



Australian Government

Department of Defence

**WOOMERA RANGE REMEDIATION
FACILITIES**

Woomera, South Australia

**STATEMENT OF EVIDENCE
TO THE
PARLIAMENTARY STANDING COMMITTEE
ON PUBLIC WORKS**

Canberra, Australian Capital Territory

November 2016

[This page intentionally blank]

TABLE OF CONTENTS

IDENTIFICATION OF THE NEED	1
Description of Proposal	3
Options Considered to Fulfil the Identified Need	5
Environment and Heritage Assessment	6
Consultation with Key Stakeholders	9
PURPOSE OF THE WORKS	10
Project Objectives	10
Details and Reasons for Site Selection	10
Detailed Description of the Proposed Works	11
Public Transport, Local Road and Traffic Concerns	13
Zoning and Local Approvals	14
Childcare Provisions	14
Impact on Local Community	14
Planning and Design Concepts	14
Structural Design	15
Electrical Services	16
Communications	16
Mechanical Design	16
Fire Protection	17
Acoustics	17
Security	17
Environmental Sustainability of the Project	18
Landscaping	19
Energy Targets	19
Work Health and Safety Measures	19
COST EFFECTIVENESS AND PUBLIC VALUE	20
Outline of Project Costs	20
Details of Project Delivery System	20
Construction Program	21
Public Value	21
Revenue	21
Related Projects	21
ATTACHMENTS	
1. Locality Plan – Woomera Range Complex	
2. Site Plan – Woomera Test Range	
3. Site Plan – New Range Control Centre	
4. Floor Plan – New Range Control Centre	
5. Floor Plan – Communications Interface Building	
6. Floor Plan – Maintenance Storage Facility	

IDENTIFICATION OF THE NEED

1. The Woomera Range Complex (WRC) is a specialised land-based facility providing Defence with a unique self-reliant Test and Evaluation (T&E) capability. The WRC provides the Australian Defence Force (ADF) and international allied partners a controlled environment to conduct complex T&E and Research and Experimentation (R&E) on various kinetic and non-kinetic weapons systems and aerospace platforms.

2. The major systems, facilities and infrastructure that currently support WRC services are rapidly becoming ‘unfit for purpose’ and unsafe for operations due to equipment obsolescence and long-term physical decline of the enabling facilities and infrastructure. New range systems provided by the Capability Acquisition Project will introduce an integrated range safety and control system that will enable the safe and efficient conduct of T&E activities on air platforms and weapons to enhance future Defence aerospace experimental development.

Background

3. The WRC is located in South Australia, approximately 500km north-north-west of Adelaide. The WRC is widely acknowledged as the world’s largest, land-based, specialised Defence systems T&E range. It was jointly established between the United Kingdom and the Commonwealth in 1947 under the Anglo-Australia Project – a project based on rocket-propelled long, medium and short-range weapons R&E. Woomera’s initial purpose was to provide a response to the growing inter-continental ballistic missile threat during the beginning of the ‘cold war’.

4. The WRC is 122,000 square kilometres in area comprising the Woomera Test Range (WTR) and the recently established RAAF Base Woomera which includes the Woomera Airfield and the Woomera Village. The RAAF manage and deliver capability outcomes within the complex through a Force Element Group – the Air Warfare Centre (AWC). Through AWC management and coordination, the WRC accommodates approximately 250 permanent residents, conducting up to 60 trials activities and managing approximately 6000 transient personnel deployments per calendar year.

5. The current strategic role of the WTR is to provide a specialised operations environment in support of directed National and whole-of-Defence objectives for the testing

of war materiel, to enhance the war-fighting effectiveness of the ADF. The WTR provides for unique operations including:

- a. air and space-based systems testing;
- b. ground-based systems testing;
- c. explosive ordnance (EO) and hazardous materiel (HAZMAT) testing and demolition;
- d. specialist force preparation simulation, training, testing and evaluation activities.

6. In conducting operations at the WTR the Capability Manager is restricted by existing deficiencies in the ageing and unreliable systems used for aerospace test, evaluation and development trials. Range operators are restricted in their ability to execute complex activities using obsolete range equipment. The present systems are manually controlled and require operators to be co-located with the radar and optical sensors. The new technology being provided by the capability acquisition Project will allow remote control and increase the ADF's ability to efficiently gather trials data using a digitised, networked and integrated testing environment.

7. The Woomera Range Remediation Facilities Project will support testing on Australia's most important air based war fighting assets, including the incoming F-35A Lighting II Joint Strike Fighter. The Project will subsequently enable the WTR to become one of the world's most technologically advanced and effective land based aerospace T&E and R&E ranges.

Supporting Test and Evaluation of Defence Materiel at the Woomera Range Complex

8. Current WTR operations are restricted by ageing systems equipment, facilities and infrastructure. The following future operational intentions for the WTR require an integrated systems solution that is enabled by technologically advanced facilities, infrastructure and equipment provided by the proposed Project:

- a. an instrumented range service available for up to 24 weeks per year;
- b. non-instrumented range services available for up to 40 weeks per year, cognisant that this includes the instrumented range activation period;
- c. range management and support services, together with trials coordination and control services, available throughout the year.

9. An integrated range safety and control system provided by the systems acquisition supports capability realisation to achieve future state range objectives. The Project is focused on delivering modern fit-for-purpose networked systems that are capable of supporting Defence's T&E and R&E needs in accordance with Chief of Air Force's (CAF) Capability Intent. The new system will provide improved reliability, command, control, safety and data acquisition and processing in a modern networked environment.

Description of Proposal

10. The facilities Project proposes fit for purpose new and upgraded facilities and infrastructure that are capable of facilitating the operation of a new range safety and control system. The supporting infrastructure will safely enable conduct of future aerospace T&E and R&E activities at the WTR and enable an enhanced level of operational capacity. The new facilities to be provided include a New Range Control Centre (NRCC), supported by a new Communications Interface Building (CIB) and Maintenance and Storage Facility (MSF).

11. A number of remote target, instrumentation and communication sites are proposed, with associated upgrades and augmentation to existing infrastructure and fibre optic network.

12. The proposed Woomera Range Remediation facilities and infrastructure are geographically dispersed across the WTR. New and upgraded facilities are divided into two elements with the Stuart highway serving as a geological reference point:

- a. Test Area 1 – East of the Stuart Highway; and
- b. Test Area 2 – West of the Stuart Highway.

13. In total, the proposal involves eight elements of work across Test Areas 1 and 2. Site location mapping is provided at Attachment 2.

Test Area 1

14. Test Area 1 works consists of the NRCC, CIB and MSF and creation of new or minor upgrades of existing remote target, instrumentation and communication sites. Associated new fibre optic cabling runs and access road upgrades are also included.

15. The new facilities within Test Area 1 are located within close proximity to the existing infrastructure at the Range Head in order to utilise existing road networks and building services infrastructure. These include:

- a. New Range Control Centre:

- i. two segregated mission system control rooms;
 - ii. two segregated trials rooms;
 - iii. two instrument operators room;
 - iv. two mission system server rooms;
 - v. conference facility; and
 - vi. shared common facilities.
- b. Communication Interface Building:
 - i. communications distribution equipment; and
 - ii. service connections to the NRCC.
- c. Maintenance and Storage Facility:
 - i. maintenance building;
 - ii. covered refuelling point;
 - iii. vehicle wash down bay; and
 - iv. generator storage.
- d. Site Wide Infrastructure:
 - i. site works;
 - ii. engineering infrastructure works; and
 - iii. fibre-optic cabling.
- e. Instrumentation and Communications Sites:
 - i. unsealed access road upgrades;
 - ii. unsealed hardstands;
 - iii. fibre-optic connectivity;
 - iv. solar power; and
 - v. communication towers.

Test Area 2

16. Test Area 2 allows for concurrent range activities when Test Area 1 is in use and long range weapon and hypersonic rocket trials with large safety templates that cannot fit into Test Area 1. The Test Area includes two high explosive and two inert weapons target sites, which require no facilities or infrastructure works.

17. Six new instrumentation and communications sites will be developed to support down range command and control, with connectivity of instrumentation to enable efficient and safe conduct of test activities. The proposed works within Test Area 2 include:

- a. Remote Instrumentation Sites:
 - i. 144 meter squared unsealed hardstand; and

- ii. perimeter fencing;
- b. Communication Sites:
 - i. solar power;
 - ii. communication towers; and
 - iii. fibre-optic connectivity.
- c. Unsealed and sealed access road upgrades.

Project Location

18. The WRC is situated in close proximity to the regional town of Woomera, located approximately 500km north-north-west of Adelaide, in South Australia. A range locality plan showing the location of the WRC is at Attachment 1.

19. A Site Plan showing the location of the project elements is at Attachment 2 and plans of the proposed facilities and infrastructure are shown at Attachments 3 to 6.

20. The proposed redevelopment will not increase the Range population.

Options Considered to Fulfil the Identified Need

21. To meet the identified need, Defence has considered a number of options including the adaptive reuse of existing facilities and / or the construction of new facilities.

22. Adaptive reuse of the existing Instrumentation Building, and a storage facility was considered, but did not meet the need because:

- a. the column layout, ceiling height and floor plan of the Instrumentation Building could not accommodate the new range control system and supporting equipment;
- b. the current storage facility does not have sufficient capacity to accommodate the new range instrumentation;
- c. refurbishment of existing facilities would significantly impact the operational capability of the Range for several months;
- d. major work on the existing facilities would create non-compliance issues with the current building standards; and
- e. much of the material comprising the existing facilities has deteriorated and would no longer be suitable for reuse.

23. The preferred option is to construct new range control, communications interface and maintenance and storage facilities in the vicinity of the Range Head. New facilities and infrastructure will utilise the service infrastructure available within the immediate area.

24. Existing service infrastructure at remote instrumentation and communications sites will be adaptively reused, however the Project will further develop fibre-optic and road networks in order to meet new requirements.

Environment and Heritage Assessment

Overview of the Assessment Process

25. Consistent with established Defence policies, Defence engaged a specialist environmental consultant to prepare an Environmental Report on the proposed works. The purpose of the Environmental Report is to assist Defence to determine whether a more substantial environmental impact assessment is required under the Environment Protection and Biodiversity Conservation Act 1999 (Cth) or whether the project can proceed via Defence's internal process of environmental clearance certificates subject to specified controls or mitigation measures being employed.

26. The draft Environmental Report was completed in June 2016. The key focus areas of the report were cultural heritage, fauna and flora management and fire management. The draft Environmental Report identified that there was some risk to the project relating to Indigenous and European cultural heritage, ecology and fire management. These risks are discussed in more detail below.

27. The remaining environmental and heritage risks identified in the Environmental Report were defined as minor and will be effectively managed through the existing Defence Regional Environmental Management System, preparation of a comprehensive Construction Environmental Management Plan, and application of the Environmental Compliance Certificate process.

28. Based on the outcomes of the Environmental Report, it is not anticipated that a referral will be required under the Environment Protection and Biodiversity Conservation Act 1999 (Cth).

Indigenous and Non Indigenous Heritage

29. The WTR contains a number of culturally sensitive sites of significance to the Kokatha, Maralinga and Antakirinja Matu-Yakunytjatjara (AMY) People, the Traditional Owners of areas within the range. The Woomera Prohibited Area Range Standing Orders and overarching Woomera Indigenous Heritage Management Plan (IHMP) address the requirements for use and management of these identified areas and sites, to ensure protection of their heritage and cultural values.

30. All affected Indigenous Groups were consulted during the development of Project requirements. A desktop environmental assessment of potential impacts to Indigenous heritage concluded that site locations proposed would not have significant impact on known areas of cultural significance; most works are proposed to be located on existing disturbed areas. Field Survey activities with the AMY occurred in October 2016 to provide physical clearance of proposed site locations based on known desktop analysis. Field Surveys for sites on Maralinga Native Title Land are scheduled for late 2016. The Kokatha Aboriginal Committee (KAC) has asked that field surveys for this project be undertaken concurrently with surveys for the upcoming update to the Woomera Heritage Management Plan. This will push surveys back to early 2017. The Project will not commence work on Kokatha land without a heritage clearance. An Indigenous Heritage Clearance Report will be developed with each Indigenous Group, prepared by Defence, KAC, Maralinga and AMY cultural heritage experts.

31. Defence will seek a capability statement from the KAC, Maralinga and AMY to identify their skills and experience that may be relevant to any contracting opportunities associated with these works. Defence will subsequently ensure that the respective Indigenous Groups are made aware of any relevant contracting opportunities, and that tenders consider the employment of Aboriginal people that may have skills appropriate to the works.

32. The WTR contains a number of historically significant non-indigenous sites, in particular the facilities located at Range Head. This area is of exceptional heritage significance to the Commonwealth for its history of sustained trial and research activity for over 60 years within Australia and for the many technical and scientific achievements that were achieved there. The Project does not propose works on the existing Instrumentation Building.

Ecology

33. The draft Environmental Report identified that there are a number of EPBC listed threatened flora and fauna species as possibly occurring, or that suitable habitat to support threatened species was present, at several sites within the project area. The ecological assessment of the proposed sites conducted as part of the Environmental Report did not record any threatened flora species.

34. The desktop study identified a total of seven EPBC listed threatened fauna species (including three bird, three mammal and one reptile species) in Protected Matters searches as potentially occurring within the study area. The ecological assessment of the proposed sites conducted as part of the Environmental Report did not record any threatened fauna species.

35. Ongoing mitigation measures to reduce any risk of damage to the ecology will include:

- a. strict adherence to Defence's existing Weed Management Control Program to prevent the spread of weeds through mishandling of removed vegetation;
- b. the natural dispersal of local fauna and provision of a suitably qualified 'wildlife spotter' during any land clearing activities;
- c. the washing of construction vehicles, plant and equipment during construction to minimise the spread of weeds; and
- d. the implementation of anti-bird nesting measures during construction.

Fire Management

36. An assessment of extant fuel loads utilising SA Department of Environment and Natural Resources Guidelines (DENR, 2012) was undertaken at each proposed site. This information, together with historical evidence of fire frequency and potential fuel loads, was used to undertake an assessment of fire proneness using Bush Fire Management and Mitigation on the Defence Estate – National Guidelines (Defence, 2013).

37. Most facilities will be located in formerly cleared areas with negligible fuel loads typically surrounded by sparse native vegetation communities, and these sites are not considered to be fire prone. However three sites are located on sandy soils with adjacent vegetation communities that periodically support moderate fuel loads following significant rainfall events and these have been assessed as fire prone. Fire Management plans will be developed for fire prone sites.

Key Legislation

38. The following key legislation, codes and regulations are relevant to this project:
- a. *Defence Force Regulations 1952;*
 - b. *Environment Protection and Biodiversity Conservation Act 1999;*
 - c. *Building and Construction Industry Improvement Amendment (Transition to Fair Work) Act 2012;*
 - d. *Work Health and Safety Act 2011;*
 - e. *Disability Discrimination Act 1992;*
 - f. *Fair Work Act 2009;*
 - g. *Fair Work (Building Industry) Act 2012; and*
 - h. *Defence Act 1903.*
39. The design of all proposed Project facilities complies with all relevant Australian Standards, Codes and Guidelines including National Construction Code, 2015 (inclusive of the Building Code of Australia).

Consultation with Key Stakeholders

40. Defence recognises the importance of providing local residents, statutory authorities and other interested stakeholders an opportunity to provide input into, or raise concerns relating to major projects such as the Woomera Range Remediation Facilities Project. Defence has engaged with a variety of internal and external stakeholders during project development, and further consultation will be conducted following the referral of this project to the Parliamentary Standing Committee on Public Works. Stakeholders to be consulted include:

- a. Kokatha Aboriginal Committee;
- b. Antakirinja Matu – Yankunytjajara people;
- c. Maralinga people;
- d. Pastoral leaseholders;
- e. Mr Steven Loosely AM, Woomera Prohibited Area Advisory Board Chair;
- f. The Hon Martin Hamilton-Smith, South Australian Minister for Investment and Trade, Small Business, Defence Industries and Veterans Affairs;
- g. The Hon Rowan Ramsey MP, Federal member for Grey; and
- h. The Hon Edward Hughes MP, State Member for Giles.

41. Defence has developed a community consultation plan and communication strategy to provide local residents, statutory authorities and other interested stakeholders an opportunity to provide input into, or raise concerns relating to the proposed Project.

PURPOSE OF THE WORKS

Project Objectives

42. The Project proposes to provide fit for purpose facilities and range infrastructure that is capable of supporting the new systems installation to enable current and future Range operations requirements. As part of the Remediation, the Project will also conduct civil works, communications service works, minor solar installations and landscaping.

Details and Reasons for Site Selection

43. The site selection for each of the relevant elements has been undertaken in accordance with Defence's planning policy requirements. The sites selected have been driven by the location of significant Indigenous sites, existing range safety areas and location of existing services.

44. The site selection process for the installation of Defence-owned infrastructure at the WRC is a two-step process which reflects the unique governance requirements peculiar to the use of the Woomera Prohibited Area (WPA) by Defence.

45. The principal infrastructure items at the Range Head will be located on Commonwealth Owned Land, including the NRCC, CIB and MSF and the mast and optic fibre run at the Woomera Airfield. The remainder of the proposed instrumentation and communications support sites proposed are located across the WPA but not on Commonwealth-owned land. The use of non-Commonwealth land on the WPA is detailed in the WPACO agreement with relevant stakeholders. This agreement outlines that Defence is not required to consult with non-Commonwealth land users, however Defence will continue to consult with all affected stakeholders.

46. Site Selection for the majority of sites was approved on 4 March 2016. The location of one site, the Mast at Woomera Airfield, is dependent on yet to be provided system information so cannot be confirmed. For major infrastructure elements, site locations approved are situated upon existing Defence sites currently in operation at the WTR. This maximises efficiencies with regard to extant service infrastructure whilst limiting the overall physical impact when introducing new facilities.

47. The proposed sites are all open arid lands that have not previously been used for construction, but are optimally located when all considerations have been applied.

Detailed Description of the Proposed Works

48. Details of the eight scope elements are described in the following sections.

Project Element 1: New Range Control Centre

49. The NRCC (Attachments 3 and 4) is critical for the capability realisation of the material acquisition. Systems infrastructure will integrate with the facilities solution to enable an enhanced T&E and R&E environment required by the Capability Manager.

50. The NRCC segregates into two independent compartments in order to facilitate simultaneous trials at varying classification levels whilst monitoring range safety and controlling operations. The compartments will share common facilities such as amenities, ablutions, a conference room and a security test room. Both compartments comprise of the following sub-elements:

- a. mission control room;
- b. trials room;
- c. instrument operators room;
- d. mission system server room; and
- e. internal passage link between the spaces.

51. The facility will comply with disabled access codes and standards.

Project Element 2: Communications Interface Building

52. The proposed CIB (Attachments 3 and 5) is a new single storey steel framed building. The facility will house the range's main communications technology distribution cabinets and will integrate command, control and communications systems to the NRCC and remote sites. The new building centralises the major fibre communications network to the range control centre for the coordination and conduct of safe trial management at the WTR. A walkway will adjoin the CIB with the NRCC.

Project Element 3: Maintenance & Storage Facility

53. The proposed MSF (Attachments 3 and 6) addresses the requirement for the construction of a new combined storage and workshop facility. Building sub-elements include:

- a. Storage (bulk caged area);
- b. Support and Test Equipment storage;
- c. Light maintenance / mechanical workshop;
- d. Flammable products storage;
- e. up to 10 ton overhead hoist to lift the mobile Range Control Centre from its trailer; and
- f. Fuel Trailer and Generator Storage and vehicle wash down point (external to store) and Refuelling location.

Project Element 4: Instrumentation and Communications Sites

54. The Project proposes the construction of seventeen new instrumentation and communications sites to support down range command and control.

55. The new instrumentation and communication sites require construction of the following elements:

- a. a 144 square meter gravel hardstand (two at selected sites);
- b. communications towers (at selected sites);
- c. fibre optic interconnection enclosures;
- d. road upgrades to improve access to instrumentation sites (approximately 16 km);
- e. fibre runs to enable connectivity;
- f. solar arrays (at selected sites);
- g. security fence and gate; and
- h. water pipe / power reticulation (at selected sites).

Project Element 5: Target Sites

56. Three new inert target sites and three new high explosive target sites are proposed. Target sites have no facilities or infrastructure requirements. These have been included in the design development in order to provide a picture of the proposed system solution for WTR

and also for the purpose of consultation with key interest groups such as Indigenous groups and for environmental and heritage considerations.

Project Element 6: Fibre Optic Cable Connections

57. New direct buried fibre optic cables will be installed to permit the transmission of data from the sensor sites back to the CIB.

Project Element 7: Roads Network Upgrades

58. The Wild Dog Hill Road design consists of an upgrade to the existing 1.77 km stretch of road to the existing Wild Dog Hill Instrumentation Site. The existing Wild Dog Hill road is reasonably flat and has been designed to match the existing alignment with only slight modifications. The road is considered to be a local access road and is proposed at 6 metres wide. Given the remoteness, terrain and anticipated size of trailers to be towed, a suitable pavement classification according to applicable guidelines is considered most appropriate for the Wild Dog Hill road.

59. There will also be 14.3 km of road construction associated with access road upgrade to the Rawlinson Hill instrumentation site and minor road upgrades to the sites at McDouall Peak and Skye Instrumentation One.

Project Element 8: Woomera Airfield Communications Tower

60. Works at the Woomera Airfield are limited to a weatherproof fibre interconnection enclosure with fibre run to a new 30m mast, complete with gravel hardstand and security fencing.

Public Transport, Local Road and Traffic Concerns

61. There will be some increased traffic during construction as Project materials and equipment are delivered and workers travel to and from the WTR. These traffic increases during the project's construction period will be minimal.

62. During construction there will be an increase in the number of large vehicles that enter the WTR to deliver material to the construction sites. Construction management controls will be implemented to mitigate the effects of this increased traffic through liaison with the Base operations staff.

Zoning and Local Approvals

63. The delivery of the preferred option does not involve the acquisition or disposal of any land or property by Defence. There are no required or proposed changes to zoning as a result of this project.

Childcare Provisions

64. There are no requirements for childcare facilities as a result of this project

Impact on Local Community

65. As part of this project, new range working accommodation will be provided and personnel will continue to travel from Woomera Village and other regional centres by road. This activity will not change as a result of the Woomera Range Remediation, so should not present an appreciable change to the local community.

66. The construction of the Project will provide opportunities for local enterprises, including indigenous corporations, to provide services as sub contractors, providing this is in line with Commonwealth Procurement Rules and any relevant contractual obligations.

Planning and Design Concepts

67. The AWC currently maintains the WTR for all users and will operate the proposed new facilities at the Range Head. The functional needs of the AWC extensively dictate the planning and design criteria. These criteria and objectives, formulated as part of the design process, include the following:

- a. provision of more efficient and effective means of supporting future operations within the WTR;
- b. achievement of synergies and economies of scale with future aerospace-related Defence activities at WTR;
- c. establishment of facilities with smaller footprints, making better use of the available space and consolidating like functionalities, where possible;
- d. adoption where possible of conventional techniques and materials, in particular those commonly used by the construction industry and consistent with those already utilised on the site;
- e. utilisation of readily available and durable materials that combine long-life while minimising maintenance;

- f. recognition of site constraints, security requirements, the established zone plans, functional relationship to existing facilities and operational determinants; and
- g. the safety of range activities is to improve.

68. Based on these objectives, the following design principles were adopted:

- a. all buildings, floor areas and work spaces were designed to meet functional requirements and work flow patterns;
- b. planning of services and structural design accommodates flexibility;
- c. location of facilities maximises range use; and
- d. civil design has taken into account the principles of remote area engineering.

69. Access and facilities for the disabled will be provided in accordance with the Building Code of Australia, Australian Standard AS1428 and the Defence policy 'Disabled Access and Other Facilities for Disabled Persons'. The facilities will be fully compliant with legislation and will include accessible kitchens, toilets and shower facilities with disabled access to facilities considered in the development phase.

Structural Design

70. The structural design of the proposed hardstands, roads, and the building structures has taken into account local geotechnical conditions and are in accordance with all relevant Australian Standards and Codes. Appropriately qualified and experienced geotechnical and structural engineers have been engaged in the design of the proposed facility.

71. Structural steelwork has typically been adopted in the design of principle building structures at the Range Head, except where building use dictates otherwise.

Hydraulic Services

72. Potable water supply will be connected via exiting Range hydraulic infrastructure. New potable water services are only required at the NRCC and the MSF. Both will utilise solar hot water systems with electric boosters to minimise the power consumption of the new facilities. It will comply with Commonwealth, State legislation, the Building Code of Australia, relevant Work Place Health and Safety requirements and relevant Australian standards.

73. Rainwater reuse is provided to the ablution fixtures in the NRCC using a five kilolitre rainwater storage tank adjacent to the building. The tank is provided with a potable

water top up supply to ensure a minimum level is maintained for the operation of the pressure pump supplying the sanitary fixtures.

Electrical Services

74. The existing electrical supply has been assessed to ensure it is able to support the maximum calculated demand and load of the proposed facilities within Range Head.

75. The NRCC and CIB will also have backup power in the event of a power failure, which will be provided by battery backup and externally connected generators. The project provides no net increase to the power demand. All elements of the new system are able to be powered by portable generators which are being provided by the capability acquisition Project.

76. Power at remote camera, instrumentation, and communications sites will be provided by portable generators with the exception of PASTA 2 and Gina (Attachment 2). These will be powered by a new solar system with battery backup.

77. The electrical design has been undertaken in accordance with all relevant Australian Standards, all applicable Legislation, Regulations, Codes of Practice and Guidance Publications relevant in South Australia and stated Defence requirements.

Communications

78. The existing communications infrastructure at the WTR is in poor condition, is at capacity and is largely non-compliant with relevant standards. A sizable component of this project will focus on enhancing the capability of the range while addressing existing deficiencies where possible.

79. The works include the following:

- a. approximately 61 kilometres of direct buried optical fibre;
- b. a new CIB to overcome the capacity and compliance issues associated with the existing server room; and
- c. new communications towers at Woomera Airfield, Gina and McDouall Peak sites.

Mechanical Design

80. Mechanical services consist of a centralised, ducted system for the New Range Control Centre with packaged computer room air conditioning units utilised in the mission

system and server rooms. Packaged split systems will be used for the Communications Interface Building and the office spaces in the Maintenance Storage Facility. Equipment has been selected based on the following criteria:

- a. safety and reliability;
- b. maintainability and supportability; and
- c. site / facility / user specific performance requirements.

Fire Protection

81. Due to the distance from full-time RAAF or civilian fire fighting services, a fire response is effectively unavailable; the response time is in excess of forty-five minutes. RAAF Base Woomera Fire Services have been consulted in developing infrastructure to support the planned deployment of fire services for particular activities.

82. The fire engineering design has been undertaken in accordance with all relevant Australian Standards, all applicable Legislation, Regulations, Codes of Practice and Guidance Publications relevant in South Australia and stated Defence requirements.

83. The communications rooms in the NRCC and CIB will have gaseous fire suppression to enable protection of the sensitive equipment contained in the rooms without the possibility of damage through water ingress.

Acoustics

84. Acoustic treatments are limited to the NRCC and the MSF. Specific acoustic treatments are provided to address external noise, internal noise, room acoustics and building services noise. Specific acoustic treatments for the Maintenance and Storage Facility are limited to treating the four person office to limit noise intrusion from the workshop.

85. The NRCC will have extensive acoustic treatments in accordance with applicable standards for acoustic design to enable the two trials areas to be acoustically separate, while also providing acoustic separation of the conference room, offices and the break out/brew room.

Security

86. There is no public access to the proposed facilities and entry to the proposed facilities will be through the controlled access points at WTR. The proposed buildings have

been designed for the appropriate security classification as stipulated by Defence requirements.

Environmental Sustainability of the Project

87. The Commonwealth is committed to ecologically sustainable development 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 ecologically sustainable development. Defence also implements policies and strategies in energy, water and waste to improve natural resource efficiency and to support its commitment to the reduction of energy consumption, potable water consumption and waste diversion to landfill.

88. This proposal addresses Commonwealth policy by adopting cost-effective and ecologically sustainable development practices as a key objective in the design of the new facilities. To achieve this objective, the proposed buildings will comply with:

- a. Section J of Volume One of the Building Code of Australia, National Construction Code 2015 Energy Efficiency.
- b. Part 3.12 of Volume Two of the Building Code of Australia, National Construction Code 2015; Energy Efficiency.
- c. Energy Efficiency in Government Operations policy; and
- d. Defence SMART Infrastructure Manual.

89. The ecologically sustainable measures proposed for the project will be balanced with other requirements for Defence buildings, including security and work health and safety considerations, to ensure that Defence's operational capability is not compromised. All buildings are designed and will be constructed, operated and maintained to ensure that they use energy efficiently considering their requirements.

90. All energy sources supplying the WTR will be individually metered and linked to a control and monitoring system allowing Defence to better manage and monitor environmental performance. Sub-metering will be provided in accordance with the Defence Energy Management Strategy, and the requirements of the Commonwealth Energy Policy.

91. Other Environmentally Sustainable Development initiatives to be implemented within the scope of the Project include:

- a. connecting into a Building Management System network, which allows for centralised monitoring and control of building systems;
- b. solar boosted hot water systems will be installed for use throughout the building to supply hot water for amenity areas; and
- c. building orientation will be designed to maximise solar efficiencies.

Landscaping

92. Landscaping reinstatement works will be conducted on areas which are disturbed by the works on completion. Disturbances by trenching and excavation will be treated to match the surrounding area where applicable.

93. As the majority of the completed works will be underground, once the ground has been reinstated, there will be minimal visual impact. Clear contractual constraints will also be placed upon the Contractor to address issues, adopt appropriate practices and to deliver services under the Construction Environmental Management Plan.

Energy Targets

94. There are no general energy performance based requirements for non-office facility types as defined in Defence's SMART Infrastructure Manual.

Work Health and Safety Measures

95. The proposed facilities to be provided under this project will comply with Defence's Work Health and Safety Policy, the Work Health and Safety Act 2011, Work Health and Safety (Commonwealth Employment - National Standards) Regulations and the Defence Work Health and Safety Manual.

96. In accordance with Section 35(4) of the Building and Construction Industry Improvement Act 2005, contractors will also be required to hold full work health and safety accreditation from the Office of the Federal Safety Commissioner under the Australian Government Building and Construction Work Health and Safety Accreditation Scheme.

97. Safety aspects of this proposal have been addressed during the design process and have been documented in a Safety in Design Report completed by the DSC. No special or unusual public safety risks have been identified in this process. The contractor will also be required to submit a Safety Plan for the construction phase and prior to the start of any construction activities.

COST EFFECTIVENESS AND PUBLIC VALUE

Outline of Project Costs

98. The estimated out-turned cost of this Project is \$48.640 million, excluding Goods and Services Tax. This cost estimate includes the construction costs including escalation allowances, professional service fees, design, construction and Defence contingencies and information technology equipment.

99. Environmentally Sustainable Development principles have been incorporated into the design of the proposed facilities, resulting in greater efficiencies and reduced costs over the design life.

100. Under this project, the Net Personnel Operating Costs (NPOC) has been estimated for the new and upgraded facilities. NPOC analysis provides an estimate of the mature annual cost of operating facilities. The cost estimate becomes the basis of an ongoing, indexed budget transfer for the operation of the facilities being delivered by the project.

Details of Project Delivery System

101. A Project Manager / Contract Administrator (PM/CA) has been appointed by the Commonwealth to manage the Project works and associated administration of the contracts during the Planning Phase. Subject to satisfactory performance, value for money assessment and Parliamentary approval, it is intended that the current PM/CA will be engaged for the Delivery Phase of the project. The PM/CA will have responsibility to manage the Delivery Phase contracts and certification of the works by the Design Services Contractor (DSC) and Head Contractor.

102. A DSC has been appointed to fully design and document the proposed facilities. Subject to satisfactory performance, a value for money assessment and Parliamentary approval for the Project, it is intended that the DSC will be engaged for the delivery phase of the project. The DSC has the responsibility to approve any changes to the design proposed by the Head Contractor and certify that the works have been constructed and perform in accordance with the “for construction” designs.

103. Subject to Parliamentary approval, the full scope of works for this project will be delivered through one Head Contractor (HC) (Construct Only) for the construction of the new facilities and infrastructure. This approach is in line with the procurement plan prepared for this project.

Construction Program

104. Subject to Parliamentary approval of the Project, construction is expected to commence in mid 2017 and reach completion in approximately mid 2018. The extant range safety and control systems supporting WTR test activities will remain in full operation until the project is completed.

Public Value

105. The Project will contribute significantly to a Defence capability need for the future use of the WTR. The systems remediation and associated facilities and infrastructure will enhance aerospace test and evaluation techniques, increasing the capacity of the Range for future air warfare development.

106. The Project will also employ a diverse range of skilled consultants, contractors and construction workers that could also include opportunities for up-skilling and job training to improve individual skills and employability for future projects. Opportunities will be made available to the local indigenous population through the application of the Indigenous Procurement Policy for contracting or individual employment.

Revenue

107. No revenue will be derived from this Project.

Related Projects

108. The following infrastructure projects are identified for delivery at WTR which may have a bearing on the delivery of the Project:

- a. Z011 Woomera Redevelopment Project planned to start construction in FY 2020/21 – currently in the pre-planning phase.
- b. JP2047 Defence Terrestrial Communications Network Facilities Upgrade (in delivery)
- c. AFM1058 – AFRD – Range Network Infrastructure Upgrade – currently in the pre planning phase.

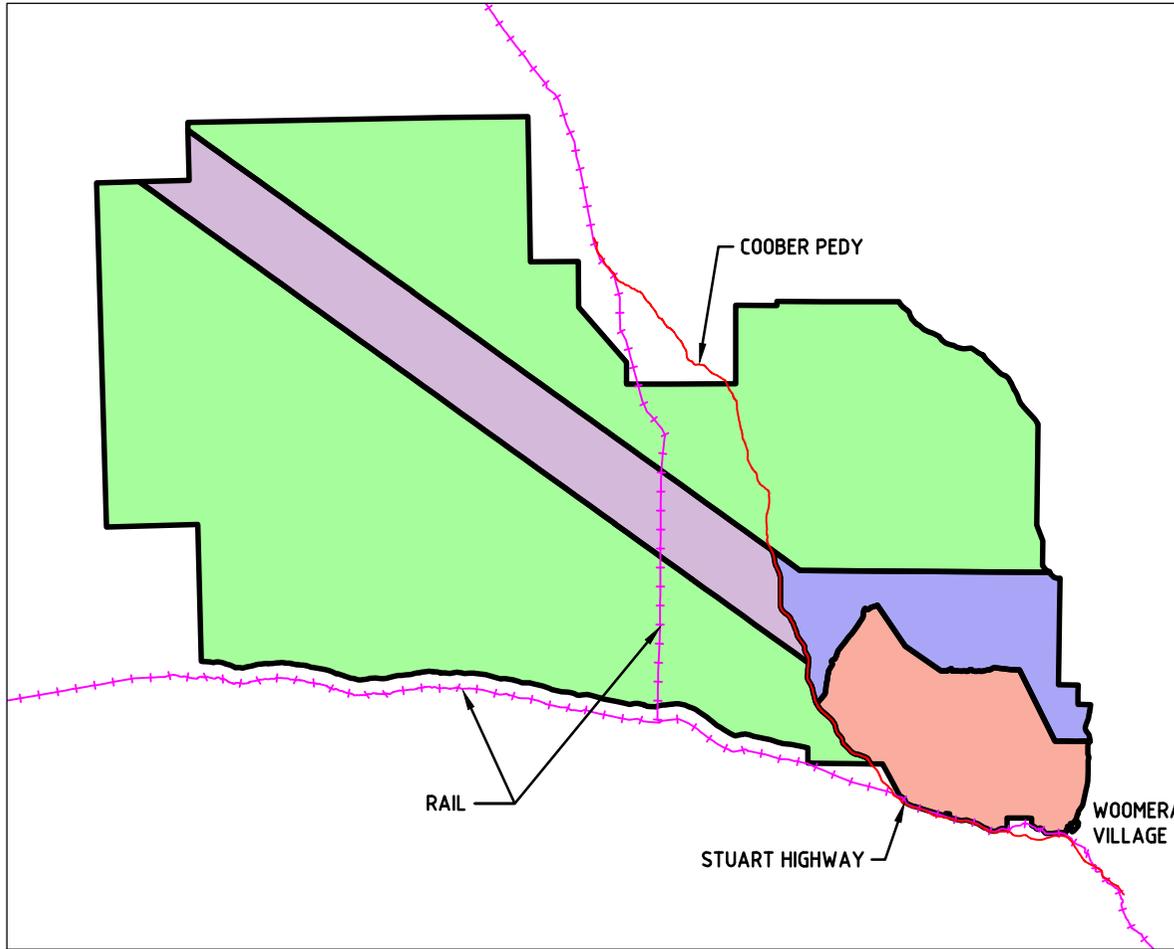
ATTACHMENTS

1. Locality Plan – Woomera Range Complex
2. Site Plan – Woomera Test Range
3. Site Plan – New Range Control Centre
4. Floor Plan – New Range Control Centre
5. Floor Plan – Communications Interface Building
6. Floor Plan – Maintenance Storage Facility



LEGEND

-  DEFENCE CONTINUOUS USE ZONE
-  DEFENCE PERIODIC USE ZONE 1
-  DEFENCE PERIODIC USE ZONE 2
-  DEFENCE INFREQUENT ZONE



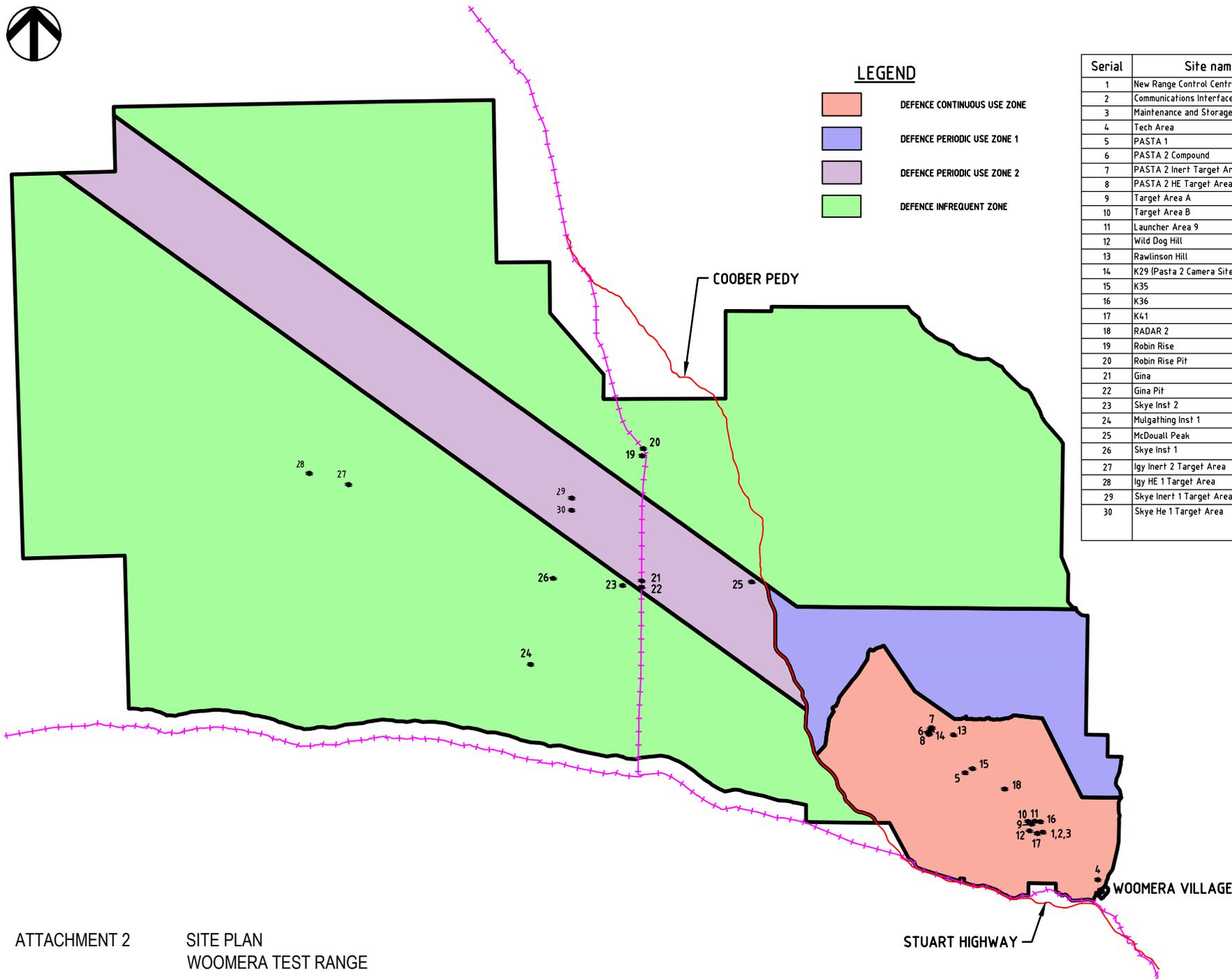
ATTACHMENT 1
LOCALITY PLAN
WOOMERA RANGE COMPLEX



LEGEND

- DEFENCE CONTINUOUS USE ZONE
- DEFENCE PERIODIC USE ZONE 1
- DEFENCE PERIODIC USE ZONE 2
- DEFENCE INFREQUENT ZONE

Serial	Site name	Type
1	New Range Control Centre (NRCC)	Building
2	Communications Interface Building (CIB)	Building
3	Maintenance and Storage Facility (MSF)	Building
4	Tech Area	Communications
5	PASTA 1	Target Area
6	PASTA 2 Compound	Communications
7	PASTA 2 Inert Target Area	Target Area
8	PASTA 2 HE Target Area	Target Area
9	Target Area A	Target Area
10	Target Area B	Target Area
11	Launcher Area 9	Instrumentation
12	Wild Dog Hill	Instrumentation
13	Rawlinson Hill	Instrumentation
14	K29 (Pasta 2 Camera Site)	Instrumentation
15	K35	Instrumentation
16	K36	Instrumentation
17	K41	Instrumentation
18	RADAR 2	Instrumentation
19	Robin Rise	Instrumentation
20	Robin Rise Pit	Communications
21	Gina	Communications
22	Gina Pit	Communications
23	Skye Inst 2	Instrumentation
24	Mulgathing Inst 1	Instrumentation
25	McDouall Peak	Instrumentation
26	Skye Inst 1	Instrumentation
27	Igy Inert 2 Target Area	Target Area
28	Igy HE 1 Target Area	Target Area
29	Skye Inert 1 Target Area	Target Area
30	Skye He 1 Target Area	Target Area



ATTACHMENT 2
SITE PLAN
WOOMERA TEST RANGE



COMMUNICATIONS
INTERFACE BUILDING

INSTRUMENTATION BUILDING

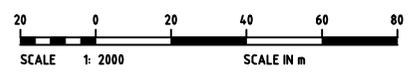
NEW RANGE CONTROL
CENTRE

MAINTENANCE STORAGE AND
WORKSHOP FACILITY

STORE 90

LEGEND

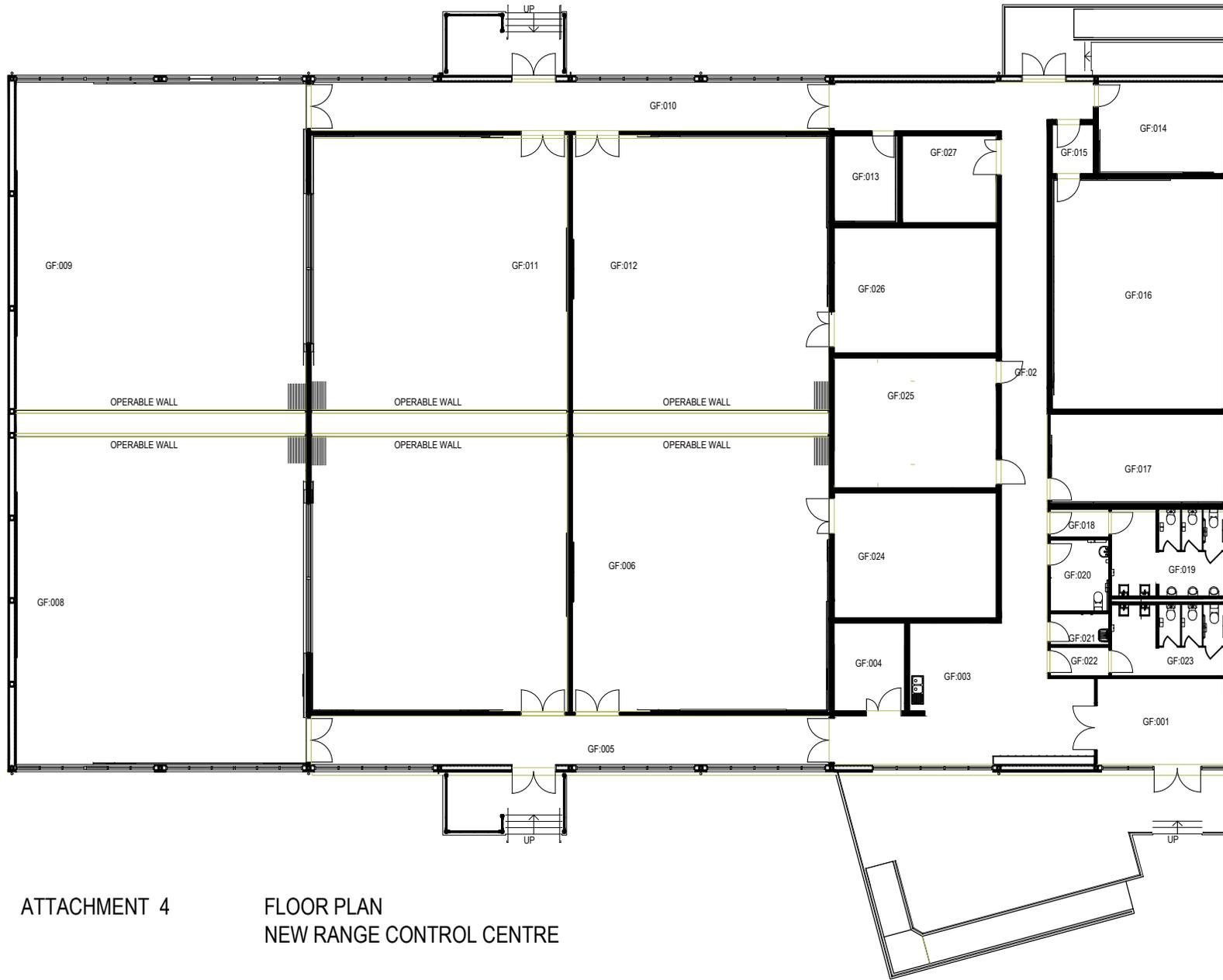
 NEW BUILDING



ATTACHMENT 3

SITE PLAN
NEW RANGE CONTROL CENTRE, MAINTENANCE STORAGE FACILITY & COMMUNICATIONS INTERFACE BUILDING

ATTACHMENT 3
SITE PLAN
NEW RANGE CONTROL CENTRE, MAINTENANCE STORAGE FACILITY
& COMMUNICATIONS INTERFACE BUILDING



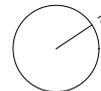
- LEGEND**
- GF-01 FOYER
 - GF-02 PASSAGE 1
 - GF-03 BREW
 - GF-04 PASSAGE 2
 - GF-05 INSTRUMENT OPERATORS B
 - GF-06 TRIALS B
 - GF-07 RANGE CONTROL & SAFETY B
 - GF-08 RANGE CONTROL & SAFETY A
 - GF-09 TRIALS A
 - GF-10 INSTRUMENT OPERATORS A
 - GF-11 PASSAGE 3
 - GF-12 SECURITY TEST ROOM (EYES ONLY)
 - GF-13 CIOG SERVER
 - GF-14 PLANT ROOM
 - GF-15 MISSION SYSTEM SERVER A
 - GF-16 UPS ROOM
 - GF-17 MISSION SYSTEM SERVER B
 - GF-18 RANGE MANAGER & ASSISTANT
 - GF-19 SECURE AIRLOCK
 - GF-20 CONFERENCE ROOM
 - GF-21 RAYTHEON
 - GF-22 AIRLOCK (MALE TOILETS)
 - GF-23 MALE TOILETS
 - GF-24 ACCESSIBLE TOILET
 - GF-25 CLEANERS STORE
 - GF-26 AIRLOCK (FEMALE TOILETS)
 - GF-27 FEMALE TOILETS

ATTACHMENT 4

FLOOR PLAN
NEW RANGE CONTROL CENTRE

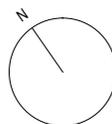
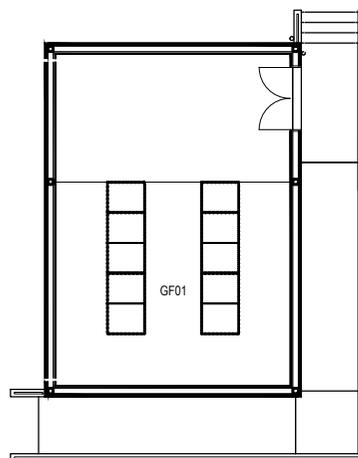
ATTACHMENT 4

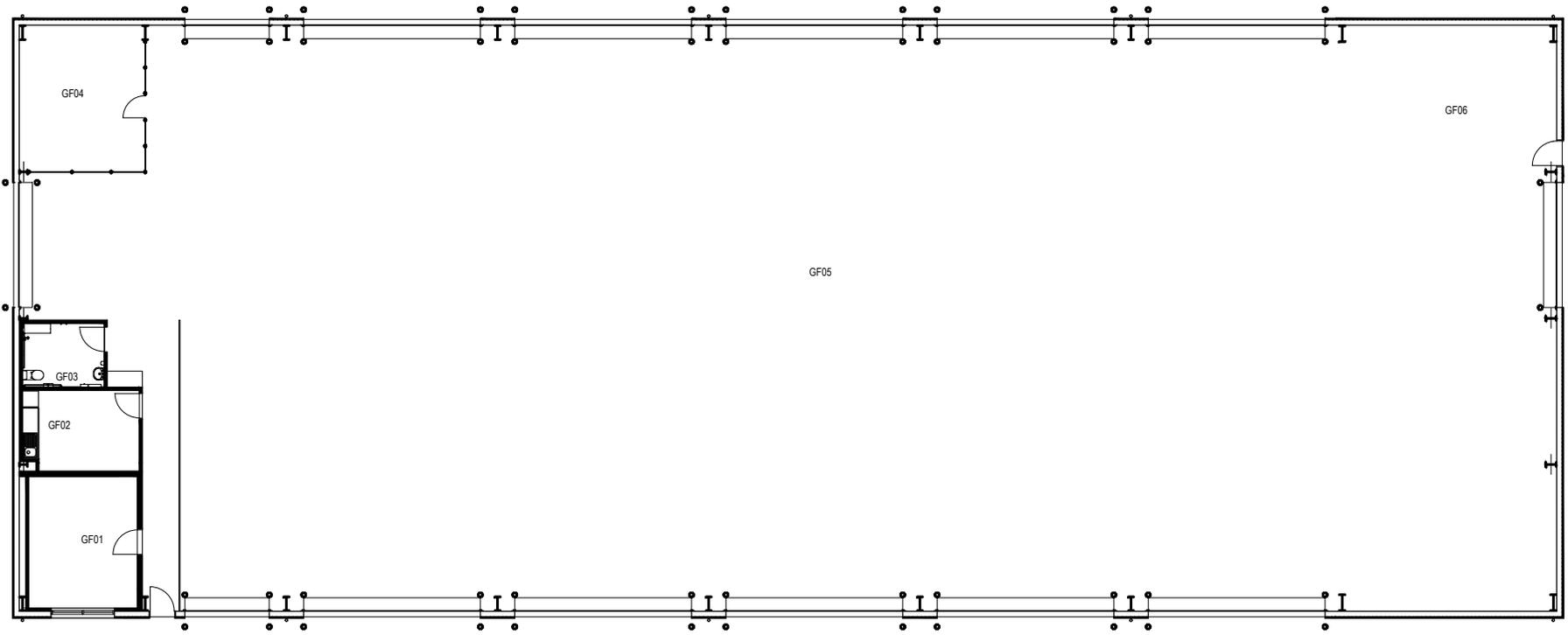
FLOOR PLAN
NEW RANGE CONTROL CENTRE



LEGEND

GF:01 COMMUNICATION INTERFACE





- LEGEND
GF.01 OFFICE
GF.02 BREW
GF.03 ACCESSIBLE TOILET
GF.04 CAGED STORAGE
GF.05 OPEN TRAILER STC
GF.06 WORKSHOP

ATTACHMENT 6

FLOOR PLAN
MAINTENANCE & STORAGE FACILITY

ATTACHMENT 6

FLOOR PLAN
MAINTENANCE & STORAGE FACILITY

