



Australian Government

Department of Defence

Defence Support Group

RAAF BASE DARWIN

REDEVELOPMENT STAGE 2

Darwin, Northern Territory

STATEMENT OF EVIDENCE

TO THE

PARLIAMENTARY STANDING COMMITTEE

ON PUBLIC WORKS

**Department of Defence
Canberra, ACT
February 2008**

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IDENTIFICATION OF THE NEED

PURPOSE

1. This statement of evidence to the Parliamentary Standing Committee on Public Works presents a proposal for the Redevelopment of Facilities at RAAF Base Darwin in the Northern Territory for examination and recommendation to Parliament.

PROJECT OBJECTIVES

2. The Stage 2 Redevelopment Project consists of a number of discrete project elements, developed with the objective of maintaining operational capability, improving operational performance and rectifying identified occupational health and safety and environmental deficiencies.

RAAF BASE DARWIN DEVELOPMENT HISTORY

3. RAAF Base Darwin is located some 6km north-east of Darwin's central business district, as shown in the plan at Annex A. The Base was initially established in 1940, when the airfield was relocated from its original site in the suburb of Parap. Substantial temporary development occurred during World War II, but the current main runway, taxiway and military apron system was not constructed until the 1950s. Subsequent development through to the 1970's included explosives storage, fuel storage and operational, technical and domestic facilities. Cyclone Tracy in 1974 destroyed or badly damaged many of the domestic and administrative buildings and most of the aircraft maintenance and support facilities. Essential operational and aircraft maintenance facilities were replaced, but little further development was undertaken leading up to the decision to establish RAAF Base Tindal, near Katherine.

4. During the 1980s and early 1990s only essential works to maintain RAAF Base Darwin as a manned, forward operational base were undertaken. These included rehabilitation of married quarters, new explosive ordnance and security facilities, new air traffic control facilities located in the civil aviation area and rehabilitation of domestic and administrative facilities.

5. In 1997 a range of new operational facilities was approved (the Committee's first report of 1997 refers) and then progressively developed. These included:

- a. ordnance loading aprons with associated operational and technical facilities;
 - b. a new airfield fire station;
 - c. quick reaction alert facilities for four aircraft;
 - d. additional fuel storage;
 - e. a base command post; and
 - f. upgrading of the central emergency power station.
6. In recent years a number of medium works projects have been undertaken to establish improved ground defence and security police facilities, a new air movements facility, support facilities adjacent to the aircraft aprons and improved health services facilities.
7. In June 2006 the Committee agreed to the advancement of a medium work component of the current project to enable the development of a workshop facility for the Fuel Equipment Maintenance Section. The existing facility had been closed because of safety and environmental concerns and the interim arrangements, which included the use of an aircraft ordnance loading shelter, placed unacceptable limitations on base operational capability. The workshop is currently under construction and is due to be commissioned in March 2008. The working accommodation used to administer the workshop activities remains part of the scope of this project.
8. A plan of the base layout is at Annex B.

THE NEED FOR THE WORK

9. The facilities on the base have a varied history, some dating back to WWII, with others having been developed in the 1950s and 1960s. Some suffered the effects of Cyclone Tracy and although repaired at the time, are now well below current industry and Defence standards. Some require replacement or upgrading as a consequence of changing operational demands and to take advantage of improvements in technology. Additionally, in response to changing ADF responsibilities, there have been organisational changes which have generated new facilities needs. All of the proposals included in this project have the objective of improving the capability of RAAF Base Darwin to respond effectively to the demands placed on it in the current and anticipated strategic environment.

10. The deficiencies of the existing facilities and the work needed to correct them are outlined in the following description of the works proposed.

DESCRIPTION OF THE PROPOSAL

11. The proposed redevelopment comprises five elements:

- a. **Joint Logistics Unit (North) Headquarters.** The Joint Logistics Unit (North) provides logistic support to Northern Territory and Kimberly based Defence customers as well as deployed forces in the region. The distribution, warehousing and materiel maintenance services are currently provided through the Defence Integrated Distribution System contract. The staff, some 70 personnel, are accommodated in several demountable buildings on RAAF Base Darwin and in three leased premises off-base. The separation of staff involves substantial wasted time and travel with consequent inefficiencies. Collocation of all Unit staff into a new headquarters building on the RAAF Base is proposed, with some of the demountable buildings being demolished.
- b. **Fuel Storage and Reticulation.** There are four aviation fuel farms on the base, with the one constructed in 1999 being in good condition. The three older fuel farms have deteriorated substantially since their construction in the 1960s, have poor control systems and do not meet current OH&S and other industry standards. It is proposed to replace those three fuel farms with a single new fuel storage facility and connect it via a ring main to the other existing fuel farm and to each of the aircraft parking aprons in the eastern operational area of the base.
- c. **Mechanical Equipment Workshop.** The maintenance of mechanical equipment by No 321 Expeditionary Combat Support Squadron is currently conducted in a 1950s building which has significant structural and safety deficiencies. There is a shortage of maintenance space for the vehicles used by 114 Mobile Control and Reporting Unit and it is often necessary to conduct repairs outdoors. These inadequacies put at risk the readiness and reliability of vehicles required to support air operations from the base. It is proposed to replace the existing facilities with a new, combined facility with maintenance bays, workshops and a centralised administrative area. The 114 Mobile Control and Reporting unit compound is immediately to the north of the proposed new workshop.

- d. **Administrative Facility for the Fuel Equipment Maintenance Section.** The Fuel Equipment Maintenance Section is administered from a demountable structure in cramped and very poor conditions. It is proposed to provide new working accommodation for this function in an extension of the existing tanker drivers' facility. The Fuel Equipment Workshop, which this facility will support, is currently under construction.
- e. **Vehicle Wash Bay.** There are no dedicated facilities to wash vehicles after maintenance or servicing has been completed. A vehicle wash bay is proposed to support the needs of the Fuel Equipment Maintenance Section and Mechanical Equipment Maintenance Workshops, as well as units visiting the base.

12. The location of each of the project elements is identified on the plan at Annex C and sketch plans of each element are included at Annex D.

OPTIONS CONSIDERED AND REASONS FOR ADOPTING PROPOSED COURSE OF ACTION

13. Where feasible, options such as refurbishment and leasing were considered for the individual project elements. Considerable attention has been given in the design development to ensure the solutions to the requirement are both justifiable and cost effective:

- a. **Joint Logistics Unit (North) Headquarters.** Leasing of commercial premises off base was considered. This was rejected on the grounds of effectiveness, and the efficiency and convenience of having access to base support services, particularly in surge and emergency situations.
- b. **Fuel Storage and Reticulation.** Rehabilitation of the existing fuel farms was the initial intention, but was not pursued because of the high costs of rehabilitating the old facilities to current standards. The configuration of storage and reticulation to apron hydrants now proposed will improve the safety, reliability and productivity of refuelling operations. Further, the proposed ring main reticulation system will provide maximum flexibility and redundancy in refuelling operations. Hydrant reticulation for the aprons to the west of the cross runway will be addressed under the project providing support to deployed aircraft. Collectively the proposed new arrangements will reduce the number of refuelling tankers needed, the numbers of

personnel required to operate them and the size of the facilities needed to maintain them.

- c. **Mechanical Equipment Workshop.** Refurbishment and expansion of the existing facility was considered an inferior option to new construction due to the cost to bring the facility up to current codes and standards and the disruption to the users operations that would result from a major refurbishment in an occupied workshop. The building has structural, fabric and system deficiencies leading to the building's cyclone rating being compromised. This also results in the building not being water proof with downtime in the vicinity of 30% of normal working hours in the wet season when the facility becomes unsafe due to water ingress into the electrical wiring. It was not designed as a workshop, is grossly inadequate in area and lacks the services necessary for efficient and effective maintenance of equipment. A new facility will be purpose designed and offer both capability improvements as well as reduced operating costs.

- d. **Administrative Facility for the Fuel Equipment Maintenance Section.** Continued use of the existing demountable facility was deemed unacceptable from both functional and OH&S points of view. Providing a new facility as an extension of the existing tanker drivers' building is the preferred solution and will enable joint use of some existing amenities and services by administrative and maintenance personnel.

- e. **Vehicle Wash Bay.** New facilities were initially proposed at each of the new workshops, however it was determined that it would be more efficient to construct one facility that would serve both units as well as visitors to the base. It is proposed to design and site a new wash facility so that it will be suitable for use by a range of users, including vehicles belonging to the Mechanical Equipment Workshop, the Fuel Equipment Maintenance Section, the transport pool and visitors to the base, rather than to build separate facilities for individual units.

ENVIRONMENTAL IMPACT ASSESSMENT

14. Based on an environmental impact assessment for the project, Defence has determined that the redevelopment works are unlikely to have a significant impact on the environment and that the project does not require referral to the Department of the Environment, Water,

Heritage and the Arts under the *Environment Protection and Biodiversity Conservation Act 1999*. The area surrounding the existing fuel farm facilities has the potential to be contaminated. Provision has been made within the Fuel Storage and Reticulation element of the project for remediation of any soil contamination discovered when the old fuel farms are demolished.

15. The project will continue to be managed appropriately through Defence environmental policies, procedures and management plans. Construction will not commence until a Defence Environmental Clearance Certificate has been issued.

HERITAGE CONSIDERATIONS

16. A Heritage Management Plan was prepared for the Base in 2005 and a heritage evaluation and impact assessment was undertaken during the course of design development of the project. The assessment concluded that while there was the potential for some of the proposed facilities to impact on buildings with heritage values, provided the guidelines contained in the Heritage Management Plan were followed, referral to the Minister under Section 26/28 of the *Environment Protection and Biodiversity Conservation Act Act 1999* would not be required. Detailed design of the facilities will ensure that the guidelines are met.

CONSULTATION WITH STAKEHOLDERS

17. In the development of the project, consultation has occurred with the users, unit commanders and Headquarters Air Force Base Darwin and with RAAF Headquarters staff. Additionally, military and civilian staff responsible for the ongoing maintenance and operation of the facilities have been involved the development process and will continue to be involved through the remainder of the project.

18. Consultations will be held with Territory and Local Government representatives and with relevant utilities such as PowerWater and NT Fire & Rescue Service and will continue throughout construction.

19. An industry briefing was conducted in March 2007 to ensure the local construction market was provided with information relating to the scale, schedule and nature of the works required. It is intended to undertake further briefings as the project progresses.

REVENUE

20. This proposal will not generate any revenue for the Commonwealth.

TECHNICAL INFORMATION

LOCATION

21. RAAF Base Darwin is located approximately 6 kilometres north-east of Darwin's central business district. It is bounded by four major arterial roads – the Stuart Highway on the south, Bagot Road on the west, McMillans Road on the north and Amy Johnson Avenue on the east. The airfield is a Joint User Airfield, serving both military and civil aviation needs. The RAAF Base and the civil airport on the northern side of the Base occupy an area of approximately 1600 hectares. A location plan is at Annex A and a plan showing the layout of military and civilian facilities is at Annex B.

PROJECT SCOPE

22. The project consists of 5 elements. The work proposed for each of the Elements is summarised below. Sketch plans of each element are at Annex D.

- a. **Joint Logistics Unit (North) Headquarters.** A single level building is proposed, of some 1000m² floor area. It would have an H shaped configuration, comprising:
 - i. A reception area, open plan offices with workstations, 12 individual offices and two conference rooms;
 - ii. A secure area incorporating an operations room; and
 - iii. Ablutions, amenities and carparking.
- b. **Fuel Storage and Reticulation.** There are currently four fuel farms on the base. Of these, the newest and largest fuel farm is to be retained. The other three are older and much smaller. The scope of work proposed includes:
 - i. Replacement of three small existing fuel farms with a new fuel storage facility comprising two stainless steel vertical storage tanks each of 1ML capacity, with associated pumps and services; and
 - ii. Ring main pipe work connections between the new storage facility, existing hydrant pipe work at the three nearby aircraft aprons, and the large existing fuel farm which is to be retained. The existing fuel farm will continue to

receive fuel deliveries to the base, carry out fuel quality control management and supply fuel to the new storage facility.

- c. **Mechanical Equipment Workshop.** A single facility is proposed, to meet the workshop and administrative needs of the two units concerned. The proposed facility, some 2,900m² in floor area, would comprise:
 - i. Eight drive through workshop bays (each 25mx7m) for each unit, including two lubrication/inspection pits and associated welding, electrical, air conditioning and fabrication workshops;
 - ii. A central, single storey administrative facility with dedicated areas for each unit and combined facilities for ablutions, lockers and amenities;
 - iii. Petrol, oil and lubricant stores, ancillary mobile equipment shelters, battery stores, tyre workshop and engine run up area; and
 - iv. Road connection to the air movements apron.

- d. **Administrative Facility for the Fuel Equipment Maintenance Section.** The proposed facility would be an extension of some 330m² to the existing steel framed tanker drivers' working accommodation. The extension will provide an office, technical references library, first aid room, kit store and amenities.

- e. **Vehicle Wash Bay.** A steel portal framed structure 23m x 8m in plan and 5m eaves height is proposed. It would have colourbond sheeting on the roof and on the walls down to 2.1m above ground level. A small annex for compressed air and storage of washing equipment will also be provided.

23. The Fuel Equipment Maintenance Section workshop, a separate medium works project related to this project, was progressed with the Committee's agreement and is now under construction. The workshop is a steel framed structure with three service bays for the specialised maintenance of refuelling vehicles. It will incorporate design features suitable for the hazardous environment caused by fuel fumes and for the proper containment of fuel spills.

SITING OF FACILITIES

24. The airfield has a main runway 3354 metres in length and 45 metres wide, in a generally East-West orientation, and a shorter cross runway generally running North-South. Civil aviation facilities are located to the north of the main runway and taxiway system, and RAAF operational and support facilities are sited to the south in zones according to function. The facilities proposed in this submission are located within these zones. The sites planned are indicated on the plan at Annex C.

ZONING AND APPROVALS

25. The land on which the base is located is zoned Commonwealth land under Defence control. Northern Territory Government approvals for the development are not required, although Defence will comply with both Territory and municipal requirements.

LAND ACQUISITION

26. No land acquisition is involved.

APPLICABLE CODES AND STANDARDS

27. The building components have, to varying degrees, elements of civil, structural, mechanical, electrical, hydraulic, fire protection and communications services. These will all comply with the relevant Australian, Northern Territory and Defence codes and standards, including:

- a. Building Code of Australia;
- b. Defence Manual of Fire Protection Engineering;
- c. Occupational Health and Safety Act 1991;
- d. Defence Security Manual; and
- e. Northern Territory Building Act and Regulations 1993.

28. Fuel storage, delivery and control systems will comply with a range of codes and standards including:

- a. DEF(AUST) 5695 – Minimum Standard of Practice for the Storage, Handling and Quality;

- b. API 650 – Welded Steel Tanks for Oil Storage;
- c. AS 1940 – Storage and Handling of Flammable and Combustible Liquids;
- d. AS 2430 Series – Classification of Hazardous Areas;
- e. AS 2885 – Pipelines – Gas and Liquid Petroleum; and
- f. AS 3000 – Electrical Installations.

PLANNING AND DESIGN CONCEPTS

29. **Architectural and Structural.** A consistency of style across each of the new facilities is proposed. The objective has been to optimise functionality, constructability, performance, and value in terms of both capital and whole of life costs.

30. The Mechanical Equipment Workshop design is based on two open planned workshops with a central, shared administrative core and an annex for ancillary functions. Each bay will be individually accessible by means of its own roller door. As a result the workshop bays will be provided with a high degree of natural ventilation and light. The structure will involve bored piers supporting column loads; raft footings supporting walls to office and amenities areas, 150mm thick reinforced concrete workshop floor slabs, steel portal frames for the workshop and a steel column and beam system for the central office area braced by core filled block work.

31. The Joint Logistics Headquarters is planned around two parallel wings running East-West. Entry is via a central connecting link space which provides a sheltered entry porch, reception lobby, and direct access to each of the major communal areas, such as conference rooms and amenities. The northern wing contains an open plan, column free area for flexible workstation arrangement, while the southern wing will accommodate a series of functions which require permanent dividing walls, such as the operations room, communications area and plant room. The operations room and permanent office accommodation for ten staff are designed for both security and post disaster functionality. The structure will be built on a concrete slab with integral beams, with a combination of load bearing core filled block work and steel columns with steel rafters, purlins and in plane roof and wall bracing.

32. **Fuel Storage and Reticulation.** The two fuel storage tanks will be designed as vertical above ground tanks of 1ML capacity each. Each tank will be 8m in height and 15m in diameter, constructed of stainless steel, with self supported, frangible cone roofs to allow for

emergency venting. Frangible cone roofs are designed to fail and release pressure that may otherwise damage the walls of the tank. All internal fittings will be in stainless steel. External structural attachments such as spiral stairway, peripheral hand rail and cable trays may be in galvanised steel with appropriate isolation of connections.

33. Passive defence of the tanks, including hardening by concrete shells and stand off mesh screens to intercept projectiles will be provided to protect the tanks.

34. Four pumps will be provided to deliver fuel to the apron hydrants, three duty and one standby. They will each have a pumping capacity designed to meet the maximum fuel demand.

35. All new piping will be buried stainless steel. Fuel will be supplied to aircraft via existing hydrant carts at apron hydrants on an on demand basis.

36. During operation the existing fuel farm will supply fuel to the new fuel farm which will then be the source of fuel for all apron fuelling locations. The control system will provide the flexibility for all hydrants to be supplied from the existing fuel farm. A certifiable safety system, interfacing with and operated from the current control system at the existing fuel farm, is to be provided to control critical activities.

37. Detailed design attention will be given to measures for static earthing, cathodic protection, leak avoidance and detection, fire protection, lightning protection, emergency shut down arrangements, and to standby and uninterruptible power supplies for emergency lighting and control of key systems.

38. **Civil and Hydraulics.** Roads, car parking, stormwater drainage, water reticulation and sewerage will be provided according to the requirements of the individual sites. The site of the Mechanical Equipment Workshop will be raised above the existing ground level, up to some 1.5m on the western side, to mitigate stormwater impacts. The apron and drive through areas of this facility will take account of the larger turning circles of some of the equipment which will be serviced in the facility.

39. Hot water will be provided by solar domestic hot water panels with electric boost. The Joint Logistics Headquarters building will employ rainwater capture and re-use to flush toilets.

40. **Electrical.** New electrical substations will be established to provide power to the Mechanical Equipment Workshop and the Joint Logistics Headquarters. Power control and monitoring and load shedding facilities will be installed in each facility and they will be connected to the Central Emergency Power Station. Power for the new fuel storage facility will be provided from an existing substation, in which a new 415V switchboard and busbars will be installed.

41. **Communications.** The project will include the communications infrastructure necessary to provide voice and data connections to the new facilities. This will include PABX upgrades and the provision of active and desktop equipment in the new buildings.

42. **Mechanical.** Office areas will require a high thermal performance envelope. Glazing will be sealed to prevent the ingress of airfield noise, prohibiting any form of natural or mixed mode ventilation. For cooling, a combination of chilled water plant and refrigerative air cooled air conditioning systems will be used to meet the requirements of the particular spaces. For heating, air handling units will be supplied with heating hot water, with heat sourced from solar panels, with electric boost as required. This initiative will result in heating energy being sourced from solar power in lieu of electrical power for most of the year.

43. **Acoustics.** Acoustic design and treatment will reflect the two requirements of protection from external aircraft noise intrusion and speech privacy to and between specific internal rooms. The project elements which will require particular attention are the Mechanical Equipment Workshop, which will be located within the 25-30 ANEF zone, and the Joint Logistics (North) headquarters, which will be within the 20-25 ANEF zone.

44. **Landscaping.** Landscaping around new buildings will be planned to match the existing landscaping form that has been developed on the base.

ECOLOGICALLY SUSTAINABLE DEVELOPMENT

45. The Commonwealth is committed to Ecologically Sustainable Development and the reduction of greenhouse gas emissions. The project has addressed this by adopting cost effective Ecologically Sustainable Development measures as a feature of the design and delivery of the new buildings included in the project.

46. The fuel farm element of the project involves improvements to infrastructure which are not relevant to the application of these initiatives. For the new buildings however, the Ecologically Sustainable Development design initiatives which have been taken include:

- a. Building form and fabric. Energy use will be reduced by passive design features. Where feasible, building designs will be narrow, aligned east-west but offset slightly to maximise ventilation from NW and SE seasonal winds. North and south glazing will be shielded from solar radiation. Glazing on east and west facades will be minimised, with landscaping used for shading. Vapour barriers will be incorporated in external envelopes of air conditioned buildings. Roof penetrations will be minimised and the use of daylight is to be optimised.
- b. Energy use minimisation. Energy use will be reduced by cost-effective design features. The use of night purge strategies and high efficiency internal blinds will supplement building orientation, thermal performance and façade treatment. Demand management will include the use of high efficiency lighting, occupant and daylight controlled lighting, and the use of simple, intuitive controls. Air conditioned areas will be zoned with localised switching, including after hours time switching. Systems will incorporate high efficiency motors, fans, pumps and filtration, and all pipe-work and ducts will be insulated. High efficiency light fittings will be used, with light switch labelling, occupancy sensors in intermittently used rooms, separate switching to individual spaces and time clock controls of appliances such as boiling water units.
- c. Water use reduction. Potable water use will be reduced by cost-effective design features. Demand management measures will include the general use of water efficient fixtures; sanitary fixtures will comply with best practice ratings. Dual flush cisterns, sub-metering of water usage, flow control valves on taps, and minimising dead legs on hot water systems will be employed. Landscaping has been designed to address location and climate with planting selection including native plant and grass species in the landscaping design with reduced irrigation requirements.
- d. Waste minimisation. Design strategies will be focussed on minimising the quantum of material going to landfill both during construction and through the life

of the facilities. Approaches will include: designing to standard construction material dimensions, minimising off-cuts; giving emphasis to designs which are flexible and which facilitate re-use of materials when space allocation changes are necessary; development of a waste management, materials input and waste tracking plan during construction; designing for waste streaming when the facilities are in use.

- e. Choice of materials. Materials will be selected from those readily available locally for their functionality, durability, low maintenance and for their ESD properties to minimise impacts on environment. Durable materials will be selected that can be dismantled and reused/recycled to promote flexibility of internal spaces; use of plantation timbers is to be maximised; avoidance of toxicity particularly in fit out materials selection.

WATER AND ENERGY CONSERVATION

47. Defence reports annually to Parliament on its energy management performance in accordance with the Energy Efficiency in Government Operations policy and on its progress in meeting the energy efficiency targets established by the government. Defence is committed to the implementation of policies and strategies in energy, water and waste management to improve natural resource efficiency and to support its commitment to the reduction of energy consumption, potable water consumption and waste diversion to landfill.

48. All buildings included in this project will be designed, constructed, operated and maintained to ensure that they use energy efficiently. To achieve this, as a minimum, the buildings will comply with:

- a. Part I2 of Volume One of the BCA;
- b. Part 3.12 of Volume Two of the BCA;
- c. the Energy Efficiency in Government Operations policy; and
- d. Defence Green Building Requirements.

49. All buildings will comply with the relevant energy efficiency provisions in the BCA, except where there are energy efficiency requirements imposed by Defence Green Building

Requirements - Part 1 that are of a higher standard. In this instance, BCA Section J for North Queensland, requiring a 20% increase in energy efficiency, will apply.

50. Defence has adopted the principles of the Energy Efficiency in Government Operations (EEGO) policy in relation to office accommodation less than 2000 m², with separate digital metering and lighting of less than 10 watts per square metre. Separate metering to other facilities will be applied in accordance with the Defence metering strategy. This will apply to the Joint Logistics Unit - North head quarters, the Fuel Equipment Maintenance Section working accommodation and the administrative area of the Mechanical Equipment Workshop.

51. The design strategies outlined in the previous section will promote Defence's capacity to achieve its water and energy conservation objectives on the base.

MASTER PLANNING AND FUTURE DEVELOPMENT

52. This proposal is in accordance with the RAAF Base Darwin Master Plan, dated June 2000 and is also in accordance with the update to this master plan, due for completion in mid 2008.

53. All of the proposed sites of works comprising these projects have been endorsed by the Site Selection Boards and approved by the Defence delegate.

DISABLED ACCESS

54. Facilities for people with disabilities will be provided in accordance with relevant Australian standards and design codes.

HERITAGE CONSIDERATIONS

55. Cognisance has been taken of the heritage values of the RAAF Base Darwin. Both the proposed Logistics Head Quarters and the Mechanical Workshop have relocated to sites further from the Officers' Mess to reduce their visual impact and this is in keeping with the guidelines in the HMP. The only work to be undertaken within the heritage precinct is the demolition of the demountable buildings. The removal of these intrusive elements will enhance the heritage values of the precinct.

CHILD CARE PROVISIONS

56. A child care facility for Australian Defence Force personnel is located within the community precinct of the Base. The facility is appropriate for its purpose and none of the work proposed will increase the childcare liability. No childcare related works are proposed under this project.

FIRE PROTECTION

57. All construction and fire protection requirements will be in accordance with the provisions of the BCA, the Defence Manual of Fire Protection Engineering and all other applicable Codes and Standards. The Manual of Fire Protection Engineering details Defence fire protection policy for asset protection and building function protection. The levels of fire protection specified are above BCA requirements and have been determined by a risk assessment and risk management approach to fire protection.

58. Defence will require certification from a suitably qualified and accredited building surveyor, that the design and construction meet the requirements of the BCA, the Manual of Fire Protection Engineering, relevant Codes and Standards and any additional State, Local Government and Defence requirements.

59. The Northern Territory's Fire and Rescue Service will be invited to comment on the project, visit the site and offer comment throughout the construction phase to ensure that the Brigade's operational requirements are met.

60. Any recommended departures from BCA requirements in relation to the project will be technically assessed by Defence specialist fire protection staff and, where warranted by the scope of the departure, a suitably qualified and experienced fire engineer. Agreed departures will require written approval from the appropriate Defence delegate.

61. Successful tenderers will be required to produce a Quality Assurance Plan to clearly show how BCA, Australian Standards and any additional Defence requirements in relation to fire protection/fire safety will be met and the required standards for construction and installation maintained.

62. The Fire Indicator Panel will be connected to the 24 hour manned fire station.

63. The Emergency Warning and Intercommunication System main panel will be located adjacent the Fire Indicator Panel and will be linked to provide automatic initiation of warnings in the event of a fire alarm.

SECURITY

64. Security requirements, both physical and electronic, will be designed and installed taking cognisance of the Defence Security Manual and the Construction Security Reference Manual, and in close liaison with the Defence Security Authority and other external agencies as may be required. When constructed, all electronic security will be integrated into the existing Base security system. Inspection, Certification and Accreditation processes will be undertaken in accordance with the provisions of the Defence Security Manual.

OCCUPATIONAL HEALTH AND SAFETY

65. The proposed facilities will comply with the Department of Defence Occupational Health and Safety policy, the *Occupational Health and Safety (Commonwealth Employment) Act 1991*, *Occupational Health and Safety (Commonwealth Employment) (National Standards) Regulation* and the Northern Territory Codes of Practice.

DEMOLITIONS

66. In addition to the demolition and site remediation of the old fuel farms, provision has been included in the project for the demolition of buildings which will be replaced and the recycling of 70% of the waste that is not contaminated or hazardous. Buildings being removed include:

- a. Building 542, the current mechanical equipment workshop; remediation of fuel storage and oil/lubricant collection pits will be undertaken;
- b. Building 511, the abandoned refuelling equipment workshop; and
- c. A number of demountables, including some currently in use by the Joint Logistics Unit (North) and some transit accommodation on the site of the proposed new Mechanical Equipment Workshop.

CONSULTATION WITH RELEVANT AUTHORITIES

67. The following external authorities have been, or are planned to be, advised or consulted about the project:

- a. NT Department of Business and Economic Development;
- b. NT Department of Planning and Lands;
- c. NT Department of Regional Development;
- d. NT Department of Defence Support;
- e. NT Department of Natural Resources, Environment and Heritage;
- f. The Darwin City Council;
- g. Australian Industry and Defence Network - NT;
- h. Territory Construction Association;
- i. Contract Accreditation Limited;
- j. The Northern Territory Power and Water Authority;
- k. NT Legislative Assembly Member for Millner;
- l. Federal Member for Solomon.
- m. The NT Fire and Rescue Service;
- n. The Chamber of Commerce Northern Territory;
- o. Department of Climate Change;
- p. Aboriginal Areas Protection Authority, and
- q. Department of Environment, Water, Heritage and the Arts (formerly the Australian Greenhouse Office).

INDUSTRY AND COMMUNITY IMPACTS

68. Information about the project has been included in briefings to industry representatives in March and September 2007.

69. Over the planned construction period of 28 months, an average of some 100 personnel are expected to be directly employed on construction activities. Additional employment will be associated with off-site prefabrication and supply activities associated with the project.

70. It is not expected that construction of the proposed facilities will have any negative impacts on the Darwin community.

PROJECT COSTS

71. The estimated capital cost of the project is \$49.8m plus GST. This estimate includes preliminaries, construction and fitout costs, professional fees, furniture and fittings, information technology equipment and contingency provisions.

PROJECT DELIVERY SYSTEM

73. The proposed method of delivery is by packaged Head Contracts. This was confirmed as the most appropriate delivery methodology in a strategic risk and industry capacity study in July 2007.

CONSTRUCTION TIMEFRAME

74. Subject to Parliamentary approval, it is planned to commence construction in mid 2009, with planned completion by September 2011.

ANNEXES

A. Location Plan

B. Base Layout Plan

C-1. Site Plan of Proposed Facilities

C-2. Site Plan of Proposed Facilities

D-1. Joint Logistics Unit (North) Headquarters – Building Plan

D-2. Joint Logistics Unit (North) Headquarters – Elevations and Section

D-3. Fuel Storage and Reticulation – General Arrangement

D-4. Fuel Storage and Reticulation – Proposed Fuel Farm Site Plan

D-5. Mechanical Equipment Workshop – Building Plan

D-6. Mechanical Equipment Workshop – Elevations

D-7. Administrative Facility for the Fuel Equipment Maintenance Section – Building Plan
and Elevation

D-8. Vehicle Wash Bay

DARWIN, NORTHERN TERRITORY

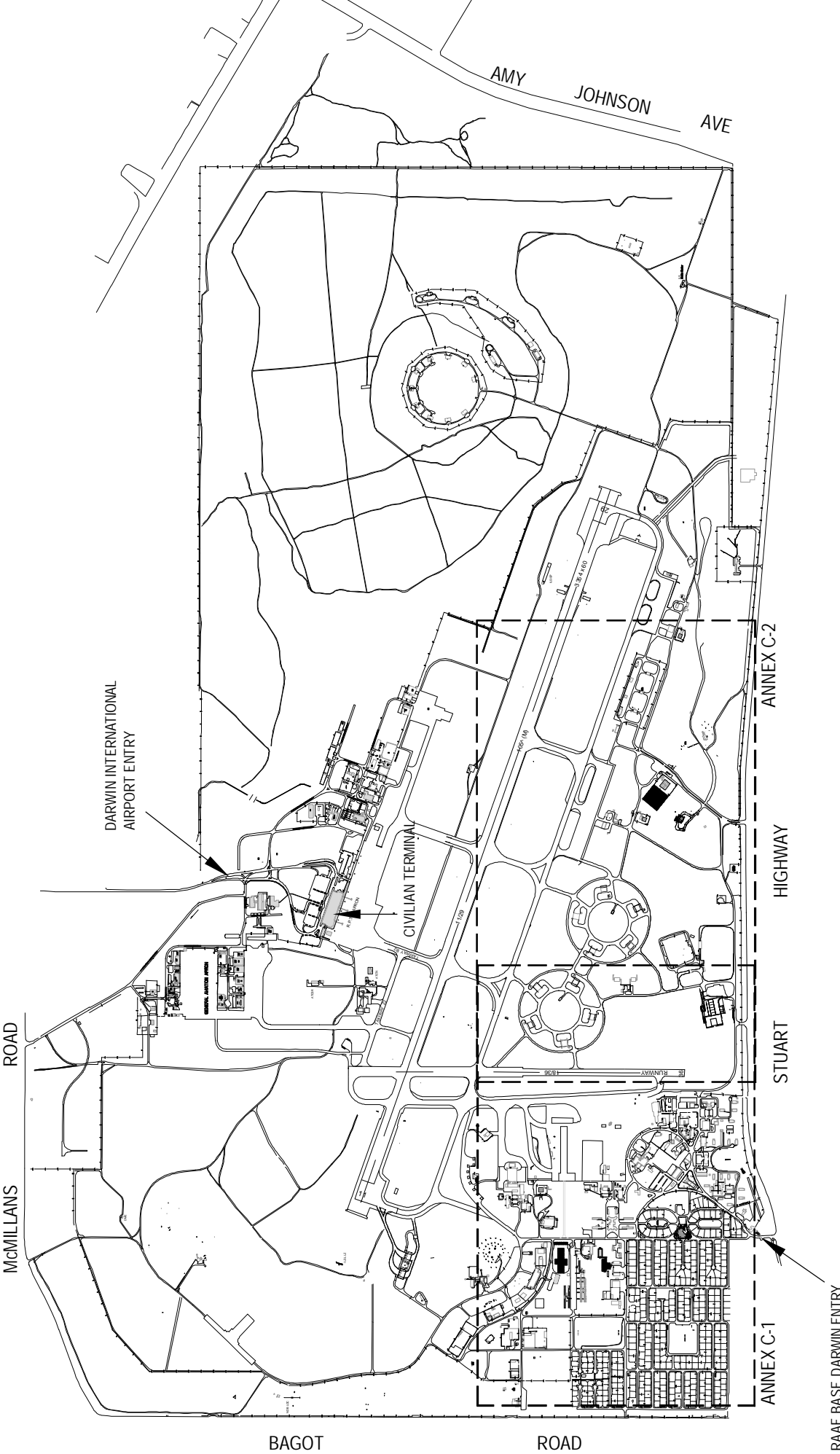
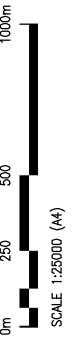
TOWN OF NIGHTCLIFF

TOWN OF SANDERSON

RAAF BASE DARWIN

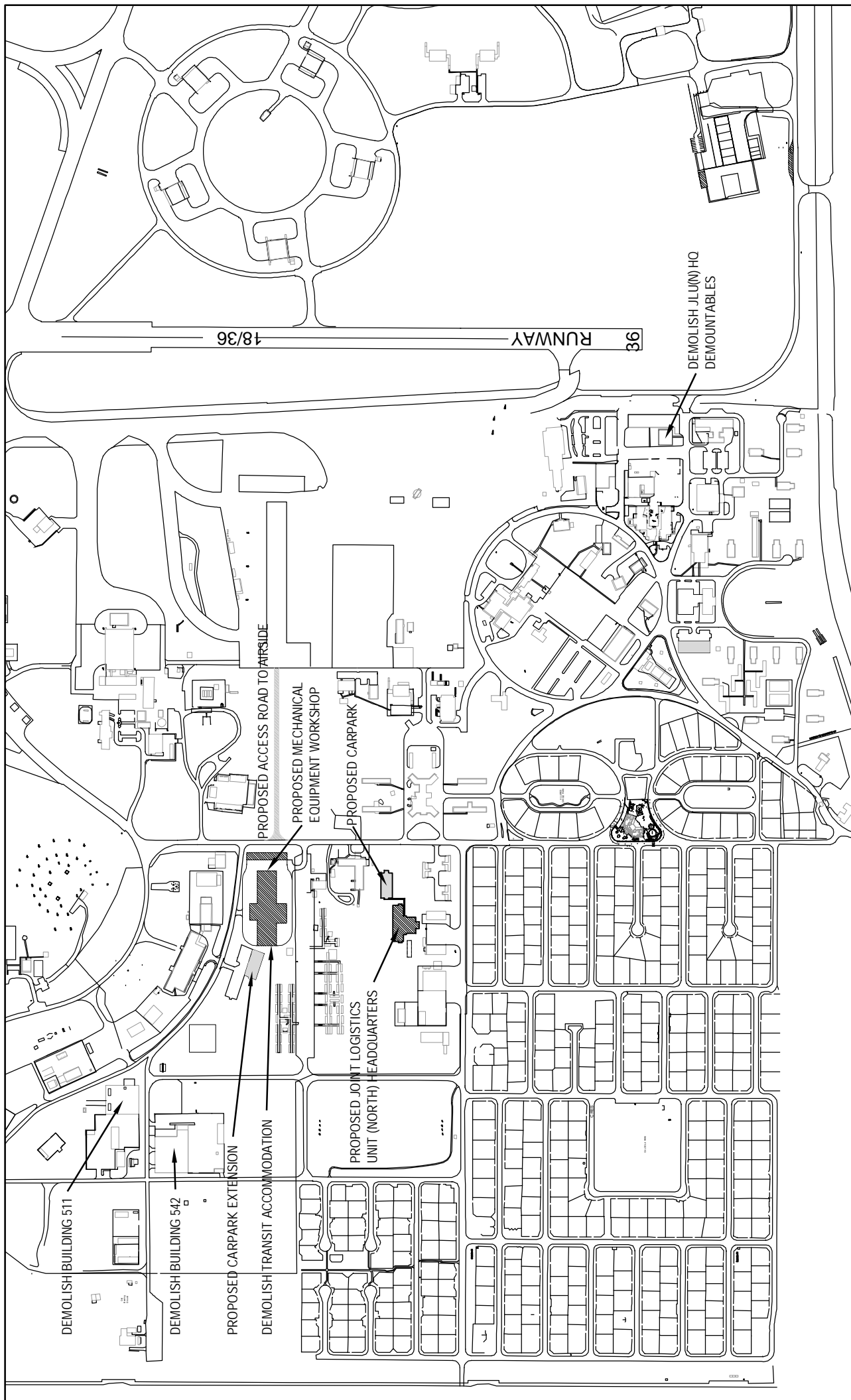
CITY OF DARWIN





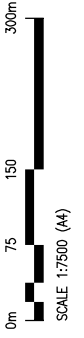
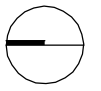
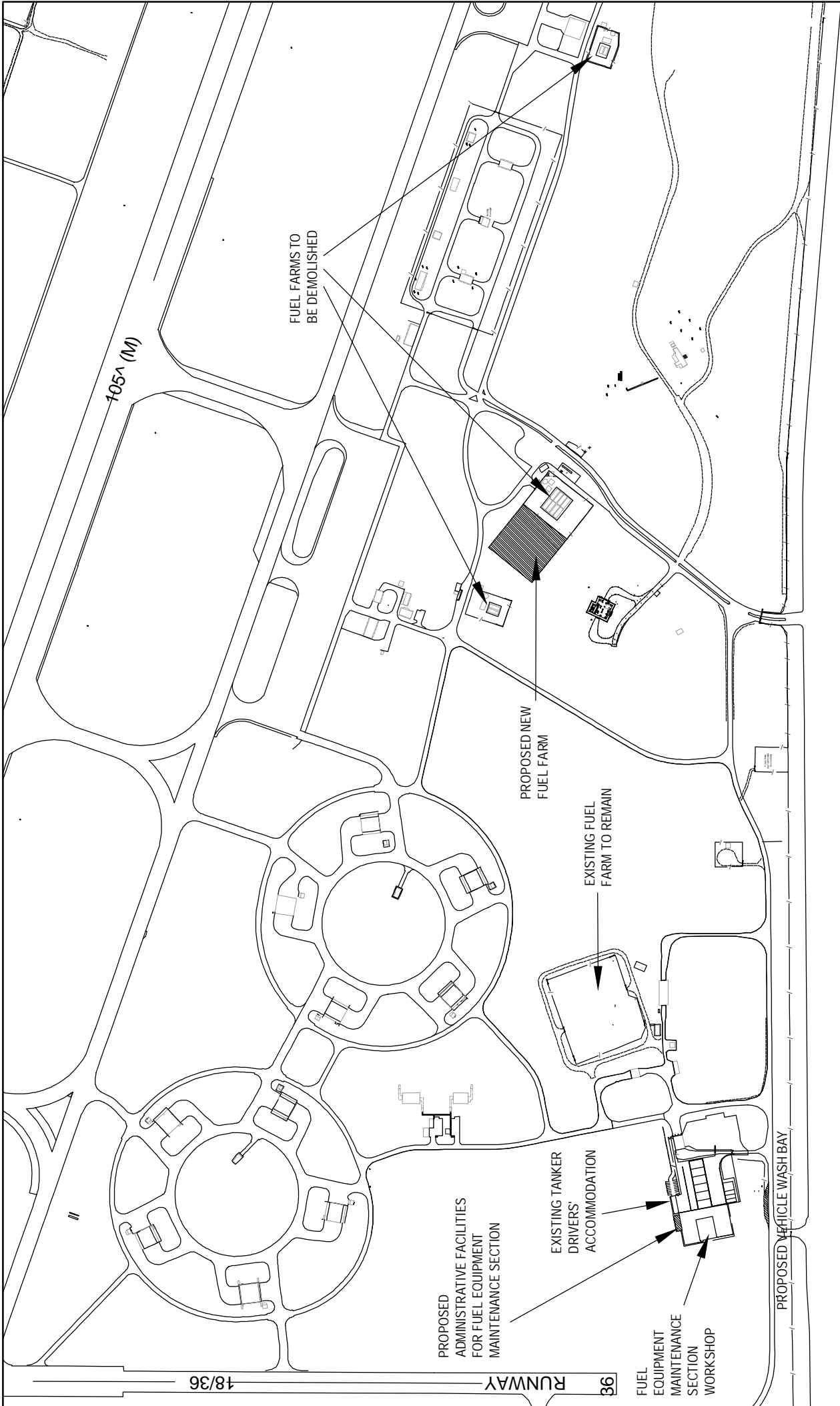
RAAF BASE DARWIN
REDEVELOPMENT STAGE 2

BASE LAYOUT PLAN



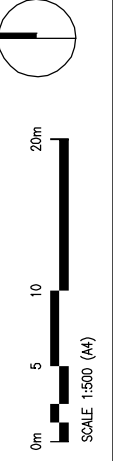
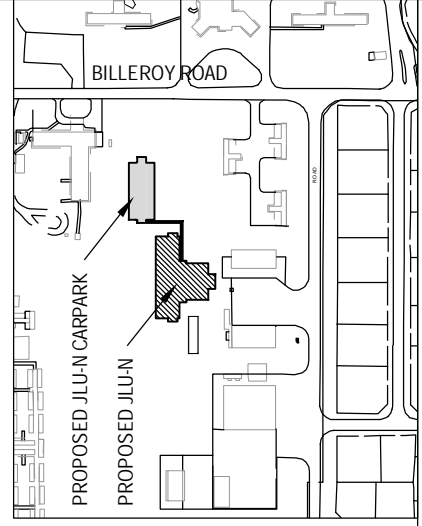
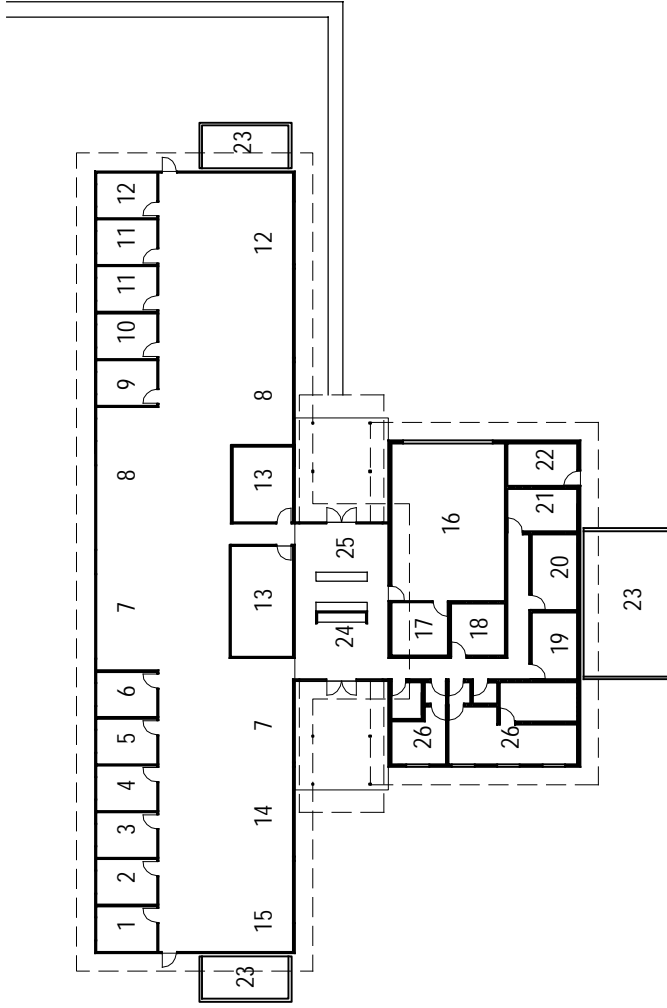
SITE PLAN OF PROPOSED FACILITIES

RAAF BASE DARWIN
REDEVELOPMENT STAGE 2



RAAF BASE DARWIN
REDEVELOPMENT STAGE 2

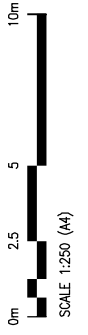
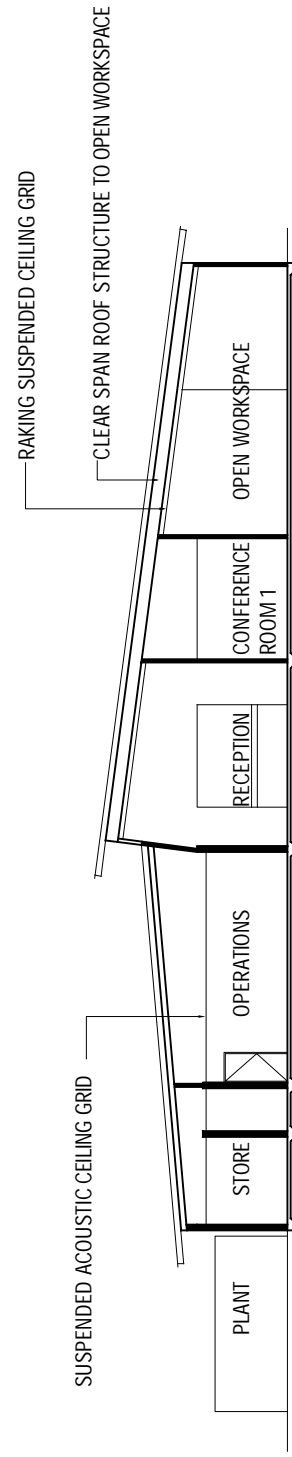
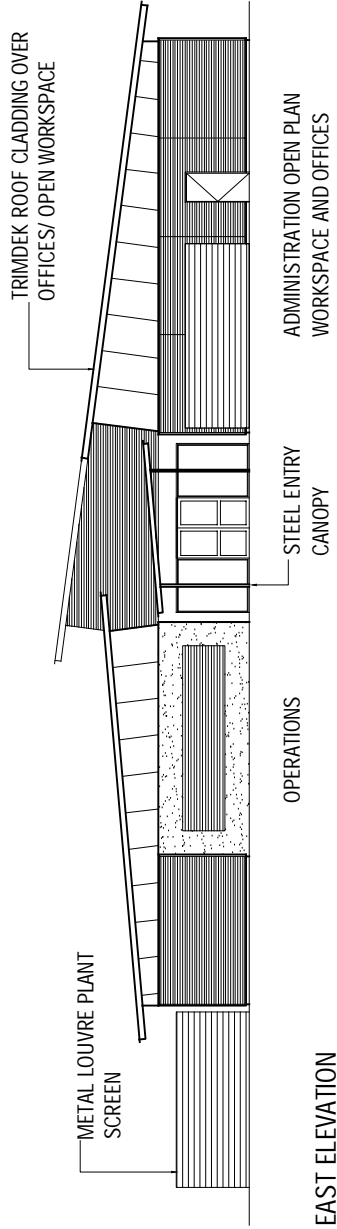
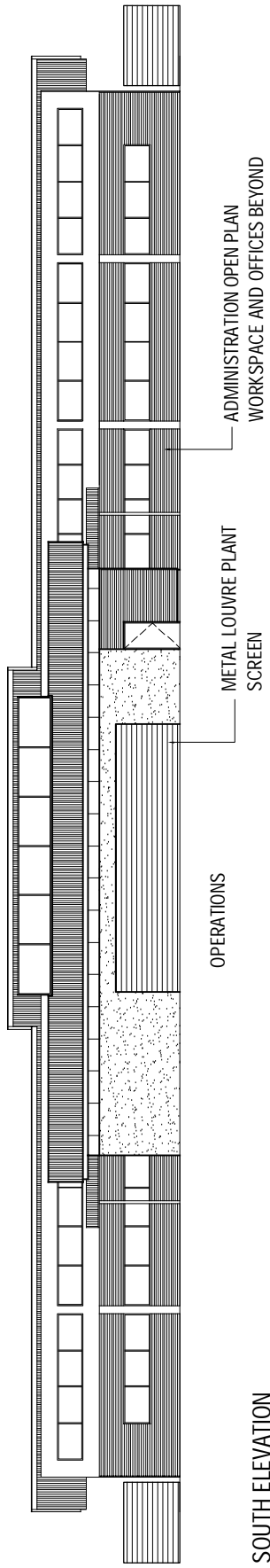
SITE PLAN OF PROPOSED FACILITIES



LEGEND	
NO.	ROOM NAME
1	CONT MANAGER
2	EO WOF
3	EO WOS MANAGER
4	RES MANAGER
5	RES INV
6	BUS MNR
7	BUS MANAGEMENT BR
8	REGIONAL FLEET MANAGEMENT
9	CO
10	XO
11	FLT MNR
12	LOG OPS
13	CONF RM
14	EO SERVICES
15	CONTRACT ADMIN
16	OPS ROOM
17	OPSO
18	LIBRARY
19	COMPACTUS
20	STORE
21	COMMS
22	SWITCH
23	PLANT
24	TEA ROOM
25	RECEPTION
26	ABLUTIONS

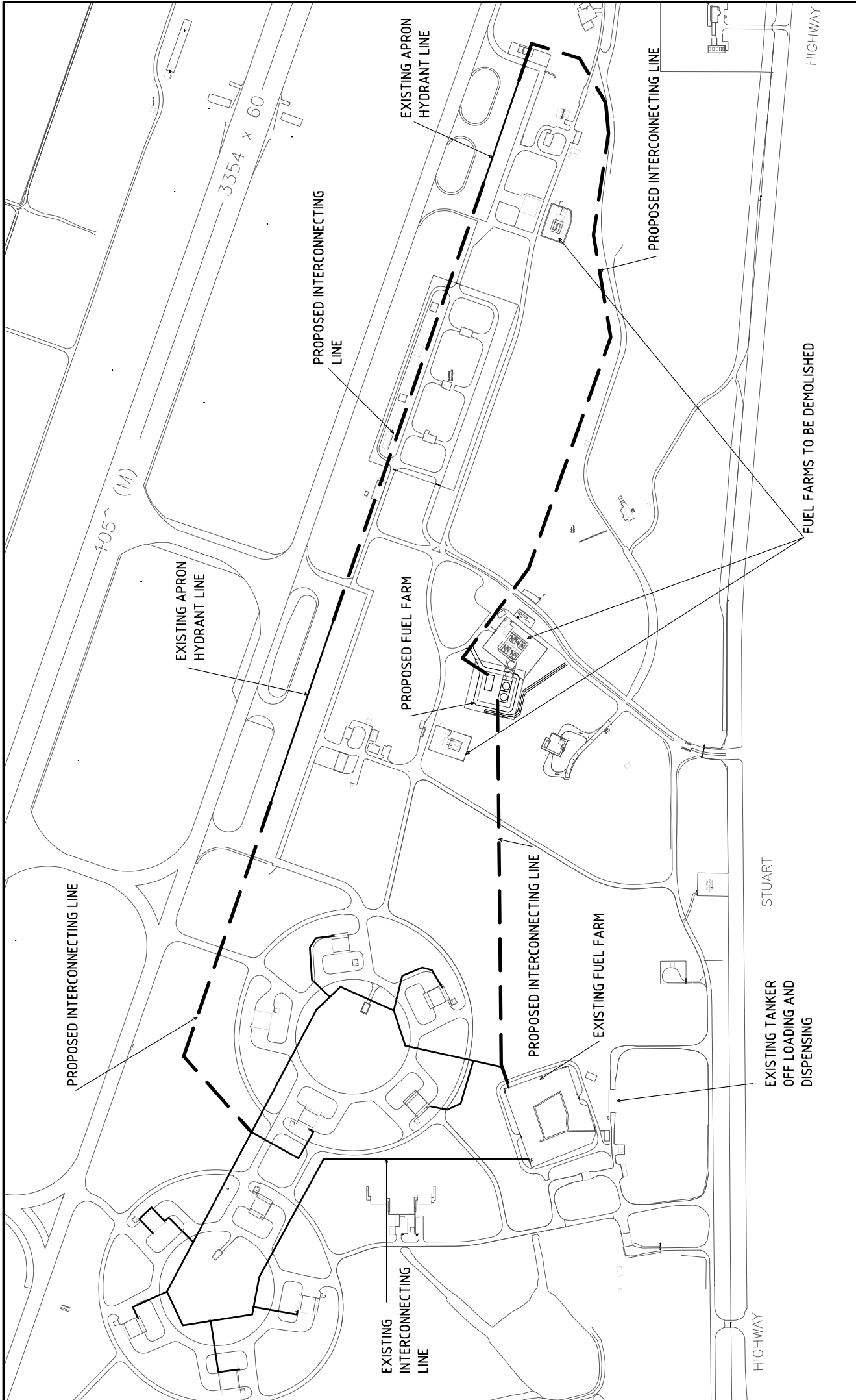
JOINT LOGISTICS UNIT (NORTH) HEADQUARTERS
BUILDING PLAN

RAAF BASE DARWIN
REDEVELOPMENT STAGE 2



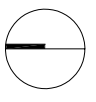
JOINT LOGISTICS UNIT (NORTH) HEADQUARTERS
ELEVATIONS AND SECTION

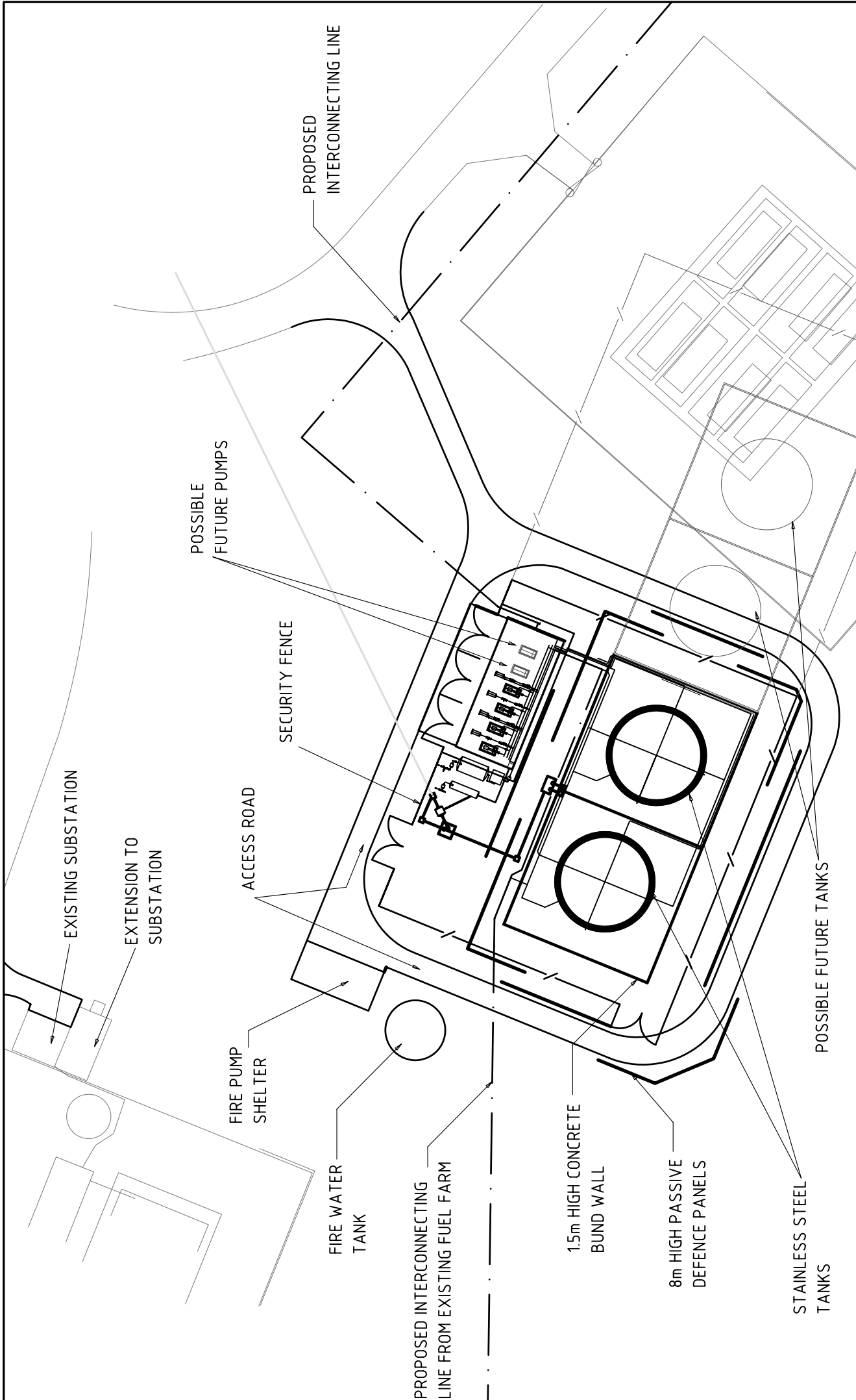
RAAF BASE DARWIN
REDEVELOPMENT STAGE 2



FUEL STORAGE AND RETICULATION
GENERAL ARRANGEMENT

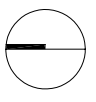
RAAF BASE DARWIN
REDEVELOPMENT STAGE 2

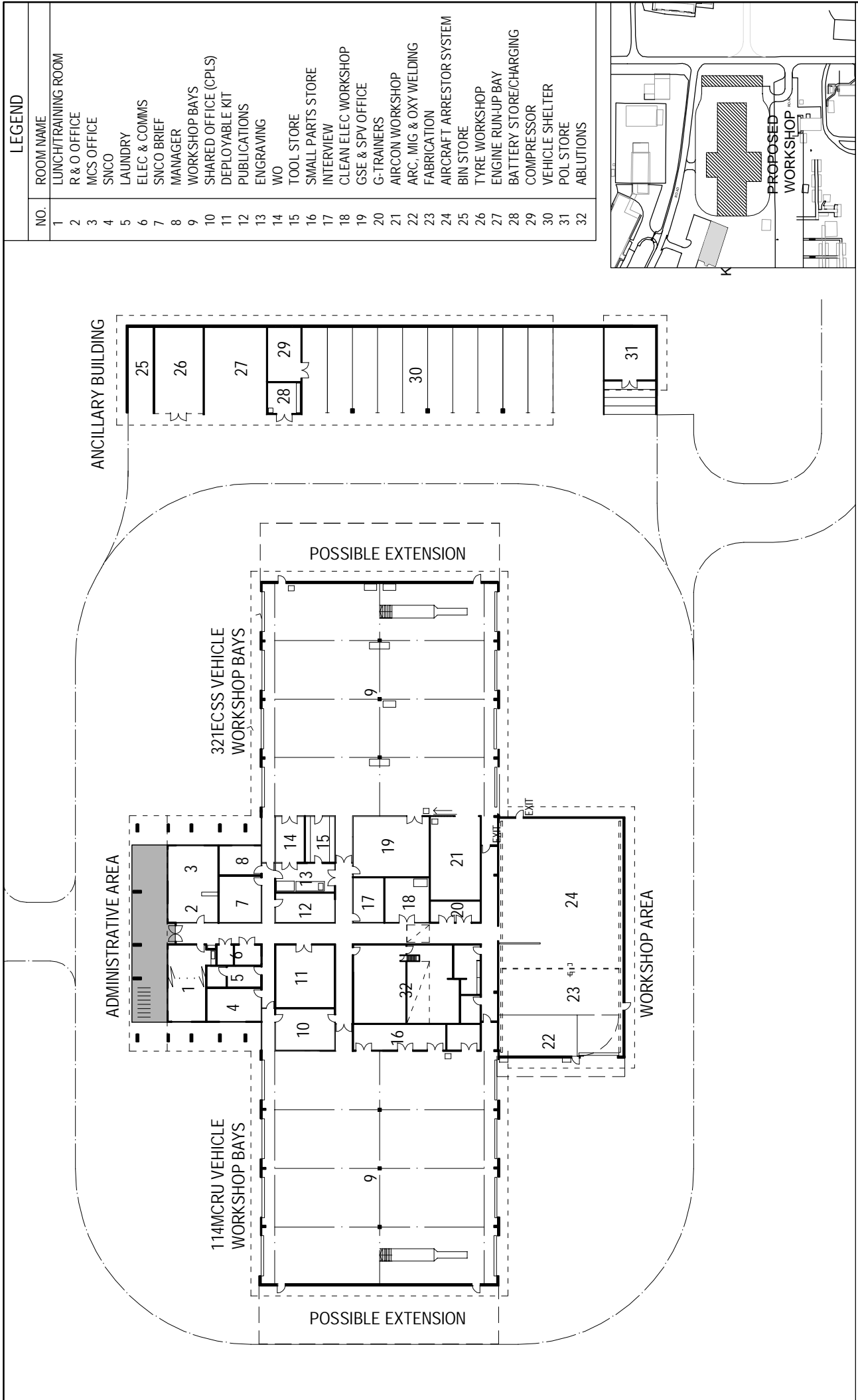




FUEL STORAGE AND RETICULATION
 PROPOSED FUEL FARM SITE PLAN

RAAF BASE DARWIN
 REDEVELOPMENT STAGE 2





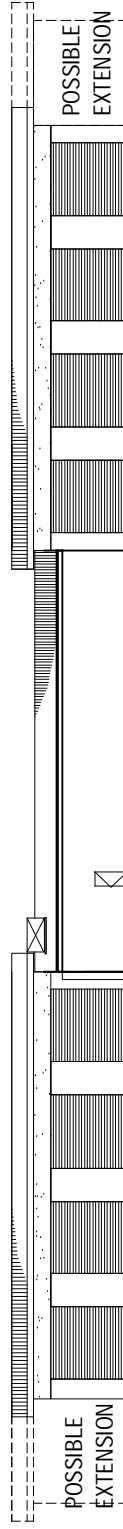
LEGEND

NO.	ROOM NAME
1	LUNCH/TRAINING ROOM
2	R & O OFFICE
3	MCS OFFICE
4	SNCO
5	LAUNDRY
6	ELEC & COMMS
7	SNCO BRIEF
8	MANAGER
9	WORKSHOP BAYS
10	SHARED OFFICE (CPLS)
11	DEPLOYABLE KIT
12	PUBLICATIONS
13	ENGRAVING
14	WO
15	TOOL STORE
16	SMALL PARTS STORE
17	INTERVIEW
18	CLEAN ELEC WORKSHOP
19	GSE & SPV OFFICE
20	G-TRAINERS
21	AIRCON WORKSHOP
22	ARC, MIG & OXY WELDING
23	FABRICATION
24	AIRCRAFT ARRESTOR SYSTEM
25	BIN STORE
26	TYRE WORKSHOP
27	ENGINE RUN-UP BAY
28	BATTERY STORE/CHARGING
29	COMPRESSOR
30	VEHICLE SHELTER
31	POL STORE
32	ABLUTIONS

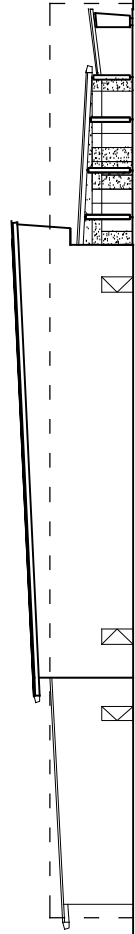
MECHANICAL EQUIPMENT WORKSHOP
BUILDING PLAN

RAAF BASE DARWIN
REDEVELOPMENT STAGE 2

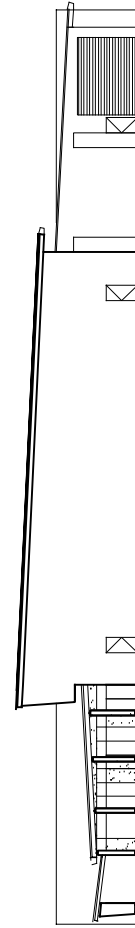




SOUTH ELEVATION



EAST ELEVATION

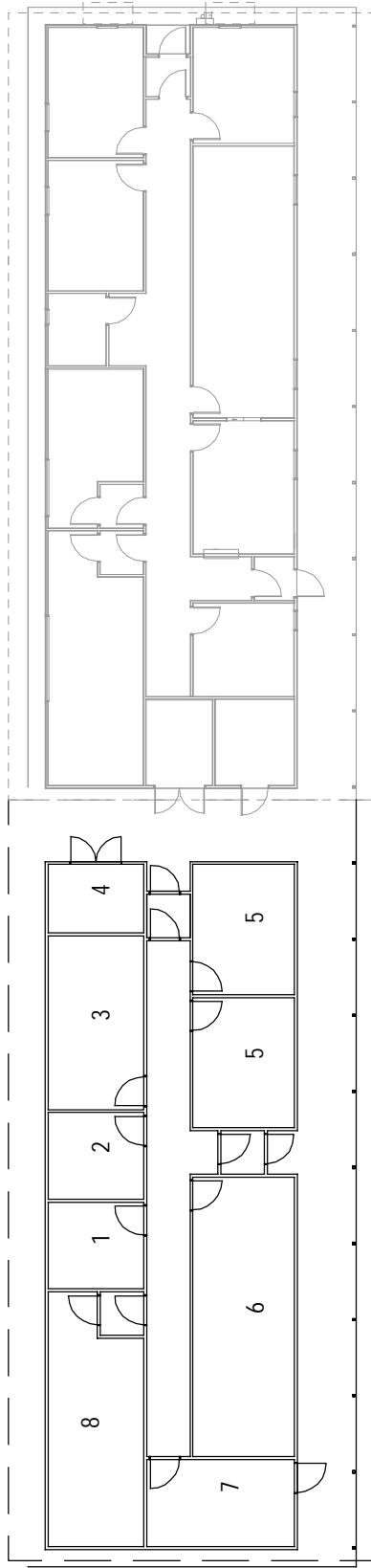


WEST ELEVATION



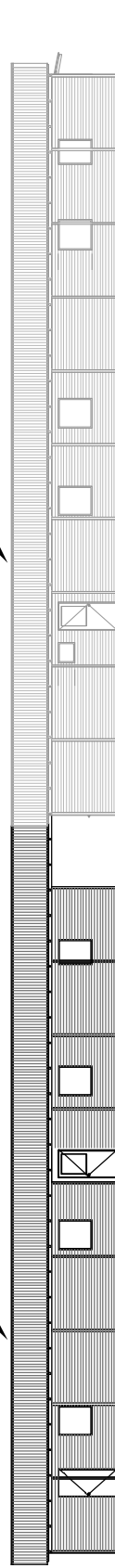
MECHANICAL EQUIPMENT WORKSHOP
ELEVATIONS

RAAF BASE DARWIN
REDEVELOPMENT STAGE 2

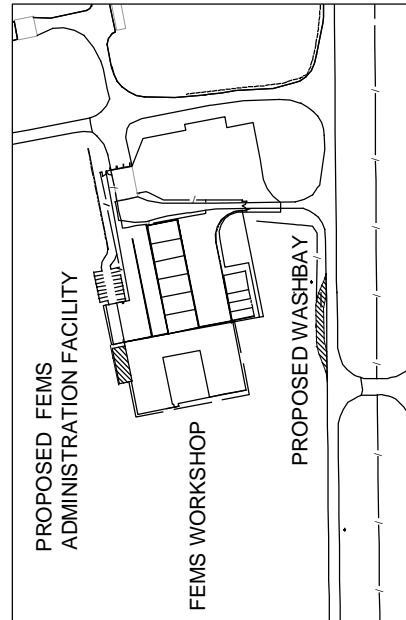


PROPOSED FEMS ADMINISTRATIVE FACILITY

EXISTING TANKER DRIVERS' ACCOMMODATION



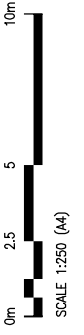
SOUTH ELEVATION

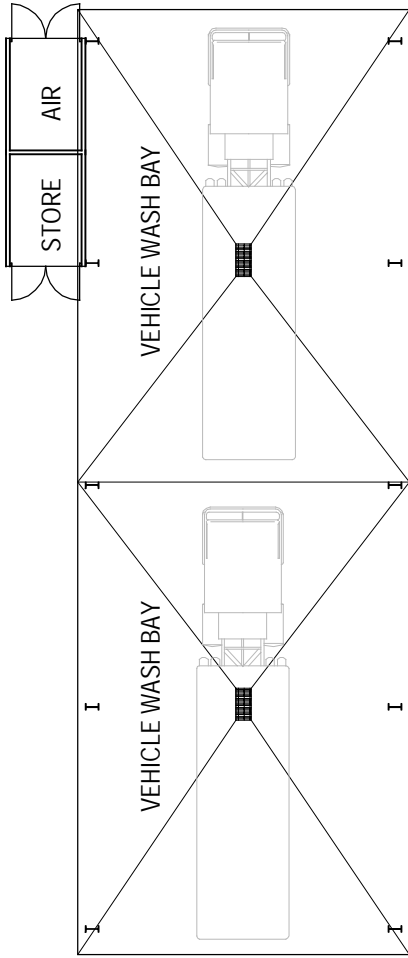
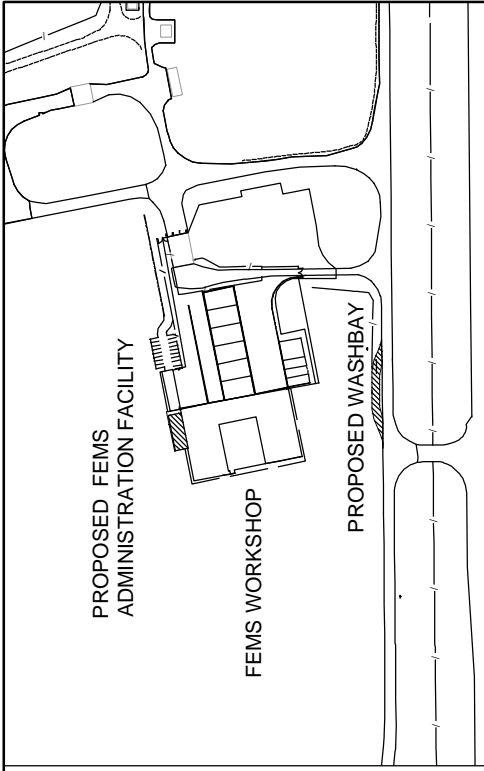


LEGEND	
NO.	ROOM NAME
1	LAUNDRY ROOM
2	FIRST AID ROOM
3	TECHNICAL PUBLICATIONS LIBRARY
4	PLANT ROOM
5	OFFICE
6	CREW ROOM
7	ET2
8	ABLUTIONS

RAAF BASE DARWIN
REDEVELOPMENT STAGE 2

ADMINISTRATIVE FACILITY FOR FUEL EQUIPMENT
MAINTENANCE SECTION (FEMS)
BUILDING PLAN AND ELEVATION





COLORBOND PROFILED STEEL
WALL AND ROOF CLADDING

