



Australian Government

Department of Defence

MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT

HMAS *Stirling*, Rockingham, WA

Garden Island Defence Precinct and

Randwick Barracks, Sydney, NSW

STATEMENT OF EVIDENCE TO THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

Canberra, Australian Capital Territory

December 2017

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MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT

Identification of the Need

1. The Royal Australian Navy (the Navy) regularly operates far from the Australian mainland, including in the Indo-Pacific, the Persian Gulf, the Southern Oceans. Deployment of naval units, including within Task Groups conducted far from Australia or allied ports have limited access to essential supplies, including fuel, ammunition, and food. Replenishment vessels are essential to maintain the reach and endurance of Australian and allied naval forces by providing at sea replenishment of critical supplies.
2. Defence Capability Project SEA 1654 Phase 3 (SEA1654-3) will provide an enhanced Maritime Operational Support Capability (MOSC) to the Australian Defence Force. This capability will comprise a single class of Auxiliary Oiler Replenishment (AOR) vessel to replace the current ageing vessels HMA Ships *Success* and *Sirius*. The two ships will have the same capability and configuration. One will be based on the east coast at Garden Island Defence Precinct (GIDP) and one on the west coast at HMAS *Stirling*. The vessels will also have a combat management system, providing a further capability enhancement over the current support ships.

Background

3. In April 2016, SEA 1654 was approved by Government including the facilities and infrastructure required to support the capability. To support the introduction into service of this enhanced capability, suitable facilities and support infrastructure will be required at Stirling, GIDP and Randwick Barracks. A map showing the three project locations is at Attachment 1.
4. The aim of the MOSC Facilities Project is to provide fit for purpose facilities and infrastructure to support the MOSC vessels that will be replacing the current in-service vessels HMA Ships *Sirius* and *Success*. The key types of facilities proposed include the following:
 - a. **Operational Support**
 - (1) **Explosive Ordnance (EO) Logistics Support.** Existing EO support facilities on the east coast are adequate, but significant improvements to the Armament Wharf at *Stirling* will be required to berth the MOSC vessel. The Armament Wharf will

be required to support the 19,620 tonne MOSC vessel for EO loading, such that it can fulfil its EO replenishment capability. The existing Armament Wharf can only berth vessels up to a displacement of approximately 6,000 tonnes.

- (2) **Berths/ Wharf Services.** The flexible berth allocation and wharf management, as already practised at GIDP, will need to be introduced at *Stirling*. While the berths at Diamantina Pier can accommodate the physical size and displacement of the new MOSC vessel, some minor improvement to the Diamantina Pier's engineering services infrastructure will be required to accommodate the new vessel.
- (3) **Living-in Accommodation (LIA).** The change in crew numbers will reduce the demand on services and LIA in the Sydney area, but will increase the demand on services and LIA at *Stirling*. Consequently, additional LIA is needed at *Stirling* to accommodate the larger MOSC crew, noting that existing LIA at *Stirling* is already close to capacity.
- (4) **Vessel Support Services.** Ship monitoring, duty watch and crew facilities will be required at *Stirling* as they do not currently exist for *Sirius*. Ship monitoring facilities will also be required at GIDP.

b. Maintenance Support

- (1) **Maintenance Services.** External maintenance of both MOSC vessels will be undertaken at the Captain Cook Graving Dock. No improvements are required to this dock in order to accommodate the MOSC. Organic maintenance will be undertaken alongside at the Cruiser Wharf or East Dock Wall for the vessel home ported at GIDP and alongside Diamantina Pier for the vessel home ported at *Stirling*. An area for contractors undertaking organic maintenance on vessels will be required near Diamantina Pier.
- (2) **Systems Program Office (SPO) Facility.** The existing split SPO construct will continue, with GIDP being the primary location for the SPO, and a small detachment in WA. The existing GIDP SPO facility will be used for the MOSC. A new SPO facility at *Stirling* is required for the WA detachment.
- (3) **Through Life Support Facility (TLSF).** A TLSF is required to ensure the combat and platform systems are fully integrated and configuration management

can be undertaken. This is a new requirement when compared to the current AO/AOR fleet

- c. **Training Support.** The enhanced capability of the new vessels will require new training systems, including the need for combat system training that was not previously required. Navy has recently established the Navy Training Systems Centre at Randwick Barracks (NTSC-R) for the Airwarfare Destroyer and Landing Helicopter Dock vessels. An extension of this facility to accommodate the MOSC's training requirements offers collocation efficiencies and cost savings. This includes common user spaces that could be utilised by the MOSC (e.g. larger classrooms and briefing spaces), leading to a reduction in the spatial needs for the MOSC Training Centre (TC) compared to a standalone facility.

Description of Proposal

- 5. The works proposed to be delivered as part of the MOSC Facilities Project will address critical shortcomings in the existing facilities and infrastructure at *Stirling*, GIDP and Randwick Barracks to meet the requirements of the new capability.
- 6. The proposed scope comprises seven project elements and includes:
 - a. at *Stirling*:
 - (1) extending the Armament Wharf;
 - (2) upgrading the engineering services at Diamantina Pier;
 - (3) constructing additional LIA;
 - (4) constructing a shared-use facility (SUF), including SPO working accommodation, accommodation for crew support and remote monitoring station (RMS) for the MOSC vessel's integrated platform monitoring system (IPMS); and
 - (5) constructing a maintenance hardstand area (MHA);
 - b. at Randwick Barracks: constructing a new TC as an extension to the NTSC-R, which will incorporate a TLSF; and

- c. at GIDP: refurbish part of Building 122 to provide a RMS for the MOSC vessel's IPMS.

7. Site plans showing the proposed building and infrastructure works at the three project locations are provided at Attachments 2, 3 and 4.

Description of the MOSC Capability

8. On 5 May 2016, the Commonwealth entered into contracts with Navantia S. A. for the acquisition and initial five-year sustainment of two MOSC vessels. The MOSC vessel is 173.8 metre long, with a 25.9 metre beam, an 8.3 metre draft and a 19,620 tonne displacement. The vessel will have a crew of approximately 133 (with surge capacity of 194), will have enhanced combat systems, a close-in weapon system (CIWS) and/or decoy systems, and will support an embarked helicopter capability. A 3-dimensional representation of the MOSC vessel is at Attachment 5.

9. During financial year 2017-18, the ship build program is expected to achieve several key milestones, including the keel laying of the first ship in November 2017. Key planning dates associated with the delivery of the MOSC capability are:

- a. First Ship acceptance in Spain – September 2019;
- b. First Ship arrival in Sydney – December 2019;
- c. Second Ship acceptance in Spain – June 2020;
- d. Second Ship arrival in Sydney – September 2020;
- e. First Ship Initial Operational Capability – February 2021;
- f. Second Ship home port to *Stirling* – July 2021;
- g. Second Ship Initial Operational Capability – July 2021; and
- h. Full Operational Capability – 2022.

Existing capability

10. *Success* is homeported at GIDP, Sydney and provides the full AOR capability which is bulk replenishment of marine fuel, aviation fuel, explosive ordnance (EO), food and stores cargo. *Sirius* is homeported at HMAS *Stirling* and has a significant fuel cargo capacity (marine diesel and aviation fuel), as well as the ability to replenish water and general stores. *Sirius* does not have the ability to replenish EO and is classified as an Auxiliary Oiler (AO).

11. *Success* is a 157.2 metre vessel, with a 21.2 metre beam, an 8.6 metre draft and 18,000 tonne displacement. *Success* has a crew of 220, is armed with 12.7 mm machine guns, can be deployed with a Mk15 Phalanx close-in weapon system and can support an embarked helicopter capability. *Sirius* is a 191 metre vessel, with a 32 metre beam, an 11 metre draft and a 46,755 tonne displacement. *Sirius* has a crew of 73 and is armed with 12.7 mm machine guns. *Sirius* has a flight deck, but no embarked helicopter.

Current Facilities – East Coast

12. The existing facilities for *Success*, which is home ported on the east coast at GIDP include:
- a. **Berths.** Due to limited berth space and associated management issues at GIDP, there are no dedicated berths for the *Success*. Port Services manage the berths flexibly based on vessels in port at any given time.
 - b. **Maintenance.** External maintenance is undertaken at the Captain Cook Graving Dock, the single remaining facility in Australia for docking ships of this size. Organic maintenance occurs alongside at a production berth, such as the Cruiser Wharf or East Dock Wall.
 - c. **Systems Program Office.** GIDP is the primary location of the Amphibious Afloat Support Systems Program Office (SPO), which supports *Success* and *Sirius*. (A small SPO detachment is located in a leased facility at Rockingham, WA.)
 - d. **EO Logistics Support.** The East Coast Armaments Complex facility at Eden on the south coast of New South Wales provides EO loading support for east coast based vessels. This support includes an ammunition loading wharf located at Twofold Bay, NSW.
 - e. **Fuel Services.** Vessels home ported at GIDP are supplied with marine diesel and aviation fuel by Defence's Sydney fuel distribution system.

Current Facilities – West Coast

13. The existing facilities for *Sirius*, which is home ported on the west coast at *Stirling* include:
- a. **Berths.** *Sirius*' primary berthing location is at *Stirling*'s Diamantina Pier. With an increase in Navy vessels as outlined in the 2016 Defence White Paper, berth space at *Stirling* will become increasingly limited and will require flexible berth allocation and wharf management as already practised at GIDP.

- b. **Maintenance.** External maintenance of homeported vessels, other than *Sirius*, is undertaken at the Henderson Maritime Complex located approximately 12 kilometres from *Stirling*. Organic maintenance of *Sirius* is conducted alongside at Diamantina Pier.
- c. **EO Logistics Support.** EO storage is provided at *Stirling*. The existing Armament Wharf provides some capacity for berthing and EO operations in support of Navy vessels. The existing Armament wharf is not required to support *Sirius*, as the vessel does not have an EO replenishment capability.
- d. **Fuel Services.** *Stirling* has existing marine diesel and aviation fuel storage on site.

Options Considered to Fulfil the Identified Need

Do Nothing Option

14. As part of the project design phase, a ‘do nothing’ option was considered, however the significant and fundamental differences between the new MOSC vessel and its supporting systems and those of the current fleet led to the conclusion that capability could not be effectively operated without significant improvements to the existing facilities and infrastructure. Three examples of these fundamental differences are:

- a. The new MOSC vessel provides an EO cargo carrying/replenishment capability. *Sirius* does not have this capability. To enable a MOSC vessel to load/unload EO at *Stirling*, the Armament Wharf needs to be significantly upgraded/extended as the current capacity of the wharf is limited to a vessel of approximately 6,000 tonnes displacement.
- b. Class specific training will be required for the MOSC capability. The new vessel will also introduce combat systems, which are not installed in the existing fleet. The current fleet does not have class specific training facilities.
- c. A TLSF is required to ensure the combat and platform systems are fully integrated and configuration management can be undertaken. There is no TLSF for the current fleet.

Design Options for Upgrading the Armament Wharf, Training Centre (TC) and Through Life Support Facility (TLSF)

15. One of the options considered for upgrading the Armament Wharf’s berthing capacity was a straight line extension, along with an upgrade to the structural capacity of the existing length of the

wharf. However, this option was discounted as it would require the Armament Wharf to be closed for the approximately 18 month construction period, and therefore severely impact Defence's EO loading/unloading capability on the west coast. Consequently, it was decided to proceed with a perpendicular extension to the Armament Wharf, which would minimise disruption to Defence's ongoing use of the existing Armament Wharf for EO loading/unloading.

16. A value management review examined the advantages and disadvantages / impacts of the options developed for each proposed project element at the project's Concept Design Review (30% design) milestone. As the proposed extension to the Armament Wharf was the major cost driver of this proposal, the initial focus of the review was the design options proposed for upgrading the Armament Wharf. Key considerations during the review were:

- a. meeting the essential operational requirements for the Armament Wharf;
- b. ensuring the safety of EO loading/unloading operations on the Armament Wharf;
- c. minimising the environmental risks arising from the construction of the extension;
- d. minimising the cost estimates for the proposed works; and
- e. optimising the flexibility of the proposed wharf extension to meet planned capability requirements.

17. In summary, the review concluded that a wharf extension of 156 metres in length, augmented by three dolphins, with a width varying from 25 metres to 33 metres and oriented at 107° to the existing wharf deck, provided the best value for money for the Commonwealth as this design:

- a. met the operational requirements for the MOSC vessel and provided a flexible operational capability that could meet the requirements of other current and planned Navy vessels;
- b. improved the inherent safety of operations on the wharf, by enabling the heavy rigid trucks used for EO loading/unloading to complete a single-point turn;
- c. minimised the environmental impact of the works by reducing the extent of the dredging required for the extension (and its approach lane) and orienting the wharf away from nearby seagrass beds; and
- d. saved over \$10 million in costs, when compared to the longer 186 metre long wharf option.

18. The options for building the MOSC TC and TLSF involved extending the existing NTSC-R to the north or to the east. The eastern extension however was considered the most cost-effective design and siting solution as it provided the best opportunity for sharing existing facilities and services with the existing building.

Environment and Heritage Assessment

Environmental Impact of the Proposed Works

Overview

19. All proposed works will be undertaken in accordance with Defence Environmental Policy 2016 and Defence Environmental Strategy 2016 - 2036. As a key task in the development of the project, an independent Environmental Consultant completed an Environmental Report (ER). The need for a referral under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) was considered in the ER and while the ER notes that the proposal generally has low environmental and heritage impacts, the need for a referral under the EPBC Act is not anticipated at this stage. Specific findings and recommendations for each of the three project locations are addressed in the following paragraphs.

Stirling

20. Significant biodiversity and natural and cultural heritage values are associated with Garden Island. This is reflected through Garden Island's inclusion on the Commonwealth Heritage List.

21. **Contamination.** Given the long history of the site and the range of potentially contaminating activities undertaken, there is potential to encounter previously unidentified contamination. This may also include contaminated sediments from works disturbing the sea floor. Recommended assessment works are currently being completed by the project's design consultants, in conjunction with geotechnical investigations, to determine whether remediation or management measures will be required during construction.

22. In addition to this potential contamination, the ER noted that an assessment of potential impacts relating to the use of Aqueous Film Forming Foams and associated potential for impacts by per- and poly-fluoroalkyl substances (PFAS) at *Stirling* is part of Defence's National PFAS Investigation and Management Program.

23. **Biodiversity Impacts.** Clearing of vegetation will be limited to a small area for the proposed LIA and while a State Listed threatened ecological community occurs at this location, the extent of clearing is not significant and the community is well preserved on the island.

24. The most significant activity is the proposed extension to the Armament Wharf and will require further assessment of the potential impacts to the seagrass beds near the wharf, both directly via disturbance and indirectly via sedimentation from dredging. A survey of the seagrass was completed in August 2017 and concluded there is no seagrass in the footprint of the proposed extension of the Armament Wharf. Whilst not listed as a Matter of National Environmental Significance, the seagrass beds form part of the important biodiversity values of Garden Island and Cockburn Sound.

25. Both the Australian Sea Lion and Southern Right Whale may periodically occur in the marine waters off Garden Island. The ER noted that given the relatively minor scale of the proposed Armament Wharf works, it is expected that any impacts can be managed through the adoption of construction mitigation measures, such as ceasing noise generating activities if marine mammals are sighted near the construction area and adopting 'soft start' piling (ie. gradually increasing the piling power to allow marine mammals to clear the area).

26. The little penguin colony that resides near Diamantina Pier also has the potential to be impacted by habitat modification, increased vessel movement and human interaction. As this proposal is limited to a minor services upgrade on Diamantina Pier, any potential impact on the colony can be managed through the adoption of construction mitigation measures.

27. **Heritage.** No impacts to natural, Aboriginal or historic heritage are anticipated at *Stirling*. However, an Aboriginal and historic heritage site induction will be incorporated into the general site induction process.

GIDP

28. As the proposed works at GIDP are limited to a minor internal refurbishment of Building 122, the environment and heritage risks are minor and can be effectively managed through the development and implementation of a Construction Environmental Management Plan (CEMP) for the proposed works.

Randwick Barracks

29. **Contamination / Asbestos.** The contamination of surface soils with asbestos, and the historical placement of asbestos-containing fill material within utility trenches across the site, are the primary issues of concern at Randwick Barracks. It is therefore possible that asbestos will be encountered during construction activities. Hydrocarbon contamination may also be encountered if works are undertaken in the areas formerly occupied by underground or above ground storage tanks. Further assessment is currently being completed by the project's design consultants, in conjunction with geotechnical investigations, to determine whether remediation or management measures will be required during construction.

30. **Biodiversity.** The proposed development site is unlikely to contain important biodiversity values that would trigger further survey or assessment, as it is contained to developed areas and managed lawns.

31. **Heritage.** No impacts to natural, Aboriginal or historic heritage are anticipated at Randwick Barracks. However, an Aboriginal and historic heritage site induction will be incorporated into the general site induction process.

Climate Change – Sea Level Rise

32. The siting of all land-based facilities have taken into account potential inundation zones from sea level rise. The deck height of the Armament Wharf extension has also taken into account predicted sea level rise over its design life.

Key Legislation

33. The following key legislation is relevant to this project:

- a. *Environment Protection and Biodiversity Conservation Act 1999 (CT)*;
- b. *Building and Construction Industry (Improving Productivity) Act 2016*;
- c. *Work Health and Safety Act (WH&S) 2011 (Cth)*; and
- d. *Disability Discrimination Act 1992 (Cth)*.

Applicable Codes and Standards

34. The design of the proposed works will comply with all relevant and current Defence standards, Australian standards, codes and guidelines including, but not limited to:

- a. National Construction Code - Building Code of Australia;

- b. Department of Defence - Manual of Infrastructure Engineering – Electrical;
- c. Department of Defence - Manual of Fire Protection Engineering;
- d. Department of Defence - Defence Estate Quality Management System;
- e. Department of Defence – Explosives Regulations (eDEOP 101); and
- f. Department of Defence - Defence Security Manual.

35. An accredited building certifier has been engaged to certify the compliance of the design and will be engaged to certify compliance of the completed works.

Consultation with Key Stakeholders

36. To develop the requirements and proposed solutions for this proposed redevelopment, extensive consultation has been undertaken with the relevant Defence users and technical authorities.

37. Defence has developed a comprehensive consultation and communication strategy that recognises the importance of providing local residents, statutory authorities and other interested stakeholders, including special interest groups, an opportunity to provide input into, or raise concerns relating to the proposed works.

38. As part of this strategy, the following communication methods have been or will be adopted:

- a. letterbox drops to neighbouring residential areas confirmed as affected by the Construction Works;
- b. community information sessions; and
- c. local newspaper advertisements.

39. In implementing this strategy, consultation has occurred or will occur, with the following key external stakeholders:

- a. For *Stirling*:
 - (1) Federal Member for Brand, Ms Madeleine King MP;
 - (2) State Member for Rockingham and Premier of Western Australia, Hon Mark McGowan MLA;

- (3) Rockingham City Council, Mayor Barry Samuels;
- (4) local community groups including:
 - i. Rockingham District Historical Society;
 - ii. Cedar Woods Ltd;
 - iii. Mangles Bay Fishing Club Inc;
 - iv. WA Naturalists Club Inc;
 - v. Rockingham Kwinana Chamber of Commerce; and
 - vi. Rockingham Navy Club.
- (5) local and affected utility authorities including Western Power and Water Corporation of Western Australia.

b. For Garden Island Defence Precinct:

- (1) Federal Member for Wentworth, Hon Malcolm Turnbull MP;
- (2) State Member for Sydney, Mr Alex Greenwich MP; and
- (3) City of Sydney, Lord Mayor Clover Moore.

c. For Randwick Barracks:

- (1) Federal Member for Kingsford Smith, Hon Matthew Thistlethwaite MP;
- (2) State Member for Coogee, Mr Bruce Notley-Smith MP; and
- (3) City of Randwick, Mayor Lindsay Shurey.

40. Defence plans to convene at least two community information sessions addressing the proposed works at *Stirling* and Randwick Barracks prior to the conduct of the Joint Parliamentary Standing Committee on Public Works Hearing.

Purpose of the Works

Project Objective

41. The purpose of this proposal is to provide fit for purpose facilities and infrastructure at *Stirling*, GIDP and Randwick Barracks to support the MOSC vessels that will be replacing the current in-service vessels *Sirius* and *Success*.

Detailed Description of the Proposal

Stirling

Project Element 1 –Extend the Armament Wharf

42. The proposed Armament wharf extension will provide a quay line 156 metres long. Two berthing dolphins and a mooring dolphin will be constructed to the north of the proposed wharf structure. By orienting the Armament wharf extension at 107° to the existing structure, dredging and the impact on local seagrass beds will be minimised, and EO loading operations on the existing wharf will not be significantly impacted by the construction works. A further extension to the northern edge of the existing Armament wharf would also be feasible if required in the future.

43. The width of the wharf deck will vary from a minimum of 25 metres to a maximum of 33 metres. The minimum width provides for locating the cope points on the quayside, lighting, fire fighting cabinets and a pedestrian walkway along the rear and for a heavy rigid vehicle to execute a three point turn. The additional eight meters in width, provided for approximately 50 percent of the deck length will enable heavy rigid vehicles to execute a 180° U-turn.

44. The proposed wharf deck structure will comprise a flat in-situ concrete deck approximately 0.9 metres thick to minimise the height and wave loads of the new deck, to facilitate maintenance and to reduce corrosion. The deck level will be raised 0.85 metres above the existing wharf to allow for sea level rise during the 100 year design life. The berthing dolphins will be 1.5 metres thick, by a nominal 20 metres long by eight metres wide and the mooring dolphin 1.5 metres thick and eight metres square. Tubular steel vertical piles will be installed on a nominal six by nine metre grid pattern under the wharf, with steel raker piles under the wharf and the dolphins. The access walkways to the dolphins will comprise steel tube main support members, a steel frame, handrails and fibre reinforced plastic grating. The ramp between the Armament wharf and the extension will be incorporated into the new extension's deck structure.

45. **Armament Wharf Accessories.** Pneumatic non-armoured fenders, chains and fender panels will cater for the allowable hull pressures and hull profiles for RAN vessels. Additional pneumatic non-armoured fenders matching the existing wharf fenders will also be installed along the southern end of the proposed extension to protect the new structure from the impact of vessels berthing at the existing wharf. Fenders that obstruct the berthing of a submarine will be able to be removed to allow a submarine to berth at the extension.

46. **Armament Wharf Services.** Fire hydrants will be located along the rear of the proposed wharf deck. A new water supply pipe will be installed at the rear of the deck. Fire hose reels and cabinets will also be provided. A cathodic protection system will be installed, similar to the other existing systems at *Stirling*. Area lighting will facilitate night operations. The luminaires will utilise LED lamps and be suitable for the marine environment. The proposed communications works will involve extending the existing telephone, public address and fire system monitoring services.

47. A plan and drawings of the proposed extension to the Armament wharf are provided at Attachment 6.

Project Element 2 – Upgrade the Engineering Services to Diamantina Pier

48. Upgrades to the engineering services on Diamantina Pier are proposed. This includes alterations to the cope point boxes to provide IPMS connectivity for the new MOSC vessels back to the Shared User Facility (refer Project Element 4) and upgrades to the fuel supply system.

49. A schematic plan of the proposed upgrades is provided at Attachment 7.

Project Element 3 – Construct Living-in Accommodation (LIA)

50. The proposed LIA will provide a total of 58 units, comprising one block of 16 units for Senior Sailors/Junior Officers; two blocks of 20 units for Junior Sailors; and 2 accessible units.

51. The proposed design complies with current Defence standards and draws heavily from the most recent LIA facilities completed at *Stirling*, featuring a simple and economical building form using a reinforced concrete slab on ground with strip footings, a reinforced concrete frame, mono pitched roof, light-weight infills for the unit walls. External element such as stairs and balustrades will be galvanised or powder coated. Individually controlled split air conditioning units will be provided in each bedroom. Mechanical ventilation will be provided to the ensuites and laundries

52. Power for the proposed LIA will be drawn from the existing electrical services network.

53. Plans and elevation drawings of the proposed LIA are provided at Attachment 8.

Project Element 4 – Construct a Shared Use Facility (SUF)

54. The proposed SUF will meet the requirements for the IPMS RMS and Duty Watch functions and the SPO detachment in an integrated two storey design providing approximately 1,300 square metre (m²) gross floor area. The proposed SUF will include:

- a. a duty watch facility collocated with the incident response area;
- b. duty watch work area;
- c. sleeping area for duty watch personnel;
- d. crew facilities including offices, workstations and meeting rooms; and
- e. ablutions for duty watch personnel.
- f. office areas including meeting rooms, project rooms, computer rooms and training rooms for the SPO detachment;
- g. utilities rooms, conference rooms and breakout spaces; and
- h. toilet, shower and locker areas.

55. The proposed SUF will be constructed using a combination of precast concrete panels, prefinished profiled metal cladding. External elements such as stairs and balustrades will be galvanised or powder coated.

56. Office spaces are proposed to be served by air handling units or fan coils units centrally located in the plant rooms. The conference and meeting rooms will have their own dedicated fan coil unit. The communications room will be provided with two dedicated cooling units configured as duty/standby.

57. The facility will draw power from an existing secondary distribution substation. Defence Secret Network (DSN), Defence Protected Network (DPN), Defence Voice Network (DVN) and Defence Engineering Services Network (DESN) connectivity will be provided.

58. Plans and elevations of the proposed SUF are provided at Attachment 9.

Project Element 5 – Construct a Maintenance Hardstand Area (MHA)

59. The proposed MHA will be an unfenced heavy duty concrete pad of approximately 1100 m², which will allow for heavy vehicle traffic and container storage, for minor assembly or dismantling of equipment. A small ablutions block will also be provided to serve the contractors using this area.

60. Multiple electrical distribution boards, each separately metered, and providing low voltage three phase power will be located in each quarter of the hardstand to allow more than one contractor to concurrently use the area. The contractors will be able to connect transportable offices, sea containers or workshops to the site power supply, to be drawn from an existing secondary distribution substation. General area lighting will be provided, as will a potable water supply and sewerage services.

61. A plan and of the proposed MHA is provided at Attachment 10.

Randwick Barracks

Project Element 6 – Construct a Training Centre (TC) and Through Life Support Facility (TLSF)

62. The proposed TC and TLSF will be an integrated two -storey extension to the east of the existing NTSC-R, providing approximately 3,480 square metre (m²) gross floor area. The proposed building will comprise a reinforced concrete slab on ground, grids of steel and/or concrete columns, load bearing reinforced concrete walls and a colorbond steel roof. Access will be through the NTSC-R and the adjacent car park will be extended to accommodate the extra staff numbers.

63. The integrated facility design will provide the following spaces for:

- a. **TLSF functions:** working accommodation and ancillary spaces for MOSC staff including office areas, meeting rooms, project rooms, computer rooms, training rooms and laboratory areas; and
- b. **TC functions:** working and training accommodation, comprising specialist training rooms and equipment classrooms, including the CIWS trainer, computer classrooms, instructor offices and faculty meeting rooms and induction/briefing rooms.

64. The proposed facility has been planned to enable common areas such as utility rooms, conference rooms and breakout spaces, toilets, showers and locker areas to be shared by staff and trainees. Furthermore, synergies have been achieved by collocating the MOSC TC and TLSF with the NTSC-R, including shared main entrance and amenities areas, and integration of training spaces where possible between the MOSC, Airwarfare Destroyer and Landing Helicopter Dock vessels.

65. **Building Services.** The facility will require special power to service the test equipment and training systems. DSN, DPN and DVN connectivity will be provided by a connection to the main communication room in the NTSC-R. Separate communications rooms will be provided for classified and unclassified systems. A new substation will be connected to the existing high voltage

ring to provide electrical services. The existing substation will be replaced and any services located within the proposed building footprint will be relocated or replaced. A local emergency generator will also be provided and will be acoustically treated/contained to meet environmental noise guidelines. The carpark and path lighting needs to be augmented to suit the new layout.

66. **Temporary Facilities.** To meet the schedule for introduction into service of the first MOSC vessel, key training facilities need to be ready by October 2018 for the first trainees at Randwick. As the permanent facility will not be ready for occupation by Navy until mid to late 2019, some training rooms in the NTSC-R will be temporarily assigned for MOSC training, supplemented by some transportable buildings that will be provided for the interim period.

67. Plans of the proposed TC and TLSF are provided at Attachment 11.

GIDP

Project Element 7 – Refurbish Building 122

68. The space reserved in Building 122 for the proposed refurbishment is currently used as open work space and office accommodation. This project proposes converting this space for use as a RMS for the IPMS by modifying the existing workstations.

69. This minor refurbishment will involve modifications to the existing workstations, and the reconfiguration of the existing electrical, lighting and communications services.

70. A floor plan of the proposed refurbishment is provided at Attachment 12.

Details and Reasons for Siting Selection

71. For each of the proposed new buildings, site selection boards (SSB) have been completed in accordance with the approved Zone Plans for each establishment and Defence estate development guidelines. The SSBs typically consider the suitability of the site for the proposed function, the locations of related functions, access to services and infrastructure, movement by vehicles and pedestrians to and from the site, and heritage and environmental management factors.

Land Acquisition, Zoning and Approvals

72. All elements of the proposal are located within the boundaries of Commonwealth-owned and Defence-controlled land. Accordingly, no civilian authority or design approvals are required, although the works will comply with the relevant standards and regulations (where applicable).

Planning and Design Concepts

73. The general design philosophy for the proposed facilities incorporates the following considerations:

- a. provision of cost effective and functional facilities of energy efficient design suitable for the climate of the site and of a style compatible with the existing aesthetics at each of the three project locations;
- b. adoption, where possible, of conventional construction techniques and materials, in particular those commonly used by the construction industry and consistent with those already utilised at each of the three project locations;
- c. maximum use of existing infrastructure and facilities to minimise capital costs;
- d. use of readily available and durable materials that combine long life while minimising maintenance;
- e. infrastructure services planning and structure design taking into account future flexibility, projected demand and Defence policies for reliability and redundancy;
- f. recognition of site constraints, security requirements, the established Zone Plans for each of the three project locations, and the functional relationships of the proposed facilities to existing facilities; and
- g. planning services and structural design elements to accommodate flexibility.

Structural Design

74. The structural design for the proposed wharf extension considers a number of geotechnical, marine environmental factors and durability issues. The structural forms of the proposed buildings consider local geotechnical conditions and will be consistent with existing building forms where appropriate.

Materials

75. External walls for new and extended buildings will be a mixture of precast concrete, metal cladding, masonry and glazing. Metal deck roofing will be used on all proposed new buildings. The external materials have been selected for their resilience to the harsh coastal environment.

Mechanical Services

76. The mechanical services for each proposed new building have been designed according to the function and needs of each building. The proposed mechanical services will meet specific user needs, relevant ventilation, thermal comfort and air quality requirements, and the mandatory requirements of the Building Code of Australia.

Hydraulic Services

77. Where new stormwater systems are required for new buildings, access roads and car parks, those services will be constructed in reinforced concrete pipes if they may be subjected to significant external loads.

78. All new stormwater pits and modifications to existing pits will be constructed in steel reinforced concrete to the relevant standards to meet a 100-year design life.

79. Where new stormwater quality treatment devices are required to prevent pollution of local water catchments, appropriate devices will be designed or selected from standard units, to meet local site constraints, flow rate requirements, and to manage the potential pollutants.

Electrical Services

80. Lighting, power and lightening protection works will be provided in accordance with Australian Standards and Defence engineering requirements.

81. Generally, there is sufficient capacity in the existing electrical services network to support the proposed developments, however, where this is not the case, a new substation will be provided.

82. New electrical infrastructure and switchboards will have spare capacity to allow for future growth. Sub-metering will be included in new buildings. All proposed meters will be monitored through the existing building management systems at each establishment, which support an active energy management programs at each establishment.

Acoustics

83. The new facilities will comply with the National Construction Code of Australia (NCC) and the relevant Australian Standards for noise and acoustics in working and living accommodation.

84. In the proposed working accommodation, walls and partitions will be designed to provide acoustic separation between rooms to meet the occupants' functional requirements. Where required, additional measures will be undertaken to comply with Defence security requirements.

Fire Protection

85. All construction and fire protection requirements will, as a minimum, be in accordance with the provisions of the NCC, Defence's Manual of Fire Protection Engineering, and all other applicable codes and Australian Standards.

Security

86. Advice from designated security authorities has been incorporated in the design solutions for the proposed facilities when appropriate. The proposed security features will comply with Defence's Security Manual.

Environmental Sustainability

87. The Commonwealth is committed to Ecologically Sustainable Development (ESD) and the reduction in greenhouse gas emissions. Defence reports annually to Parliament on the energy efficiency targets, established by government, as part of its commitment to improve ESD. Defence also implements policies and strategies in energy, water and waste to improve natural resource efficiency and to support its commitment to the reduction of energy consumption, potable water consumption and waste diversion to landfill.

88. The project has adopted cost effective ESD measures as a key objective in the design and development of project elements. These measures have been incorporated into the design of most aspects of the proposed works and include:

- a. **Minimising Energy and Greenhouse Gas Emissions.** Strategies to minimise energy and greenhouse gases include adopting passive building design principles for new facilities, using energy efficient heating ventilation and air conditioning systems, lighting and intelligent control systems, maximising natural ventilation, and installing energy management systems.
- b. **Reducing Water Use.** Specifying water efficient fixtures and fittings will reduce potable water use. Where landscaping works are proposed, the irrigation systems and urban design will be water efficient.
- c. **Improving Indoor Environment to Maximise Occupant Comfort.** Improving daylight in occupied spaces, providing shading for privacy and glare control, optimising building orientation, and using low volatile organic compound paints, carpets and

adhesives, as well as low emission wood products will improve air quality and occupant comfort levels.

- d. **Metering.** Electrical services metering will be installed in accordance with the requirements of the Defence National Sub-meter Program and will be suitable for connection to Defence National Resource Data Management System. Hydraulic services metering will also be installed and connected directly to a building management system.

Energy Targets

89. The requirements of Defence's Smart Infrastructure Manual: Design and Construction Version 1.0 (April 2015) and Building Energy Performance Manual Version 4 (December 2012) have been adopted for this project.

90. Sub-metering will be installed to buildings and infrastructure in accordance with the requirements of Section J of the Building Code of Australia and Defence's Smart Infrastructure Manual and Building Energy Performance Manual.

Compliance with Local, State/Territory and Commonwealth Water and Energy Policies

91. All buildings will be designed, constructed, operated and maintained to use energy and water as efficiently as possible and to comply with the following statutory and Defence requirements:

- a. Section J of the Building Code of Australia;
- b. Commonwealth Energy Efficiency in Government Operations Policy 2007;
- c. Department of Defence Building Energy and Performance Manual, Version 4 – December 2012;
- d. Department of Defence Smart Infrastructure Manual: Design and Construction Version 1 – April 2015;
- e. Department of Defence Water Management Strategy 2006-2009; and
- f. Department of Defence Waste Minimisation Policy 2007.

Workplace Health and Safety Measures

92. The Australian Government is committed to improving work health and safety outcomes in the building and construction industry. This proposed redevelopment will comply with the requirements of the *Work Health and Safety Act 2011(Cth)*, Work Health and Safety (Commonwealth Employment – National Standards) Regulations and relevant Defence policies.

93. In accordance with Section 35 (4) of the *Building and Construction Industry Improvement Act 2005 (Cth)*, project 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.

94. Safety aspects of the proposed redevelopment have been addressed during the design development process and have been documented in a Safety in Design Report. A Work Health Safety Plan will also be developed for the construction phase prior to the commencement of any construction activities.

95. All construction sites will be secured appropriately to prevent public access, or access by unapproved Defence personnel, during the construction period. No special or unusual public safety risks have been identified.

Provisions for People with Disabilities

96. Access for people with disabilities will be provided in accordance with the Building Code of Australia, Australian Standard AS 1428 – 2010: Design for Access and Mobility, the *Disability Discrimination Act 1992*, and the Defence Policy ‘Disabled Access and other Facilities for Disabled Persons’.

97. Access for people with disabilities is not required to some areas in the proposed new facilities, which are exempt under section D3.4 of the Building Code of Australia, as access for people with disabilities would be inappropriate, because of the particular purpose of the area.

98. Access to, and connections between building and facilities on site, including car parking, will also be designed in accordance with relevant access standards.

Childcare Provisions

99. No additional childcare facilities are being provided under this project.

Public Transport, Local Road and Traffic Concerns

100. During construction there will be an increase to the number of large vehicles delivering materials to site and undertaking construction activities at each of three project locations. The development of Traffic Management Plan by the Managing Contractor, together with ongoing and regular coordination of all construction activities with local Defence authorities, will mitigate the effects of this on the internal road network.

Impact on Local Community

101. The proposal will generate significant short-term employment opportunities predominantly in the building, construction and labour markets in the Rockingham and Sydney areas. Significant numbers of construction trades personnel will be directly employed for the duration of the construction activities. The proposal will also provide opportunities for suppliers involved in the manufacture and distribution of construction materials and equipment.

102. The Managing Contractor will be required to manage all construction activities, in accordance with the CEMP, to minimise any disruption to the local community. This plan will include control measures designed to mitigate potential impacts on the Defence and local communities such as increased on-base and local traffic movements; noise, dust and vibration generated during construction activities; and erosion and sediment control required during the construction phase to protect the environment.

103. The proposed construction sites are within the Defence site boundaries and construction activities are not expected to cause noticeable disruption to businesses and residences located in the vicinity of the three project locations.

Related Projects

104. Two approved projects will be delivering facilities or infrastructure during the construction period planned for this project. Both projects have been taken into consideration when developing this proposal.

105. **HMAS *Stirling* Redevelopment Project Stage 3A.** This redevelopment project is addressing high risk infrastructure and includes remediating existing wharf structures and upgrading engineering services. The redevelopment includes significant works to the existing Armament Wharf. The scope of the redevelopment project is being closely coordinated with this project, including ensuring that upgraded engineering services are complimentary to the requirements of the

MOSC. The redevelopment project is expected to be completed before the delivery of the MOSC vessel to *Stirling*.

106. **Stage One of the Garden Island (East) Critical Infrastructure Recovery Program (Production Wharves).** This project will replace the Cruiser Wharf. Once completed, the Cruiser Wharf will provide a fully functional production berth, suitable for use by the MOSC. The characteristics and requirements of the new MOSC vessel have been incorporated into the Production Wharves project.

107. In addition to these approved projects, there are other projects in the planning phase at *Stirling* that are yet to receive approval, however are being closely coordinated with in the design development of this project. This includes the facilities projects to support the SEA1180 Phase 1 Offshore Patrol Vessel (SEA1180) and SEA5000 Phase 1 Future Frigate (SEA5000). The siting, domestic support and engineering services requirements across all approved and unapproved projects at *Stirling* are being approached in a coordinated manner. This is aimed at achieving efficiencies where possible, and minimising the likelihood of any abortive work.

108. A *Stirling* site plan, indicating the proposed works for this project, the approved works under N2184 HMAS Stirling Redevelopment Project Stage 3A, and proposed, unapproved works under SEA1180 and SEA5000, is provided at Attachment 13.

Cost Effectiveness and Public Value

Outline of Project Costs

109. The estimated out-turned cost of this project, including Defence contingency is 220.5 million¹. The cost estimate includes the construction costs, management and design fees, furniture, information communications technology, fitting and equipment, contingencies, and escalation allowance.

110. Future sustainment costs for this project of \$6.7 million are anticipated due to the addition of new facilities and infrastructure which will require additional maintenance, cleaning and utilities expenses.

¹ The estimated cost of \$220.5 million excludes goods and service tax, except for the LIA component of the project, which is GST inclusive.

Details of the Project Delivery System

111. Subject to Parliamentary approval, a Managing Contractor form of contract is planned to deliver the works. A Project Manager and Contract Administrator will therefore be appointed to manage the delivery phase of the works while a Managing Contractor will be appointed to complete design development, procure trade contractors, and construct the works.

112. The Managing Contractor form of delivery provides the Commonwealth with buildability input into the design while promoting opportunities for small to medium enterprises by sub-contracting design and construction trade packages.

Construction Schedule

113. Subject to Parliamentary approval of the project, construction is expected to commence in mid-2018 and be completed in late 2020.

Public Value

114. This proposal will contribute significantly to improving Defence capability, by providing fit-for-purpose and operationally effective facilities to support the introduction into service of the enhanced MOSC capability.

115. Existing training and support facilities have been re-used where it has been possible to meet the users' requirements and to minimise operating costs and environmental impacts.

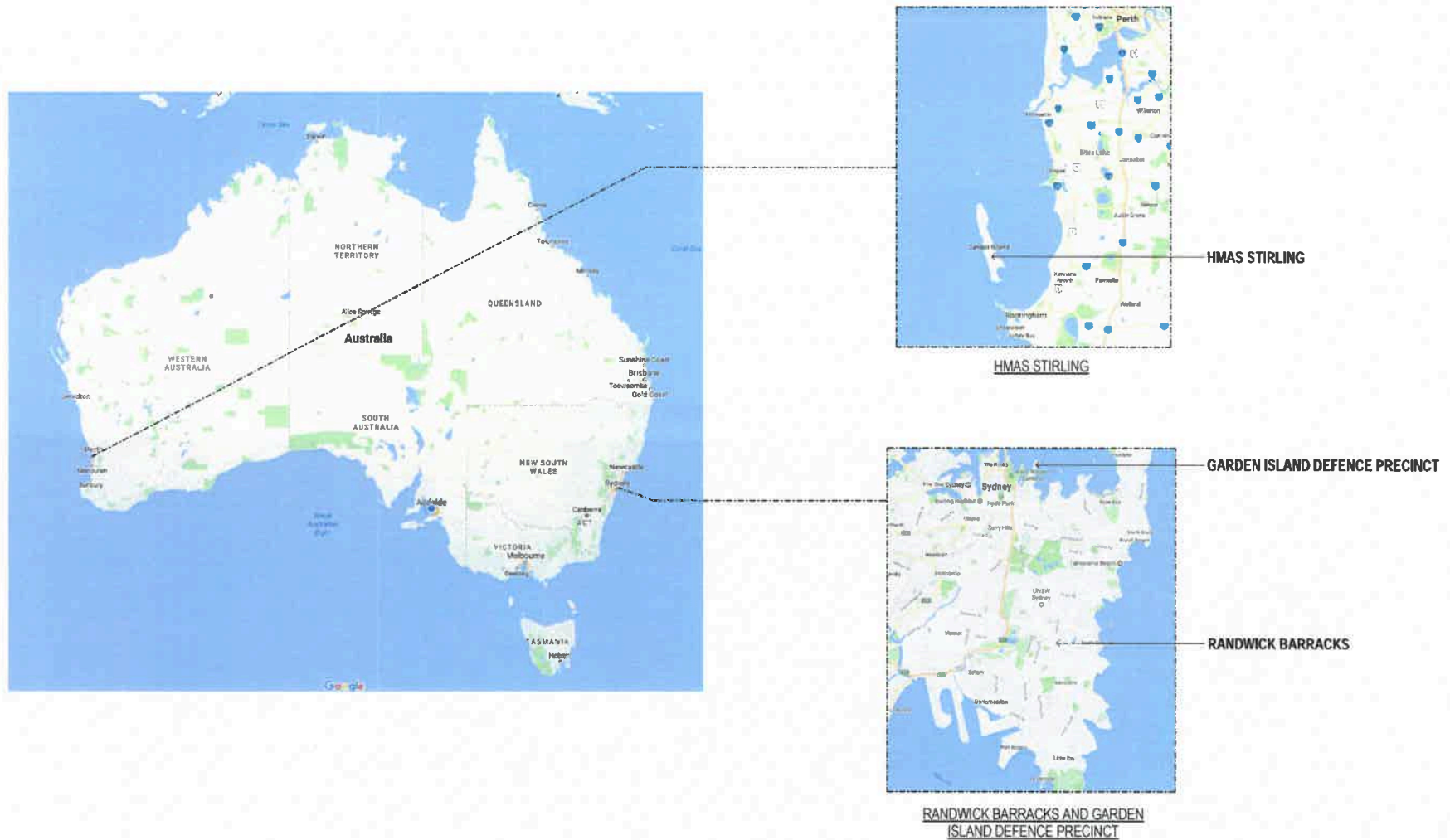
116. The project will also employ a diverse range of skilled consultants, contractors and construction workers that could also include opportunities for up-skilling and job training to improve individual skills and employability on future projects. The project will employ an average construction workforce of approximately 65 personnel. This would comprise of approximately 50 personnel at Stirling, WA and 15 at Randwick Barracks, NSW.

Revenue

117. No revenue is expected to be derived from this project.

Attachments

1. Locality Plan
2. Site Plan – HMAS *Stirling*
3. Site Plan – Randwick Barracks
4. Site Plan – Garden Island Defence Precinct
5. MOSC Vessel – 3 Dimensional View
6. Project Element 1 – Extend the Armament Wharf
7. Project Element 2 - Diamantina Pier – Upgrade the Engineering Services
8. Project Element 3 – Construct Living In Accommodation
9. Project Element 4 – Construct a Shared-Use Facility
10. Project Element 5 – Construct a Maintenance Hardstand Area
11. Project Element 6 – Construct a Training Centre and Through Life Support Facility
12. Project Element 7 – Refurbish Building 122
13. Site Plan – HMAS *Stirling* (approved and unapproved projects)

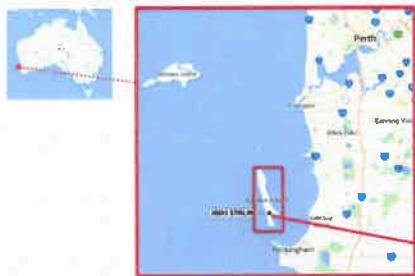


**MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
LOCALITY PLAN**



MARITIME OPERATIONAL SUPPORT CAPABILITY VESSEL - RENDER

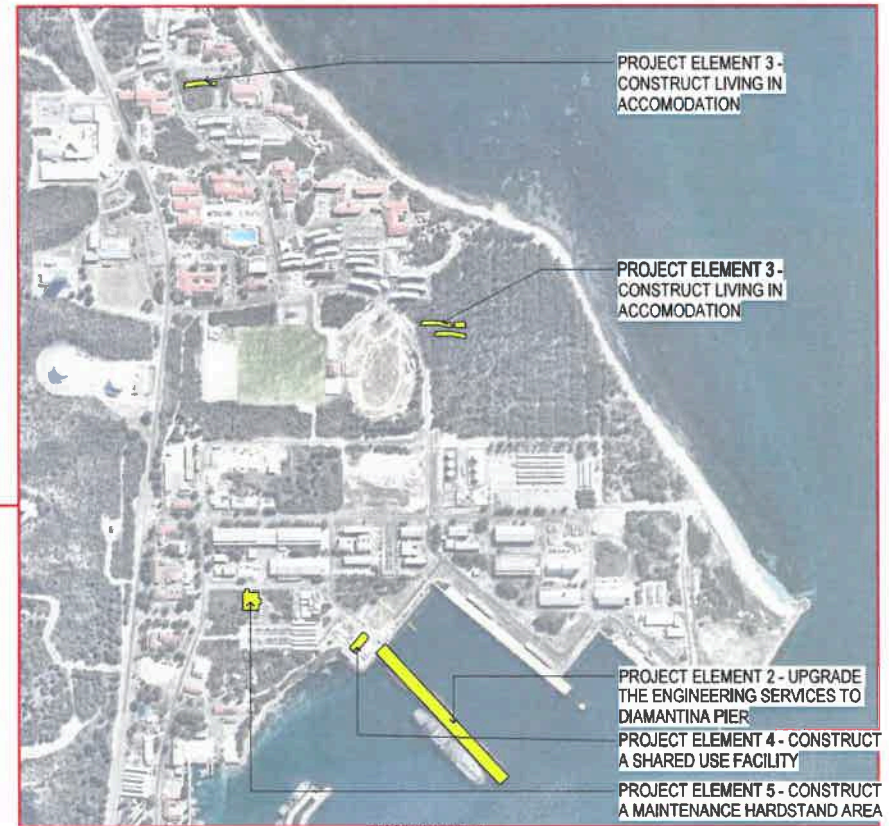
**MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
MARITIME OPERATIONAL SUPPORT CAPABILITY VESSEL - 3D VIEW**



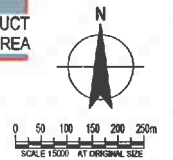
HMAS STIRLING, WA



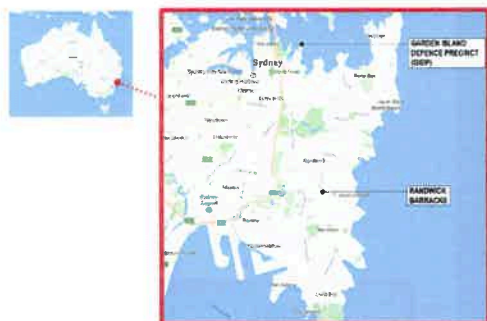
LOCATION PLAN



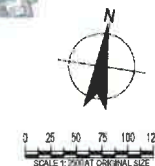
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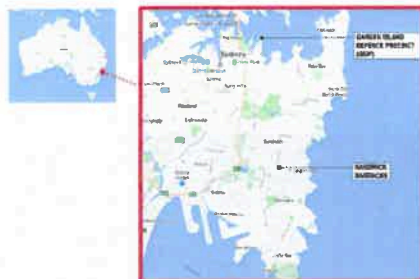
**MARITIME OPERATIONAL SUPPORT FACILITIES PROJECT
HMAS STIRLING, WA
SITE PLAN - HMAS STIRLING**



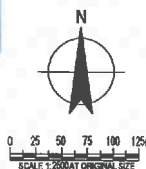
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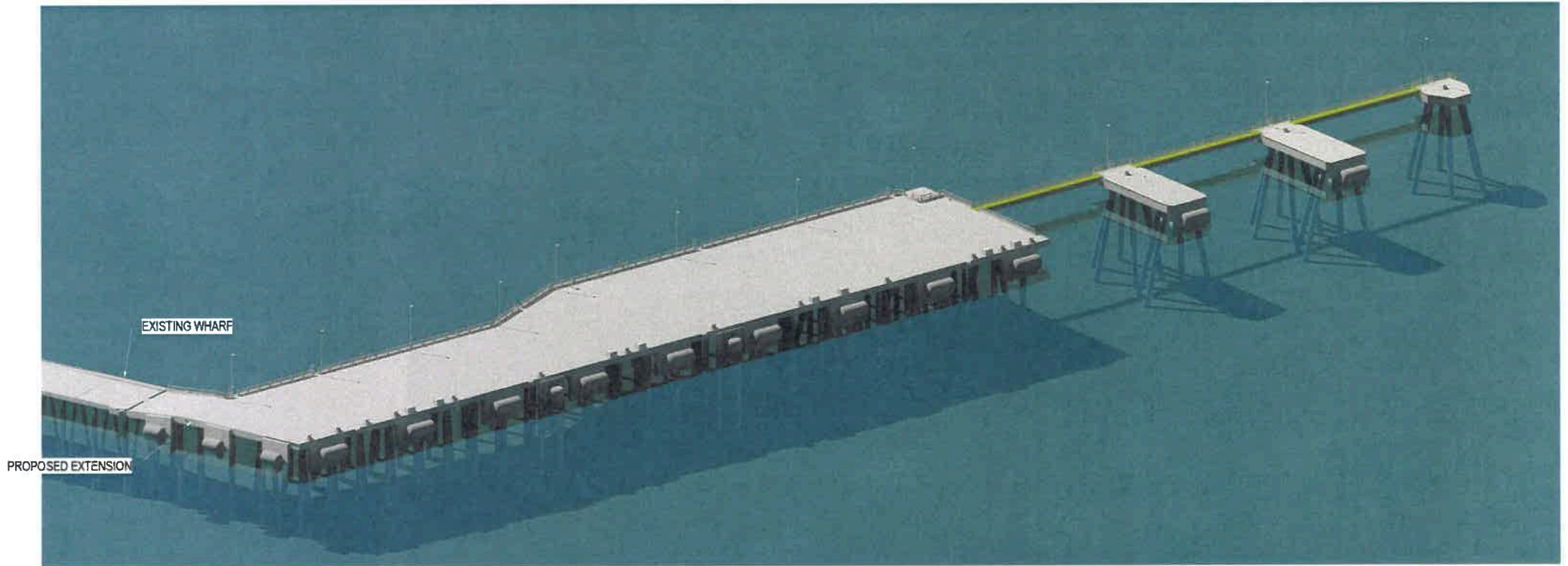
**MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
RANDWICK BARRACKS, NSW
SITE PLAN - RANDWICK BARRACKS**



LOCATION PLAN

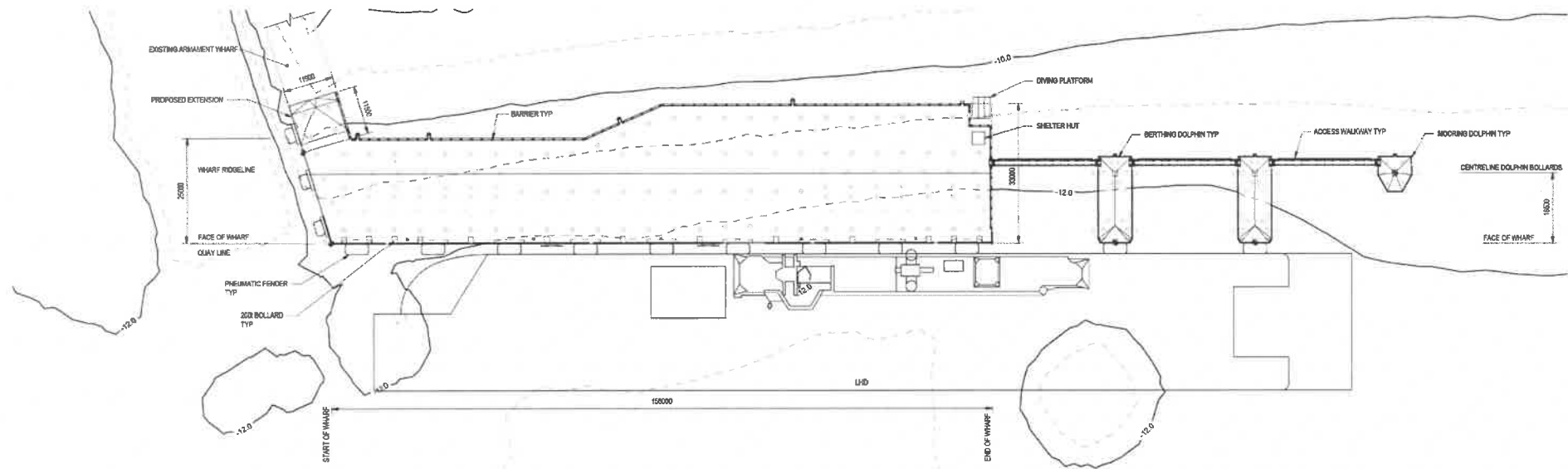


**MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
GARDEN ISLAND DEFENCE PRECINCT, NSW
SITE PLAN - GARDEN ISLAND DEFENCE PRECINCT**

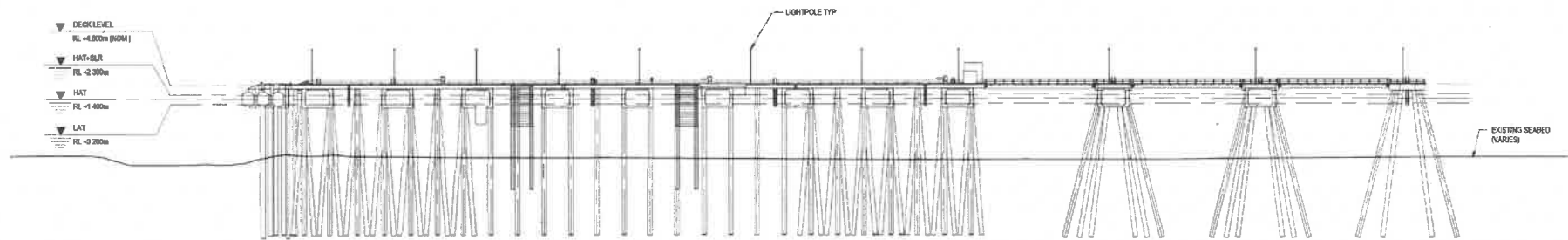


ARMAMENT WHARF EXTENSION - RENDER

**MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
HMAS STIRLING, WA
PROJECT ELEMENT 1 - EXTEND THE ARMAMENT WHARF**



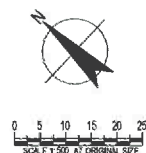
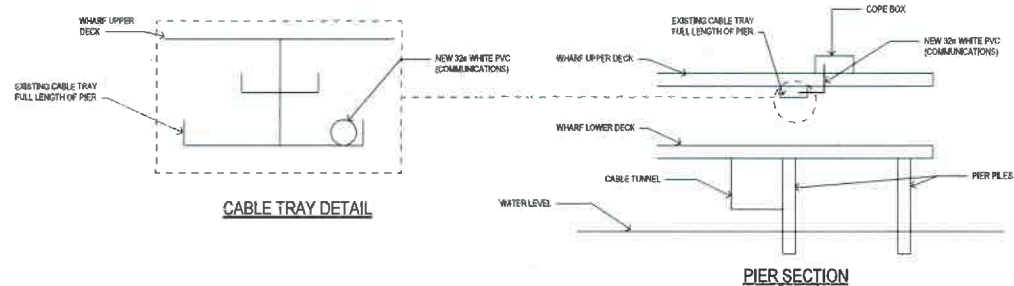
GENERAL ARRANGEMENT PLAN
SCALE 1:500



ELEVATION
SCALE 1:500



MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
HMAS STIRLING, WA
PROJECT ELEMENT 1 - EXTEND THE ARMAMENT WHARF

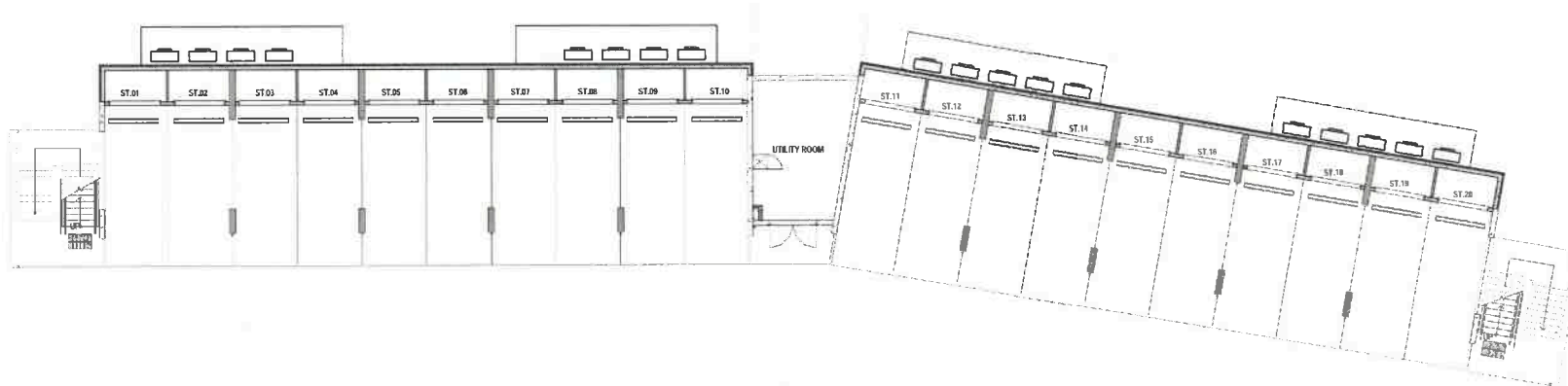


MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECTS
HMAS STIRLING, WA
PROJECT ELEMENT 2 - DIAMANTINA PIER - UPGRADE THE
ENGINEERING SERVICES

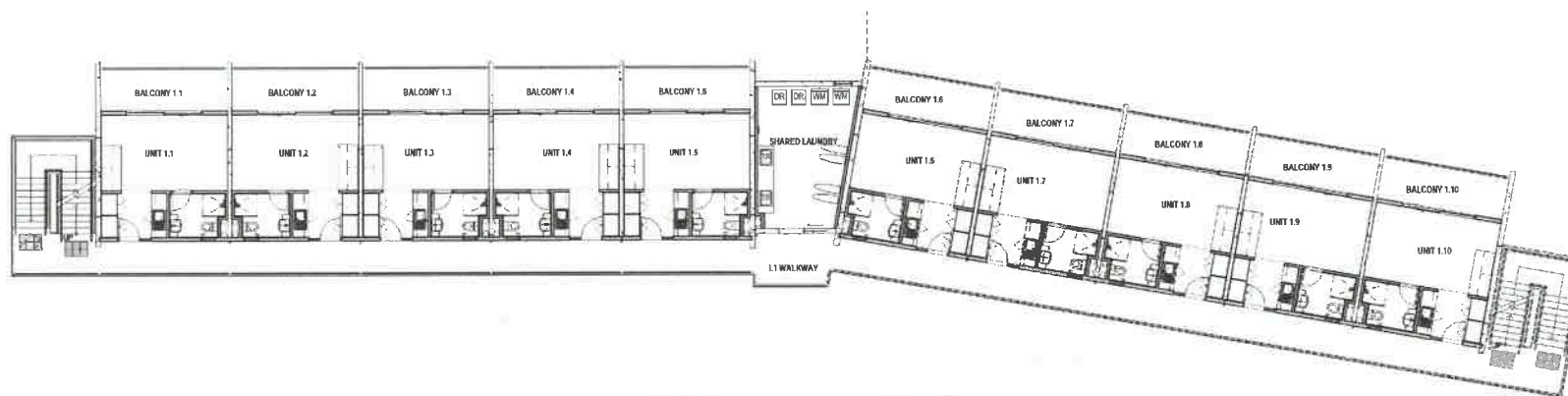


JUNIOR SAILORS LIVING IN ACCOMMODATION - RENDER

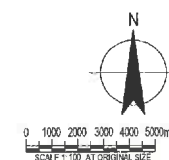
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HMAS STIRLING, WA
PROJECT ELEMENT 3 - CONSTRUCT LIVING IN ACCOMMODATION**



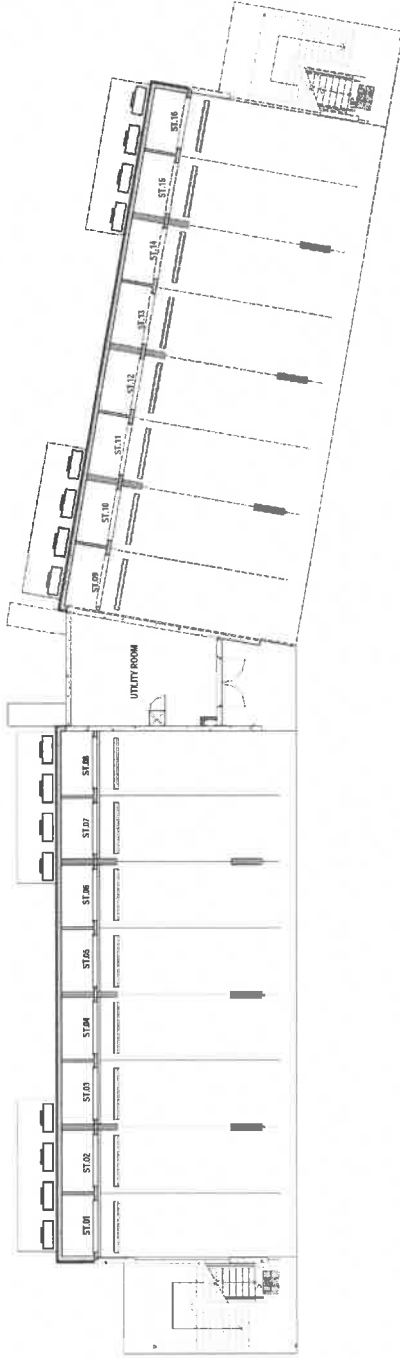
JUNIOR SAILORS LIVING IN ACCOMMODATION -
GENERAL ARRANGEMENT PLAN - GFL



JUNIOR SAILORS LIVING IN ACCOMMODATION -
GENERAL ARRANGEMENT PLAN - L1 & L2, TYPICAL



MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
HMAS STIRLING, WA
PROJECT ELEMENT 3 - CONSTRUCT LIVING IN ACCOMMODATION



SENIOR SAILORS/JUNIOR OFFICERS LIVING IN
ACCOMMODATION - GENERAL ARRANGEMENT
PLAN - GFL



SENIOR SAILORS/JUNIOR OFFICERS LIVING IN
ACCOMMODATION - GENERAL ARRANGEMENT
PLAN - L1 & L2, TYPICAL



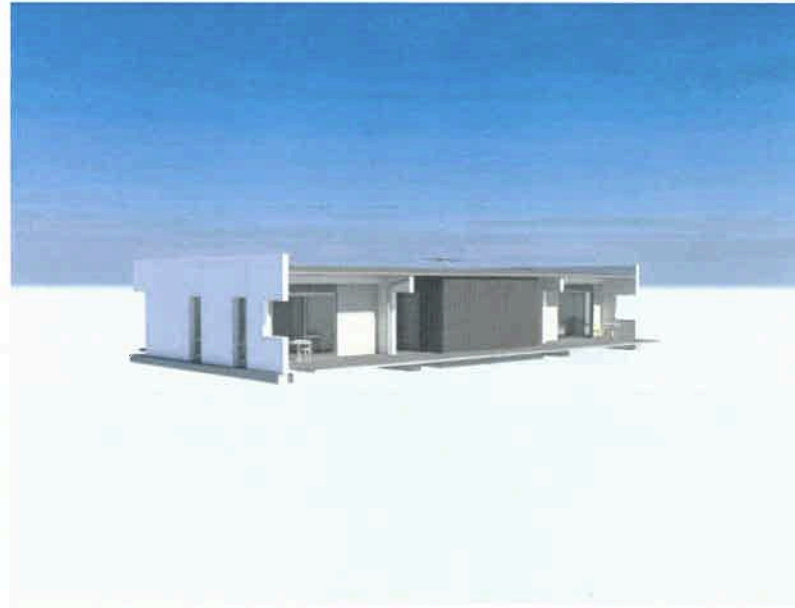
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MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
HMAS STIRLING, WA
PROJECT ELEMENT 3 - CONSTRUCT LIVING IN ACCOMMODATION

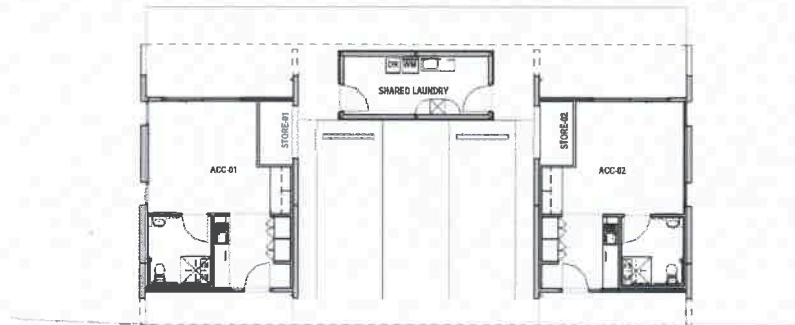


SENIOR SAILORS / JUNIOR OFFICERS LIVING IN
ACCOMMODATION - RENDER

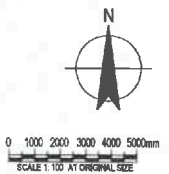
**MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
HMAS STIRLING, WA
PROJECT ELEMENT 3 - CONSTRUCT LIVING IN ACCOMMODATION**



ACCESSIBLE LIVING IN ACCOMMODATION -
RENDER



ACCESSIBLE LIVING IN ACCOMMODATION -
GENERAL ARRANGEMENT PLAN - GFL



**MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
HMAS STIRLING, WA
PROJECT ELEMENT 3 - CONSTRUCT LIVING IN ACCOMMODATION**



SHARED-USE FACILITY (SUF) - RENDER

**MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
HMAS STIRLING, WA
PROJECT ELEMENT 4 - CONSTRUCT A SHARED-USE FACILITY**



FRONT ELEVATION



REAR ELEVATION

**MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
HMAS STIRLING, WA
PROJECT ELEMENT 4 - CONSTRUCT A SHARED-USE FACILITY**



GENERAL ARRANGEMENT PLAN - GROUND
SCALE 1:100

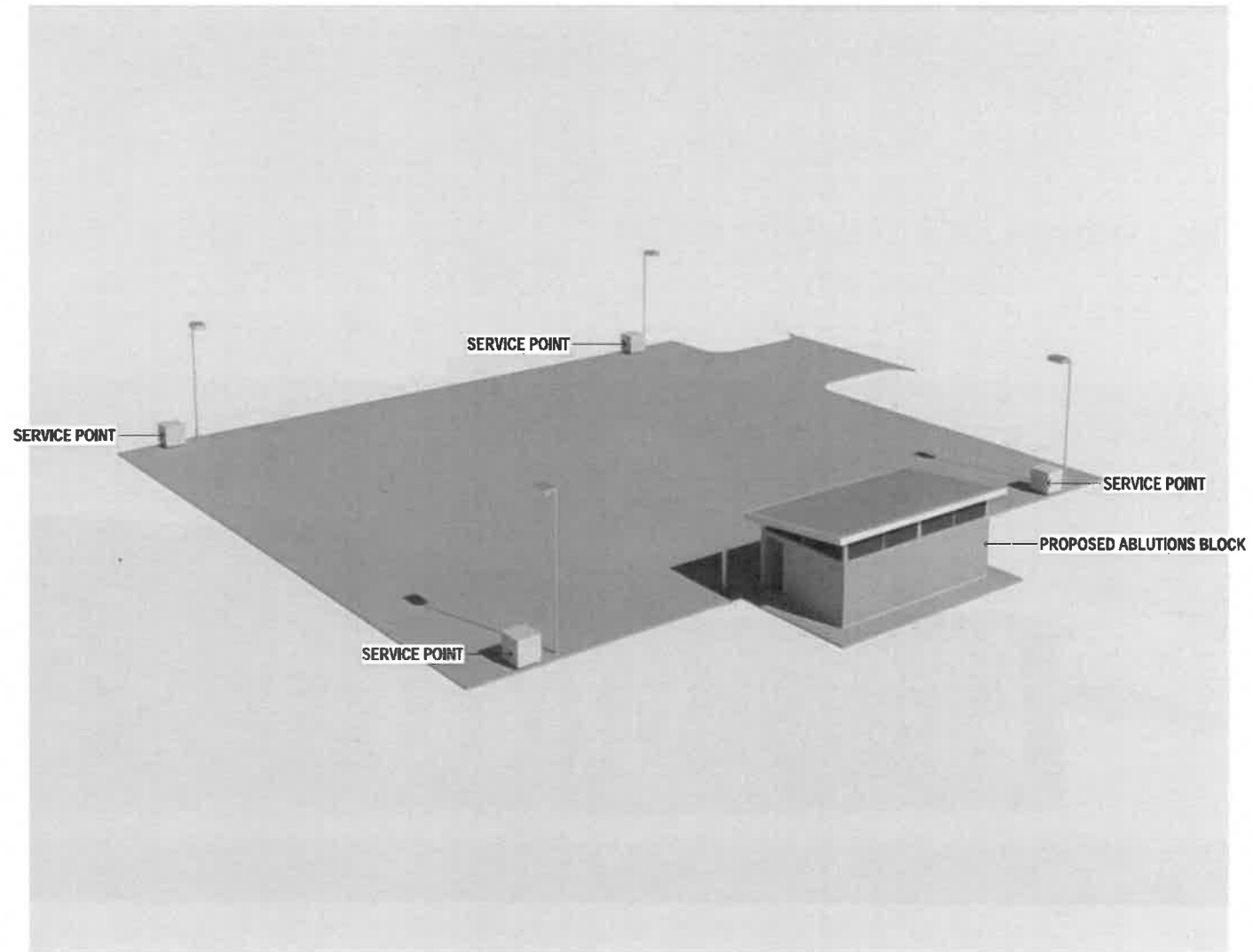


GENERAL ARRANGEMENT PLAN - LEVEL 1
SCALE 1:100



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SCALE 1:100 AT ORIGINAL SIZE

**MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
HMAS STIRLING, WA
PROJECT ELEMENT 4 - CONSTRUCT A SHARED-USE FACILITY**



MAINTENANCE HARD STAND AREA

**MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
HMAS STIRLING, WA
PROJECT ELEMENT 5 - CONSTRUCT MAINTENANCE HARDSTAND AREA**



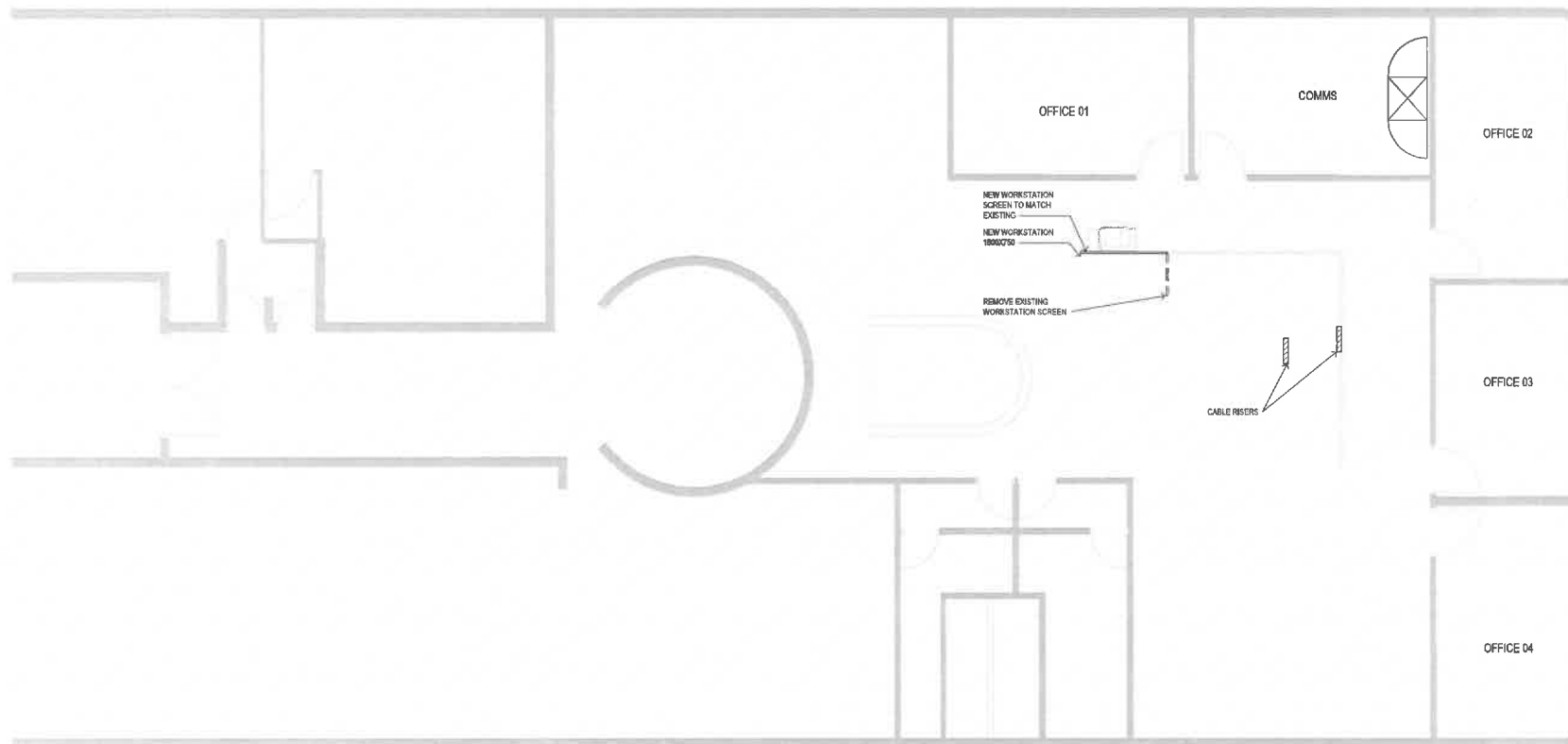
**MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
RANDWICK BARRACKS, NSW
PROJECT ELEMENT 6 - CONSTRUCT A TRAINING CENTRE/ THROUGH
LIFE SUPPORT FACILITY**



**MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
RANDWICK BARRACKS, NSW
PROJECT ELEMENT 6 - CONSTRUCT A TRAINING CENTRE/ THROUGH
LIFE SUPPORT FACILITY**



MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
RANDWICK BARRACKS, NSW
PROJECT ELEMENT 6 - CONSTRUCT A TRAINING CENTRE/ THROUGH
LIFE SUPPORT FACILITY



GENERAL ARRANGEMENT PLAN - LEVEL 1



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SCALE 1:50 AT ORIGINAL SIZE

**MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
GARDEN ISLAND DEFENCE PRECINCT, NSW
PROJECT ELEMENT 7 - REFURBISH BUILDING 122**



**MARITIME OPERATIONAL SUPPORT CAPABILITY FACILITIES PROJECT
HMAS STIRLING, WA
SITE PLAN - HMAS STIRLING (APPROVED AND UNAPPROVED
PROJECTS)**