



MULTI ROLE HELICOPTER FACILITIES

**HMAS ALBATROSS, NOWRA, NEW SOUTH WALES
RAAF BASE TOWNSVILLE,
ARMY AVIATION CENTRE, OAKEY, AND
GALLIPOLI BARRACKS, ENOGGERA, QUEENSLAND**

STATEMENT OF EVIDENCE

TO THE

PARLIAMENTARY STANDING COMMITTEE

ON PUBLIC WORKS

**DEPARTMENT OF DEFENCE
CANBERRA, ACT
July 2007**

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PART A - IDENTIFICATION OF THE NEED

INTRODUCTION

1. This evidence to the Parliamentary Standing Committee on Public Works presents a proposal to provide new and upgraded facilities to support the introduction of 34 Multi-Role Helicopters (MRH90) to the Department of Defence. The MRH90 helicopters will replace the Navy's Sea King helicopters and the Army's Black Hawk helicopters with a single rotary wing fleet for airmobile and maritime support capability.

2. These helicopters will be based at several locations along the East coast of Australia. The proposed works in support of this capability will be located at HMAS Albatross (Nowra NSW), RAAF Base Townsville (Townsville QLD), Army Aviation Centre (Oakey QLD) and Gallipoli Barracks (Enoggera, Brisbane) – the location of these bases is shown at Attachment 1.

PROJECT OBJECTIVE

3. The objective of this proposal is to provide facilities to support the introduction and ongoing operation of the fleet of MRH90 helicopters.

BACKGROUND

4. On 31 August 2004, the Government announced a decision to purchase 12 MRH90 helicopters to form an additional Army troop lift helicopter squadron at RAAF Base Townsville. Under this decision, A Squadron 5th Aviation Regiment is to be progressively equipped with new MRH90 aircraft over a two year period, commencing in December 2007.

5. To support this capability, the Facilities for Troop Lift Helicopter Project was referred to the Public Works Committee and a hearing was held on 18 August 2006. The Public Works Committee supported the need for the proposed facilities and Parliament accepted the

committees report on 14 September 2006. Construction commenced in January 2007 with completion planned for early 2008.

6. On 19 June 2006, the Government announced a decision to purchase a further 34 MRH90 aircraft to replace the Navy's Sea King helicopters and the Army's Black Hawk helicopters. The Navy's Sea King helicopters are based at 817 Squadron (HMAS Albatross, Nowra). The Army's Black Hawk helicopters are based at 5th Aviation Regiment's B Squadron (RAAF Base Townsville, QLD), Army Aviation Centre (Oakey, QLD) and 171 Aviation Squadron (Holsworthy Barracks, Sydney, NSW).

7. These MRH90 aircraft will be delivered over a four and a half year period commencing January 2010. Headquarters 16th Brigade (Aviation), based at Gallipoli Barracks (Enoggera, QLD) will manage the joint MRH90 capability including operational, training and support requirements.

8. Aircraft will initially be delivered to 5th Aviation Regiment at RAAF Base Townsville where training will be conducted before the aircraft and their crews are relocated to other Defence units. The proposed MRH90 aircraft numbers at each unit and location are as follows:

a.	817 Squadron (HMAS Albatross, Nowra, NSW)	6
b.	B Squadron 5 th Aviation Regiment (Townsville, QLD)	10
c.	Army Aviation Training Centre (Oakey, QLD)	8
d.	171 Aviation Squadron (Holsworthy Barracks, Sydney)	10

9. Facilities to re-locate and base 171 Aviation Squadron at Holsworthy Barracks were provided following consideration by the Public Works Committee in December 2005. These facilities were designed to suit both Black Hawk and MRH90 aircraft (both are similar in size); hence no significant new facilities are required at Holsworthy to cater for the replacement of the Black Hawk helicopters with the MRH90 helicopters. However, some minor modification requirements are expected to be identified when the aircraft enter service with 171 Aviation Squadron and a small provision to cater for this has been included in the budget for this MRH90 project.

10. To support the MRH90 capability, new/upgraded facilities are required for:

- a. 817 Squadron at HMAS Albatross, Nowra, NSW
- b. B Squadron 5th Aviation Regiment, at RAAF Base Townsville, QLD

- c. Army Aviation Training Centre at Oakey, QLD
- d. Headquarters 16th Brigade (Aviation) and elements of Defence Material Organisation (DMO) at Gallipoli Barracks, Enoggera, Brisbane, QLD

NEED FOR WORK

11. The need for the proposed work is driven by the requirement to support the introduction and operation of the new MRH90 capability. A range of facilities is required to provide support for the necessary operational, maintenance and training activities associated with this new aircraft capability. The primary drivers behind the need for these works to support the MRH90 aircraft are changes in aircraft technology and systems as well as changes to the training requirements.

12. Delivery of the 34 MRH90 aircraft will commence in January 2010 and span a four and a half year period. The program is driven by the following operational requirements:

- a. Initially, all MRH90 aircraft will be delivered to Townsville, and therefore the Townsville aircraft operational facilities need to be ready by January 2010.
- b. Air-crew and ground-crew training then becomes the next priority, with the Oakey training facilities needed by April 2010.
- c. Re-location of some Navy MRH90 aircraft and crews to Nowra will occur by July 2010 at which time the Nowra Aircraft operational and maintenance facilities need to be ready.
- d. Re-location of training MRH90 aircraft and crews to Oakey will occur in January 2011 at which time the Oakey Aircraft operational and maintenance facilities need to be ready. Shortly thereafter, the Oakey Simulator needs to be ready to support air-crew continuation training.

THE PROPOSAL

13. This proposal involves the provision of the following types of facilities at each location:

- a. Operational and maintenance facilities for 817 Squadron and possibly a simulator at HMAS Albatross, Nowra;

- b. Operational, maintenance and simulator facilities for 5th Aviation Regiment at RAAF Base Townsville;
- c. An increase in electricity supply, maintenance, training and simulator facilities for the Army Aviation Training Centre at Oakey; and
- d. Working accommodation for Headquarters 16th Brigade (Aviation) and elements of Defence Material Organisation at Gallipoli Barracks, Enoggera.

Aircraft Operational Facilities

14. Prior to commencement of aircraft operations, operational facilities need to be constructed or enhanced for 817 Squadron, 5th Aviation Regiment and the Army Aviation Training Centre. These facilities are required to enable each unit to safely park and shelter the aircraft as well as, in the case of Townsville, to provide accommodation for mission planning activities and to store items required for rapid deployment. The proposed scope of aircraft operational facilities is as follows:

- a. 817 Squadron (Nowra):
 - i. new aircraft shelters for four aircraft (co-located with proposed maintenance hangar referred to in paragraph 15)
- b. 5th Aviation Regiment (Townsville):
 - i. modification to B Squadron's ten aircraft shelters
 - ii. extension of the Mission Planning Facility
 - iii. Forward Repair Troop and Draft Priority 1 Stores
- c. Army Aviation Training Centre (Oakey):
 - i. two new aircraft shelters
 - ii. aircraft parking pads

Aircraft Maintenance Facilities

15. Prior to commencement of aircraft operations, aircraft maintenance facilities need to be constructed or enhanced for 817 Squadron, 5th Aviation Regiment and the Army Aviation Training Centre. These facilities will provide adequate and appropriate aircraft maintenance hangars and workshops to enable each unit to undertake operational level maintenance of the MRH90 aircraft. At Nowra, the base's Battery Workshop will need to be demolished and a new facility constructed to permit construction of the aircraft maintenance facility. The proposed scope of aircraft maintenance facilities is as follows:

- a. 817 Squadron (Nowra):
 - i. new maintenance hangar (for two aircraft) and associated workshops
 - ii. new Battery Workshop
- b. 5th Aviation Regiment (Townsville):
 - i. upgraded Technical Support Troop Facility
 - ii. upgraded Aircraft Life Support Equipment Workshop
- c. Army Aviation Training Centre (Oakey):
 - i. new maintenance hangar and associated workshops
 - ii. new Aircraft Life Support Equipment Workshop
 - iii. new Sheet Metal Workshop

Training Facilities

16. To meet the training requirements for the new fleet of MRH90 aircraft, training facilities need to be provided for the Army Aviation Training Centre at Oakey. These facilities will provide adequate and appropriate facilities to enable training to be provided to air-crew, ground-crew and maintenance personnel to meet the training needs for adequate support of the MRH90 aircraft. The proposed scope of training facilities is as follows:

- a. Extension of the Rotary Aircraft Maintenance School (RAMS) Training Building
- b. Reconfiguration/refurbishment of the School of Army Aviation (SAA) Building
- c. Reconfiguration/extension of the Aviation Trade Wing Building.

Simulators

17. Up to three aircraft simulators are required to support the aircrew training needs for the MRH90 fleet. This project has identified viable sites for simulator facilities at three locations Nowra, Townsville and Oakey. The final locations for the simulators will be determined during development of the AIR 9000 Training Devices contract and will be dependant upon outcomes of the Training Needs Analysis (TNA). The facilities requirement will then be finalised.

Headquarters Facilities

18. Headquarters facilities are required to accommodate 817 Squadron at Nowra and Headquarters 16th Brigade (Aviation) and elements of the Defence Material Organisation

(DMO) at Enoggera. These facilities will provide adequate and appropriate working/office accommodation to enable each organisation to undertake its role.

Other Work

19. In addition to the above elements, provision for minor works required at Holsworthy to modify existing facilities to suit the MRH90 aircraft and systems.

20. There will also be some modification, alteration and/or enhancement of the engineering services infrastructure to support the individual work elements comprising this proposal. These works are contained within the scope of the individual works elements to which they relate.

Benefits of Expected Improvements

21. The proposal provides the necessary facilities to meet Defence's requirements to adequately support the operation and maintenance of the MRH90 aircraft capability.

OPTIONS

Construction Options

22. In formulating the proposed scope of works, the relative merits of new construction, adaptive re-use and refurbishment of existing facilities were considered and assessed on a best value for money basis. The assessment criteria considered a range of factors including master planning, costs, Occupational Health and Safety (OH&S), the environment and the availability of other facilities for adaptive re-use.

23. In some cases, there were significant drivers for new construction whereas elsewhere, extension and reconfiguration proved to be the optimal solution.

24. New construction for No 817 Squadron was the optimal solution. The existing facilities infringe airfield clearances and therefore are not for long term retention. Adaptive re-use of the existing 817 Squadron facilities was comparable to the cost of new facility construction. Furthermore, there were no other appropriate existing facilities on the Base available for adaptive re-use.

25. As adaptive re-use was considered a possibility at Oakey, a more detailed study of the usage of suitable facilities was undertaken to ensure that any available space would be taken

into account in planning for this proposal. This detailed study ensured a full range of options were considered to meet user requirements and achieve best value for money.

26. The resultant proposal consists of a mix of new construction and refurbishment which is considered to provide the Commonwealth with a value for money solution.

Delivery Options

27. To minimise risks to the Commonwealth associated with coordinating the building design with the simulator contractor's design requirements and delivery programme, it is intended to have the simulator contractor deliver the Simulator Facilities. All other facilities will be delivered using traditional construction contracting strategies.

REASONS FOR ADOPTING THE PROPOSED COURSE OF ACTION

28. The proposed course of action was adopted because it represents the best solution to the following requirements:

- a. MRH90 operational requirements
- b. OH&S considerations and
- c. Base master planning

ENVIRONMENTAL IMPACT ASSESSMENT

29. An Environmental Scoping Study (ESS) has been prepared for the MRH90 Facilities project. The works have been assessed as not having a significant impact on the natural environment provided appropriate mitigation measures are implemented during and after construction. The project does not require referral to the Department of Environment and Heritage under the Environment Protection and Biodiversity Conservation Act 1999.

HERITAGE CONSIDERATIONS

30. A Heritage Scoping Study (HSS) has been undertaken at the four sites. Archival recording, including photography, will be carried out on the buildings proposed to be demolished at Nowra (G Hangar and Battery Workshop). An Aboriginal Heritage Assessment will be undertaken for the Enoggera site. Further information is provided in Part B, Technical Information – Heritage Issues.

CONSULTATION

31. The following external stakeholders have been consulted or will be consulted during the development of this project:

- a. The Federal Member for Brisbane,
- b. The Federal Member for Gilmore,
- c. The Federal Member for Groom,
- d. The Federal Member for Herbert,
- e. The State Member for Ashgrove,
- f. The State Member for Darling Downs,
- g. The State Member for South Coast,
- h. The State Member for Townsville,
- i. Brisbane City Council,
- j. Jondaryan Shire Council,
- k. Shoalhaven City Council,
- l. Thuringowa City Council,
- m. Townsville City Council,
- n. Australian Greenhouse Office, Department of the Environment and Water Resources
- o. Energex, and
- p. Ergon Energy.

PART B – TECHNICAL INFORMATION

PROJECT LOCATION

32. The proposed works are to be located at
- a. HMAS Albatross, Nowra, NSW. Located 10 kilometres south-west of Nowra, 12 kilometres north-west of Jervis Bay and 176 kilometres south of Sydney.
 - b. RAAF Base Townsville, QLD. Located approximately 5 kilometres west of the Townsville city centre, within the suburb of Garbutt.
 - c. Army Aviation Centre Oakey, QLD. Located on the northern side of the township of Oakey, Queensland, and approximately 165 kilometres west of Brisbane.
 - d. Gallipoli Barracks, Enoggera, QLD. Located in the Brisbane suburb of Enoggera, 6 kilometres north-west of the Brisbane Central Business District.
33. These locations are shown on the Location Plan at Attachment 1.

PROJECT SCOPE

34. The proposed scope of works is as follows:

HMAS Albatross, Nowra (refer to Facilities Location Plan at Attachment 2 and Operational Precinct Plan at Attachment 3)

- a. New 817 Squadron Facility (comprising Squadron Headquarters, aircraft shelters and aircraft maintenance hangar/workshops) (at Attachments 4 and 5)
- b. Subject to the outcomes of the Training Needs Analysis, possible a new Simulator Building (at Attachment 6)
- c. New Battery Workshop (at Attachment 7)

RAAF Base Townsville (refer to Facilities Location Plan at Attachment 8 and 5th Aviation Regiment Precinct Plan at Attachment 9)

- d. Modification to B Squadron Aircraft Shelters (Buildings 274 and 275) (refer to Attachment 10).
- e. Extension of Mission Planning Facility (refer to Attachment 11)
- f. New Simulator Building (refer to Attachment 12)

- g. Upgraded Technical Support Troop Facility (Building 295) (at Attachment 13).
- h. Upgraded Technical Support Squadron Aircraft Life Support Equipment Workshop (Building 237) (at Attachment 14).
- i. New Forward Repair Troop and Draft Priority 1 Store (also refer to Attachment 14).

Army Aviation Centre Oakey (refer to Facilities Location Plan at Attachment 15)

- j. New Aircraft Maintenance Facility and Workshops (refer to Attachments 16 and 17)
- k. MRH90 Aircraft Parking Pads
- l. New Aircraft Shelters (at Attachment 17)
- m. New Simulator Building (at Attachment 18)
- n. School of Army Aviation (SAA) Facility Reconfiguration (Building B73) (at Attachment 19)
- o. New Aircraft Life Support Equipment Workshop (at Attachment 20)
- p. Extension of Rotary Wing Aircraft Maintenance School (RAMS) Training Building (Building C7) (at Attachment 21)
- q. Reconfiguration/Extension of Aviation Trade Wing (Building B11) (at Attachments 22 and 23)
- r. New Sheet Metal Workshop (at Attachment 24)
- s. Upgrades to the electricity supply capacity at Oakey

Gallipoli Barracks, Enoggera (refer to Facilities Location Plan at Attachment 25)

- t. New Headquarters 16th Brigade (Aviation) and elements of Defence Materiel Organisation (refer to Attachments 26 through 29)

Holsworthy Barracks, Holsworthy Sydney

- u. Provision for any minor works required at Holsworthy to modify any existing facilities to suit the MRH90 aircraft.

Nowra 817 Squadron Headquarters, Aircraft Maintenance Hangar, Shelters and Workshops

35. The current 817 Squadron facility ('A' Hangar) is inadequate in size, functionality, and amenity and does not meet Australian Standards or OH&S requirements. The existing hangar is inadequate in size and poorly orientated, is dislocated from aircrew and the

Squadron executive and is not located in accordance with the airfield clearances. Re-use of 'A' hangar is not a viable option.

36. The proposed works involves the construction of a purpose built squadron facility incorporating aircraft hangars and shelters, operational level maintenance workshops and squadron headquarters. The new facility will be located with other aircraft operations to the south of the airfield in accordance with the current Base Master Plan. The site of the proposed facility necessitates the demolition of an old igloo hangar and the current Base Battery Workshop.

37. An indicative plan of the proposed work is provided at Attachments 4, and 5.

Nowra Battery Workshop

38. The existing Battery Workshop needs to be re-located to free up the site for the 817 Squadron Facility. Due to technology changes, the replacement building is not required to be as large as the building that currently accommodates aircraft battery maintenance and re-charging activities. The proposed new purpose-built facility will be located adjacent to the simulator precinct, in accordance with the existing Base Master Plan.

39. An indicative plan of the proposed work is provided at Attachment 7.

Modification to Townsville Aircraft Shelters

40. The MRH90 has a different wheel configuration to that of the Black Hawk helicopter, thus requiring reconfiguration of aircraft shelters and aircraft parking pads.

41. The MRH90 helicopters will use the existing B Squadron shelters in Buildings 274 and 275. These shelters will provide protection for the aircraft from the elements of the weather, particularly cyclonic winds. The existing aircraft shelters currently accommodate Black Hawk aircraft and with some minor modification, these shelters can be used for the MRH90 aircraft.

42. The proposed scope of work is to modify the ten B Squadron aircraft shelters as follows:

- a. modification of the concrete parking pads and line markings to suit the MRH90 wheel configuration (the MRH-90 aircraft is nose-towed unlike Black Hawk which is tail-towed) – the concrete parking pads are required to prevent excessive point loads on and oil/fuel-based degradation of the bitumen pavement,

- b. upgrade the fire detection to provide heat and flame detection to comply with Defence policy requirements,
- c. installation of earthing points in suitable locations, and
- d. upgraded security locks to the access doors.

43. An indicative plan of the proposed modifications is provided at Attachment 10.

Extension of Townsville Mission Planning Facility

44. The MRH90 has a greater degree of computerisation requirements for mission planning and operation. B Squadron will require a mission planning facility to undertake its mission planning. For cost efficiency reasons, the Combined Mission Planning and Army Aviation Training Facility being provided for A Squadron as part of the Facilities for Troop Lift Helicopter Project has been designed to accommodate an extension for the B Squadron Mission Planning Facility.

45. The proposed works will provide space for planning and briefing rooms and map storage.

46. An indicative plan of the proposed extension is provided at Attachment 11.

Upgraded Townsville Technical Support Troop Facility

47. The Northern Annexe of building 295 provides accommodation for the Technical Support Troops of A Squadron and B Squadron. The building accommodates flight line offices, crew rooms, maintenance control offices and life support equipment for both squadrons.

48. The central portion of the annexe contains the life support equipment (such as aircrew helmets) and is severely cramped in catering for the existing Black Hawk. The space problems are expected to be exacerbated when the MRH90 equipment arrives as the new suite of life support equipment requires more storage space. This area of the building needs to be expanded to cater for the increased life support requirements for the MRH90 aircraft. To extend the building for this purpose requires a re-configuration of the rest of the annexe. The annexe is generally in a poor condition so this opportunity will be used to provide occupants with a building that meets current standards.

49. This works element consists of reconfiguration and refurbishment, as well as minor extension of Building 295 and the replacement of the existing flight line closed circuit television (CCTV) system.

50. An indicative plan of the proposed work is provided at Attachment 13.

Upgraded Townsville Aircraft Life Support Equipment Workshop

51. The MRH90 has a different Aircraft Life Support Equipment (ALSE) requirement associated with being a newer aircraft type. 5th Aviation Regiment's Technical Support Squadron provides maintenance support to the regiment's aircraft. One component of that support is maintaining aircraft life support equipment such as helmets, oxygen equipment, flying suits, etc. For the MRH90, a purpose built workshop will need to be fitted out to provide for adhesive repair and maintenance work on aircraft life support equipment. Particularly for increased use of air crew immersion suits, life rafts and floatation devices.

52. The proposed work involves the refurbishment and upgrading of an existing Aircraft Life Support Equipment Workshop in the Technical Support Squadron Facility (Building 237). The increased use of adhesives requires fume extraction mechanical services to provide workers with a safe and OH&S compliant work environment.

53. An indicative plan of the proposed work is provided at Attachment 14.

Townsville Forward Repair Troop and Draft Priority 1 Store

54. B Squadron currently does not have any dedicated space to store its Draft Priority 1 (DP1) kits. These kits contain personal equipment used on missions and deployments and typically contain a stretcher, backpack and a trunk with a helmet, water, tools, spare boots and uniform. These kits are stored in metal cages and due to a lack of better location, are currently stored along the sides of the aircraft shelters. This is not a good arrangement as it can impede the safe and efficient operation in the shelters and increases the fire load in these facilities.

55. Similarly for Forward Repair Troop (FRT) stores, these stores are essential to support the squadron's deployment capabilities and need to be stored in reasonably close proximity to the squadron so that these stores can be accessed at short notice at any time of the day or night.

56. As there is no available spare space in close proximity to B Squadron, the only option is to provide a new facility. A light weight steel framed metal clad storage structure needs to

be provided, similar to what is being provided for A Squadron under the Facilities for Troop Lift Helicopter Project. For operational efficiency reasons, this new facility will facilitate a re-shuffle of the Q Store stores into this new facility so as to allow the FRT/DP1 stores to be stored in the existing Q Store.

57. An indicative plan of the proposed work is provided at Attachment 14.

Oakey Aircraft Parking Pads

58. The Oakey Flight Line apron has four concrete parking pads for the six Black Hawk aircraft (i.e. two aircraft are normally in maintenance hangars). Two more pads will be constructed to meet the requirement of the MRH90 aircraft.

Oakey Aircraft Maintenance Facility and Aircraft Shelters

59. The MRH90 fleet of 46 is a net increase in aircraft numbers from the 34 Black Hawk and 6 Sea King aircraft currently in service. There is therefore a net increase in the training requirement at Army Aviation Training Centre at Oakey. Training activities and facilities at Oakey will support one Navy and three Army operational helicopter squadrons, compared to only two operational squadrons of Black Hawk.

60. The MRH90 aircraft will need to be sheltered from the elements and maintained in appropriate shelters, maintenance hangars and workshops. An analysis of available facilities at Oakey has determined that two more shelters are required as well as a purpose built maintenance hangar and workshop facility for the new aircraft.

61. The analysis of available shelters has taken into account the fact that the Black Hawk will not be retired from service until at least three years after the MRH90 commences service at Oakey. A combination of different maintenance contactors and the imperial and metric parts and tooling of the two aircraft types prevents the existing maintenance hangar from being shared with the MRH90 aircraft.

62. The proposed works consists of two stand alone aircraft shelters, one 3-bay maintenance hangar and a workshop building. The hangar will be connected to the flight line apron with a suitably paved access-way.

63. An indicative plan of the proposed work is provided at Attachments 16 and 17.

Reconfiguration/Refurbishment of the Oakey SAA Building

64. The School of Army Aviation (SAA) in Building B73, a large two storey building, is the centre for helicopter air-crew training at Oakey. The building consists of classrooms, briefing rooms, planning areas, operational areas and administrative areas. It also accommodates the aircraft life support equipment and associated workshops.

65. The introduction of the MRH90 aircraft will impact on the SAA Facility by increasing the training rate and hence creating a need for additional classrooms as well as necessitating the modification of some operational and planning areas to suit MRH90 operations. Rather than extend the building, it is considered better to re-locate the aircraft life support equipment functions to a new building and reconfigure the vacated space for classrooms and operational activities. This also allows the required increase in space for aircraft life support equipment functions

66. An indicative plan of the proposed work is provided at Attachment 19.

Oakey Aircraft Life Support Equipment Workshop

67. The MRH90 has a different Aircraft Life Support Equipment (ALSE) requirement associated with being a newer aircraft type.

68. Stemming from the reconfiguration and refurbishment work in the SAA Building, the aircraft life support equipment functions will be re-located to a new building. This building will be configured to suit the operational flow of pilots moving from the SAA Facility to collect their life support gear prior to proceeding to the flight line office where they sign out their aircraft. The building will accommodate all aircraft life support equipment such as helmets and oxygen gear, as well as associated workshop areas used to repair and maintain this equipment.

69. An indicative plan of the proposed work is provided at Attachment 20.

Extension of the Oakey RAMS Training Building

70. The Rotary Wing Aircraft Maintenance School (RAMS) provides theoretical and practical training for maintenance and ground crew for the Kiowa, Black Hawk and Tiger aircraft. RAMS conducts its training in a complex consisting of a two storey classroom complex and a hangar in Building C7. This facility will not be large enough to cater for the MRH90 aircraft due to the higher training rate associated with more complex aircraft systems

and increased trainee numbers through more ab-initio and transition training for existing personnel.

71. Additional space is needed to cater for more classrooms and two MRH90 Simulated Aircraft Maintenance Trainers (SAMTs). The hangar floor space needs to be increased to cater for two additional aircraft maintenance training aids. At present, the hangar accommodates three aircraft training aids (Black Hawk, Tiger and Kiowa). Two MRH90 training aids (one complete aircraft and one broken up) need to be accommodated. Space can be created on the hangar floor by re-locating the ground support equipment (GSE) and repair parts from the hangar floor to an extension of the main building. An overhead crane for the hangar is also required.

72. The proposed extension to the RAMS complex will accommodate the additional classrooms, SAMTs, GSE store, repair parts store and a tool store/workshop (to replace the shed that needs to be demolished to make way for the extension).

73. An indicative plan of the proposed work is provided at Attachment 21.

Reconfiguration/Extension of the Oakey Aviation Trade Wing Building

74. The increased training rates associated with the introduction of the MRH90 aircraft will also impact Aviation Trade Wing in Building B11. Additional space is required to provide for loadmaster simulation equipment, classrooms and offices. It is proposed to reconfigure and extend this two storey building.

75. Indicative plans of the proposed work are provided at Attachments 22 and 23.

Oakey Sheet Metal Workshop

76. The existing Sheet Metal Workshop is located in one bay of a building that was designed for use as an aircraft shelter. As part of the analysis undertaken for the requirement for the aircraft shelters, it was determined that this space could be better utilised by re-locating the Sheet Metal Workshop so that this space could be used to shelter an aircraft.

77. It is proposed to construct a new Sheet Metal Workshop, allowing relocation of equipment from Building C4, and allowing C4 to be used for parking of aircraft.

78. An indicative plan of the proposed work is provided at Attachment 24

Increased Electricity Supply Capacity at Oakey

79. The power supply to the new simulator capability at Oakey will require an upgrade to the power supply serving the base. Discussions with the local electricity distributor (Ergon Energy) have indicated this may not meet the Simulator building delivery timeframe, resulting that the increased power supply may not be ready before the Simulator Facility needs to be used. To mitigate this risk, this proposal contains a provision for an alternative, temporary source of power.

Building for Headquarters 16th Brigade (Aviation) and Elements of Defence Materiel Organisation

80. Headquarters 16th Brigade (Aviation) is presently located in unsuitable demountable buildings at Gallipoli Barracks, Enoggera. These buildings are sub-standard and need to be replaced to improve operational efficiencies and improve OH&S standards. Provision of suitable permanent office accommodation needs to be provided and as no other facilities can be made available at Enoggera to meet this need; new facilities are proposed to be constructed. The building needs to accommodate 106 staff.

81. There is a strong nexus between Headquarters 16th Brigade (Aviation) and elements of the Defence Materiel Organisation (DMO) in managing the MRH90 capability and ongoing operational, training and support requirements. The DMO elements involved are the Army Aviation System Project Office (AASPO) and the MRH Project Office (MRHPO). AASPO currently has about 100 staff located at Oakey and MRHPO currently has about 70 staff in Brisbane and Canberra. The acquisition and sustainment of the MRH90 aircraft will increase staffing numbers in AASPO and MRHPO and 71 staff will need to be based at Enoggera, co-located with Headquarters 16th Brigade (Aviation).

82. An indicative plan of the proposed work is provided at Attachments 26 through 29.

Simulator Buildings

83. Purpose built facilities need to be constructed to house the MRH90 flight simulators. Apart from accommodating the flight simulator itself and its associated control equipment, each building also requires administrative/ training and maintenance areas. Simulator facilities draw a lot of power and appropriate electrical upgrading works is also included.

84. As the characteristics of the simulator equipment will drive the design of the simulator facility and the simulator equipment is being specially procured from a specialised simulator

supplier, the detailed design and construction of the simulator facility will be delivered by the simulator contractor as a turnkey project.

85. An indicative plan of the proposed work for each of the identified sites is provided at Attachment 6, (Nowra), Attachment 12 (Townsville) and Attachment 18 (Oakey).

SITE SELECTION

86. Various sites were considered for each element of new construction. Value management workshops were held to assess the various options and a rigorous process of stakeholder consultation was used to conclude the most appropriate site for each element of new construction. All proposed works are consistent with the master planning requirements for each base.

SITE DESCRIPTION

87. Nowra 817 Squadron site is relatively flat and is bounded by the aircraft parking apron to the west, similar facilities for 805 Squadron to the south, open space suitable for expansion to the north and Fury Road to the west. If a simulator facility is determined to be required at HMAS Albatross, the Nowra Simulator site identified is flat and has been previously used for minor buildings, which have been demolished. Skua Road, which previously provided access to the demolished buildings, crosses the site and is no longer required.

88. The Townsville Technical Support Troop Facility is located in the northern annex of Building 295. The southern portion of the building comprises an aircraft maintenance hangar. To the east and west are aircraft aprons that provide access to the maintenance hangar and to the north are aircraft shelters. The Townsville Simulator is located on the site of a disused powerhouse that has been identified for demolition. The site is flat with the existing road network surrounding the site.

89. The Oakey training facilities are all located within the built area of the training precinct. The proposed new buildings and extensions occupy sites that were previously used for minor structures that have been demolished. The Oakey Simulator site is south of Luscombe Road and is generally grassed. The site was previously used for living-in accommodation, which has been demolished. The proposed Oakey Maintenance Hangar and Workshops and Aircraft Shelters occupy a flat green-field site south of the fire station.

90. The Enoggera Building for Headquarters 16th Brigade (Aviation) and elements of Defence Materiel Organisation is on a local high point adjacent to a former 25m rifle range and behind the adjacent training buildings. The site will require some earthworks to level the site.

ZONING AND APPROVALS

91. All of the proposed on-base facilities will be located within the boundaries of existing Defence establishments and hence do not require any State or Local Government approvals. However, the design of the proposed works will comply with the intent of State and Local Government requirements, where possible.

CODES AND STANDARDS

92. Where appropriate, the design of new and adaptively reused facilities will conform to the relevant sections of:

- a. Environment Protection and Biodiversity Conservation Act 1999
- b. Occupational Health and Safety and Welfare legislation
- c. Disability Discrimination Act (DDA)
- d. Building Code of Australia (BCA)
- e. Australian Standards and Codes
- f. National Code of Practice for the Construction Industry and the Industry Guidelines for the Industrial Relations and Occupational Health and Safety Components of the National Code
- g. Commonwealth Government Employment Code of Practice (Office and Amenities Guidelines)
- h. National Environment Protection Council (NEPC) Standards
- i. Workplace Health and Safety regulations
- j. Energy Efficiency Guidelines and protocols in accordance with the Australian Greenhouse Office
- k. National Water Quality Management Strategy, Australian & New Zealand
- l. Defence Manual of Fire Protection Engineering (MFPE)
- m. Defence Security Manual (DSM)

- n. Defence Green Building Requirements Part 1; and
- o. ADFP 602 - Joint Services Works Administration Aerodrome Design Criteria

PLANNING AND DESIGN CONCEPTS

93. The general philosophy adopted for the design of the proposed facilities incorporates the following considerations:
- a. The provision of cost effective and utilitarian facilities of energy efficient design suitable for the climate of each site (including cyclonic conditions) and of a style compatible with the relevant base aesthetics;
 - b. Adoption where possible of conventional construction techniques and materials, in particular those commonly used by the construction industry in each location;
 - c. The maximum use of existing infrastructure and facilities to minimise capital facilities costs;
 - d. Utilisation of readily available and durable materials that combine long life while minimising maintenance;
 - e. Recognition of site constraints, security requirements, functional relationships to existing facilities and operational determinants; and
 - f. Planning, services and structure designed to accommodate flexibility.
94. The designs provide a safe, efficient and pleasant workplace and also represent value for money. The designs offer good economy in relation to floor area, construction techniques, buildability and finishes, whilst achieving the necessary functional requirements, work flow patterns and work environment required to fulfil the function of the space.
95. Designers have been required to consider, during the preliminary design stage, the implications and estimates of costs for designs, materials, construction techniques, finishes, equipment and energy systems which will deliver economy on a life cycle costing basis.
96. In the selection of services and associated equipment, the capital cost is balanced against operational and maintenance costs. Operating costs comparisons will be included in a life cycle costing analysis during detailed design and prior to selection. Particular consideration has been given to energy efficient design solutions employing passive solar energy and water re-use initiatives.

97. The design, structure, servicing, and siting of buildings has been determined to maximise the opportunity for future expansion where possible. This is of particular importance in siting, sizing and terminating in-ground services. New mechanical plants will be modular to ensure flexibility.

98. Maximum flexibility is required for most internal office accommodation facilities. Except where the need for security or noise reduction dictates otherwise, minimum use is to be made of structural internal walls or columns. In general terms, internal walls in office areas will be of demountable partition or workstation type to facilitate economic rearrangement. Building services will be compatible with this requirement.

99. The building works and services will be fully fitted out, with all communications and office equipment, light fittings, partitions, floor treatments and furniture. Facilities will incorporate building management systems, metering and other provisions to measure and monitor energy use and to allow regular energy audits.

STRUCTURE

100. Proposed new facilities will generally be steel framed or concrete framed structures with concrete floor slabs and a metal roof. Internal walls are generally non-load bearing frames lined with plasterboard to provide for maximum flexibility in future floor layout. External Walls will respond to the environmental requirements of the site. In particular, structural design will take into account the highly reactive soils encountered in the Oakey area and the cyclonic wind conditions in Townsville.

MATERIALS AND FINISHES

101. Materials and finishes will be selected from those readily available locally for their functionality, durability, low maintenance and for their ecologically sustainable design properties.

MECHANICAL SERVICES

102. The mechanical services works involve a number of systems. Air-conditioning will be provided to areas where climate and usage dictates a need. The selection of building services and associated equipment to new air-conditioned facilities will be required to achieve an economic balance between capital cost and operation and maintenance costs. Selection will be

based on a life cycle costing analysis and particular consideration will be given to energy efficient design solutions employing passive solar energy. New facilities will incorporate building management systems, metering and other provisions to measure and monitor energy use and to allow regular energy audits where practicable. Mechanical plant will incorporate a modular system to ensure flexibility.

HYDRAULIC SERVICES

103. Hydraulic services for water supply, sewerage, and storm water within each precinct involve extension of infrastructure and building services to suit.

ELECTRICAL SERVICES

104. Lighting, power, lightning protection and fire detection will be provided in accordance with the relevant Australian Standards and any additional Defence requirements. Electrical infrastructure and switchboards will have modest spare capacity to allow for any future growth or demand. Fire detection systems, indication panels, emergency and exit lighting will be provided to suit the existing site systems.

CIVIL WORKS

105. None of the proposed sites for the new facilities present any particular civil engineering problems, but each will be the subject of further survey and geotechnical investigation during the design phase.

ACOUSTICS

106. Acoustics have been considered and included in the design of new buildings and adaptive re-use of existing buildings to provide suitable and economic solutions for those facilities located adjacent to high noise areas associated with aircraft operations.

107. Airbases are particularly noisy environments, especially near the aircraft flight line. In these areas, building sound attenuation will be provided through construction techniques and materials. Sound attenuation is particularly important in classrooms and working accommodation and specific levels, as specified within Australian Standards, will be met.

108. The steady noise level in an occupied room generated by all components of the air conditioning and ventilation plant shall not exceed the maximum levels recommended by

Australian Standard 2107. Short term noise intrusion into occupied spaces from occasional but regular sources shall not exceed a noise level 5 dB below the maximum level recommended in Australian Standard 2107 for the particular area. Vibration isolation of mechanical plant and equipment will limit vibration levels in the building to comply with the recommended vibration levels as set out in Australian Standard 2670.2 and Australian Standard 2763 and any additional Defence requirements.

109. The external building fabric will restrict noise transmission ingress as per the relevant Australian Standards with respect to aircraft noise, road traffic noise and externally located building services plant.

WATER AND ENERGY CONSERVATION MEASURES

110. The Commonwealth is committed to Ecologically Sustainable Development (ESD) and the reduction of greenhouse gas emissions. Defence reports annually to Parliament on its energy management performance and on its progress in meeting the energy efficiency targets established by the government as part of its commitment to improve ESD. This project has addressed this policy by adopting cost effective ESD, as a key objective in the design development and delivery of new facilities.

111. 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 and Section J of Volume One of the Building Code of Australia (BCA);
- b. Part 3.12 of Volume Two of the BCA;
- c. the Energy Efficiency in Government Operations (EEGO) policy; and
- d. Defence Green Building Requirements;

as applicable to the classification of each building.

112. All buildings will comply with the relevant energy efficiency provisions in the BCA, except where the energy efficiency requirements imposed by Defence Green Building Requirements - Part 1 are of a higher standard. In this instance, the target is to achieve:

- a. a 4-star Green Star Rating and 4.5 star Australian Green Building Rating (AGBR) for the new office accommodation at Gallipoli Barracks Enoggera, and

- b. a 20% improvement in the minimum energy efficiency performance requirements of the Building Code of Australia (BCA) for the non-office accommodation buildings.

113. In addition to the above, all new offices and offices subject to major refurbishment will comply with the minimum energy performance standards in the EEGO policy. The relevant buildings are described below.

114. For those buildings that have office accommodation with a floor area of less than 2000 m² (i.e.: the Nowra 817 Squadron Headquarters, Townsville Technical Support Troop Facility, Oakey Aircraft Maintenance Workshop Building, Oakey RAMS Building and Oakey Aviation Trade Wing Building), separate digital on market status metering will be installed and office lighting will not exceed 10 W/m². An energy management plan will be developed for implementation by Defence. Where available, fit for purpose and cost-effective, appliances will be United States Environmental Protection Agency (US EPA) 'Energy Star' compliant with power management features enabled at the time of supply.

115. For the Enoggera Headquarters Building that has office accommodation with a floor area of not less than 2000 m², and that comprises 100% of the total building area, the whole building will achieve not less than 4.5 stars AGBR and separate digital on market status metering will be installed. An energy management plan will be developed for implementation by Defence. Where available, fit for purpose and cost-effective, appliances will be US EPA 'Energy Star' compliant with power management features enabled at the time of supply.

116. The Australian Greenhouse Office, in the Department of the Environment and Water Resources, has been consulted with respect to these energy efficiency requirements.

MASTER PLANNING AND SITE PLANNING CONSIDERATIONS

117. The proposed on-base facilities at all bases are consistent with relevant master plans. The siting for all facilities complies with explosive ordnance clearances and airfield obstacle clearance surfaces.

118. Specific on-base facilities that were considered include:

- a. Nowra – 817 Squadron building is located adjacent to the helicopter parking apron and similar facilities. The identified possible simulator site is located

adjacent existing simulators and within walking distance of the 817 Squadron building.

- b. Townsville – The Technical Support Troop facility involves the refurbishment of the existing facility. The simulator is located within walking distance of the Mission Planning Facility provided as part of the Troop Lift Helicopter project.
- c. Oakey – The training facilities involve the extension and refurbishment of existing training facilities and are all located within the training precinct. The simulator is located adjacent the existing simulators and is within walking distance of the training facilities. The Maintenance Hangar and associated workshops are located adjacent to existing maintenance facilities with a tow-way link to the existing parking apron that is consistent with airfield planning principles.
- d. Enoggera – The Headquarters Building is located within the command and control precinct.

PROVISIONS FOR PEOPLE WITH DISABILITIES

119. Access and facilities for the disabled will be provided where necessary in accordance with the Building Code of Australia, Australian Standards and the Defence’s policy “Disabled Access and Other Facilities for Disabled Persons”. Where possible the use of existing facilities and access has been identified and incorporated in the design. Passenger lifts will be installed in the following buildings:

- a. all Simulator buildings,
- b. the 817 Squadron Facility at Nowra, and
- c. the Headquarters Building at Enoggera.

HERITAGE ISSUES

120. A Heritage Scoping Study to assess historic, indigenous, and natural heritage values was carried out for all sites. This scoping study found that there were no issues surrounding the proposed works at Townsville and Oakey.

121. At HMAS Albatross, the study identified that two existing facilities proposed to be demolished as part of this project had moderate to high historic heritage value. In accordance with the study’s recommendations, options for adaptive re-use or re-location of these

buildings were considered. Adaptive re-use of these facilities was not feasible, given the nature of the structures, and their location. Siting the 817 Squadron Facility to avoid necessitating the demolition of these facilities was not considered possible without adversely affecting the master plan.

122. Therefore, these buildings will be archivally recorded prior to demolition subject to appropriate approval being granted. The structures identified in the heritage scoping study are not listed on the Commonwealth Heritage List, the National Heritage List or the Register of National Estate.

123. At Gallipoli Barracks Enoggera, the scoping study found that no previous indigenous heritage studies had been undertaken at Gallipoli Barracks for the area identified for the Headquarters 16th Brigade Building. There are no known or registered sites which currently exist. However, the development area extends into eucalypt scrub which has some limited potential to contain sites of indigenous heritage value. Additional studies will be carried out in this area to determine the indigenous heritage value of the site, with appropriate treatments put in place prior to finalising design.

CHILD CARE PROVISIONS

124. As the proposed works are not associated with any significant change to base populations, no changes to existing child care provisions are proposed.

FIRE PROTECTION AND SECURITY MEASURES

125. Appropriate fire protection and suppression measures will be provided in accordance with Defence requirements to adequately protect the helicopters. These measures will include provision of Aqueous Film Forming Foam (AFFF) suppression at floor level to protect multiple helicopters in the one fire compartment.

126. Physical and electronic security will be in accordance with the Defence Security Manual.

OCCUPATIONAL, HEALTH AND SAFETY MEASURES

127. The facilities will comply with the Defence Occupational Health and Safety policy, the Occupational Health and Safety (Commonwealth Employment) Act 1991, Occupational Health and Safety (Commonwealth Employment) (National Standards) Regulations and the

Defence Occupational Health and Safety Manual. Construction will also comply with the Queensland and New South Wales Codes of Practice.

LANDSCAPING

128. Throughout the project the level of landscaping will be very minimal. Landscaping works will be directed towards the restoration of areas disturbed during construction and general improvement of the built environment. Precautions will be taken to avoid compromising existing environmental sensitivities by adopting landscaping practices in keeping with local environmental conditions.

129. Landscaping design will consider water conservation with the selection of native species. Crime Prevention Through Design (CEPTD) principles will be applied in conjunction with the Defence Security Manual to develop the landscaping.

IMPACT ON THE LOCAL COMMUNITY

Economic Impacts

130. This proposal will not generate revenue. This proposal has the potential to create some 580 jobs in the construction sector over the construction period. It is expected that output from local and regional material suppliers (in Townsville, South East Queensland, the Darling Downs and the Shoalhaven areas) would also increase through the construction period.

Social Impacts

131. This proposal will have minimal impact on the local community either during or post construction. During construction, there will be employment opportunities for construction contractors. After construction, there will be no discernable impact on the local community as the number of personnel working at these bases will not change significantly. The noise levels of the MRH90 will be similar to those of the Black Hawk and Sea King aircraft.

PROJECT COSTS

132. The estimated out-turn cost of the proposed works is \$168.7m (excluding GST). The cost estimate includes construction costs, professional fees, escalation provision, furniture and fittings, information communications technology acquisition costs and a contingency sum.

Operating Costs

133. Excluding simulator facilities there will be a total increase of \$2.2 m (excluding GST) in the net personnel and operating costs across the four bases where works are proposed to take place. Each simulator facility will cause an increase in net personnel and operating costs of approximately \$0.32m (excluding GST). These increases are due to increased costs of building maintenance, energy consumption, garrison support costs and ongoing information technology costs associated with the new and refurbished facilities.

PROJECT DELIVERY SYSTEM

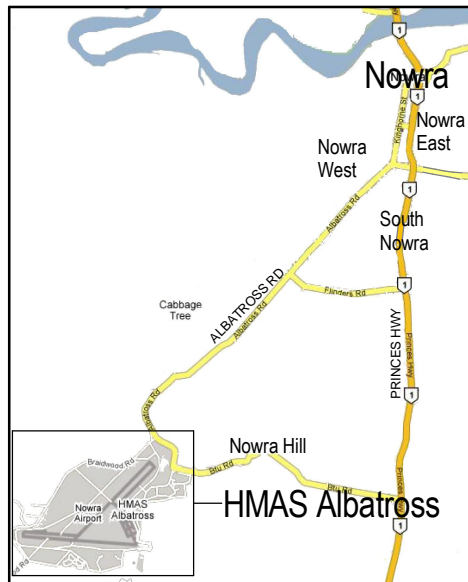
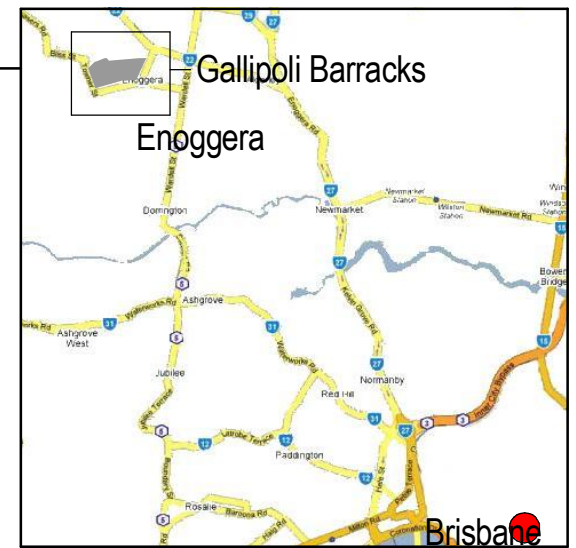
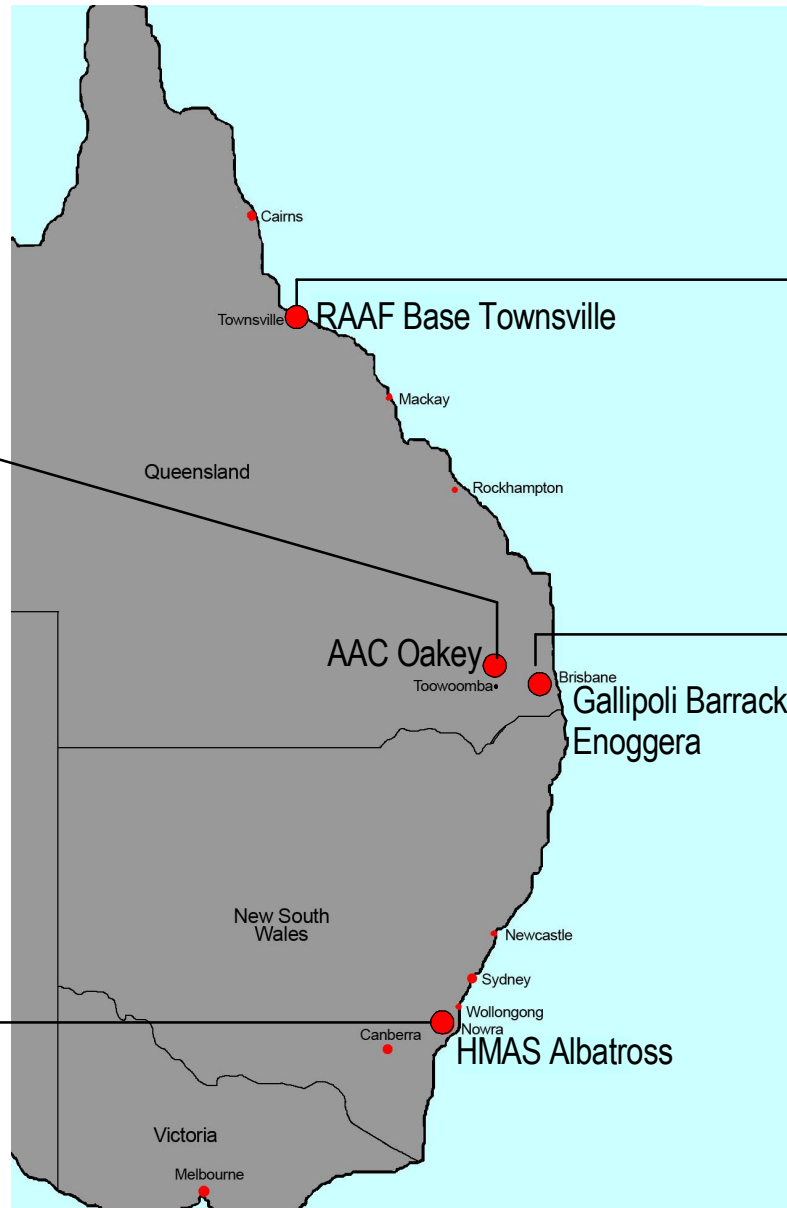
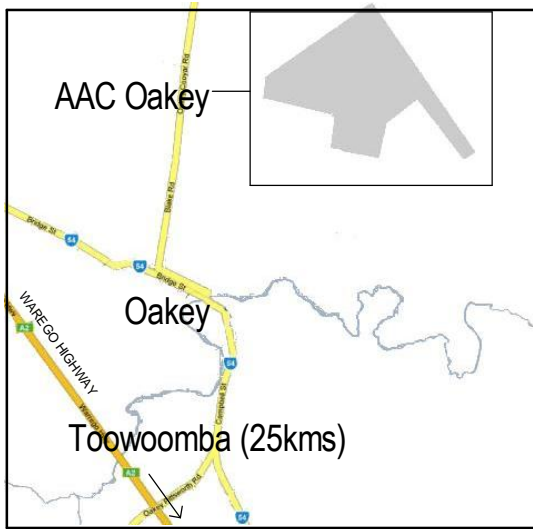
134. The proposed works are to be delivered under four separate head contracts, one for each geographic location. The Simulator facilities will be delivered under a turn-key arrangement with the prime contractor providing the simulator equipment.

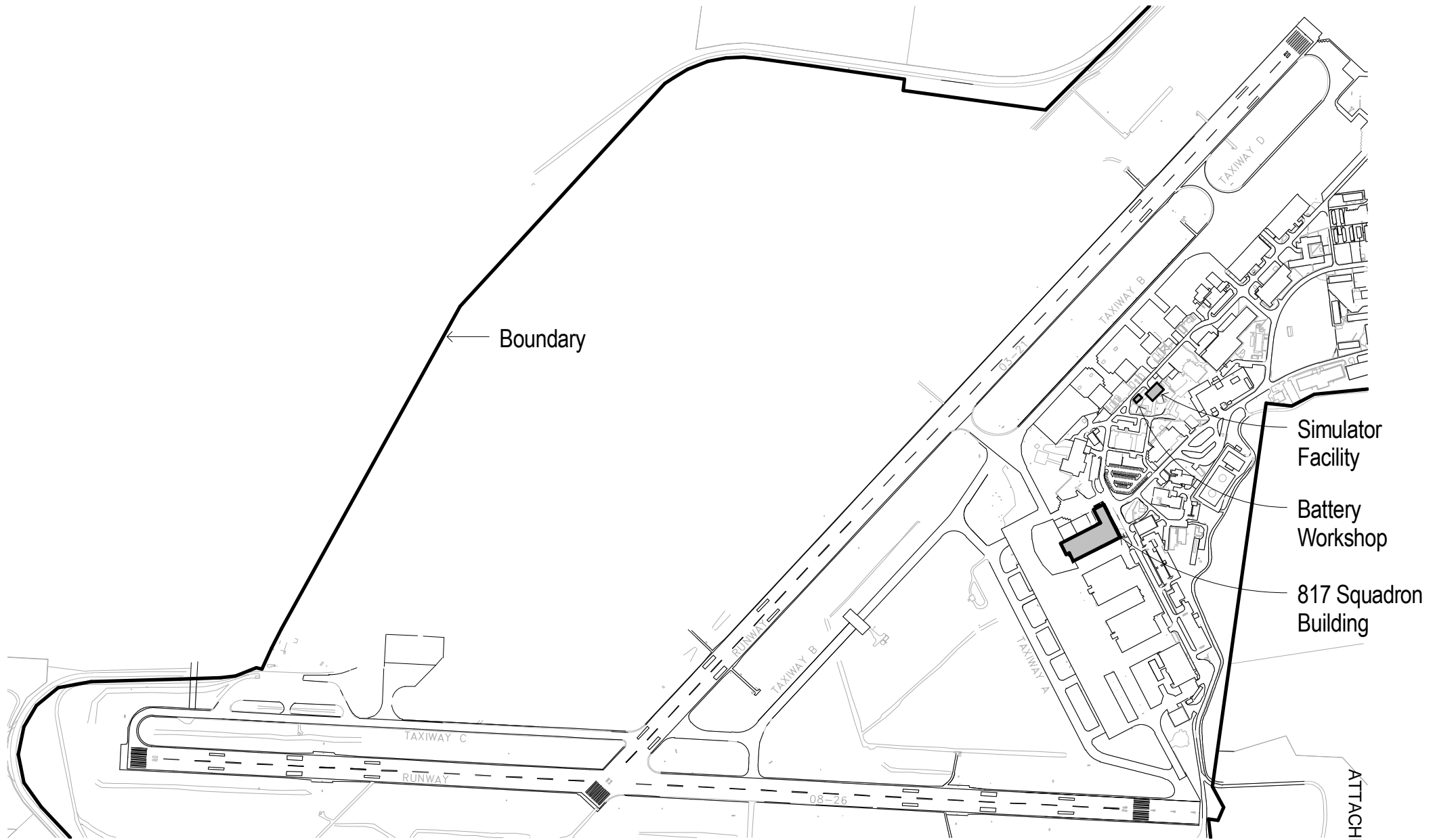
PROJECT SCHEDULE

135. Subject to Parliamentary clearance of this project, construction is expected to commence early 2008 and be completed by late 2010.

ATTACHMENTS:

1. Location Plan
2. HMAS Albatross, Nowra – Facilities Location Plan
3. HMAS Albatross, Nowra – Operational Precinct Plan
4. HMAS Albatross, Nowra – 817 Squadron Building – Ground Floor Plan
5. HMAS Albatross, Nowra – 817 Squadron Building – First Floor Plan
6. HMAS Albatross, Nowra – Simulator Building – Floor Plans
7. HMAS Albatross, Nowra – Battery Workshop – Floor Plan
8. RAAF Base Townsville – Facilities Location Plan
9. RAAF Base Townsville – 5th Aviation Regiment Precinct Plan
10. RAAF Base Townsville – Modification to Aircraft Shelters – Floor Plan
11. RAAF Base Townsville – Extension of Mission Planning Facility – Floor Plan
12. RAAF Base Townsville – Simulator Building – Floor Plans
13. RAAF Base Townsville – Technical Support Troop Building – Floor Plan
14. RAAF Base Townsville – Upgraded Aircraft Life Support Equipment Workshop
15. Army Aviation Centre Oakey – Facilities Location Plan
16. Army Aviation Centre Oakey – Aircraft Maintenance Facility – Floor Plan
17. Army Aviation Centre Oakey – Aircraft Shelters
18. Army Aviation Centre Oakey – Simulator Building – Floor Plans
19. Army Aviation Centre Oakey – School of Army Aviation Facility Reconfiguration – Floor Plan
20. Army Aviation Centre Oakey – Aircraft Life Support Equipment Building – Floor Plan
21. Army Aviation Centre Oakey – Extension of the Rotary–Wing Aircraft Maintenance School Building – Floor Plans
22. Army Aviation Centre Oakey – Aviation Trade Wing Reconfiguration – Floor Plans
23. Army Aviation Centre Oakey – Aviation Trade Wing Extension – Floor Plans
24. Army Aviation Centre Oakey – Sheet Metal Workshop – Floor Plan
25. Gallipoli Barracks, Enoggera – Facilities Location Plan
26. Gallipoli Barracks, Enoggera – Headquarters 16th Brigade & DMO Building Site Plan
27. Gallipoli Barracks, Enoggera – Headquarters 16th Brigade & DMO Building Ground Floor Plan
28. Gallipoli Barracks, Enoggera – Headquarters 16th Brigade & DMO Building First Floor Plan
29. Gallipoli Barracks, Enoggera – Headquarters 16th Brigade & DMO Building Second Floor Plan





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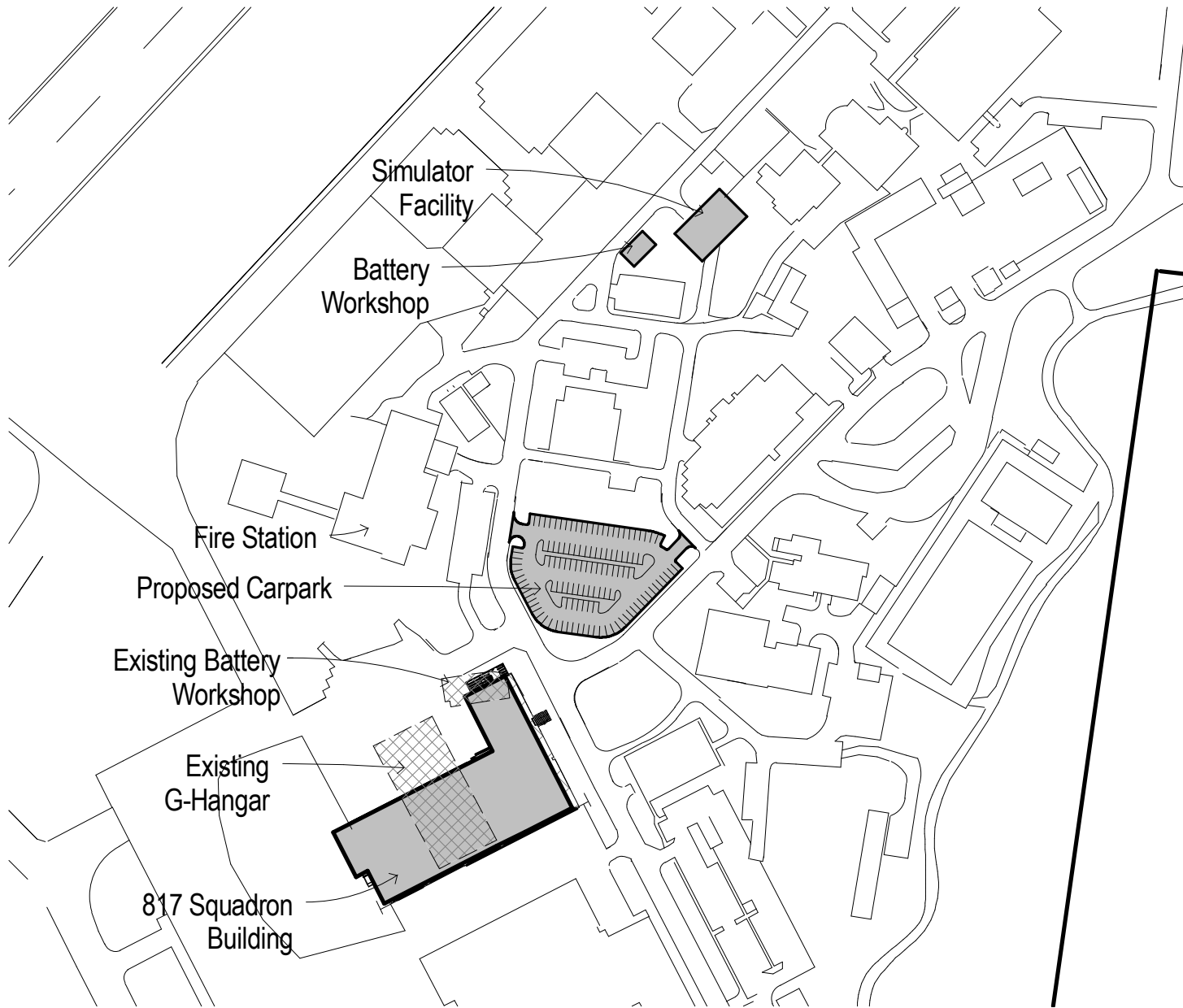
MRH 90 FACILITIES
HMAS ALBATROSS NOWRA

FACILITIES LOCATION PLAN

0 200m 400m SCALE 1:10,000 @ A4



ATTACHMENT 2

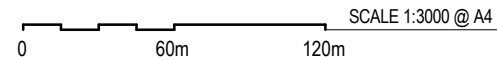


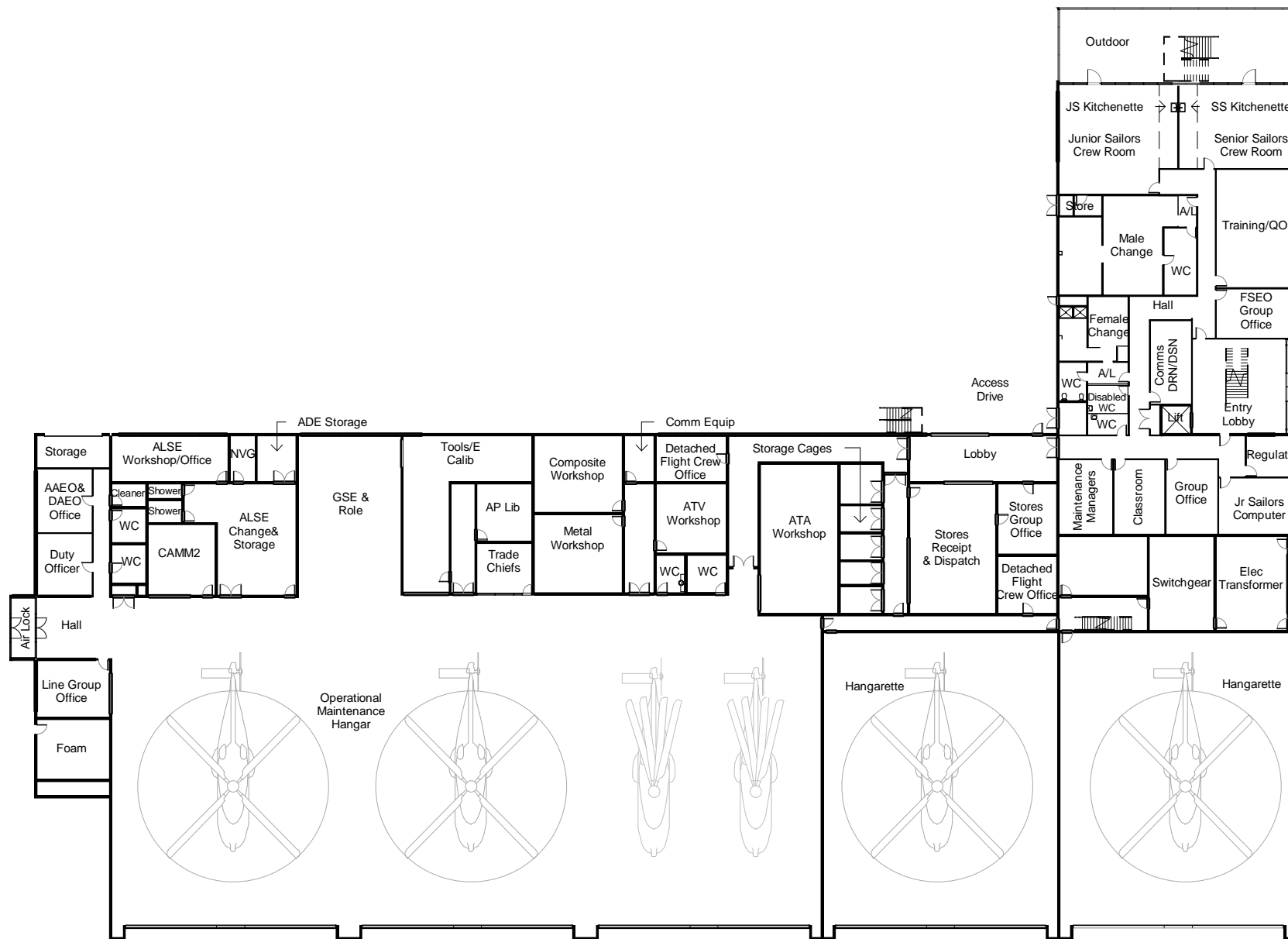
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MRH 90 FACILITIES

HMAS ALBATROSS NOWRA

OPERATIONAL PRECINCT PLAN

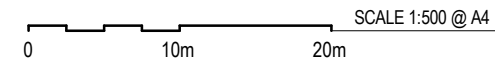


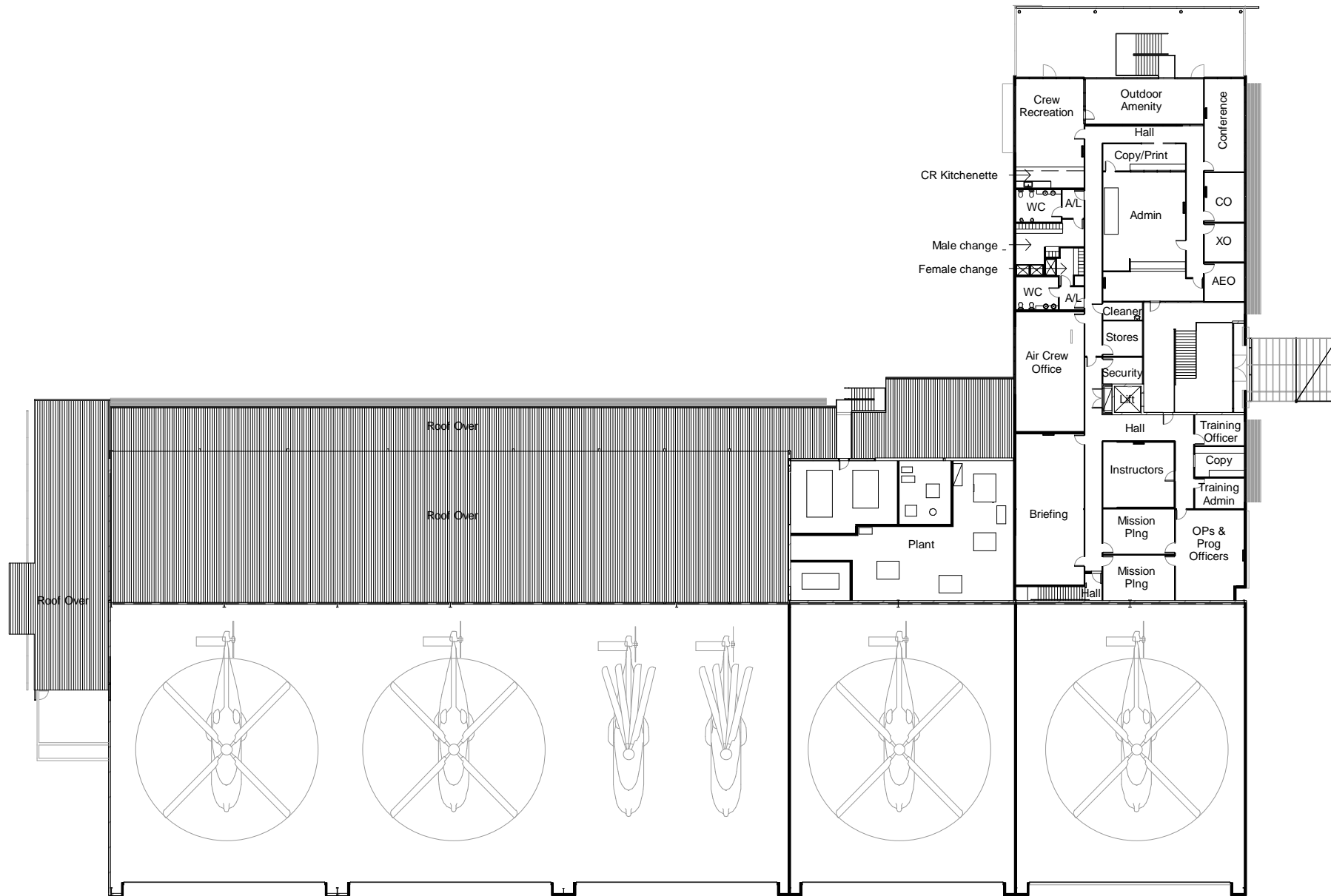


Australian Government
Department of Defence

MRH 90 FACILITIES

HMAS ALBATROSS NOWRA 817 SQUADRON BUILDING GROUND FLOOR





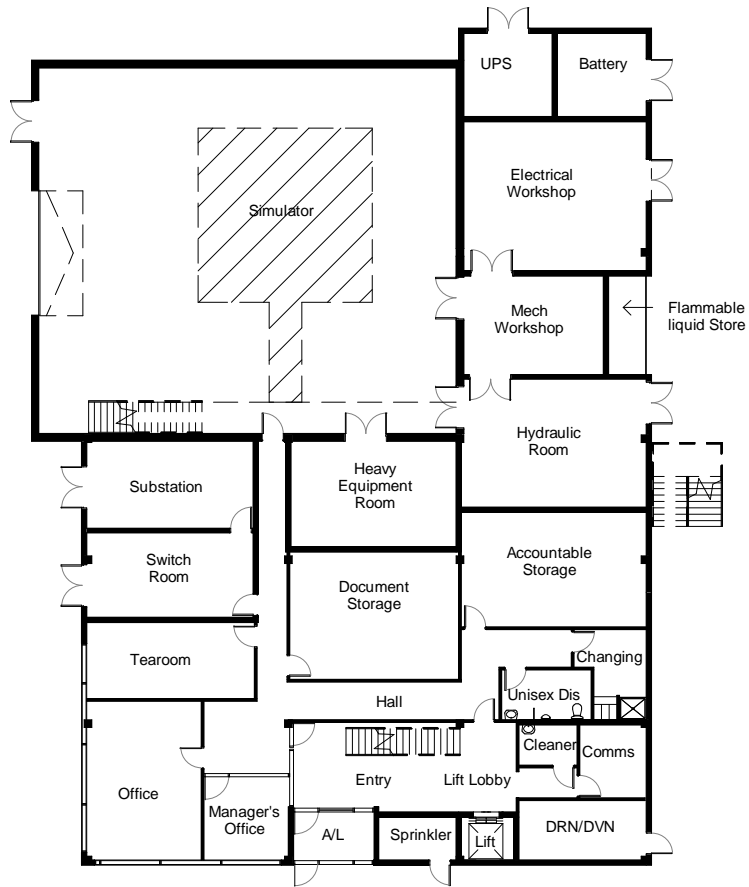
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Department of Defence

MRH 90 FACILITIES

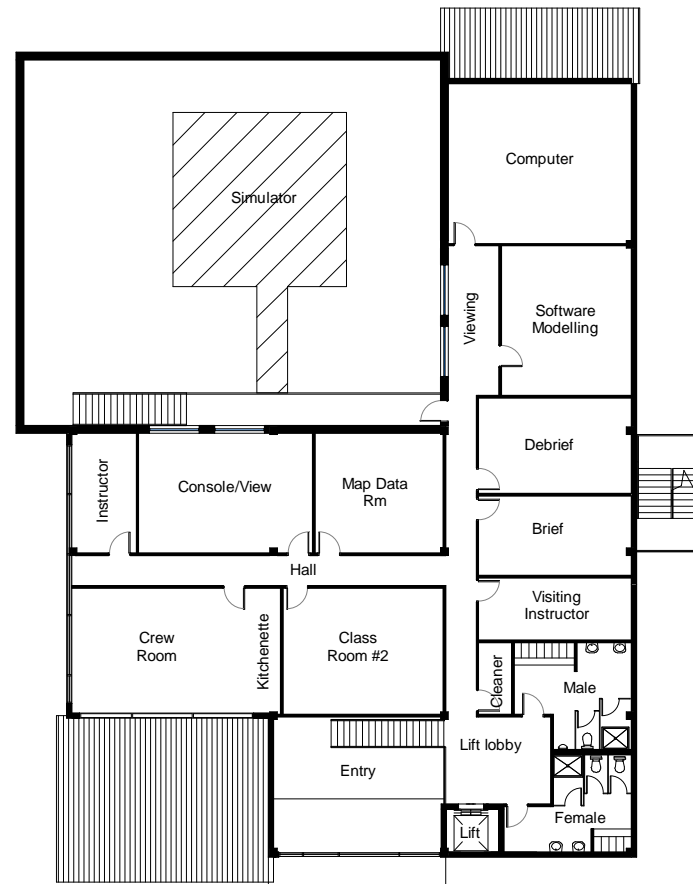
HMAS ALBATROSS NOWRA 817 SQUADRON BUILDING FIRST FLOOR

SCALE 1:500 @ A4
0 10m 20m



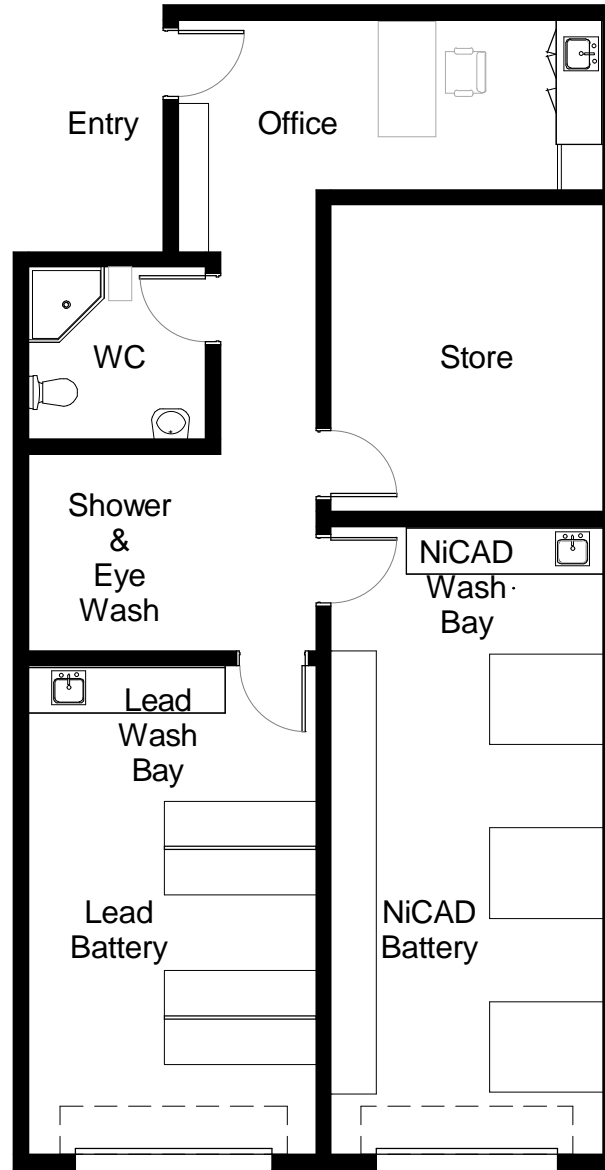


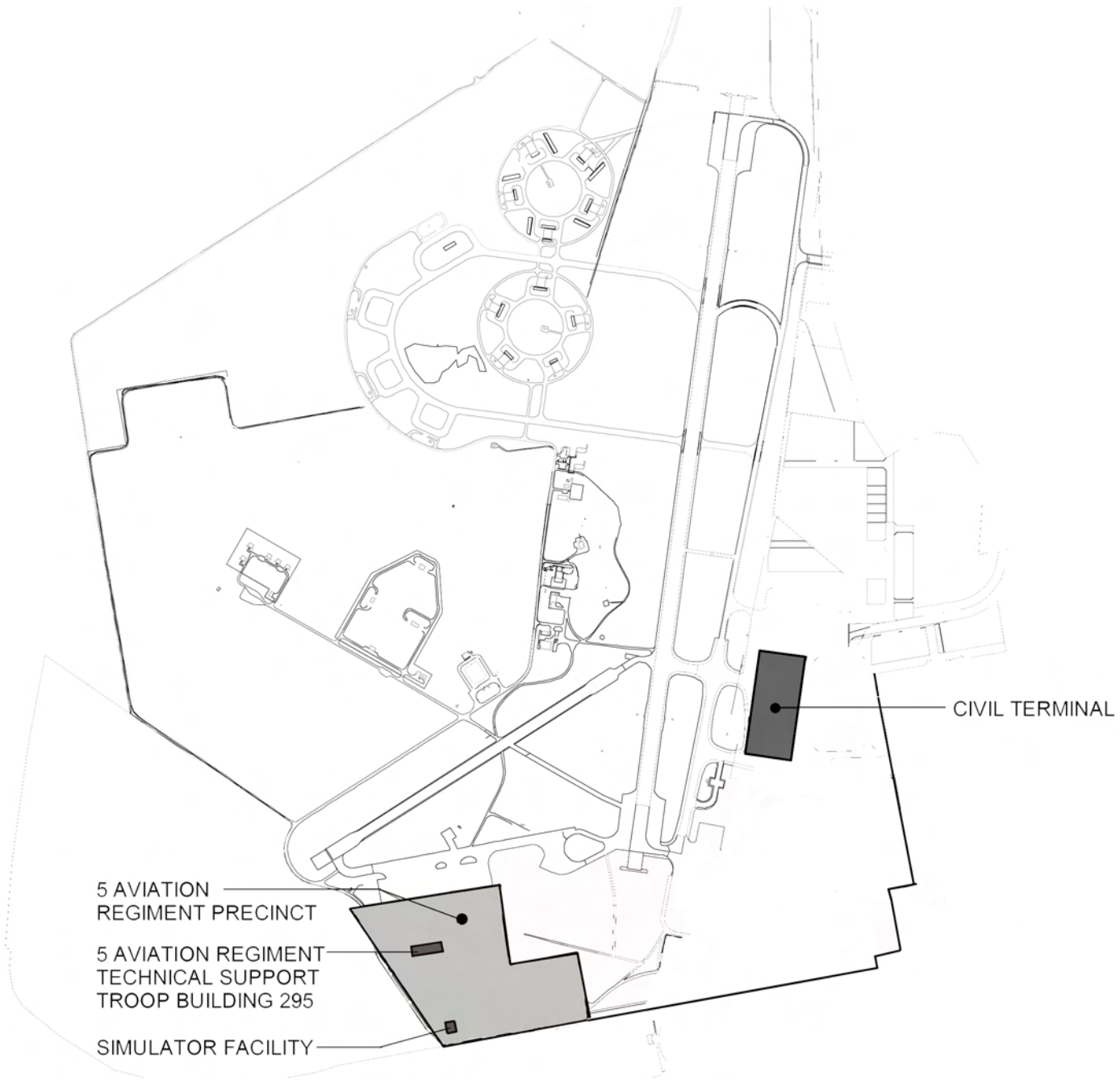
GROUND FLOOR



FIRST FLOOR







5 AVIATION
REGIMENT PRECINCT

5 AVIATION REGIMENT
TECHNICAL SUPPORT
TROOP BUILDING 295

SIMULATOR FACILITY

CIVIL TERMINAL



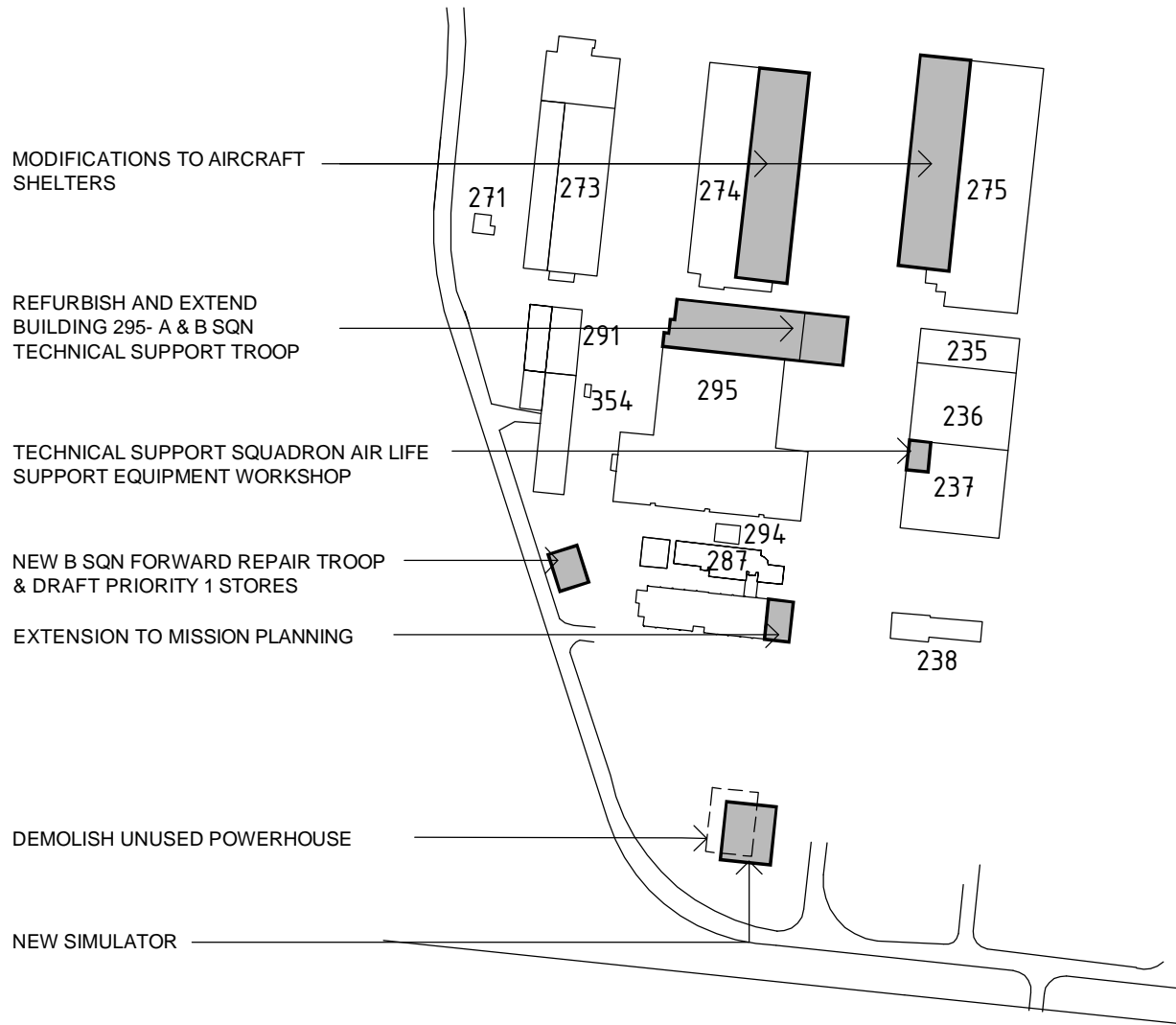
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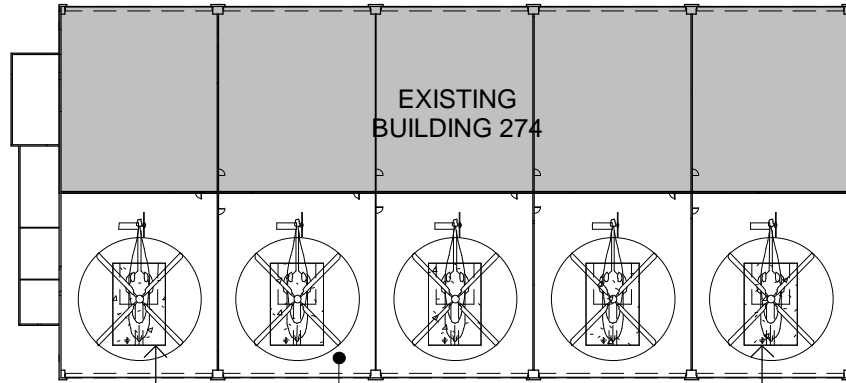
MRH 90 FACILITIES
RAAF BASE TOWNSVILLE FACILITIES LOCATION PLAN

0 400m 800m

SCALE 1:20000 @ A4





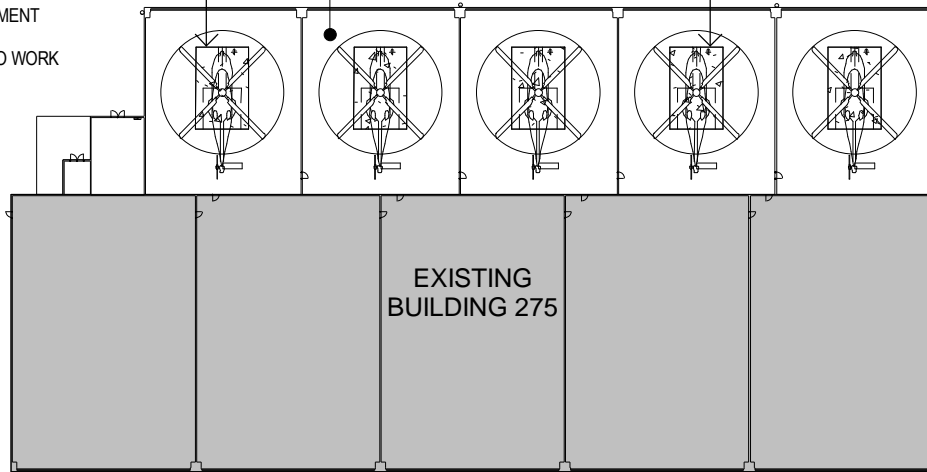


NEW CONCRETE PADS
UNDER HELICOPTERS
(TYP.)

NEW THERMAL DETECTORS
TO HANGARS (TYP.)

NEW EARTHING POINT

- LEGEND
- REFURBISHMENT
 - EXISTING NO WORK



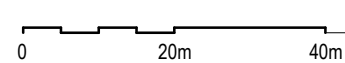
EXISTING
BUILDING 275



Australian Government
Department of Defence

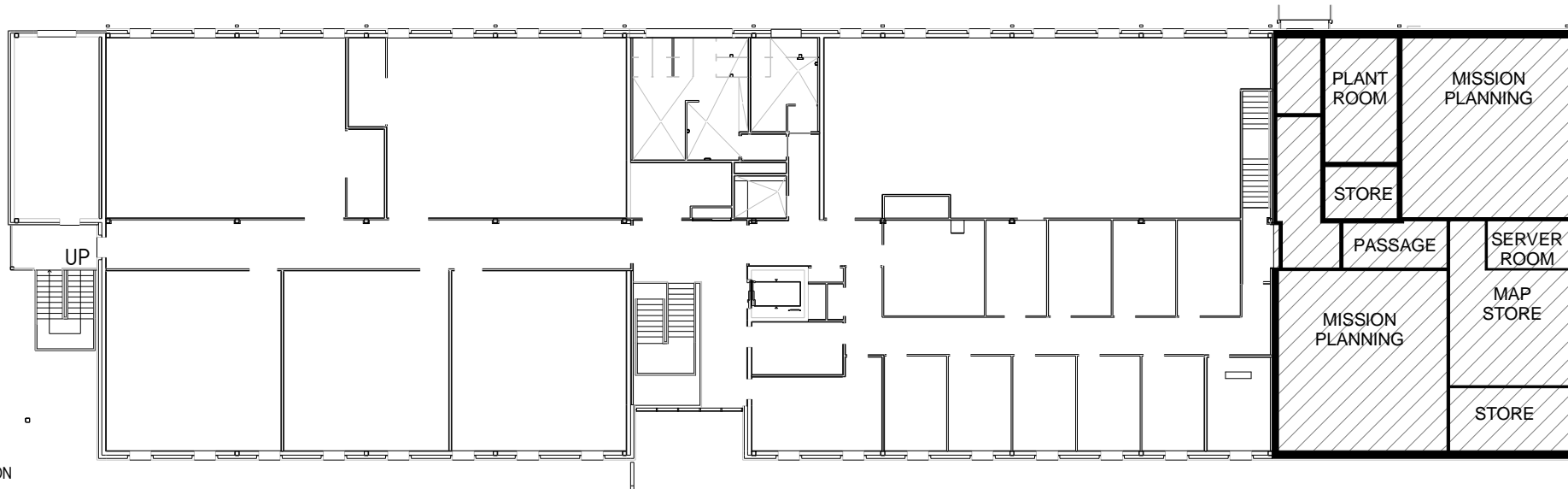
MRH 90 FACILITIES
RAAF BASE TOWNSVILLE

MODIFICATION TO AIRCRAFT SHELTERS
FLOOR PLAN





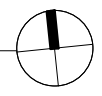
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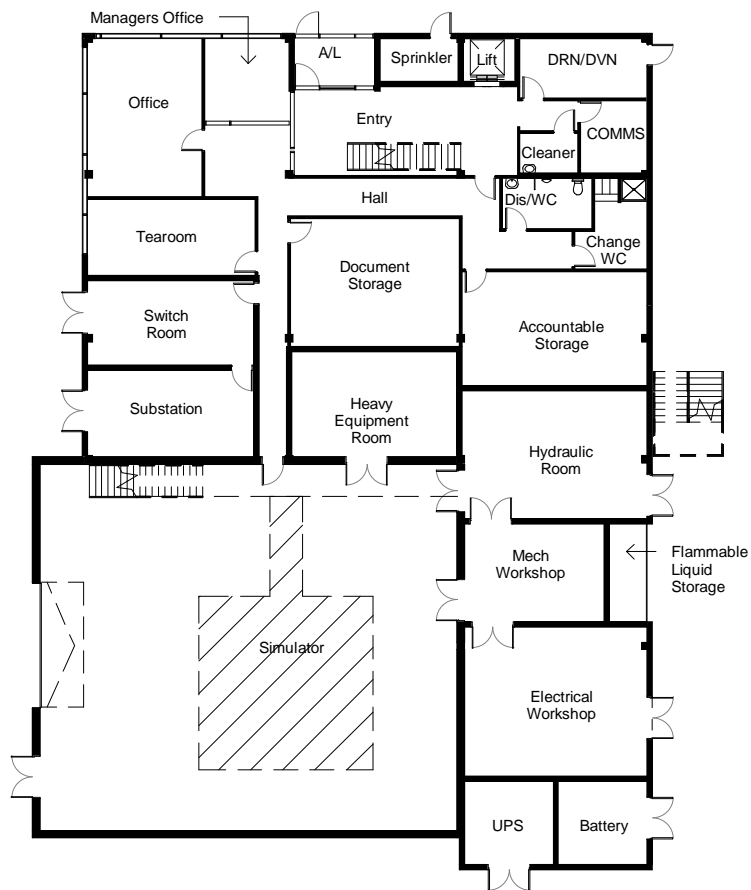




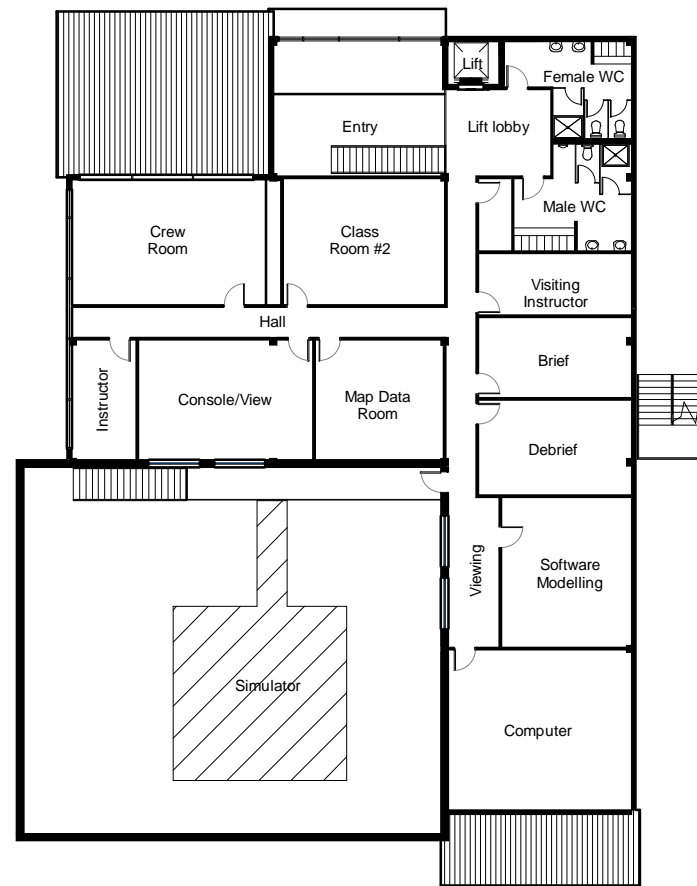
FIRST FLOOR

- LEGEND
-  EXTENSION
 -  EXISTING NO WORK





GROUND FLOOR

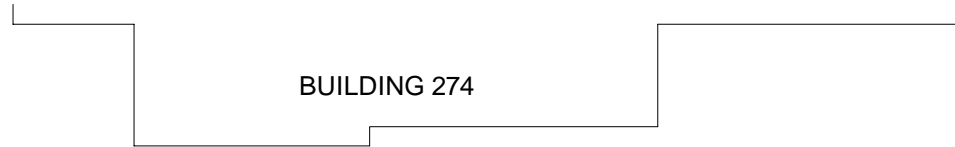


FIRST FLOOR

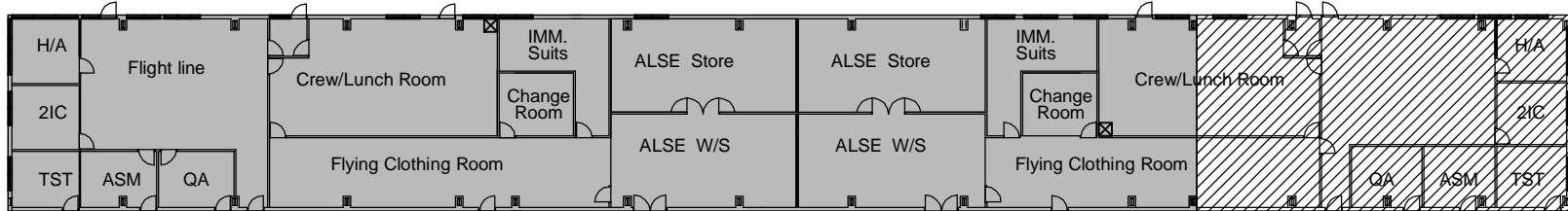


LEGEND

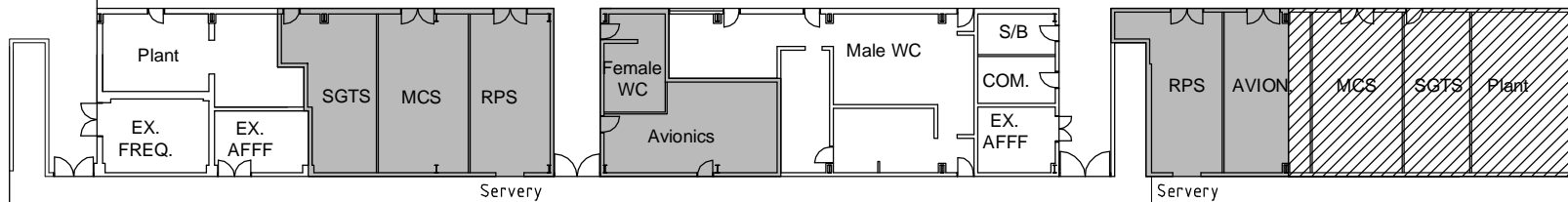
- REFURBISHMENT
- EXTENSION
- EXISTING NO WORK



BUILDING 274



NORTHERN ANNEX

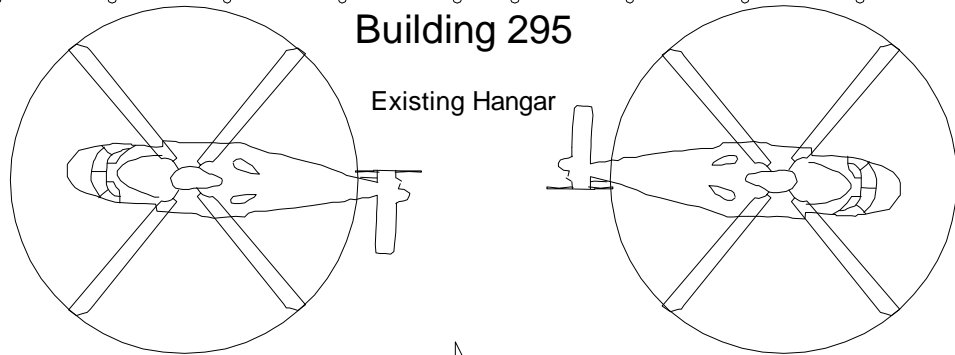


Servery

Servery

Building 295

Existing Hangar





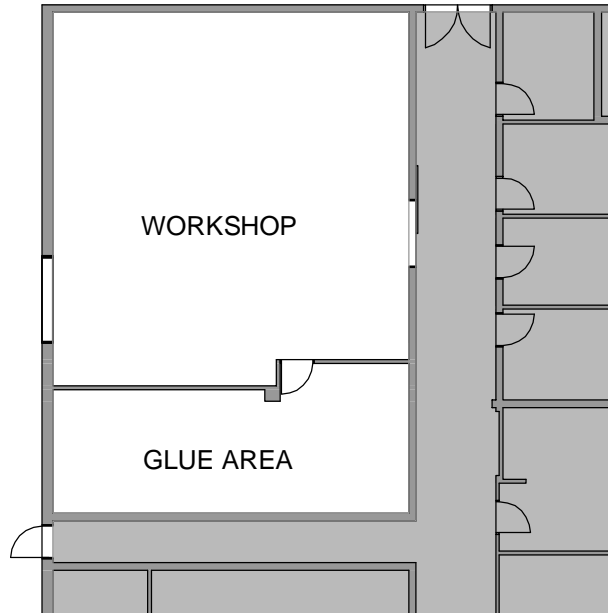
LEGEND

- MCS Maintenance Control Section
- RPS Repair Parts Store
- HA Hangar Artificer
- TST Technical Support Troop
- ASM Artificer Sgt Major
- QA Quality Assurance
- IMM Immersion Suits
- ALSE Air Life Support Equipment



LEGEND

-  EXISTING / NO WORK
-  REFURBISHMENT / NEW

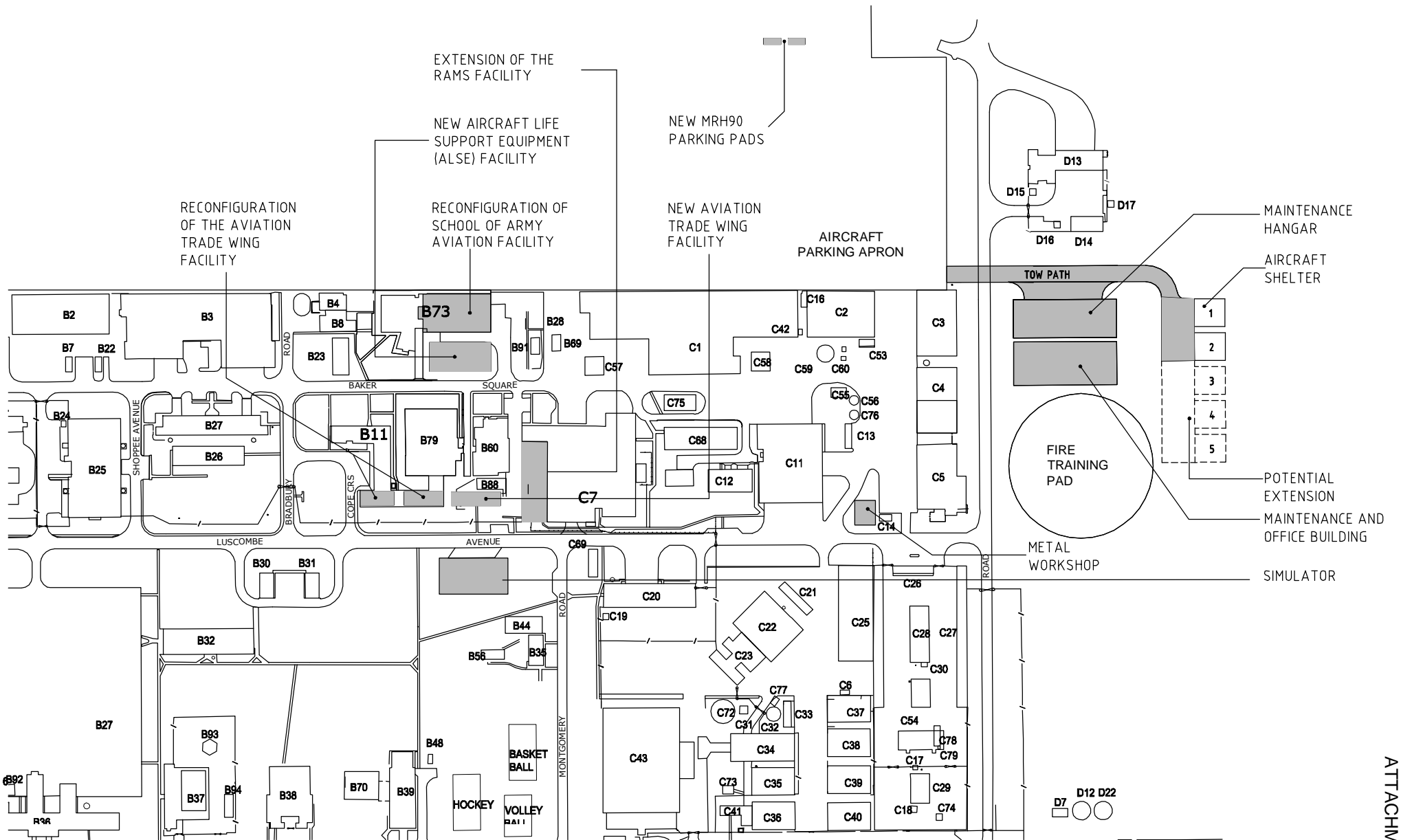


UPGRADED AIRCRAFT LIFE SUPPORT EQUIPMENT WORKSHOP
(BUILDING 237)
GROUND FLOOR PLAN



B SQN - FORWARD REPAIR TROOP & DRAFT PRIORITY 1 STORE
GROUND FLOOR PLAN

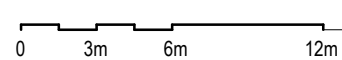
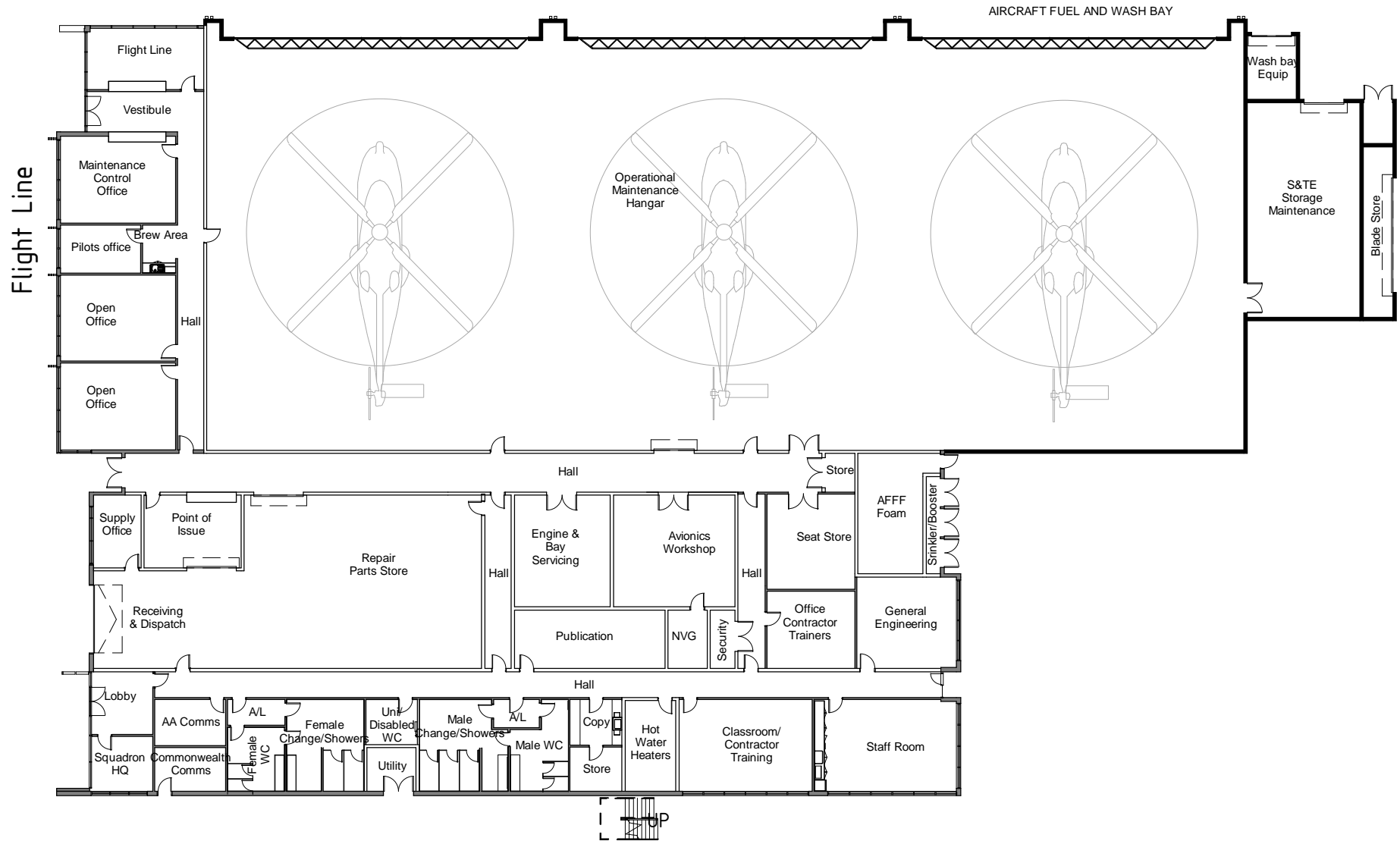




MRH 90 FACILITIES
ARMY AVIATION CENTRE OAKEY

FACILITIES LOCATION PLAN

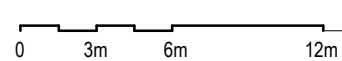
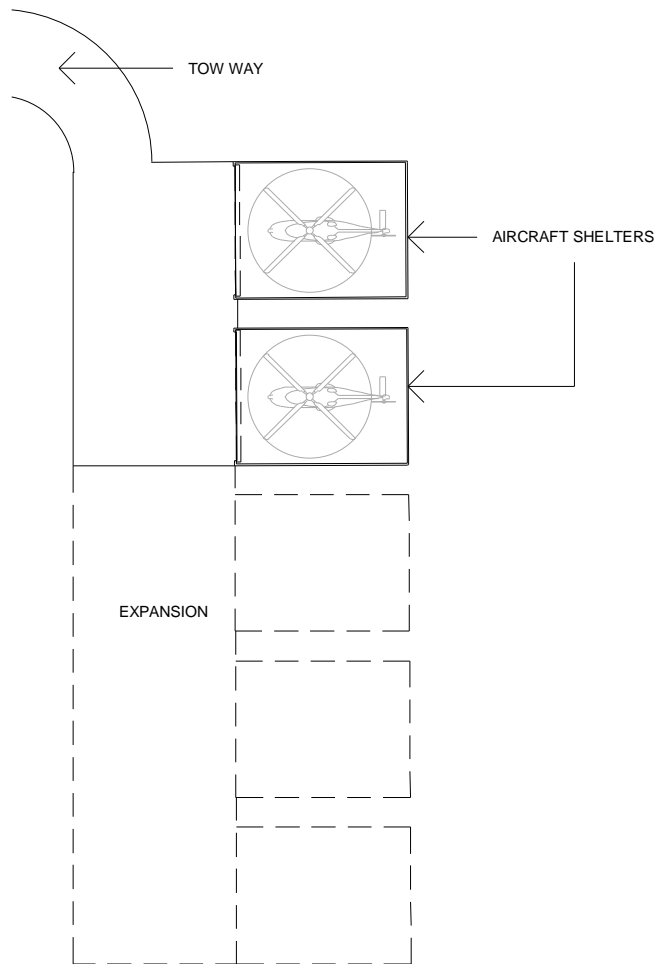






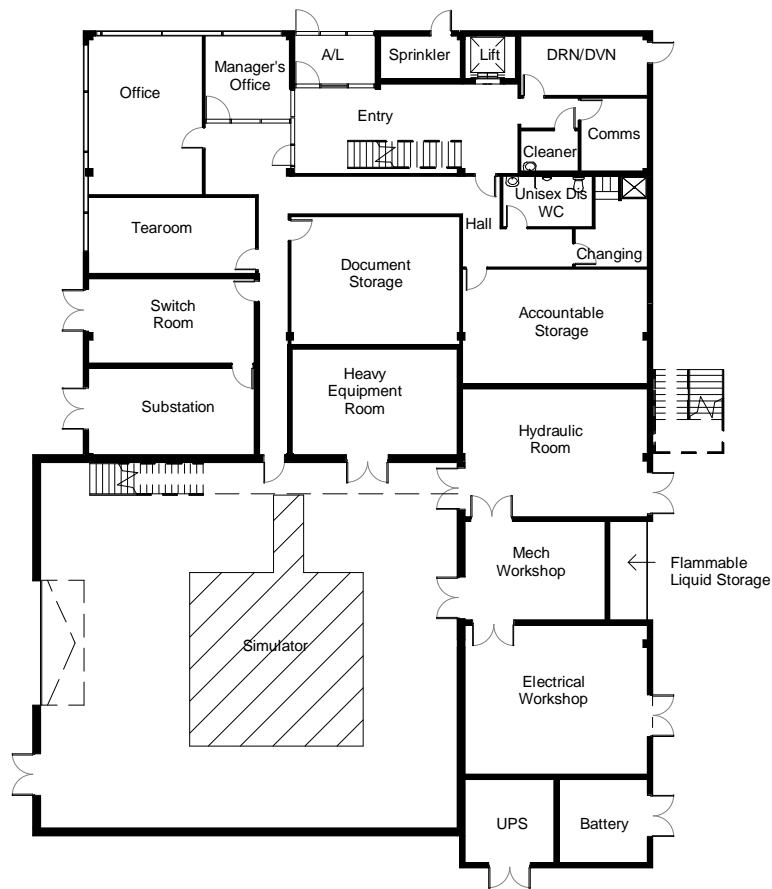
MRH 90 FACILITIES ARMY AVIATION CENTRE OAKEY

AIRCRAFT SHELTERS PLAN

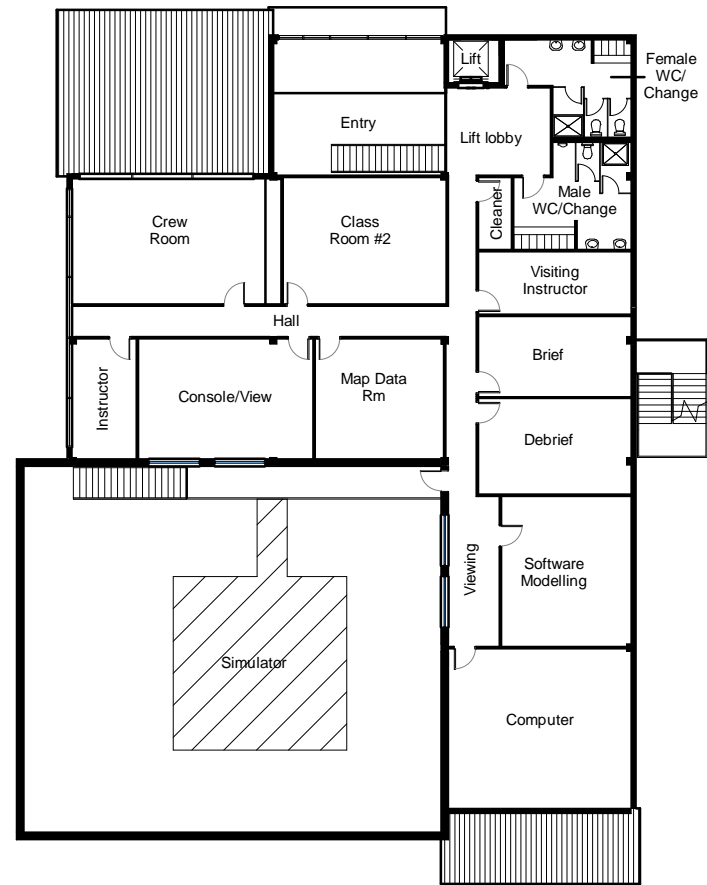


SCALE 1:300 @ A4





GROUND FLOOR



FIRST FLOOR



Australian Government
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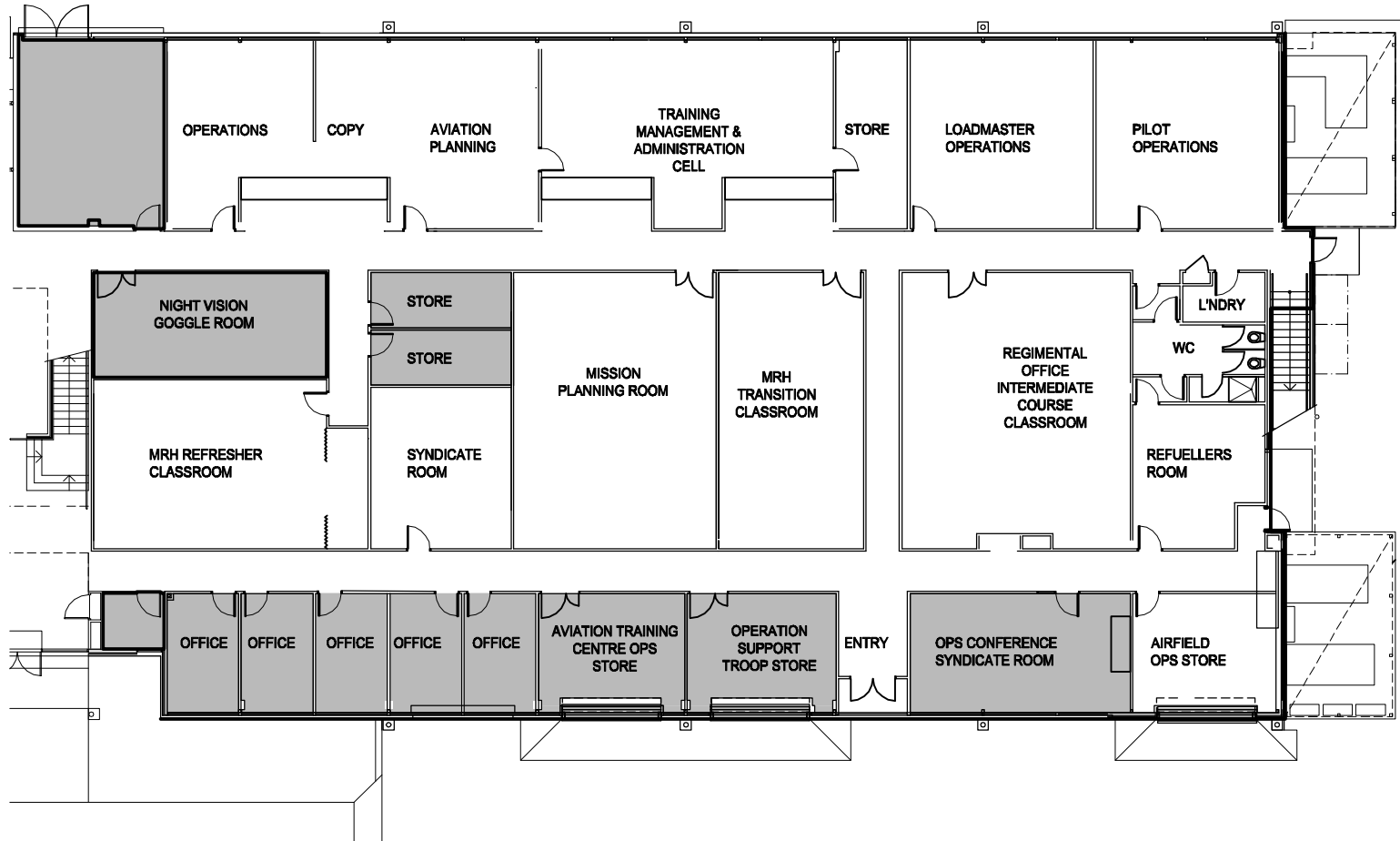
MRH 90 FACILITIES
ARMY AVIATION CENTRE OAKEY- SIMULATOR BUILDING FLOOR PLANS

SCALE 1:300 @ A4
0 6m 12m



LEGEND

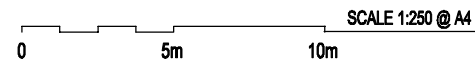
- NEW / REFURBISHED BUILDING
- EXISTING BUILDING / NO WORK



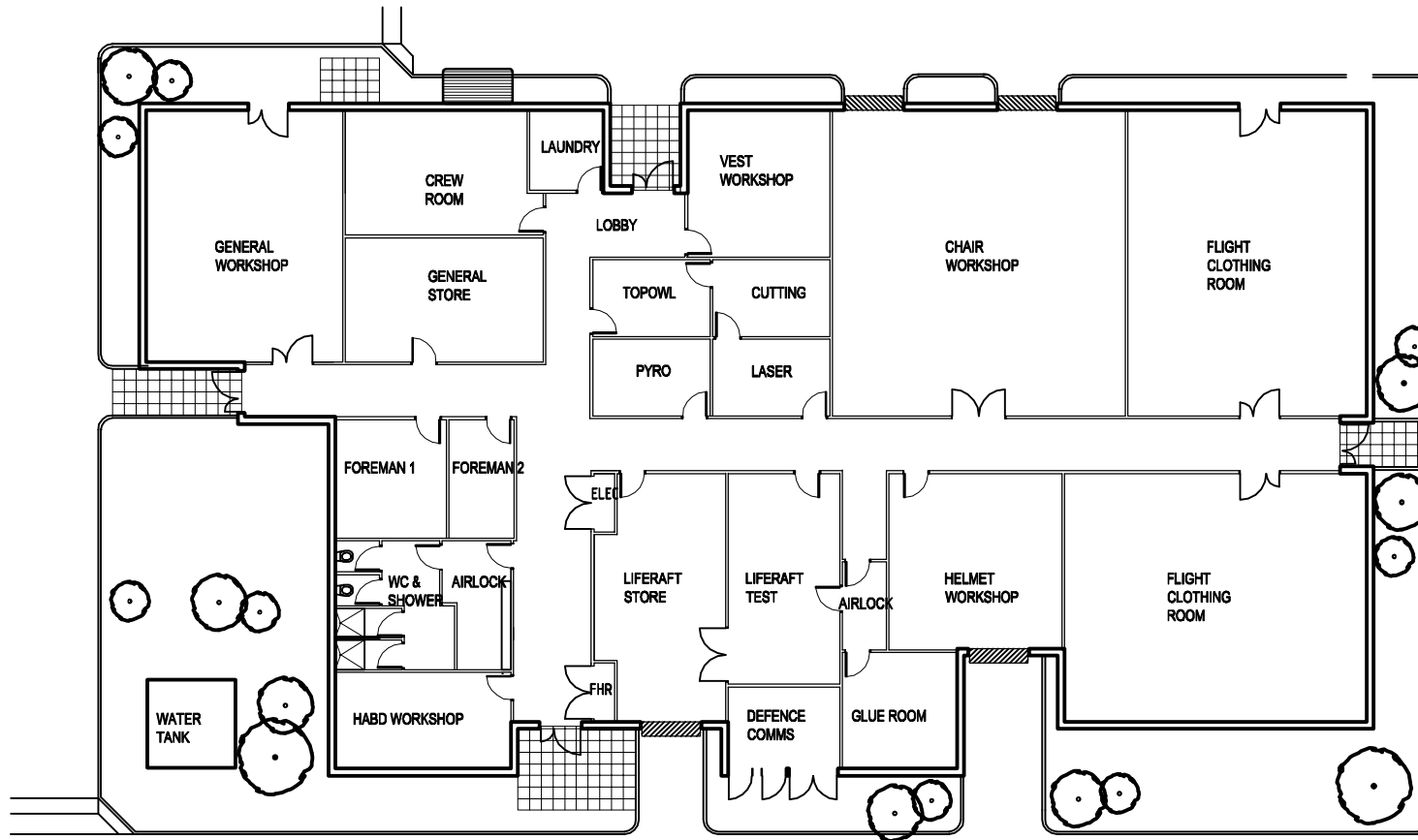
GROUND FLOOR PLAN

**MRH 90 FACILITIES
ARMY AVIATION CENTRE OAKLEY**

**SCHOOL OF ARMY AVIATION
FACILITY RECONFIGURATION
FLOOR PLAN**

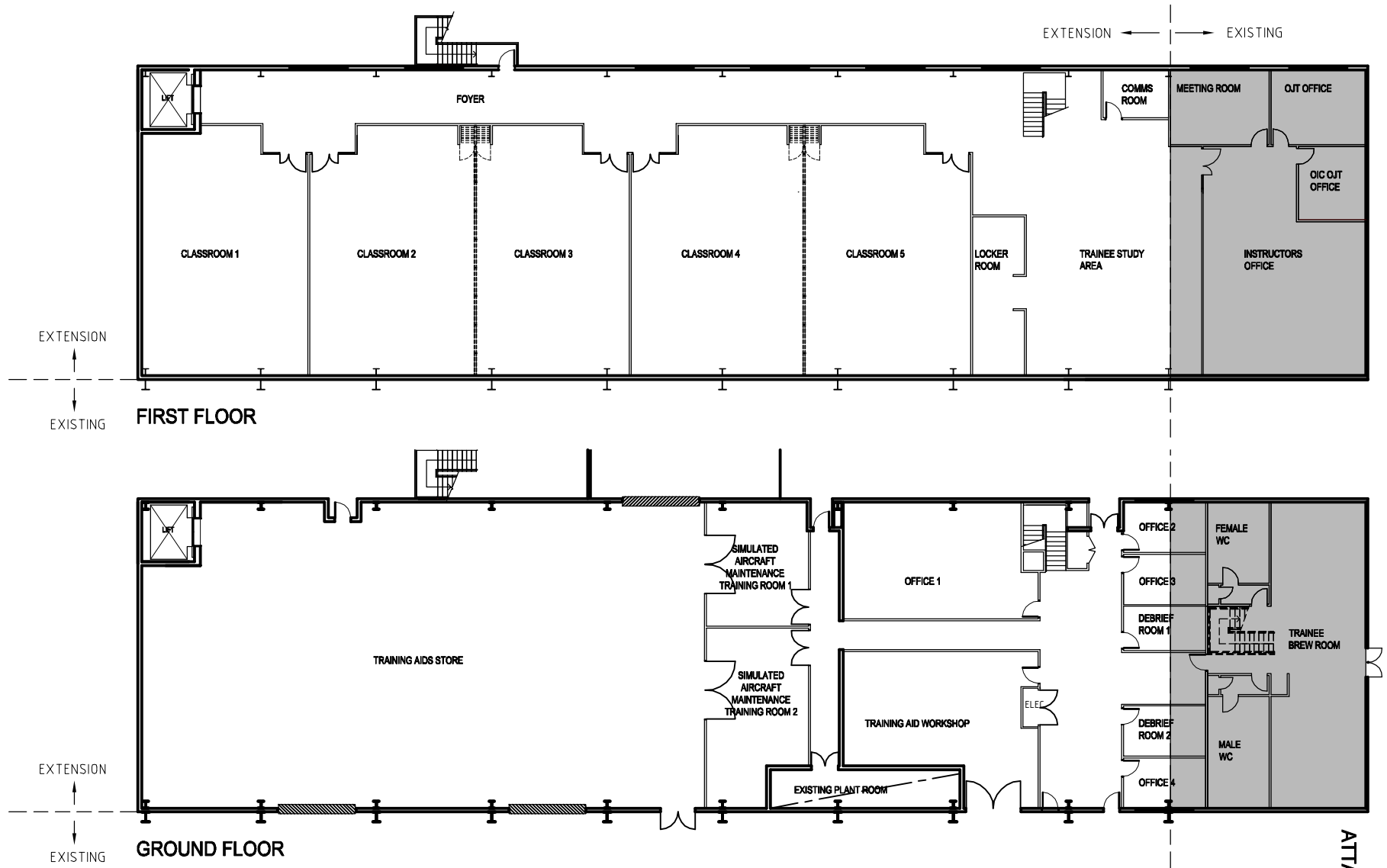


SCALE 1:250 @ A4



LEGEND

- NEW / REFURBISHED BUILDING
- EXISTING BUILDING / NO WORK

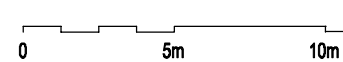


ATTACHMENT 21



MRH 90 FACILITIES
ARMY AVIATION CENTRE OAKLEY

ROTARY WING AIRCRAFT MAINTENANCE
SCHOOL EXTENSION
FLOOR PLANS

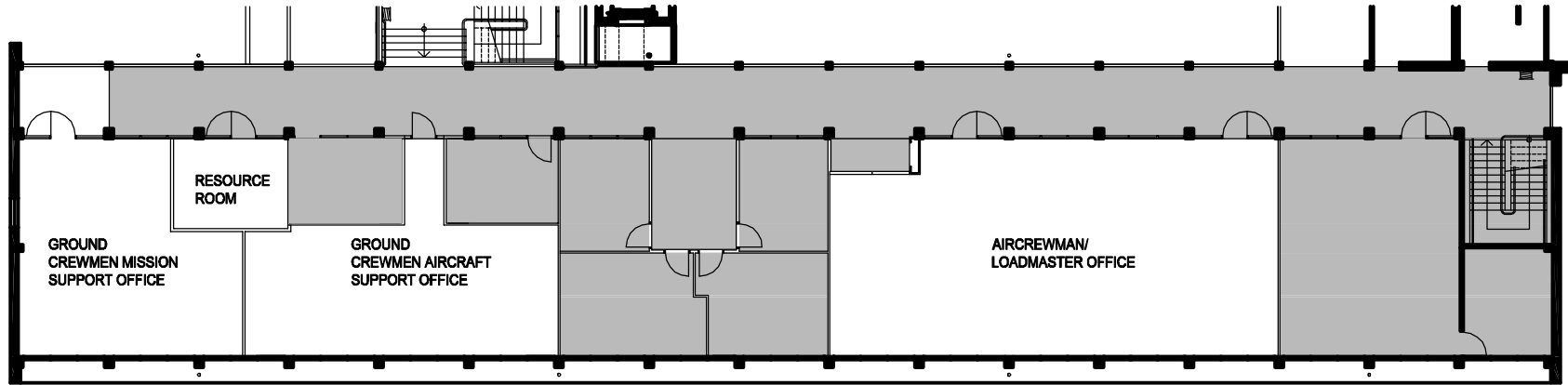


SCALE 1:250 @ A4

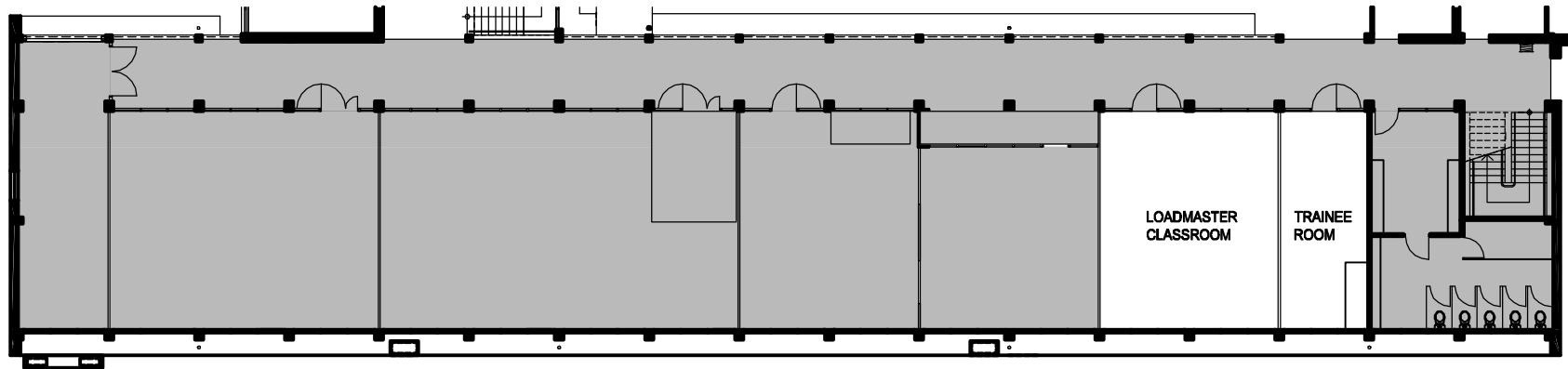


LEGEND

- NEW / REFURBISHED BUILDING
- EXISTING BUILDING / NO WORK

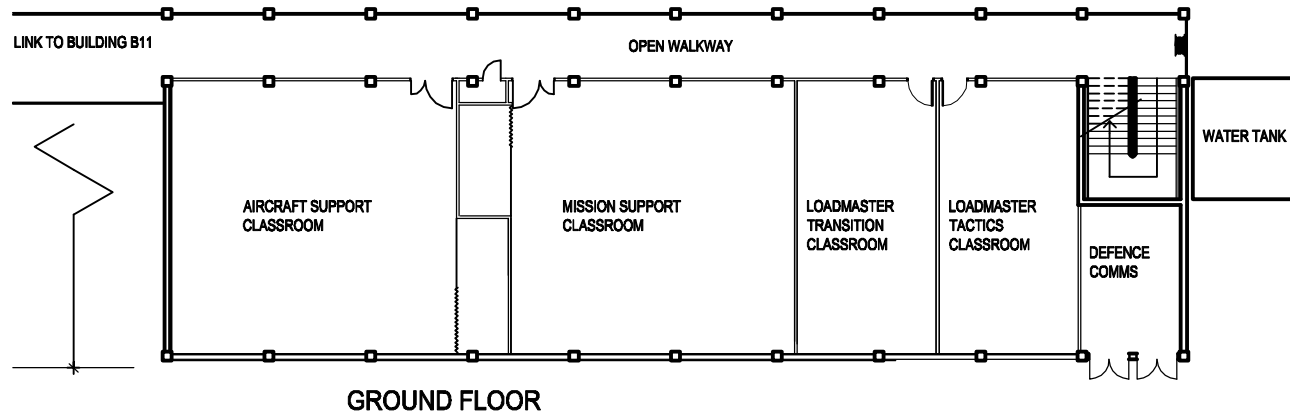
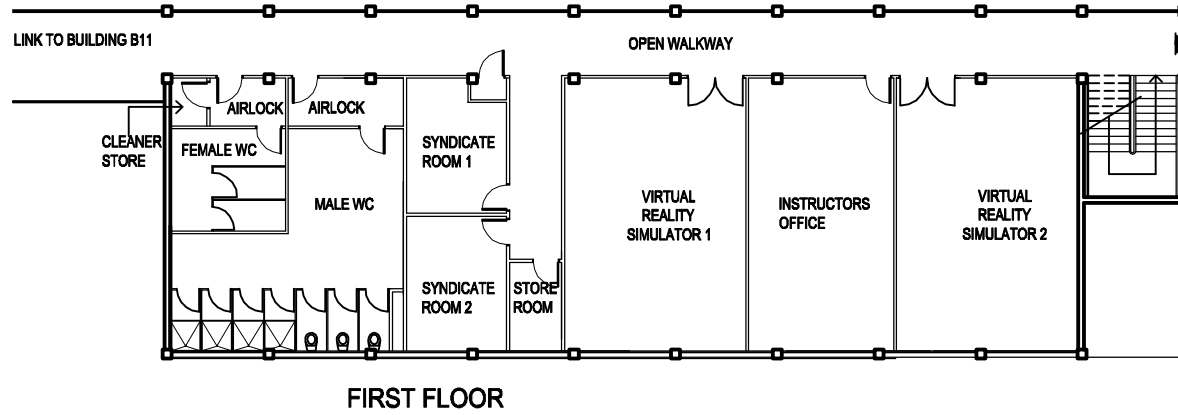


FIRST FLOOR





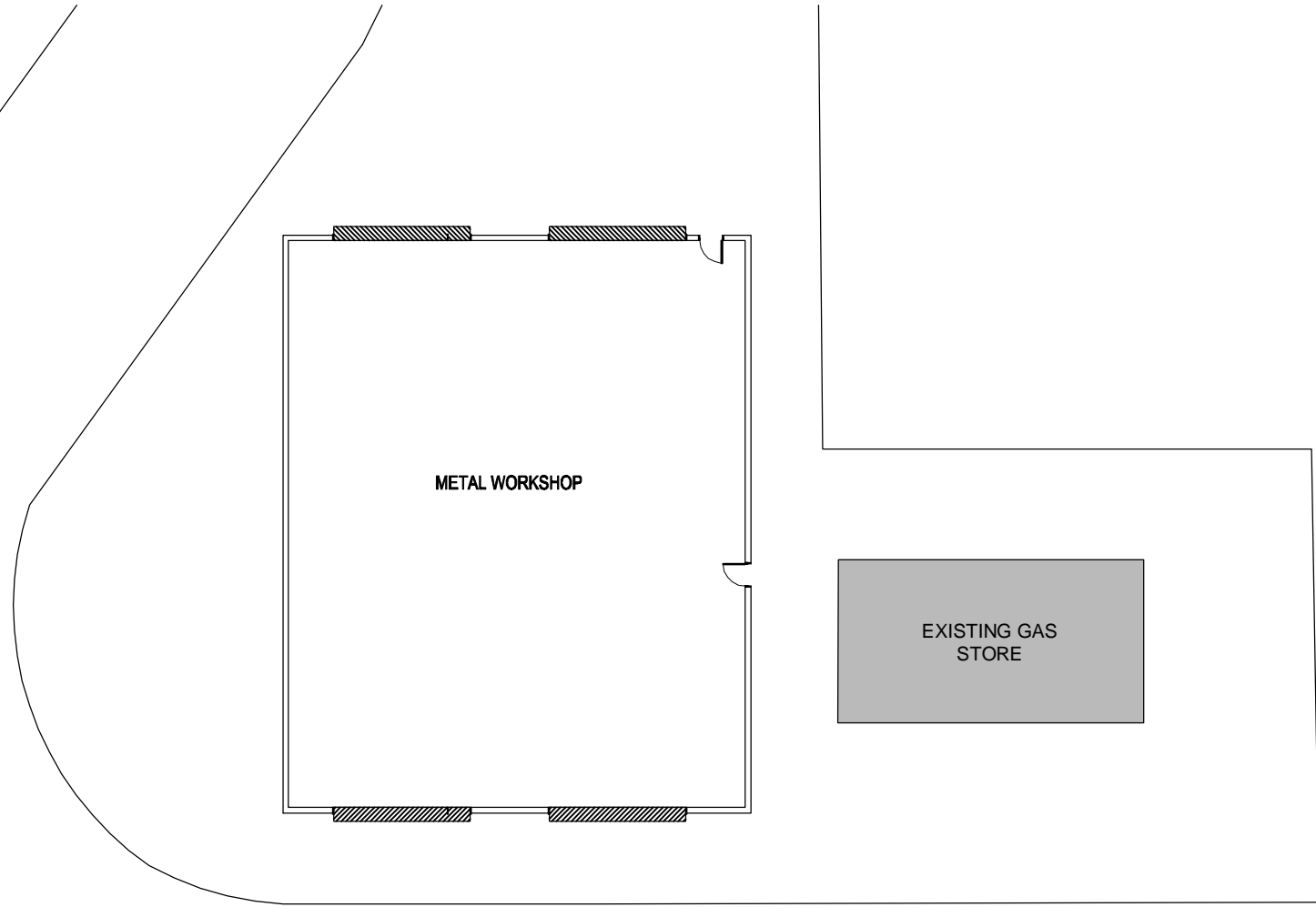
GROUND FLOOR





LEGEND

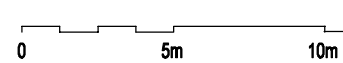
-  NEW / REFURBISHED BUILDING
-  EXISTING BUILDING / NO WORK



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**MRH 90 FACILITIES
ARMY AVIATION CENTRE Oakey**

**NEW METAL WORKSHOP
FLOOR PLAN**



SCALE 1:250 @ A4



**MAIN ENTRY
TO BASE
LLOYD STREET**

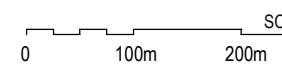
**COMMAND & CONTROL
PRECINCT**

**HEADQUARTERS 16th
BRIGADE & DMO**

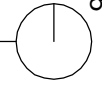


**MRH 90 FACILITIES
GALLIPOLI BARRACKS,
ENOGGERA**

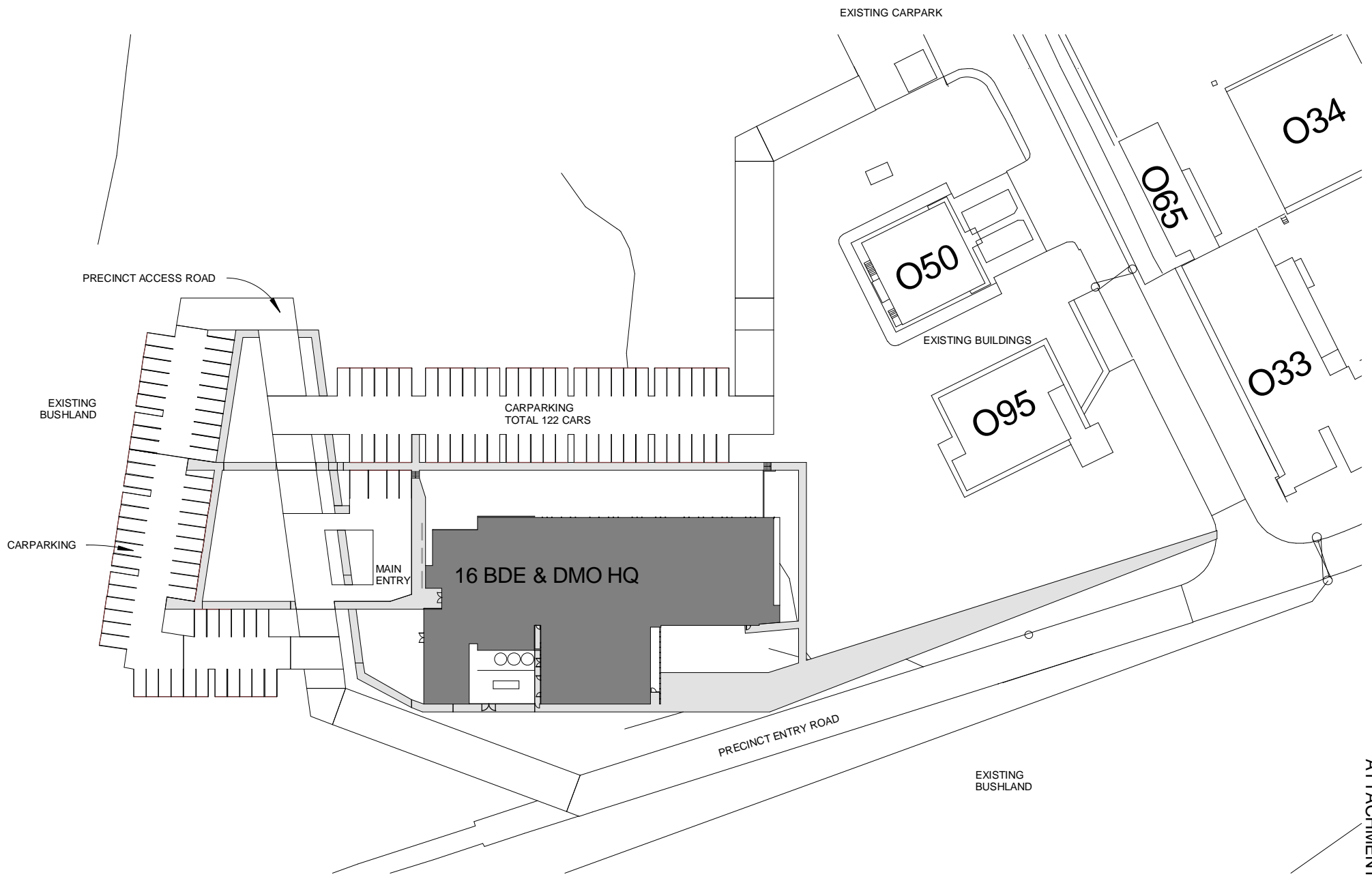
FACILITY LOCATION PLAN



SCALE 1:2000 @ A1



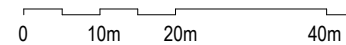
ATTACHMENT 25



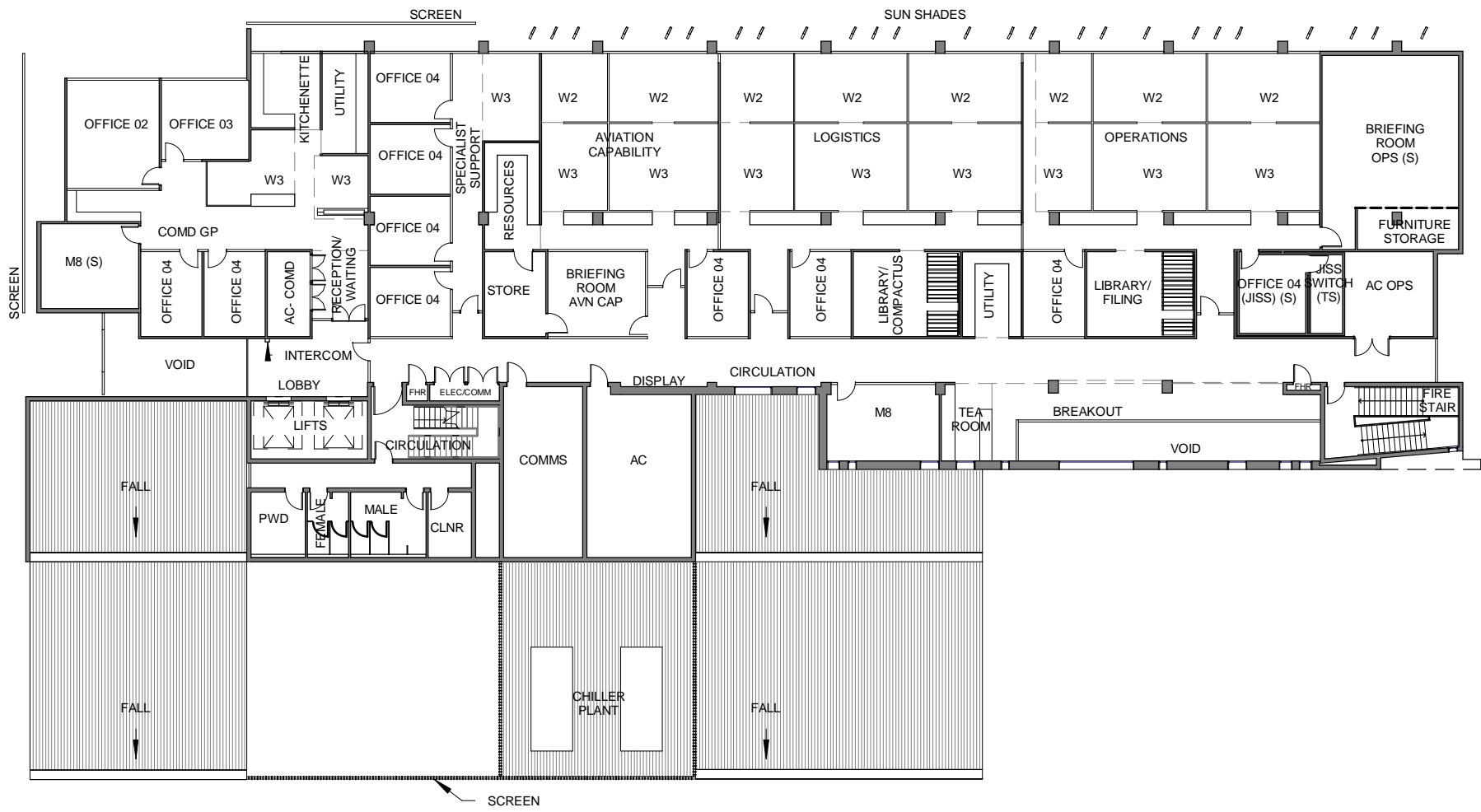
Australian Government
Department of Defence

MRH 90 FACILITIES
GALLIPOLI BARRACKS
ENOGERA

HEADQUARTERS
16TH BRIGADE & DMO BUILDING
SITE PLAN



ATTACHMENT 26



MRH 90 FACILITIES
GALLIPOLI BARRACKS
ENOGGERA

HEADQUARTERS
16TH BRIGADE & DMO BUILDING
FIRST FLOOR

