Australian Government
Australian Submarine Agency

ASA

HMAS *Stirling*
Controlled Industrial Facility

ARPANSA Construction Licence
Technical Overview

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Contents

List of Acronyms

ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
ASA	Australian Submarine Agency
AUKUS	The trilateral security partnership between Australia, United Kingdom and the United States of America
CIF	Controlled Industrial Facility
HMAS	His Majesty's Australian Ship
IAEA	International Atomic Energy Agency
SRF-West	Submarine Rotational Force - West

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Controlled Industrial Facility Construction Licence Application for HMAS *Stirling*

Section 1 - Introduction

1.1 The Australian Submarine Agency (ASA) is seeking a licence from the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) to authorise the construction of a site for a prescribed radiation facility (referred to as a Controlled Industrial Facility (CIF)), to be located at HMAS *Stirling* on Garden Island, Western Australia.

1.2 In July 2024, ARPANSA issued a licence to the ASA to prepare a site at HMAS *Stirling* for the establishment of the CIF. This application is to enable ASA to commence construction of the CIF.

1.3 As per subsection 48(2) of the *Australian Radiation Protection and Nuclear Safety Regulations 2018*, the CEO of ARPANSA is required to give notice that they intend to make a decision under section 32 of the *Australian Radiation Protection and Nuclear Safety Act 1998.* In addition, CEO ARPANSA has determined that a five-week public consultation period be conducted.

1.4 This Technical Overview is not a standalone document and should be read in conjunction with the other ASA technical overview documents listed in paragraph 4.5.

Section 2 – Radiological Facilities

2.1 This ARPANSA construction licence submission overview contains information submitted to ARPANSA developed using ARPANSA guidance and the ASA's internal guidance set out in *Best Practice Guidance for Managing Nuclear Safety and Radiation Protection*.

2.2 The ASA commitment to nuclear stewardship is unwavering. In preparation for Australia's sovereign nuclear-powered submarine capability, several new and upgraded facilities are required at HMAS *Stirling* to support in-water maintenance activities on UK and US nuclear-powered submarines,

2.3 These facilities will collectively deliver a support system that provides for the following constituent capabilities:

a. operating support

b. engineering support

c. in-water maintenance support

d. supply support

e. training support

f. personnel and family support

g. enabling security capability.

2.4 The CIF is one of the primary facilities required to support maintenance activities for nuclear-powered submarines. Radioactive waste resulting from these activities and to be handled, treated and managed in the CIF will be classified as low-level or below.

Section 3 – Site Characteristics and Site Information

Site overview of Garden Island

3.1 Garden Island is located approximately 45 kilometres (km) south of Perth, WA and lies between Cockburn Sound to the east and the Indian Ocean to the west. The island is approximately 12 km long and 1.5 km wide at its widest point and is connected to the mainland at Cape Peron by a 4.2 km long causeway. Approximately 30% of Garden Island's 1,270 hectares is zoned for naval development with the remainder managed for conservation purposes. Public access by small boat is permitted across some areas of the island outside of the zoned naval areas.

3.2 Below *Figure 1 - Project Location, Garden Island WA* depicts the location of Garden Island and surrounding areas.

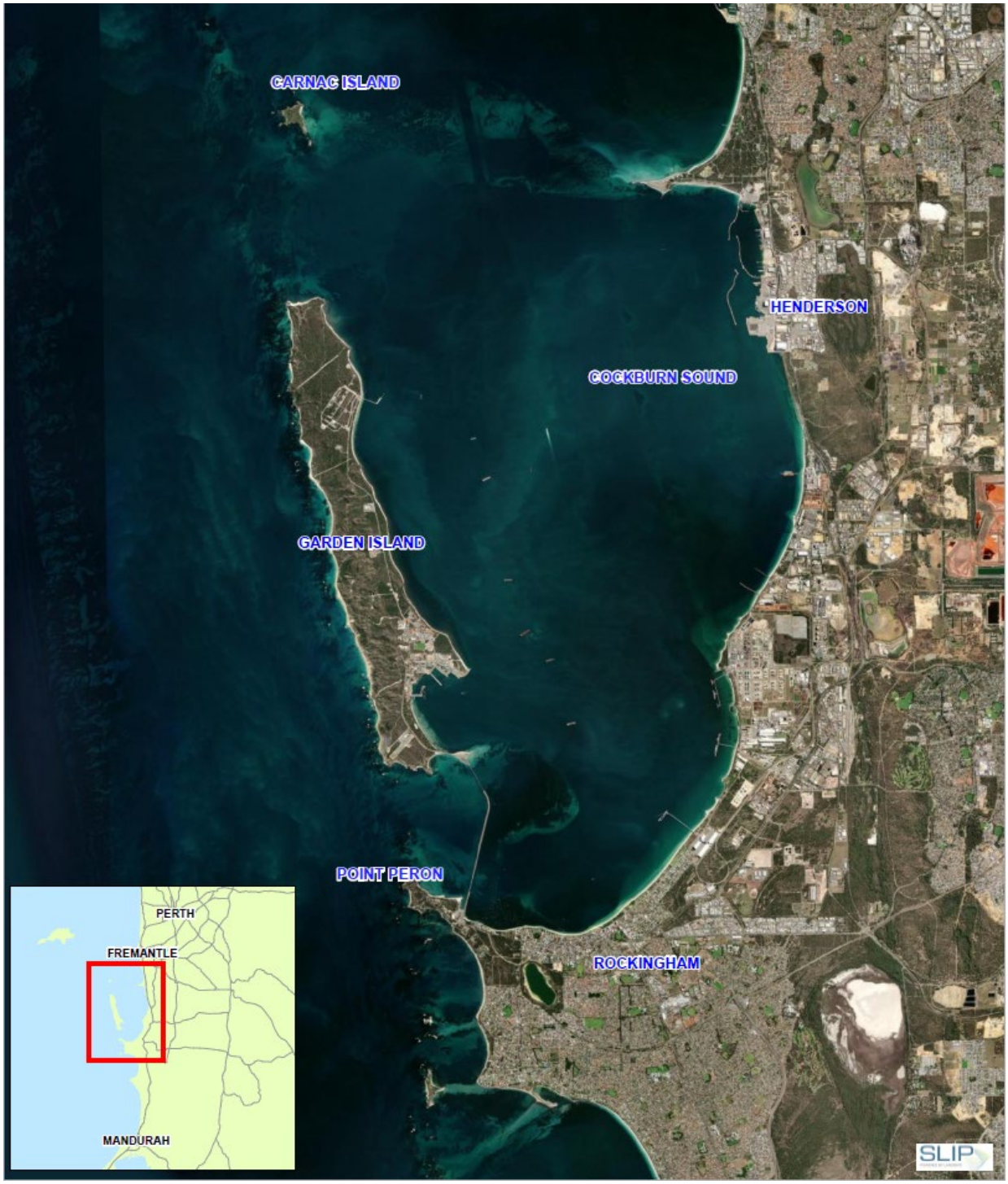

Figure 1 - Project Location, Garden Island WA

Considerations

3.3 The ASA has followed the guidance set by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) for assessing the suitability of a site, and the guidance contained in IAEA's Specific Safety Guide, *Site Survey and Site Selection for Nuclear Installations* (SSG-35).

3.4 The IAEA's *Site Survey and Site Selection for Nuclear Installations* is recognised as the best practice guide to inform the studies and investigations for the greater HMAS *Stirling* base. The Site Evaluation Report, due for completion in 2025, is being structured to align with this guidance.

3.5 The CIF's design as a prescribed radiation facility must consider site characteristics that may impact the safety of the facility. These includes:

a. The site's demography, seismology, geology, topography, ecology, hydrology, and meteorology

b. The effect of nearby facilities and land usage

c. The availability and reliability of offsite services such as electricity, water, transportation, and communication systems

d. Any other relevant characteristics as noted in *Site Survey and Site Selection for Nuclear Installations: IAEA Safety Standards Series No. SSG-35*[1].

Section 4 – Controlled Industrial Facility

4.1 The CIF will be a new purpose-built industrial facility within a Controlled Industrial Area at HMAS *Stirling*. The building will provide specialised processing capabilities to enable Defence to receive, process and store radioactive material. The building will have structures, systems and components for the management of risks relating to workers and the public because of activities conducted within the facility.

4.2 The CIF will deliver the following operational requirements:

a. General, non-radioactive waste management

b. Low-level radioactive waste management

c. Repair and maintenance of radioactive equipment and tools

d. Facility upkeep

e. Facility operations.

4.3 The CIF will accommodate the following key functional areas:

a. Support areas required to support CIF operations and internal systems including; working accommodation, personnel control and monitoring, and secure access

[1] In applying the SSG-35 guideline, it must be noted that the Controlled Industrial Facility is not a nuclear facility and no nuclear material from any nuclear-powered submarine will be present in it at any time.

b. A radiological controlled area which enables the receipt, handling and processing of up to low-level radioactive waste from AUKUS nuclear-powered submarines

c. Laboratories for non-radiological work, such as the analysis of environmental samples and pure water.

Design Principles Applied

4.4 The following design principles were applied to the CIF design to provide for radiological protection:

a. The CIF will be designed and constructed in accordance with the National Construction Code (set by the Australian Building Codes Board) and Defence's Manual of Fire Protection Engineering

b. The CIF will also incorporate design elements to comply with AS/NZS 2243.4 *Safety in Laboratories - Ionising Radiations*, Part 4 (2018)

c. The building is to be designed, constructed and operated to optimise protection against all credible natural and manmade hazards

d. The building layout will aim to maximise distance between workers and all sources of radiation

e. The building will minimise movement and handling of radiological material as appropriate

f. The building's design will have clearly defined and controlled access to supervised/designated and contaminated areas

g. The design will incorporate a layered approach to prevent accidents and mitigating consequences should they occur.

4.5 The ASA plans and arrangements for managing the safety of the CIF are available in the following ARPANSA Licence Application Technical Overviews:

a. Safety Analysis Report

b. Effective Control Arrangements

c. Safety Management

d. Radiation Protection

e. Radioactive Waste Management

f. Emergency Management

g. Environment Protection

h. Decommissioning