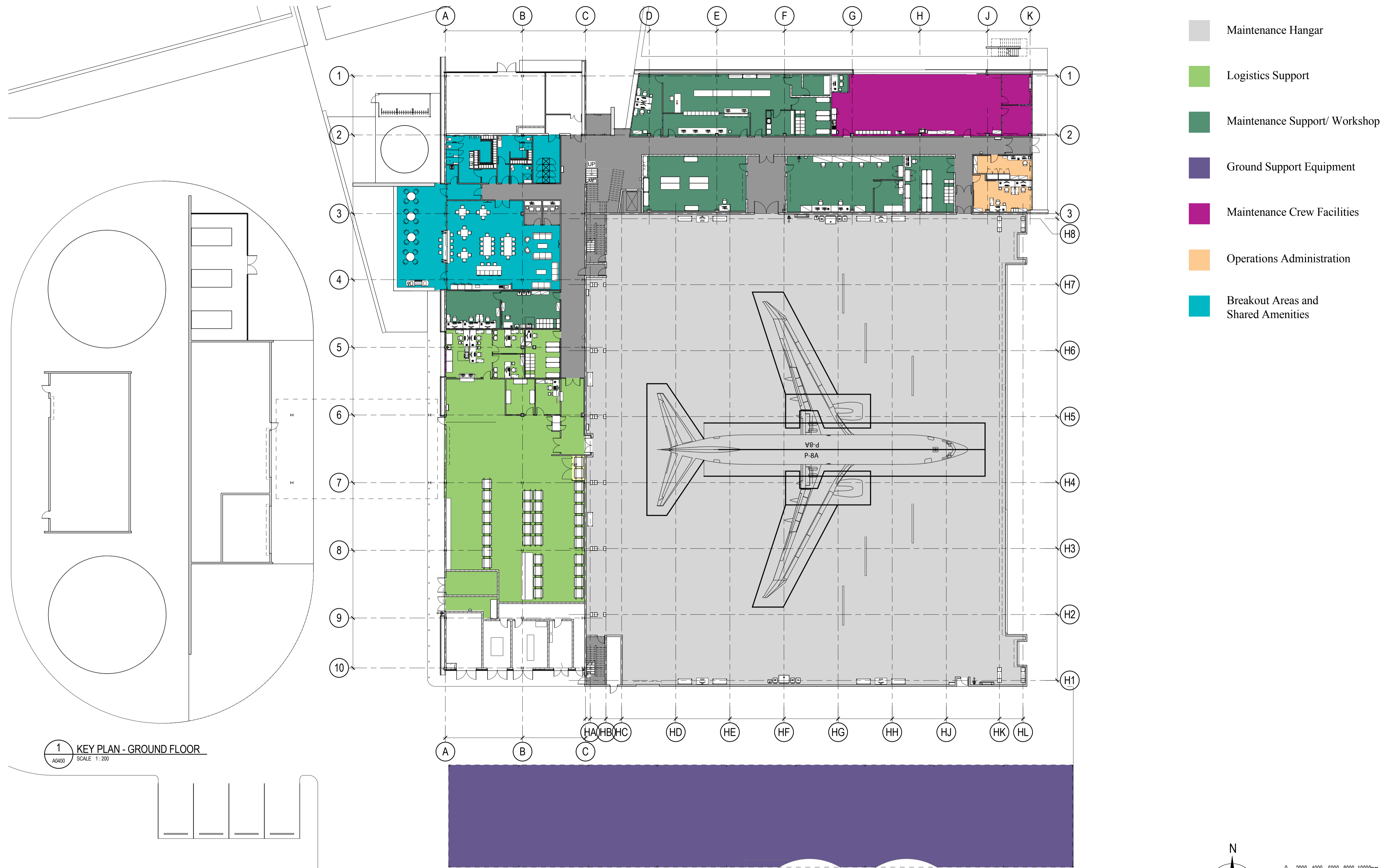
— RAAF Base Darwin Boundary
— Facilities Site Location

RAAF Base Darwin - Site Map

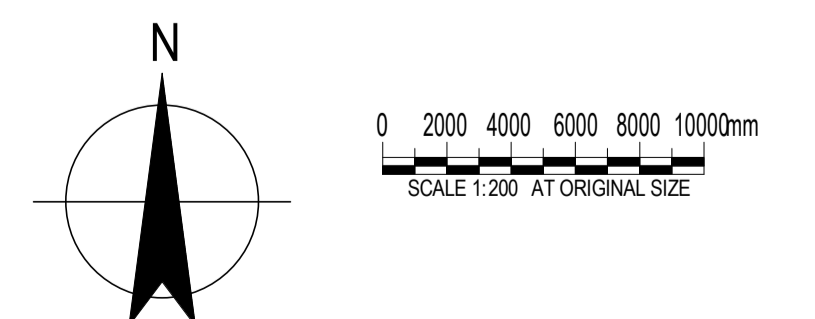


RAAF Base Darwin - Facilities

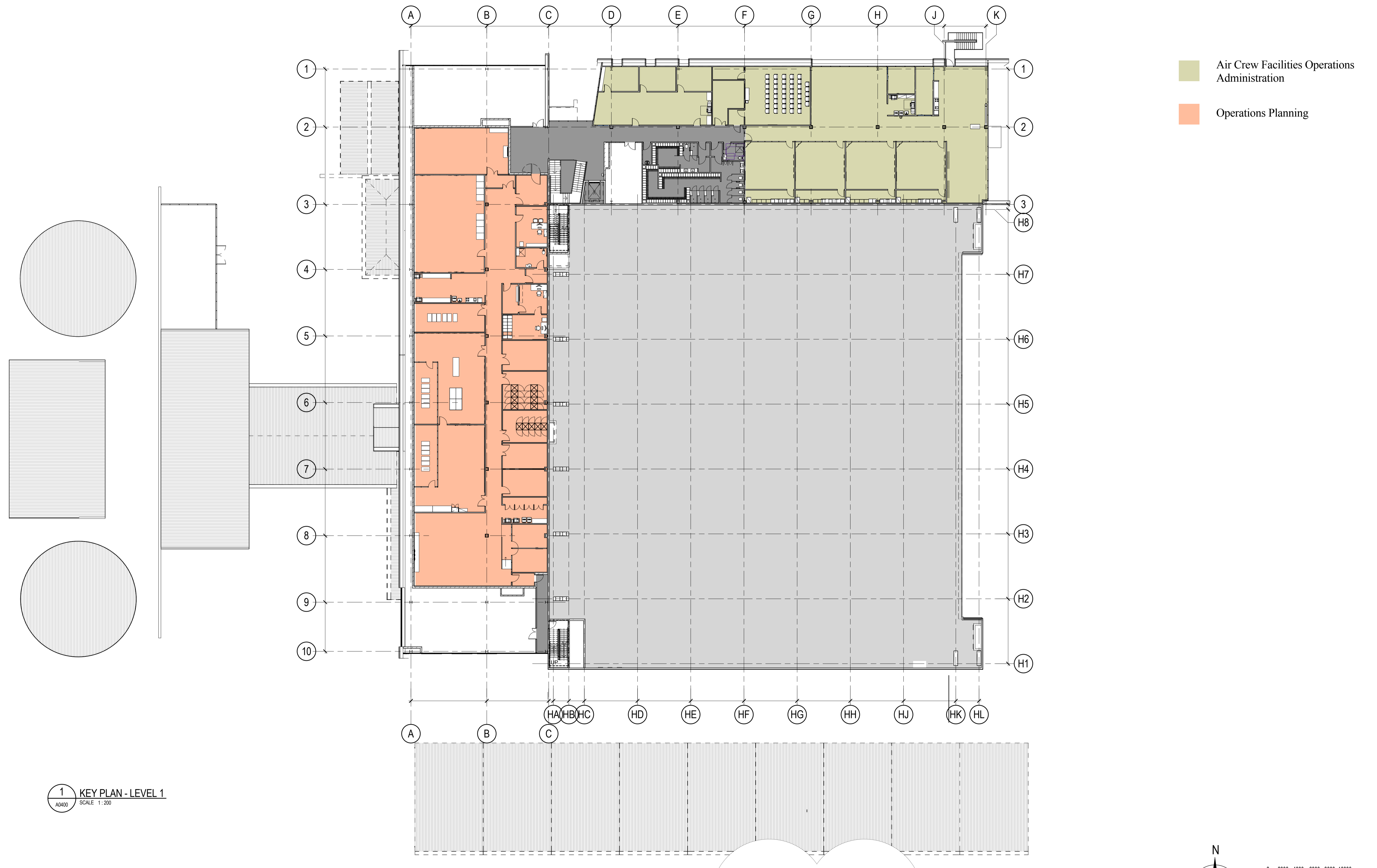
Attachment 13



RAAF Base Darwin - Hangar Maintenance and Operational Facility - Ground Floor

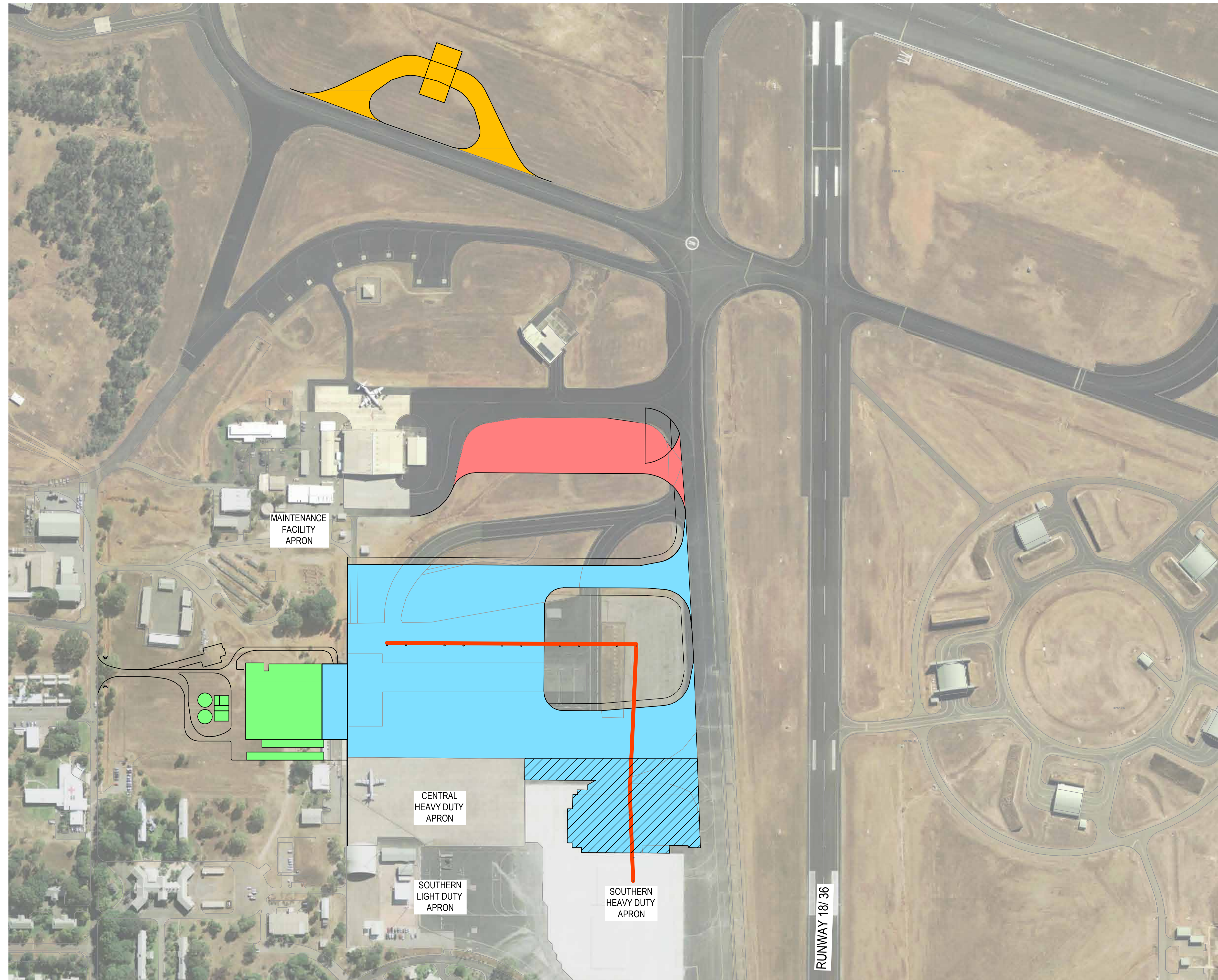


Attachment 14



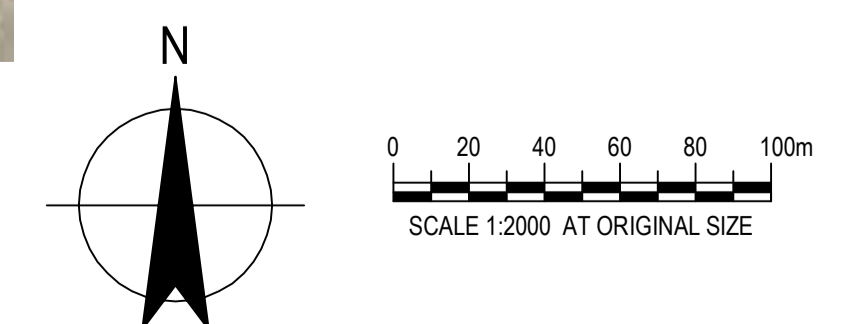
RAAF Base Darwin - Hangar Maintenance and Operational Facility - First Floor

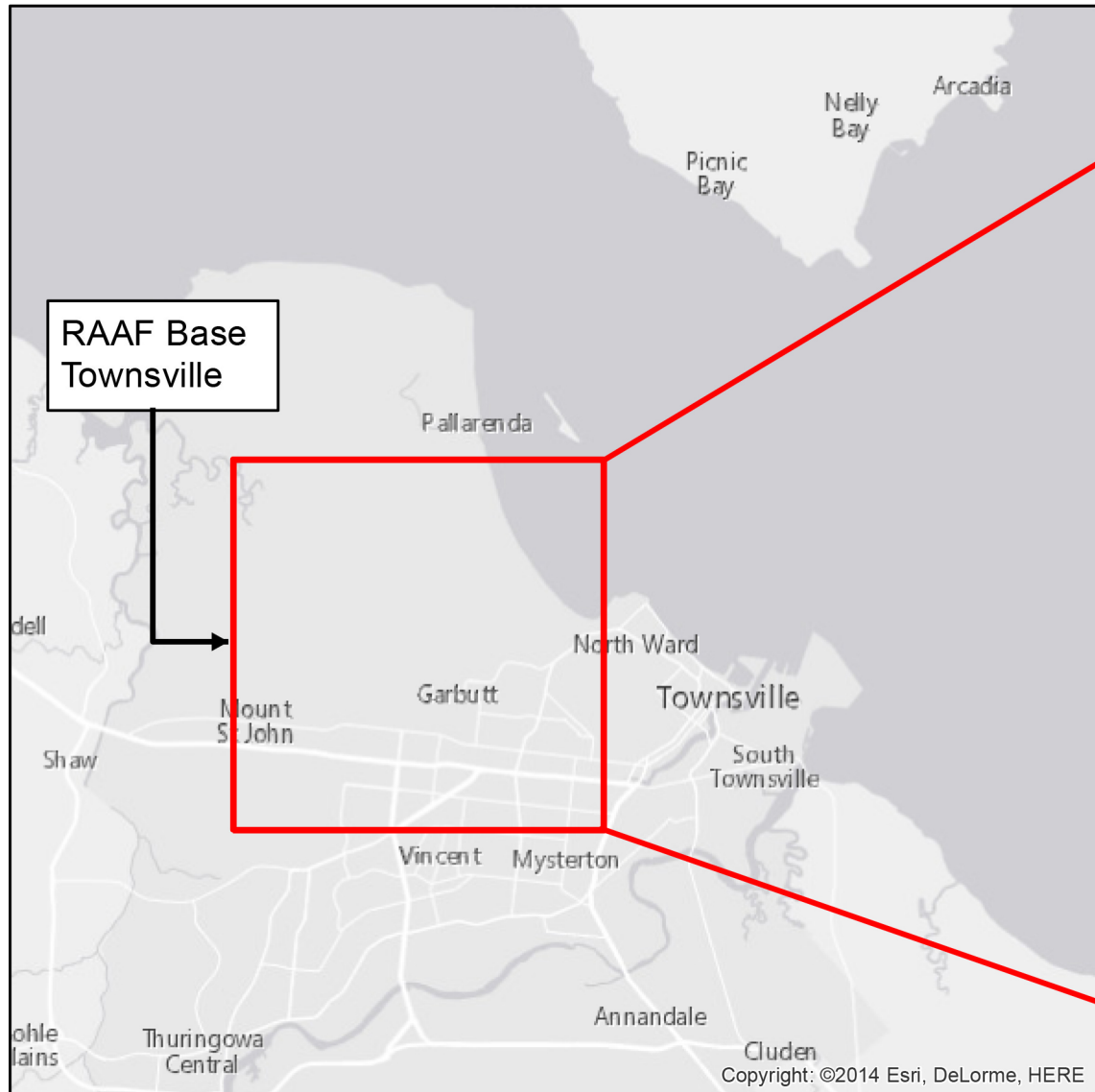
Attachment 15



- Aircraft Parking - Code D
- Aircraft Parking - Code E
- Aircraft Parking - Fighter
- Hangar, Maintenance and Operational Facility
- Aircraft Rinse
- Hydrant Refuelling

RAAF Base Darwin - Pavement Works





Source: ESRI

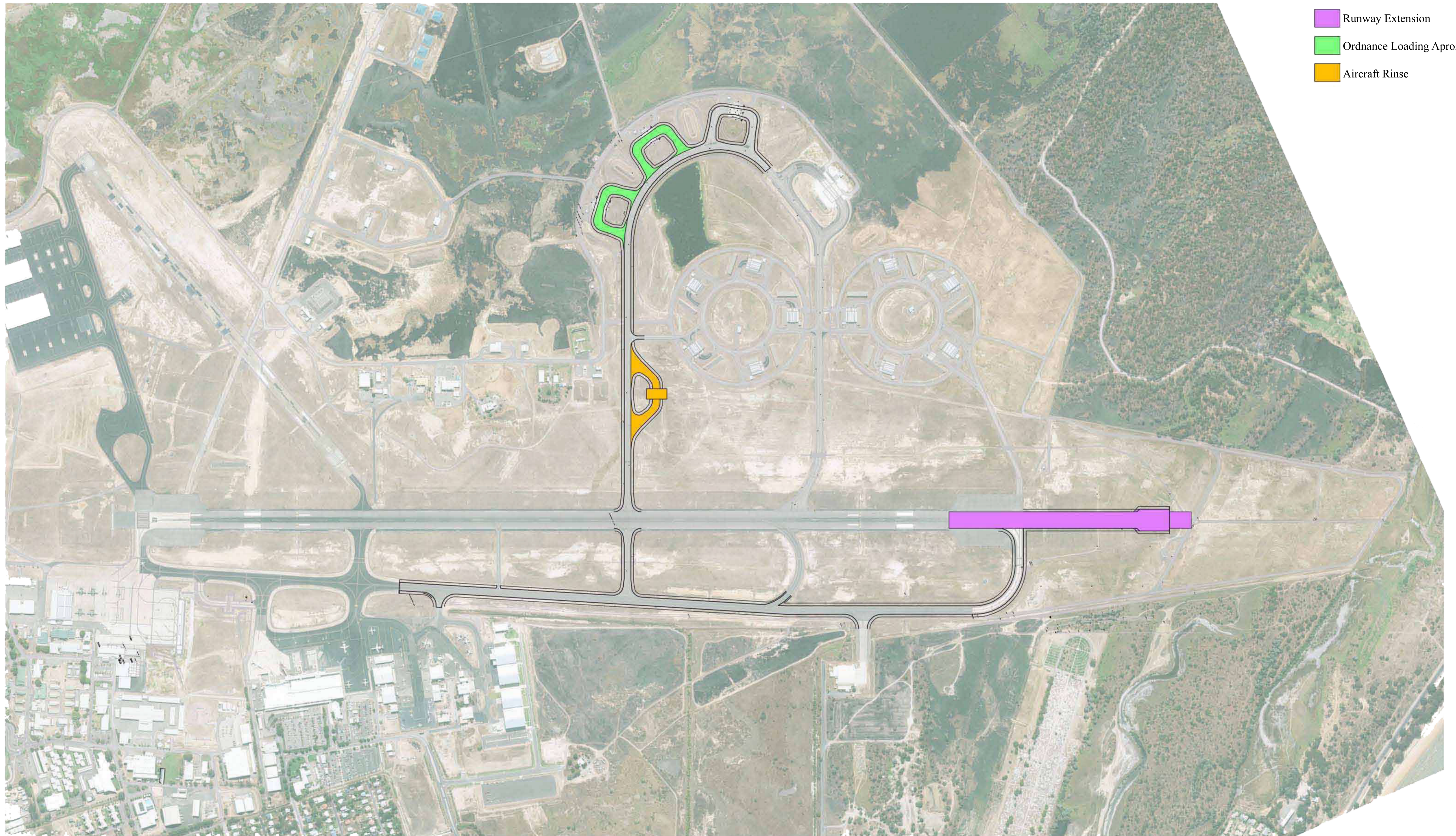


Source: Nearmap (July 8, 2014)

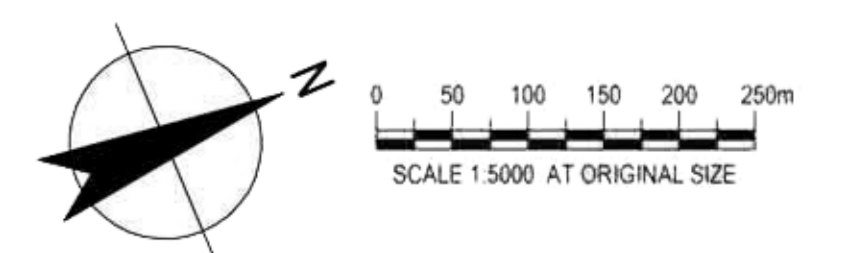
RAAF Base Townsville - Site Map

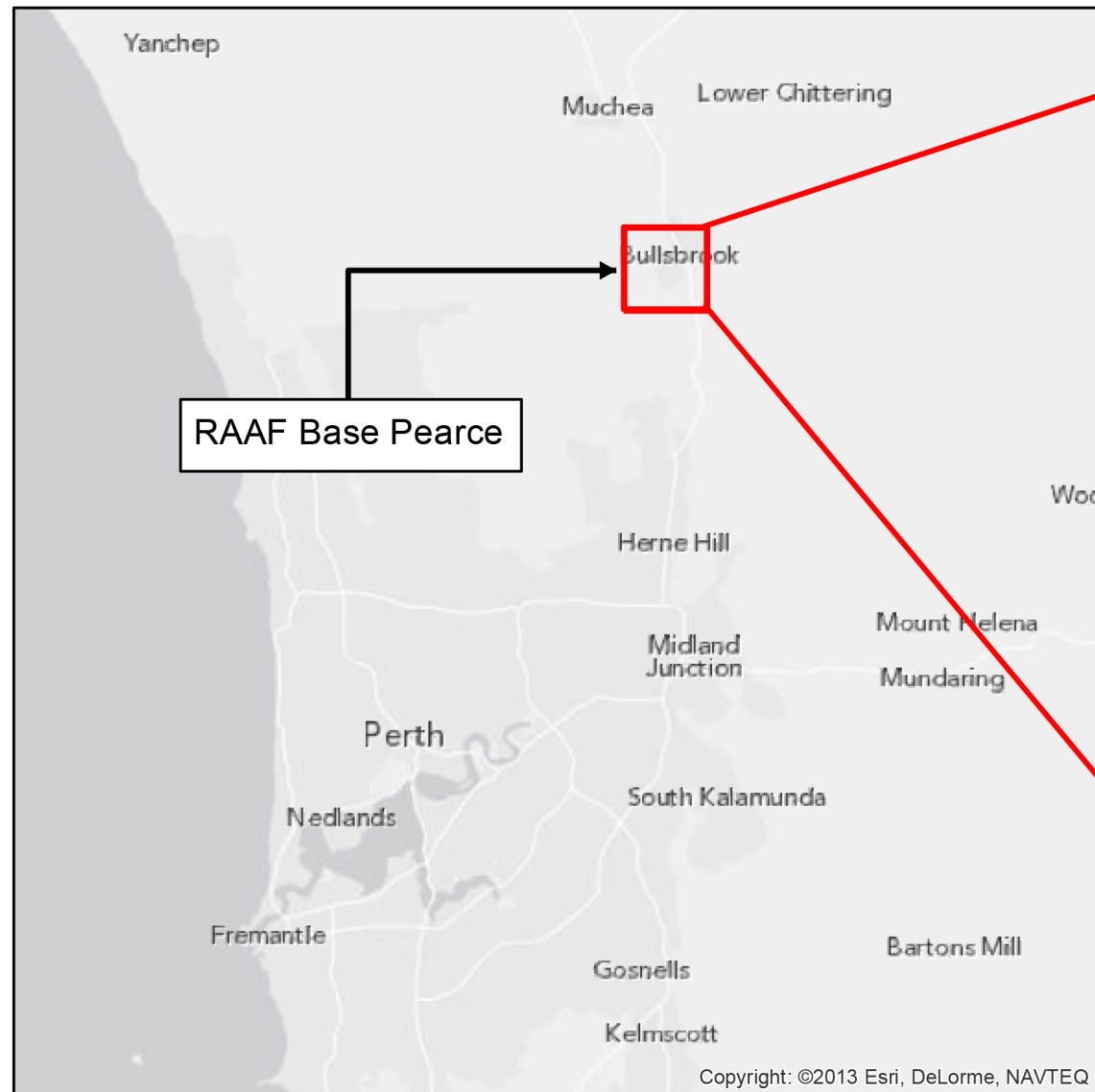
— RAAF Base Townsville Boundary

Attachment 17



RAAF Base Townsville - Pavement Works





Source: ESRI

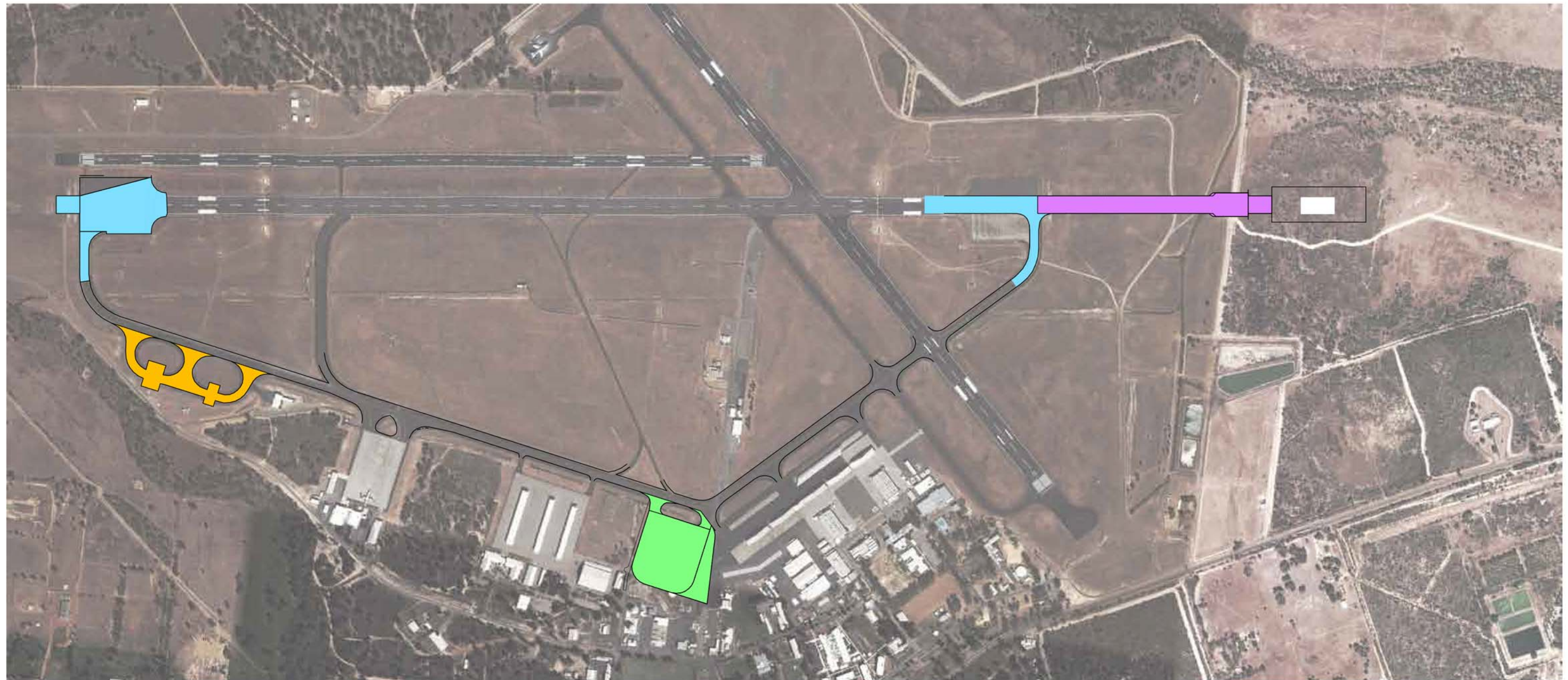






Source: Nearmap (August 9, 2014)

— RAAF Base Pearce Boundary

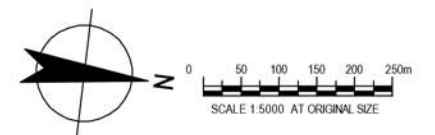
RAAF Base Pearce - Site Map

Attachment 19



-  Runway Strengthening
-  Runway Extension
-  Maritime Apron
-  Aircraft Rinse / Maritime Ordnance Loading Apron

RAAF Base Pearce - Pavement Works





Source: ESRI



Source: Nearmap (August 5, 2014)

Proposed Siting Location

HMAS Stirling - Site Map

STAKEHOLDER LIST

RAAF Base Edinburgh

- Mr Nick Champion MP, Federal Member for Wakefield
- Mrs Leesa Vlahos MP, State Member for Taylor
- Cr Gillian Aldridge, Mayor for City of Salisbury
- Cr Alex Coates JP, Deputy Mayor for City of Salisbury
- Cr Linda Caruso, Councillor for City of Salisbury - North Ward
- Mr Glenn Docherty, Mayor for City of Playford
- Cr Geoff Boundy, Councillor for City of Playford – Ward 1
- Cr Dino Musolino, Councillor for City of Playford – Ward 1
- Cr Julie Norris, Councillor for City of Playford – Ward 1
- City of Salisbury Council
- City of Playford Council
- SA Power Networks, Electricity provider
- SA Water
- Department of Planning Transport and Infrastructure
- Local community

RAAF Base Darwin

- Mrs Natasha Griggs MP, Federal Member for Solomon
- The Hon. David William Tollner MLA, Member for Fong Lim
- Cr Katrina Fong Lim, Lord Mayor for City of Darwin
- Alderman Gary Haslett, Member for City of Darwin – Waters Ward
- Alderman Allan Mitchell, Member for City of Darwin – Waters Ward
- Department of Infrastructure and Transport
- Darwin International Airport
- City of Darwin Council
- Northern Territory Power and Water Corporation
- Northern Territory Roads
- Local community

RAAF Base Pearce

- Hon Christian Porter MP, Federal Member for Pearce
- Mr Francesco Angelo Alban MLA, Member for Swan Hills
- Cr Charlie Zannino, Mayor for City of Swan
- Cr Kevin Bailey, Councillor for City of Swan – North Ward
- City of Swan Council
- Western Power, Electricity provider
- Water Corporation of WA
- Main Roads Western Australia
- Local community

RAAF Base Townsville

- Mr Ewen Jones MP, Federal Member for Herbert
- Mr John Hathaway MP, State Member for Townsville
- CR Jenny Hill, Mayor for Townsville City Council
- CR Vern Veitch, Deputy Mayor for Townsville City Council
- Townsville City Council
- Townsville Airport Pty Ltd (TAPL)
- Ergon Energy, Electricity provider
- Queensland Department of Transport and Main Roads
- Local community

HMAS Stirling

- Mr Gary Gray MP, Federal Member for Brand
- Mr Mark McGowan MP, Western Australian State Member for Rockingham
- Rockingham City Council
- Fleet Base West (HMAS Stirling) Fire Brigade Western Australia
- Service providers of Electricity, Gas, Water, Sewer and Stormwater
- Local community