NIHRACS MPS Stage 1 RAC Replacement

Environmental Impact Statement (30% Design)

Department of Infrastructure, Transport, Regional Development, Communications, Sports and the Arts

→ The Power of Commitment

Project name		Norfolk Island MPS DSC					
Document title		NIHRACS MPS Stage 1 RAC Replacement | Environmental Impact Statement (30% Design)					
Project number		12517635					
File name		12517635-REP_NIHRACS EIS_Response to NIRC.docx					
Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S3	DRAFT	P.Cowper A.Kelly	P.Cowper		B.Murphy		29/05/24
S3	DRAFT 01	P.Cowper A.Kelly	P.Cowper		B.Murphy		14/06/24
S3	DRAFT 02	P.Cowper A.Kelly	P.Cowper		B.Murphy		18/06/24
S3	RESPONSE TO NIRC REVIEW	A.Kelly	A.O'Grady		B.Murphy		10/10/25
[Status code]							

Contents

Table index

Figure index

Appendices

1. Introduction

In May 2015, the *Norfolk Island Legislation Amendment Act 2015* (Cth) and related Acts came into effect. These Acts provided for the Australian Government to assume responsibility for funding and delivering national and state level services and for the establishment of an elected Norfolk Island Regional Council from 1 July 2016.

The existing health services facility is located centrally on Norfolk Island. The main facility was first established during the Second World War by the New Zealand Army with the majority of the existing 12 separate structures constructed by 1970. It is the only healthcare facility on The Island and provides a range of health and aged care services.

The existing health facilities on Norfolk Island are sub-standard in comparison to mainland health facilities and to modern construction codes and health facility requirements. Existing facilities include the main hospital building, and a range of detached ancillary buildings including physiotherapy unit, workshop, mortuary, dental clinic, archive store and workshop.

1.1 Project Overview

The Department of Infrastructure, Transport, Regional Development, Communications Sport and the Arts (DITRDCSA) proposes to undertake refurbishments to the Norfolk Island Health and Residential Aged Care Service (NIHRACS) Multi-Purpose Service (MPS) Facility ('the Project'). The objective of the Project is to replace, refurbish or demolish (where appropriate) ageing assets approaching the end of its useful life, or have capacity, condition, and compliance high risk issues.

The Project is adopting a staged build approach. Stage 1 involves constructing a new 16-bed residential aged care facility, ancillary support services, a new mortuary, additional support buildings, and relocating the existing ambulance station. This approach facilitates the relocation of residents before advancing to Stage 2, which involves reconstructing the remaining facility parts and will subject to separate environmental and development approvals. The focus of this Environmental Impact Statement (EIS) has been prepared to support an application by DITRDCSA for the development approval for Stage 1 (only) of the Project.

The Project is classified as 'Hospital and health services facilities' and was declared as a Significant Development under Section 28C of the *Planning Act 2002 (NI)* in June 2025.

The Project site is close to the centre of the landmass of the Island, in the locality of Burnt Pine off Grassy Road (refer to Figure 1.1). Also defined by Figure 1.1 is the extent of the Project site in comparison to the area considered by site investigations (the 'survey site') and the full extent of the cadastral parcels associated with the NIHRACS facility (the 'subject site'). Associated zoning and ownership are summarised in Table 1.1.

Table 1.1 Project site details

Detail	Description
Site identification	Norfolk Island Health and Residential Aged Care
Site address	2 Grassy Road, Norfolk Island
Property details	The site is comprised of the following allotments: – Lot 34 Portion 24K (4,048 m^2) – Lot 33 Portion 24a3 (925 m^2) – Lot 35 Portion 24b1 (2,279 m^2) – Lot 36 Portion 24c (22,360 m^2) – Lot 60 Portion 24b2 (9,874 m^2)
Land ownership	Norfolk Island Hospital Enterprise is the owner of: • Lot 34 Portion 24K • Lot 33 Portion 24a3

Detail	Description
	• Lot 35 Portion 24b1 The Commonwealth (via Administration of Norfolk Island) is the owner of: • Lot 36 Portion 24c • Lot 60 Portion 24b2
Land zoning	The site is zoned as Special Use Zone, under the Norfolk Island Plan 2002 (amended 9 March 2023). The intent of the special use zone is to protect and preserve land for existing and future public, government, and Administration use or development.
Local government authority	Norfolk Island Regional Council (NIRC).
Current land use	The portion of the Project site owned by the Administration of Norfolk Island is currently used to provide health and aged care services to residents of Norfolk Island. The Norfolk Island Hospital Enterprise land currently comprises vacant land with a dwelling house. Parts of this land are currently used for car parking.

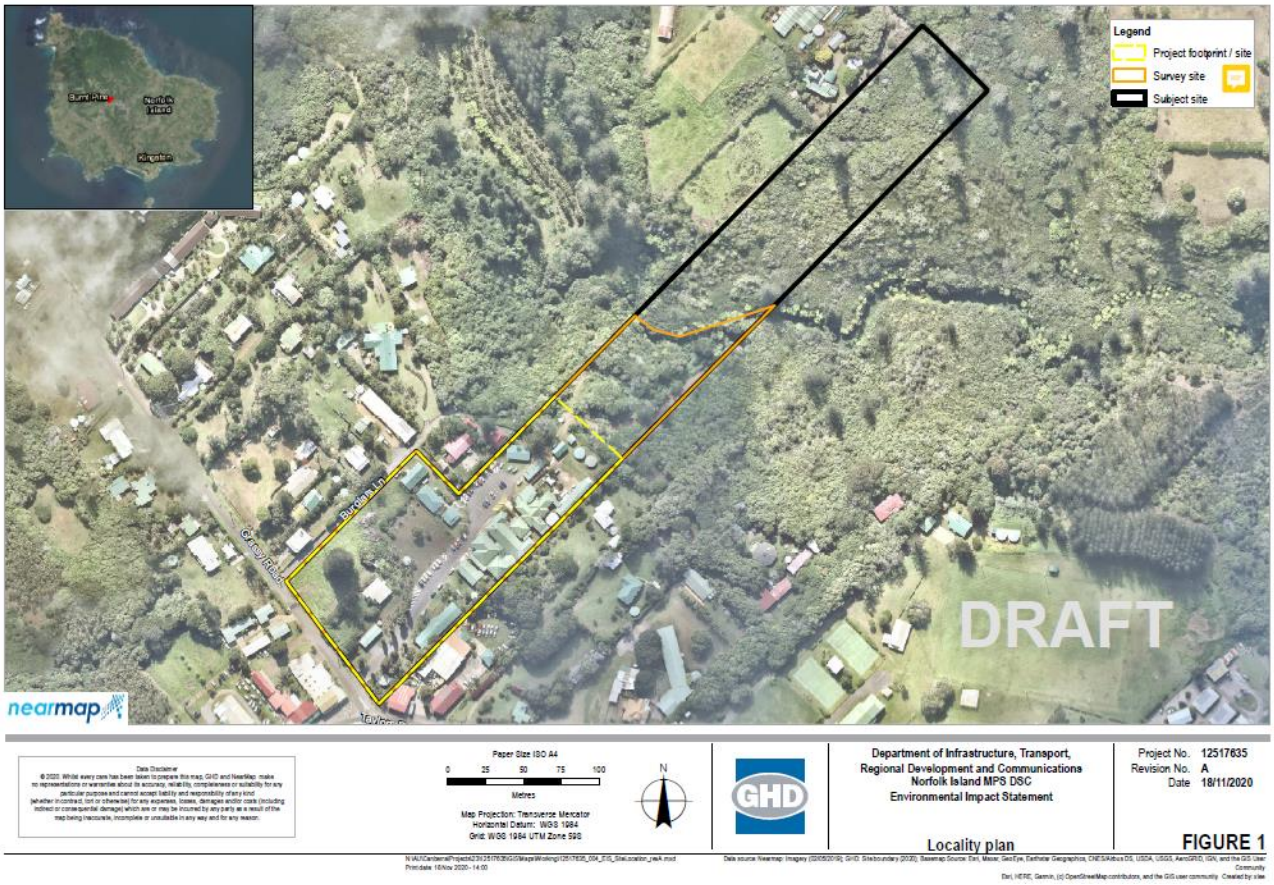

Figure 1.1 Location of the Project and land associated with the NIHRACS facility

1.2 Purpose of this report

This Environmental Impact Statement (EIS) has been prepared on behalf of the Commonwealth Department of Infrastructure, Transport, Regional Development, Communications and Arts (DITRDCSA) to assess environmental and social impacts associated with the Project in accordance with Schedule 2 of the Norfolk Island Planning Regulation 2004.

In preparing this EIS an environmental risk assessment (ERA) has guided consideration of relevant environmental factors. It considers the effectiveness of mitigation measures that are proposed as part of the Project and where required, to minimise or avoid unnecessary environmental impacts, identifies additional measures that are recommended to be included in both the construction and operation stages of the Project. The purpose of this report is to concisely describe the:

– existing environment in accordance with national and Norfolk Island regulations.
– describe the nature of potential impacts to the broader environment considering among other factors, the ecological, social, economic, heritage and other values inherent to the locality.
– assess the significance of the foreseeable impacts.
– describe mitigation measures and where appropriate, further considerations to take into subsequent stages of design development.
– provide recommendations that address both the construction and operation phases of the Project.

1.3 Scope and limitations

This report: has been prepared by GHD for Department of Infrastructure, Transport, Regional Development, Communications, Sports and the Arts and may only be used and relied on by Department of Infrastructure, Transport, Regional Development, Communications, Sports and the Arts for the purpose agreed between GHD and Department of Infrastructure, Transport, Regional Development, Communications, Sports and the Arts as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than Department of Infrastructure, Transport, Regional Development, Communications, Sports and the Arts arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

GHD has prepared this report on the basis of information provided by Department of Infrastructure, Transport, Regional Development, Communications, Sports and the Arts and others who provided information to GHD (including Government authorities)], which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section 1.4 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

Accessibility of documents

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

1.4 Declaration

The following Table 1.2 provides details specified by the Planning Regulation.

Table 1.2 Declaration under the Planning Regulations

Information required	Description
EIS Prepared by	GHD Pty Ltd
Applicant	Department of Infrastructure, Transport, Regional Development, Communications and Arts
Proposed use or development to which the EIS relates	Norfolk Island Health and Residential Aged Care Service Multipurpose Service Facility Replacement Project
Statement that the information contained in the statement is neither false nor misleading	To the best knowledge of GHD Staff that participated in the development of this EIS: – Information presented meets the requirements of Schedule 2 of the Planning Regulations 2004 (NI) – The document contains all available information at the time of preparing this document that is relevant to the environmental assessment of the proposed development. – The information contained in this document is neither false or misleading.

Information required	Description
Consistency with regulatory requirements	The EIS response to requirements prescribed in Schedule 2 of the Planning Regulations are addressed in Section 2.5. Following submission of the EIS to NIRC on 31 July 2025, a response was received on 19 August 2025 with comments and directions under section 45(6) of the Planning Act.
A statement of objectives of the proposed use or development.	The primary objective of the Project is to provide improved health care to people living on and visiting Norfolk Island. In its current state there are inadequate facilities that do not adequately service the needs of the locals. The next closest major hospital on the Australian mainland is in Brisbane, approximately 1,450 km to the west of Norfolk Island. The Project aims to reduce the need for Norfolk Islanders to travel to obtain quality medical care.

2. The Project

2.1 Project location

The Project site is occupied by the existing NIHRACS facility and is situated approximately 760 m northeast of the end of Runway 04 of the Norfolk Island International Airport. The land is characterised by grassed and landscaped areas between the existing access roads and structures. Trees range in size and variety with the most prominent tree being a large twin-trunked Norfolk Island pine that dominates the western side of the site adjacent to the intersection of Burglars Lane and Grassy Road. To the northeast of the existing facility, the land falls away steeply towards a creek before rising again. No works are proposed to land that is not already part of the existing NIHRACS facility.

The additional land parcels (Lot 34 on Portion 24k, Lot 33 on Portion 24a3 and Lot 35 on Portion 24b) currently contain a house and ancillary structures as well as a mature twin-trunked Norfolk Island pine tree and scattered planted vegetation including a range of palm trees. The house is cordoned off due to the presence of asbestos and has been reported to house stockpiled asbestos previously removed from the existing facility.

Illustrated in Figure 2.1 is the existing infrastructure on the Project site and identifies the adjoining Grassy Road at the left of the figure while Burglars Lane is shown along the top. Adjoining the Project site are several other private properties including the private residences in the top-right corner, below Burglars Lane. Other private residences are also present on the opposite side of Burglars Lane and Grassy Road with the land use transitioning to include commercial activities along Taylors Road and Douglas Drive, beyond the area illustrated in Figure 2.1.

Figure 2.1 Existing site plan identifying all existing infrastructure

Further discussion on the environment within the Project site is presented in the attached specialist reports, specifically the:

– Arboricultural Assessment (Appendix A)
– Ecological Investigation (Appendix B)
– Contamination Assessment (Appendix C).

2.2 Project description

2.2.1 Summary

The Project includes the design and construction of a new MPS Facility for NIHRACS on land on and immediately adjacent to the Project site of the current facility.

The proposal considered by this EIS is the construction of:

– Construction of:
  - A new 16-bed residential aged care facility
  - Ancillary support services
  - A new mortuary
  - Additional support buildings
– Relocation of the existing ambulance station.

2.2.2 Design Development

The 30% CDR (GHD 2024) builds on the assessments and preliminary designs that were developed during the Initial Business Case (IBC) in 2019 and the 5% Master Plan Feasibility Review (MPFR) which followed in 2020. Both previous design reports recommended a 'new build option' where a new MPS and associated facilities were sited on adjacent lots 24K and 24b1, allowing the existing facility to continue to operate whilst the new MPS underwent construction.

During earlier design stages, site investigations were undertaken amidst the challenges of the then-prevailing COVID-19 travel restrictions. These investigations included topographic surveys, a geotechnical investigation, contamination investigations, ecological investigation, underground services survey and Furniture, Fittings and Equipment (FF&E) audit.

Figure 2.2 illustrates the masterplan for Stage 1 of the NIHRACS facility redevelopment, the subject of the current DA and this EIS.

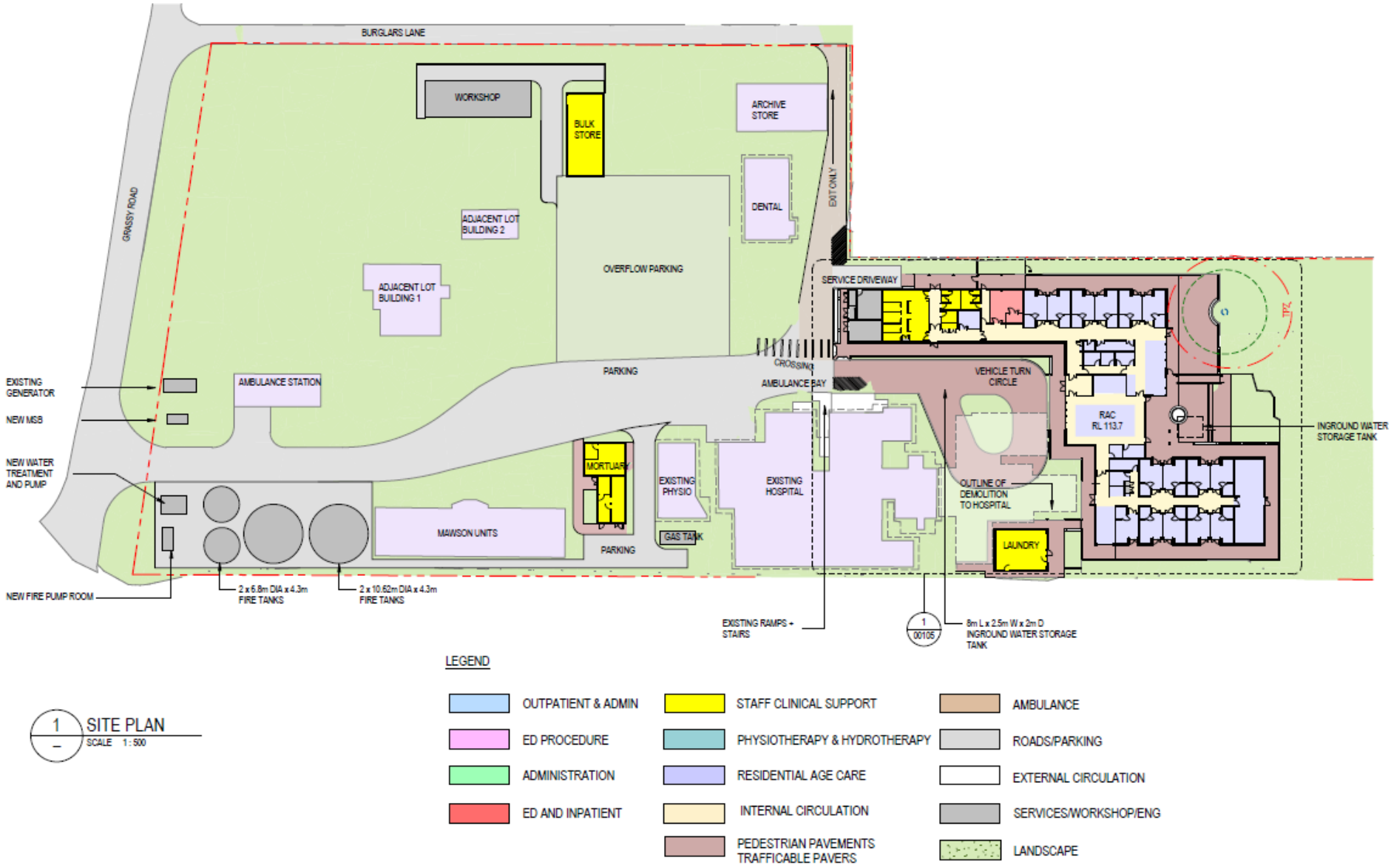

Figure 2.2 Masterplan of NIHRACS redevelopment forming part of Stage 1

2.2.3 Design principles

The Project's design principles are Constructability, Suitability, and Sustainability. These principles have driven discipline specific design concepts and solutions and have influenced the selection of systems, materials and structural design to ensure the facility is able to be constructed in a remote environment with inherent logistics and trade limitations, as well as consideration to ensure long term operation and maintenance is sustainable and suitable to the local context. The 30% CDR (GHD 2024) discusses the design principles in detail.

In addition to the above, the facility design is driven by a wellness model that will provide modern health services whilst enabling the end users to connect with nature and integrate with the community in a way that honours the culture and customs of the Island.

The architectural philosophy is to propose a building of its time, and as a future cultural asset for the community. The building form is a contemporary interpretation of the primary shapes, strong geometric forms of the colonial architecture on island as well as the Polynesian (Pitcairn and Tahitian) influences. It is important that the unique Norfolk Island culture and heritage is integrated into the design, to ensure the community feels a sense of pride and ownership of this significant public facility.

Landscape architecture

The reference design proposed a facility configured to integrate the native environment into the landscaped courtyards of the facility, including the integration of the existing Twin Norfolk Pine Trees. The twin Norfolk pine trees have now been assessed and will no longer be retained. Planting in the courtyard will be designed to be consistent with the scale and proposed uses in the space.

– The site including courtyards will have level ground plane for wheelchair access and generally low scale planting specifically chosen for their low water use and suitability to conditions.
– Colour and texture are an important attribute of the plantings, and the courtyards have feature tree planting.
– Integration of native flora to support endangered local species such as the green parrot and to provide a biodiverse outlook for the residents.

Structural engineering

Key design principles for the structure have included the need for the building to be of 'robust' construction, utilising simple details to facilitate construction with the local workforce. Where specialised elements are required, pre-fabricated elements will be utilised where possible with respect to sea transport limitations to minimise specialist onsite construction works.

Building form typically is:

– A series of concrete raft slabs on ground, suitably proportioned for the soil reactivity and form of building construction.
– Timber framed stud walls and roof framing to AS1720 – 2010 Timber Structures, similar in scale and complexity to residential and light commercial construction.
– Roof and wall bracing for stability, similar in scale and complexity to the bracing solutions presented in AS1684 – 2010: Residential Timber Framed Construction.
– Smaller isolated buildings towards the North-West of the site may be designed as raised timber floors, also to AS1720 – 2010 Timber Structures, to accommodate site levels and falls in that area.

Structural design has considered the design principals of constructability, suitability and sustainability (GHD 2024).

2.2.4 Options considered

During the previous 30% design process, two options were progressed, these were subsequently adapted for the reduced scope. Option 1, the 'integrated' option presented a centralised consolidated facility primarily driven by the clinical needs and NIHRACS operational model. Option 1 built on the design that was developed during the Initial Business Case and the 5% Design Stage where a consolidated facility is sited on the adjacent vacant lots (Lot 24b1 and lot 24k).

The second option, the 'Village' option, took into consideration the community feedback that was received from the 5% design. It proposed a detached Residential Aged Care facility in a configuration that enables it to have its own identity and enhanced privacy. Option 2 was chosen as the preferred option given that it responds to community feedback by addressing:

– The community's desire to have a detached Residential Aged Care facility that makes best use of the valley views to the northeast of the Project site.
– Car parking concerns off Grassy Road.
– Site pressures with adjacent properties.

This EIS considers a reduced scope Option 2 as part of the overall development of the Project site as illustrated in Figure 2.2 and discussed further in the following sections.

The next stage of design (50% Schematic Design Report [SDR]) will require on going consultation with NIHRACS to confirm the facility schematic design as well as continued liaison with the Norfolk Island Regional Council to ensure integration of proposed engineering infrastructure with existing services.

2.2.5 Key facility functional areas

The key facility functional areas that have been incorporated into the reduced scope Stage 1 design are:

– 16 Bed facility with potential expansion to 24 bed facility
– 7 of the 16 beds have been designed to be secure for older persons with mental health impairment
– Bulk stores are now co-located with the Emergency Medical Unit in the master plan
– Laundry is provided as a separate facility in early works package by others.

2.3 Construction

2.3.1 Environmental Management

All construction work would be conducted in accordance with a project-specific Construction Environmental Management Plan (CEMP). The CEMP would be developed by the Contractor to establish the required construction environmental management controls and include environmental controls considered by this EIS as part of the proposed works, in addition to further measures recommended by the EIS resulting from the assessment of potential impacts.

Details of the recommended environmental management measures are provided in Section 6.2.

2.3.2 Construction phases

The phasing of works has been designed around the need to maintain continuity of service throughout the delivery of the reduced scope Stage 1 works. This has been prioritised around the demolition and upgrade of key buildings. Existing structures, and their corresponding numerical identifier in brackets (refer to Figure 2.3), that would be demolished in earlier phases of the Project include:

– Mental Health building (Bldg. 10)
– Staff accommodation (Bldg. 13)
– Laundry building (Bldg. 3)

– Red Cross building (Bldg. 6)
– Mortuary building (Bldg. 4)
– Workshop building (Bldg. 2)

Other features to be demolished or removed once the new MPS is commissioned include (structure number in brackets):

– The northeast portion of the Residential Aged Care building (Bldg. 1)
– Existing water tanks (various sizes and locations including underground) (Bldg. 11)
– Twin-trunk Norfolk Island pine (X)

Figure 2.3 highlights features with red shading that would be demolished or removed from site as a part of Stage 1.

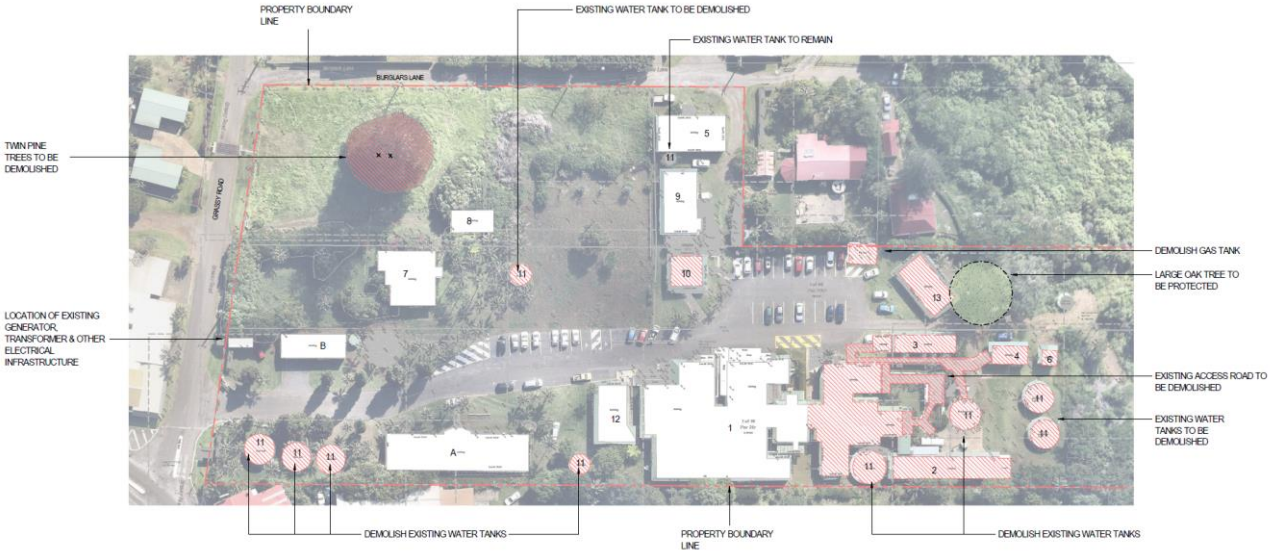

Figure 2.3 Stage 1 demolition plan

The demolition and staging plan is further expanded upon in Table 2.1 which includes an outline of the anticipated works across all stages with a composite of the project masterplan showing each stage of proposed development.

2.3.3 Construction activities

A summary of key demolition and construction activities in Stage 1 has been summarised in Table 2.1. The activities listed in Table 2.1 are not comprehensive, they provide a focus on the aspects relevant to environmental management.

Table 2.1 Construction components relevant to Stage 1

Component	Description
Pre-mobilisation	– Prepare site-specific CEMP consistent with the requirements of ISO AS 14001 and receive approval from DITRDCSA inclusive of: • All measures required as conditions of consent • All measures included as part of the Project intended to minimise or avoid environmental impacts • All recommended mitigation measures as summarised in Section 6.2 where these do not conflict with measures required as conditions of consent – Appoint and induct key personnel with roles and responsibilities defined by the CEMP – Commence pre-construction community consultation and awareness.

Component	Description
Site establishment	– Conduct CEMP inductions for all demolition and construction phase workers. – Provide weekly updates to community awareness channels (i.e. public noticeboards, social media, NIRC website, etc.) – Installation of temporary construction signage, site fencing and hoarding – Establishment of temporary sediment controls as per the sediment and erosion control plan to be developed as part of the CEMP – Install temporary environmental controls for incident response including chemical and hydrocarbon spills, fire, biosecurity and others as appropriate – Establishment of a site compound and material laydown area. • The site is spatially constrained and the contractor will be responsible for developing a staging plan to ensure the continuation of existing hospital operations. • A temporary site office will be located on the site and will need to be flexible and mobile to adapt to the changing site conditions and traffic flow throughout the building development • The Project site is not large enough to accommodate a construction storage facility. The 30% CDR assumes the rental of an offsite storage facility. – Establish facilities and procedures for waste materials handling including allowance for segregation of demolition waste in the following categories: • hazardous • reusable • recyclable • demolition – Establish facilities and procedures for handling and removal of general refuse that will be generated during the construction phase including: • packaging, segregated according to recycling process • putrescible materials.
Demolition	– Provide weekly updates to community awareness channels (i.e. public noticeboards, social media, NIRC website, etc.) – Conduct daily pre-start briefing to demolition workers identifying environmental values, hazards, constraints and actions requiring further response (e.g. Asbestos chance finds protocol) – Undertake compliance inspections and maintenance as necessary of all environmental controls in accordance with the CEMP – Demolition of structures in accordance with the approved staging plan – Monitor environmental conditions resulting from demolition activities including noise, air quality (dust, emissions, etc.), traffic and others in accordance with the CEMP.
Construction	– Provide weekly updates to community awareness channels (i.e. public noticeboards, social media, NIRC website, etc.) – Conduct daily pre-start briefing to construction workers identifying environmental values, hazards, constraints and actions requiring further response – Undertake compliance inspections and maintenance as necessary of all environmental controls in accordance with the CEMP – Monitor environmental conditions resulting from construction activities including noise, air quality (dust, emissions, etc.), traffic and others in accordance with the CEMP.
De-mobilisation	– Provide weekly updates to community awareness channels (i.e. public noticeboards, social media, NIRC website, etc.) with a final notification at conclusion of de-mobilisation – Removal of all remaining waste, plant, equipment and other materials – Remediation of disturbed areas to stabilise soil and re-establish grass cover or other landscaping in accordance with the approved plans for Stage 1.

2.3.4 Plant and equipment

The equipment that would be used for demolition and construction purposes is yet to be confirmed. This will be determined upon engagement of the successful contractor in combination with:

– Available equipment on Norfolk Island that could be made available to the Project
– Capacity of the various freight landing facilities at Kingston Pier, Cascade Pier or Ball Bay to facilitate the loading or unloading of plant and equipment
– Suitability for use on local roads and the Project site given its spatially constrained dimensions and proximity to sensitive receivers that would be affected by noise, vibration, dust and emissions.

As described by the 30% CDR (GHD 2024), the Island has two well established local suppliers that are suitable subcontractors for procuring concrete and other related material. The concrete suppliers can either use privately owned weighbridge onsite at the batching plants or use the council weighbridge at Cascade Pier. There is no concrete pump on island presently because local projects are too small for supplies to invest in this equipment.

Typical materials such as beach sand, recycled glass, basalt rock and gravel, and ready mixed concrete are available on Norfolk Island. The concrete mix is subject to the contractor importing the cement, and there being sufficient rock stocked on island which is then crushed for the concrete mix. The local supplier can provide the following capability for the Project:

– Several 20 Tonne diggers used to excavate, set poles and work with a variety of materials
– Cement hopper with capacity for 1.3-1.4 Tonne bulker bag
– 2 large cement trucks able to transport up to 7 cubic metres of concrete
– 20,000-gallon water truck, one bobcat, booms and sweepers
– Uses crusher dust instead of sand in the concrete mix due to local sand being too fine and needing to be imported in 1 Tonne bags.

2.3.5 Construction work hours

Standard construction hours would be:

– Monday to Friday 7:00am – 5:00pm
– Saturday 8:00am – 1:00pm
– Sunday and public holidays: no work.

2.4 Project history

2.4.1 Facility condition assessment (2005)

The Norfolk Administration engaged AECOM in 2020 to complete an asset management plan for the facilities. This plan included condition and compliance appraisals of the facilities including the following key observations:

– The condition assessment of the facility found that the majority of the facilities on the Project site were in a fair condition with deterioration that required attention.
– The NIHRACS facility maintenance workshop (storage shed) was found to be in poor condition due to significant deterioration or defects.
– The dental facility was found to be in very good condition with no deterioration or defects.

2.4.2 Hettae Ucklun plans

The Hettae Ucklun – Norfolk Island Hospital Staff Fundraising Association was established in 2010. The Association engaged Architects Without Borders to prepare a design for a new hospital in 2011 (Administration of Norfolk Island 2010). This design sited a new facility on the adjacent allotments to the existing facility, which are owned by Norfolk Island Hospital Enterprise.

2.4.3 Health Service Planning

Several studies have been conducted into the need for health service provision on Norfolk Island. These are detailed in Appendix C of the Norfolk Island Heath Services Plan (KPMG 2020). The Norfolk Island Health Service plan developed by KPMG in 2015 described the challenges and options for governance and financial models enabled by the introduction of mainland health care programs. Overall, the Health Service Plan aimed to articulate:

– A realistic and sustainable strategy for the development of health services on Norfolk Island
– Advice on the most appropriate model for the local community and priority areas
– Recommendations, including an implementation plan.

The plan was updated in 2019 and approved in May 2020 as a key document to support the Initial and Detailed Business Cases for the new MPS facility (KPMG 2020).

The Health Services Plan provided the basis upon which the facility user requirements for the Project were developed and defined.

Initial targeted stakeholder and community consultation was undertaken by KPMG in early 2019 with the aim to define the facility requirements, site options, master planning and cost estimation.

2.4.4 Initial Business Case

Funding was announced in the 2018 Federal Government Budget for the development of a capital works business case for a new Norfolk Island Multipurpose Health Services Facility.

KPMG was engaged to develop the Initial Business Case (IBC), GHD was engaged as subconsultant providing engineering and architectural inputs into the business case.

Three reference designs were developed by GHD to support the IBC, which further developed the original concepts by Architects Without Borders. An Environmental Constraints Report (ECR) was prepared, with one of the key constraints identified being the large twin-trunked Norfolk Island pine tree which has a substantial footprint over the south western portion of the Project site. Two of the reference designs considered retention of the tree, whilst the third design was developed with the tree removed.

The IBC reference design report recommended to proceed with a complete new build for the Detailed Business Case (DBC) stage.

2.4.5 Master Planning facilities review

GHD was engaged as the DSC for the 5% and 30% design for the Project in 2020. Initially two designs were considered that retained the tree, and a third with the tree removed.

During the 5% master planning facilities review (MPFR) phase, GHD engaged Dr Andrew Franks, an Australian Qualifications Framework (AQF) Level 8 consulting arborist, of Oberonia Botanical Consulting. Due to COVID-19 restrictions on access to Norfolk Island in July 2020, local consultant, Margaret Christian of Green Eyes Environmental, was engaged to gather data on behalf of Dr Franks, particularly in relation to the large, twin-trunked Norfolk Island pine on Lot 34 Portion 24k, so that site design constraints could be understood.

Based upon the designs developed, it was assessed by Dr Franks that some disturbance to the Tree Protection Zone (TPZ) (area of root protection extending from the base of the tree) would be expected from construction that could result in a decline of health and vitality (increased risk of large branch or total tree failure). In addition, it is understood that if the tree were to be retained and then suffered from structural or health issues, no machinery is available on Norfolk Island to safely remove this tree in proximity to infrastructure. As a result of these factors, it was recommended that the tree be removed prior to construction (refer to Appendix B). Subsequently, a 5% design option was developed based upon the Project site with the tree removed, and this design was assessed for the 5% MPFR.

The ECR prepared for the IBC was updated during the 5% design phase to support the MPFR.

2.4.6 30% Concept Design Report phase

Following community consultation on the design developed for the 5% MPFR (Option 1), the Project definition was progressed through to the 30% design stage. This design was presented to the wider Norfolk Island Community in September 2020. During September, COVID-19 restrictions were changed and a technical team was able to access Norfolk Island from Queensland to undertake studies that had been recommended in the MPFR, including a contamination assessment and ecological investigation as well as other engineering assessments.

2.4.7 Reduced scope 30% CDR phase

The previous 30% CDR design (Section 2.4.6) was a further progression of the 5% MPFR design originally proposed in the IBC albeit on a reduced scope. Additionally, during the 30% CDR design stage, an alternate option (Option 2) was introduced and developed in response to constructive community feedback.

The reduced scope 30% CDR process was undertaken between the period March to May 2024. It involved modifications to previous 30% CDR (Option 2), and further detailed user group consultations to better understand the facility functional requirements and associated clinical and operational needs. This also included considering the relevant constraints of staged delivery.

The project's design principles have remained unchanged from the 5% MPFR design stage and the previous 30%CDR, in that the following three design criteria of constructability, suitability and sustainability have driven specific discipline design concepts and solutions as described in Section 2.2.3).

2.5 Structure of the EIS

This EIS has been prepared in accordance with the requirements of the *Planning Act 2002* (NI) and the Planning Regulations 2004 (NI). Under Section 45(5)(a) of the Act, an EIS must be prepared in accordance with the requirements prescribed by Schedule 2 of the Regulations and any directions given by the Chief Executive Officer under Section 45(6) of the Planning Act about the assessment and statement.

Schedule 2 of the Planning Regulations 2004 (NI) identifies 'matters to be included in environmental statement'. Table 2.2 outlines where these matters are discussed in this document. It is noted that at the Draft stage specific requirements have not yet been received for the Project.

It is recommended that the 30% Concept Design Report and 30% Basis of Design Report be read in conjunction with this document.

Table 2.2 EIS Structure and Planning Regulation information requirements

Description	Location in EIS
Introduction	
An introduction to the environmental impact statement which includes – The name and address and, where applicable, professional qualifications of the person who prepared the statement	Section 2.6
The name and address of the applicant or person who made the development application	Section 2.6
The property description and address of the land subject to the development application	Section 1.1
A description of the proposed use or development to which the environmental impact statement relates	Section 2
A statement that the information contained in the statement is neither false nor misleading	Section 1.4
Statement of objectives	
A statement of objectives of the proposed use or development	Section 1.4
Analysis of alternatives	

Description	Location in EIS
An analysis of any feasible alternatives to the carrying out of the proposed use or development having regard to its objectives, including the consequences of not carrying out the proposed use or development	Section 3.2
Environmental assessment	
An analysis of the proposed use or development including – A full description of the proposed use or development which may include plans, drawings, diagrams, figures, and the like	Section 2.2
A full description of the Project site including a general physical description of the site, current land use, tenure and relevant planning controls applicable to the site; and	Section 2.1
A description of the environment likely to be affected by the use or development, together with a detailed description of those aspects of the environment that are likely to be significantly affected; and	Section 7 and subsections
The likely impact on the environment of the use or development, covering the impacts on: – The physical environment such as landforms, soils, water quality, watercourses, coast, underground aquifers – The human environment such as community, social and economic environment, traffic, noise, odour, visual amenity, public health, public infrastructure, potential impact on the heritage values of a heritage item listed in Schedule 1 of the Norfolk Island Plan – The non-human biological environment such as flora and fauna habitats, aquatic ecology, ecosystems, biodiversity.	Section 7 and subsections
An evaluation of the potentially beneficial impacts and the potentially negative impacts	Section 7.10.1
An evaluation of the potential contribution of the proposed use or development towards cumulative environmental impacts and the implication for long term sustainability	Section 7.10.2
An evaluation of the confidence with which prediction can be made including baseline data, previous experience, modelling, historical records, proven technology and the like	Section 7 and subsections
A full description of the measures proposed to mitigate any adverse effects of the use or development on the environment including – – An assessment of the effectiveness of any mitigation measures or standards for the protection of the environment intended to be adopted or applied to the use or development – Information describing where and in what circumstances proposed mitigation measures have been used successfully elsewhere	Section 6.2
A full description of any monitoring programs to be implemented to ensure the effective performance of any mitigation measures or standards to be adopted or applied to the proposed use or development	Section 6.2
A list of any approvals that must be obtained under any other Act or law before the use or development may lawfully be carried out.	Section 7.10.3
Compilation of measures to mitigate adverse effects	
A compilation (in single section of the environmental impact statement) of the measures referred to in paragraph 4(h).	Table 6.4
Justification of development	
The reasons justifying the carrying out of the use or development in the manner proposed, having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development as explained in the guidelines.	Section 2.2
Alternatives	
A consideration of alternatives to the carrying out of the proposed use and development.	Section 3 and subsections
Guidelines	

Description	Location in EIS
Any matters specified in any guidelines approved by the minister for that type of use or development	N/A
Conclusion	
A summary of the potential benefits and disadvantages of the project and the key conclusions from the matters included under paragraphs 1 to 8	Section 8
References, consultations and appendices	
All supporting material including relevant technical data	Section 9 and Appendices

2.6 EIS project team

The GHD project team that has contributed to this EIS is summarised in Table 2.3. The team has is experienced with infrastructure projects and Norfolk Island more generally.

Table 2.3 EIS project team

Team member & title	Qualifications	Experience summary
Peter Cowper Business Group Leader – SNSW/ACT Environment	Bachelor of Natural Resources	Over 27 years of environmental impact assessment, ecological assessment and operational environmental management across private and government projects within all Australian jurisdictions and selected international locations. Experienced in flora and fauna survey, spatial analysis and the preparation of environmental impact statements, strategic assessments and in particular the assessment of Commonwealth actions under the EPBC Act.
Alice Kelly Graduate Environmental Scientist	Bachelor of Science (Biology and Earth Science) Earth and Marine Science Honours (H1)	Two years' experience in environment sampling and analysis primarily for contaminated land assessments and monitoring. Contributed to a number of environmental impact assessments.
Kate Clulow Senior Environmental Consultant	Bachelor of Science	Over twelve years' experience in energy, water, waste and sustainability policy, environmental impact assessment, planning and environmental management. Over nine years' experience delivering environmental policy, strategy and projects directly for the Commonwealth.
Emma Cornelius Senior Environmental Scientist	Scientist Bachelor of Advanced Science (Hons)	Seventeen years' experience as an environmental consultant for public and private sector clients, including preparation of environmental impact assessments, ecological assessments, environmental management plans and environmental approvals.
Rebecca Clemmey Environmental Consultant	Bachelor of Engineering (Civil and Environmental); MPM	Rebecca has over nine years' experience in impact assessment and approvals permitting for local, State and Commonwealth level approval projects.
Daniel Brazier Environmental Scientist	Bachelor of Environmental Science	Five years' experience in contaminated land assessment, waste management, environmental assessment, monitoring and approvals, within the private and local government sectors.
Angus Hughes Senior Environmental Scientist	Bachelor of Science (Env)	Eight years' experience in contaminated land site assessments, remediation and environmental monitoring for both private and public sector clients on a diverse range of projects in Queensland, South Australia, New South Wales and Western Australia.

Team member & title	Qualifications	Experience summary
Asher Ford Senior Heritage Advisor	Bachelor of Arts (Hons Anthropology)	Over twelve years' experience in the heritage industry. He has worked on Commonwealth projects across VIC, NSW, TAS and SA, primarily focusing on Indigenous heritage and consultation. Asher has successfully prepared Heritage Assessments, Heritage Impact Assessments and Heritage Management Plans and has a strong experience in stakeholder engagement.
Andy Cheung Acoustic Engineer	Master of Engineering	Over three years' experience as an acoustic engineer. Involved in all aspects of environmental noise impacts including monitoring, prediction and assessment of industrial noise sources.
Dr Simon Hodgkison Fauna Ecologist	Doctorate of Philosophy, Bachelor of Science	Eighteen years' experience in ecological research and environmental assessment. He has extensive project experience of the implementation of fauna surveys and the development of management strategies to assist with environmental approvals. Simon has skills in the survey of birds, reptiles, mammals and frogs with experience undertaking targeted surveys for threatened species.

3. Alternatives

KPMG were engaged by the Commonwealth to review the Norfolk Island Health Service Plan that was developed in 2015, to identify future health and aged care services to support the Norfolk Island community. A range of alternatives were explored in the Plan, including a continuation of patients travelling to the mainland for medical services and alternative or supplementary services such as internet consultations.

3.1 Do nothing alternative

A do-nothing alternative would have the consequence of a further decrease of local health capability and limitation of services. This option would lead to an unacceptable outcome and has not been considered further.

3.2 Alternatives considered for 30% design

Mortuary options (integrated or detached)

Community feedback from the 5% Design indicated a desire to have a detached mortuary due to the local custom of commencing funeral procession at the hospital mortuary. The community feedback also indicated that a private landscaped area around the mortuary was required for large gatherings. Sub-options were developed which included the mortuary as part of the main MPS building, and a detached mortuary that was dislocated form the main building. The detached mortuary needed to meet the following requirements:

– Ability to transport the deceased from the hospital or residential aged care (RAC) facility to the mortuary in the ambulance
– Large gathering area adjacent
– Car parking in the vicinity for up to 30 cars
– Privacy
– Screening from the RAC facility.

Although both options were developed throughout the 30% design, the overwhelming community feedback and preference to a separate mortuary lead to discarding the option with the integrated mortuary.

Engineering options

Several options were developed and assessed for hydraulic engineering (off site vs. on site water supply), mechanical system selection and stormwater design.

4. Legislative framework

4.1 Overview

Norfolk Island was a self-governing Territory under the *Norfolk Island Act 1979* prior to 2015. The Commonwealth *Norfolk Island Legislation Amendment Act 2015* was passed in May 2015. Subsequently the Australian Government assumed responsibility for funding and delivering services. NIRC was established under the *Local Government Act 1993* (NSW) (NI).

Under the *Norfolk Island Applied Laws Ordinance 2021* (Cth), Queensland legislation applies to Norfolk Island as subordinate to Commonwealth Legislation (where it has not been suspended). Applied legislation may be amended, repealed or suspended by an Ordinance made under section 19A of the *Norfolk Island Act 1979* (Cth).

4.2 Norfolk Island legislation

An overview of applicable Norfolk Island legislation relevant to the Project include:

– Environment Act 1990
– Planning Act 2002
– Building Act 2002
– Trees Act 1997
– Norfolk Island Heritage Act 2002
– Norfolk Island Plan 2002
– Migratory Birds Act 1980
– Noxious Weeds Act 1916.

While Norfolk International Airport is a Commonwealth airfield, it is not listed under section 6 of the Airports Regulation 2024 (Cth) and as a result development in the vicinity of the airfield managed by NIRC under *Development Control Plan No. 5 – Norfolk Island Airport* as made under the Planning Act. The Project site is not affected by the provisions of this plan.

The Project requires a development and building approval as set out in the Planning Act 2002 and Building Act 2002.

4.2.1 Norfolk Island Plan 2002

The Project site is located in an urban area of the strategic plan map.

The allocated site is zoned as a Special Use Zone labelled as item ‘3’ on the Norfolk Island Zoning Map at Figure 4.1. A Special Use Zone is intended to protect and preserve land for existing and future public, government and Administration use or development.

According to Section 104 of the Norfolk Island Plan 2002, the proposed works associated with the Project are considered to align with the following purpose definitions:

– **Hospital**: means the use of premises for-
  a) the medical or surgical care or treatment of patients, whether or not the care or treatment requires overnight accommodation; or
  b) providing accommodation for patients.
  c) or providing accommodation for employees, or any other use, if the use is ancillary to the use in paragraph (a) or (b).

  The term includes treatment of outpatient care, associated with the hospital use.

– **Residence - Residential Care Establishment**: means the use of premises for supervised accommodation, and medical and other support services, for persons who-
  a) cannot live independently; and
  b) require regular nursing or personal care.

In Section 65 - Table of Use or Development – Special Use Zone in the Norfolk Island Plan 2002, a Hospital and Residence - Residential Care Establishment triggers 'permissible (with consent) use or development'.

According to the Planning Act, a development approval is required for development triggering permissible (with consent) use or development. This covers the following works:

The erection or use of any building or other structure or the carrying out of building, engineering, mining, or other operations in, on, or under the land, or the making of any material change to the use of any premises on the land and includes any one or more of the following:

– Construction, exterior alteration or exterior decoration of a building or structure
– Demolition or removal of a building, structure or works
– Construction or carrying out of works.

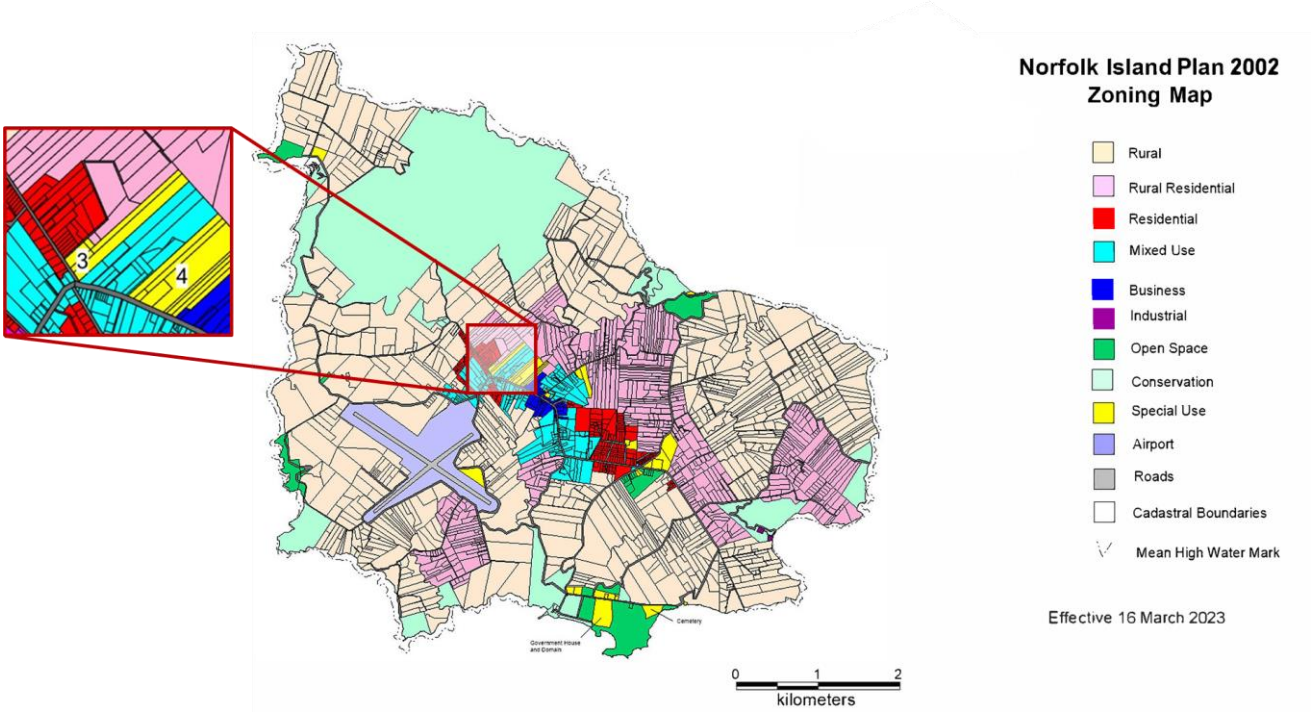

Figure 4.1 Norfolk Island Zoning with inset showing the Project site

4.2.2 Planning Act and Regulations

Schedule 1 of the Planning Regulations 2004 lists types of developments that are prescribed.

Hospital and health services facilities are prescribed under Part 3A – Significant Developments of the Planning Regulations.

KPMG submitted a significant development application to NIRC on 15/9/2020.

The process to obtain a development approval for a development approval for permissible (with consent) use or development is summarised below:

– Preparation of the development application form including supporting documentation to the Chief Executive Officer.
– On receipt of the development application, the Chief Executive Officer allocates a development application registration numbers and registers the application.

– A notice is then published in the gazette and on land about the Project and provides the following information:
    - The development application registration number of the development application
    - If the development has a name, the name
    - The name and address of the applicant
    - The land description and address of the land for which the development is proposed
    - A summary of the proposed development
    - Whether or not the development application is accompanied by an environmental impact statement
    - Details of all venues where the development application may be inspected
    - The specified period of time in dates that the development application may be inspected
    - A statement that:
        i. any person may, during the period specified in paragraph 43(2)(b) or 44C(2)(b) of the Act, make written submissions to the Chief Executive Officer about the development application
        ii. if a submission objects to the proposed development, the grounds for objection must be specified in the submission
        iii. if the application is for permissible (with consent) use or development—the decision of the Minister is a reviewable decision within the meaning of section 78 of the Act.
– The Board then makes a recommendation about the application and then refers the application to the Minister.
– The Minister then decides on whether to give development approval for the use and development of the land. Once a development approval is issued a set of conditions is attached to the approval.

4.2.3 Building works permit and approval process

The Project would trigger the need for a building works approval under the Building Act 2002. The methods of use of materials in the building work for the Project will be required to conform to acceptable methods of use set out in the Norfolk Island Building Code.

For a building works approval the following steps are required:

– A building application form is completed with the permission of the owner of the relevant land shall be accompanied by written confirmation signed by the owner that permission has been granted to the person to make the application. Supporting documentation is prepared for the building works application package. A copy of the relevant development approval is also included in the application package.
– The building application is made to the Chief Executive Officer who assesses the application and makes decision.

4.2.4 Trees Act 1997

Clearing of protected tree species would require a clearing permit. There is a large twin-trunked Norfolk Island pine, and potentially another smaller Norfolk Island pine, as well as two planted broad-leaved meryta (*Meryta latifolia*) also known as ‘shade trees’ within the Project footprint.

The process to obtain a clearing permit is outlined in Part 2 of the Trees Act and is summarised below:

– Preparation of an application form including supporting documentation to the Chief Executive Officer
– Consent from the landowner
– On receipt of the development application, the Chief Executive Officer assesses the application and decides whether to issue a permit
– A permit is then issued with conditions and the holder of the permit is required to allow an inspection by an authorised officer after the taking of the tree that is the subject of the permit

– The permit is also published in the Gazette.

4.3 Commonwealth legislation

4.3.1 Environment Protection and Biodiversity Conservation Act 1999

Under the EPBC Act, any action that would result in a significant impact to the environment of Commonwealth land, or any action undertaken by, or on behalf of a Commonwealth Agency that is likely to have a significant impact on the environment anywhere in the world or a matter of National Environmental Significance, must undergo a rigorous assessment and approval process. An action includes a project, development, undertaking, activity, or series of activities.

As defined by the EPBC Act (Section 528) 'environment' includes:

a. Ecosystems and their constituent parts, including people and communities
b. Natural and physical resources
c. The qualities and characteristics of locations, places, and areas
d. Heritage values of places
e. The social, economic, and cultural aspects of a thing mentioned in paragraph (a), (b), (c) or (d).

The Project meets the requirements to be considered a Commonwealth action as it would be undertaken in a Commonwealth area and would also be funded by a Commonwealth Agency. As such, it is subject to assessment in accordance with section 28 of the EPBC Act requiring consideration of the whole of the environment.

The EPBC Act Policy Statement 1.1 (Commonwealth of Australia 2013a), *Significant Impact Guidelines: Matters of National Environmental Significance* (MNES) (SIG 1.1) and EPBC Act Policy Statement 1.2 (Commonwealth of Australia 2013b), *Actions on, or impacting upon, Commonwealth land and actions by Commonwealth Agencies*, provide a definition of 'significant impact' and the approach to take where there is scientific uncertainty about potential impacts.

Pre-referral advice from the Department of Agriculture Water and the Environment (DAWE) was sought by KPMG in October 2020. The then Department was provided with 5% Master Planning Feasibility Review documentation, including the Environmental Constraints Report (GHD 2020). The pre-referral advice indicated that based upon the information provided it was not possible to determine whether significant impacts would be likely, as key information upon which this assessment could be made in relation to ecology and site contamination was to be obtained during the 30% design phase. Broad comments to assist in the preparation of referral documentation were provided.

Notwithstanding the presence of MNES and the Project meeting the definition of a Commonwealth actions, following the guidance provided by SIG 1.2, a referral and subsequent approval under the EPBC Act is required for:

1. An action taken by any person on Commonwealth land that is likely to have a significant impact on the environment (subsection 26(1) of the EPBC Act).
2. An action taken by any person outside of Commonwealth land that is likely to have a significant impact on the environment on Commonwealth land (subsection 26(2) of the EPBC Act).
3. An action taken by a Commonwealth agency anywhere in the world that is likely to have a significant impact on the environment (section 28 of the EPBC Act).

Where an action is identified not to be likely to have a significant impact under the EPBC Act but may kill, injure, take, trade, keep or move a member of a listed threatened species or ecological community, a member of a listed migratory species, or a member of a listed marine species in or on a Commonwealth area, a general permit under Part 13 of the EPBC Act would be required.

5. Engagement

5.1 Engagement Approach

A community scan and situation analysis was undertaken by KPMG. The list of stakeholders (names removed) in Table 5.1 were part of developing the 5% MFPR design documentation.

Table 5.1 Stakeholder consultation register

Organisation	Title
DITRDCSA	Project Director - Territories Capital & Major Projects
DITRDCSA	Project Officer - Territories Capital and Major Projects
DITRDCSA	Accreditation Project Manager NI Health - Norfolk Island, ACT + NT Territories Branch
DITRDCSA	Assistant Director, NI Health - Norfolk Island, ACT + NT Territories Branch
DITRDCSA	Director - Territories Capital & Major Projects Section
DITRDCSA	Director - Communications
DITRDCSA	Contracts & Building Supervisor
DITRDCSA	Project Directors in the Territories Capital and Major Projects
DITRDCSA	Senior position for Island Emergency Management
DITRDCSA	Project Directors in the Territories Capital and Major Projects
NI Administration	Administrator of Norfolk Island
NI Administration	Director - Local Government and Facilities Management Section - NI
NIRC	Chief Executive Officer
NIRC	Group Manager Services
IRC Pty Ltd	Independent Climate and Security Advisor to DITRDCSA
Hettae Ucklun	Hettae Ucklun Representative
NSW Health SESLHD	Manager - Norfolk Island Support Program
NIHRACS	Manager
NIHRACS	Senior Psychologist/Mental Health Counsellor
NIHRACS / Hettae Ucklun	Quality and Safety Manager/Pharmacy support / Hettae Ucklun Representative
NIHRACS	ICT Manager
NIHRACS	Acting Practice Manager
NIHRACS	Aged Care
NIHRACS	Facilities Maintenance
NIHRACS / NI Connect	Child Wellbeing Manager
NIHRACS	Social Worker
NIHRACS	Radiographer
NIHRACS	Dentist
NIHRACS	Trainee Dental Therapist
NIHRACS	Physiotherapist

5.2 Consultation activities

5.2.1 Consultation during 5% MFPR

The following list of stakeholder consultation activities were undertaken as part of developing the 5% MFPR design documentation.

Table 5.2 Stakeholder consultation activities overview

Date	Stakeholder consultation activity	Organisation
16-Sep-20	Wider Community User Group Consultation 1 of 3	DITRDCSA, KPMG, NIHRACS, GHD
17-Sep-20	Wider Community User Group Consultation 2 of 3	DITRDCSA, KPMG, NIHRACS, GHD
17-Sep-20	NIRC Planning Department to discuss planning approvals	DITRDCSA, KPMG, NIRC, GHD
18-Sep-20	Wider Community User Group Consultation 3 of 3	DITRDCSA, KPMG, NIHRACS, GHD
23-Sep-20	NIHRACS Target Meetings #8 Kitchen, #4 RACS, #6 Inpatient/Procedures/Imaging, #7 GP/Community Health	NIHRACS, DITRDCSA, KPMG, GHD
23-Sep-20	Waste Management Centre	GHD, NIRC Waste Management Centre
24-Sep-20	NIHRACS Target Meeting #3 Dental, #1 General / Overview, #5 Emergency, #2 Allied Health, #11 Administration	NIHRACS, DITRDCSA, KPMG, GHD
29-Sep-20	Discuss options, brief changes and confirming facility requirements for 30% CDR	DITRDCSA, KPMG, GHD
02-Oct-20	NI Admin & Stakeholder Consultation	DITRDCSA, KPMG, NI Admin, Community Members, GHD
09-Oct-20	Mechanical Options Matrix Meeting	DITRDCSA, KPMG, NIHRACS, GHD
15-Oct-20	Design Option 2 Sketches Presentation to NIHRACS	DITRDCSA, KPMG, NIHRACS, GHD
15-Oct-20	Active ICT and Backhaul Satellite Meeting	DITRDCSA, KPMG, GHD
20-Oct-20	Discuss consultation strategy	DITRDCSA, KPMG, GHD
26-Oct-20	30% Design presentation & meeting with project team	DITRDCSA, KPMG, GHD, NI Admin
26-Oct-20	NIHRACS Target Meeting #1 Presentation of updated design concepts	DITRDCSA, KPMG, NIHRACS, GHD
26-Oct-20	NIHRACS Target Meeting #5&6 Emergency, Inpatient, Procedures & Imaging	DITRDCSA, KPMG, NIHRACS, GHD
27-Oct-20	NI MPS Project Team presentation to Mayor & Councillors	DITRDCSA, KPMG, GHD, NI Admin
27-Oct-20	Design Presentation to CCCC	DITRDCSA, KPMG, NIHRACS, GHD, CCCC
27-Oct-20	NIHRACS Target Meeting #4 RACS, #3 Dental	DITRDCSA, KPMG, NIHRACS, GHD
28-Oct-20	NI MPS Project Team presentation to Council of Elders	DITRDCSA, KPMG, GHD, Council of Elders
28-Oct-20	NI MPS Community consultation	DITRDCSA, KPMG, GHD, Community Members

Date	Stakeholder consultation activity	Organisation
28-Oct-20	Design Presentation to Hettae Ucklun	DITRDCSA, KPMG, GHD, Hettae Ucklun Members
29-Oct-20	NI MPS Presentation to NIRC	DITRDCSA, KPMG, GHD, NIRC
29-Oct-20	NI National Parks Meeting	DITRDCSA, GHD, NI National Parks

5.2.2 Consultation during 30% CDR

In April 2024, stakeholder consultation was carried out to advance the Stage 1 Concept design and master planning for stage 2. The consultation involved:

– NIHRACS
– On-island DITRDCSA staff.

The focus of the consultation was to gather feedback on the preliminary site layout and infrastructure demarcation for Stage 1. Stakeholder feedback and concerns were documented by the PMCA and consolidated into a register, with GHD's response included in Appendix E.

Various aspects were covered, including infrastructure, facility layout, utility, sustainability, and RAC operational concerns. One comment highlighted the need for road access past the new RAC building to retain access to the valley and bore water infrastructure for maintenance. This has been requested to be costed as a design and project risk due to its late introduction.

5.3 Outcomes of consultation

As a result of consultation in relation to the 5% design, a second option was developed to address community concerns. Option 2 responds to feedback in relation to the community's desire to have a detached Residential Aged Care facility that makes best use of the valley views to the northeast of the Project site, a separate mortuary facility, car parking concerns off Grassy Road and site pressures with adjacent properties. Option 2 sees a detached Residential Aged Care facility which enables it to have its own identity and enhanced privacy.

Ongoing consultation with NIHRACS is assisting with establishment of appropriate internal layouts for the facility.

6. Environmental risk assessment

To assist in understanding potential impacts and to guide subsequent stages of design development through to construction, an environmental risk assessment (ERA) was prepared. The ERA is intended to remain a live document through the remaining design phases and transition into the construction stage, providing the basis for the CEMP in addition to any further requirement that may be imposed through formal approvals under the Planning Act and if necessary, the EPBC Act.

The purpose of the ERA is to support informed decision making by improving the transparency around recommendations and ensuring mitigation measures are appropriately targeted. Risk ratings associated with each aspect provide a systematic way for prioritisation of risks based on their potential impact and the likelihood of occurrence.

6.1 ERA method

Presented in the following tables are the likelihood descriptors (Table 6.1) and consequence descriptors (Table 6.2) used in preparing the ERA.

Table 6.1 Likelihood descriptors

Term	Meaning
Remote	highly doubtful but could occur in exceptional circumstances
Unlikely	not expected to occur in most circumstances
Possible	may occur in exceptional circumstances
Likely	probably will occur
Almost certain	expected to occur

Table 6.2 Consequence descriptors

Term	Meaning	Interpretation
Severe	***widespread serious, permanent impact***	Incident is reportable to the regulator, serious permanent/persistent and irreversible damage is caused, significant public interest and media coverage and/or impacts not contained to the project site
Major	***widespread, medium to long-term impact***	Incident is reportable to the regulator and notable damage is caused to an area or asset from which it will take more than 10 years to recover with long-term evidence of the incident remaining. OR Incident is reportable to the regulator and public concern is raised
Moderate	***localised, short to medium-term impact***	Moderate but repairable damage that will take up to 10 years to recover OR Incident is reportable to the regulator
Minor	***localised short-term impact***	Minor damage to the environment or area and which is contained within the project site. Recovery will take less than two years for full recovery with only minor repair. OR

Term	Meaning	Interpretation
		Disturbance to scarce or sensitive environmental or heritage resources
Minimal	***no impact or no lasting effect***	Negligible damage that is contained within the project site OR The damage is fully recoverable with no permanent effects, taking less than six months to fully recover

The risk matrix shown in Table 6.3 provided the basis for determining risk ratings in the ERA.

Table 6.3 Risk Matrix

RISK RATING		CONSEQUENCE				
		Minimal	***Minor***	***Moderate***	***Major***	***Severe***
LIKELIHOOD	***Remote***	Negligible	Negligible	Low	Medium	Medium
	Unlikely	Negligible	Negligible	Low	Medium	High
	Possible	Negligible	Low	Medium	High	Extreme
	Likely	Low	Low	Medium	High	Extreme
	Almost certain	Low	Medium	High	Extreme	Extreme

6.2 Environmental Mitigation Measures

Table 6.4 presents a synthesis of the environmental mitigation measures that have been explicitly included in the 30% design and also recommended by this EIS to mitigate impacts. Together with the description of the Project in Section 2.2 present a detailed description of the Project for the purposes of the environmental impact assessment in Section 7.

Table 6.4 Summary of environmental mitigation measures

Activity	Existing Measures	Measures recommended by this EIS
Construction Stage		
Enabling works including vegetation removal and bulk earthworks	The 30% design includes retention and protection of mature white oak (*Lagunaria patersonia*) at the northeastern corner of the proposed new RAC facility CEMP to include: – A contaminated land unexpected finds procedure would be implemented during construction to identify potential contaminants as construction activities are being delivered. Components would include: • A stop work protocol • Requirements to undertake assessment by a suitably qualified environmental consultant and assess potential to avoid further disturbance in the area until deemed safe by environmental consultant. – Erosion and sediment control plan (ESCP).	50% design development to include: – Investigate potential for relocation of existing shade trees (*Meryta latifolia*) if relocation of existing shade trees is not feasible, investigate inclusion of new shade trees in the landscaping design where feasible. – Landscaping in design to include indigenous flora where appropriate given proximate land uses. Demolition / construction program is to schedule removal of Norfolk Island pines to avoid breeding season for white terns between September and February (inclusive). CEMP to include: – Roles and responsibilities assigning verification that requirements of unexpected finds protocol have been met – Asbestos removed from buildings to be managed by the Contractor. – Unexpected finds procedure for heritage artefacts – ESCP with indicative measures including: • Diverting uncontaminated runoff around cleared or disturbed areas • Erecting a silt fence and other measures that would prevent debris entering drainage systems, waterways or adjacent properties • Preventing tracking of sediment by vehicles onto roads • Appropriate stockpiling techniques to be implemented, including limiting stockpiling to a defined materials laydown area • Keep roads and access tracks clear of soil and sediment. • Limit vehicle and machinery movement to existing roads and tracks where possible. • Do not undertake construction activities during heavy rainfall or immediately following wet weather. • Locate soil away from drains and creeks.
Demolition of existing structures	Management of demolition waste would follow NIRC guidelines and comply with Safework Australia procedures for handling and disposal of ACM.	50% design development to: – Consider potential for relocation and reuse of newer facilities by the community rather than demolition. – Undertake ongoing consultation with NIRC and relevant stakeholders to minimise the requirement for consumption of natural resources through resource recovery.

Activity	Existing Measures	Measures recommended by this EIS
		– Consider the approach to memorialisation or dedication of new structures or features of the Project to recognise contributions by the community to the health and wellbeing of residents and visitors to Norfolk Island over preceding decades. – Include scoping for a public interpretation strategy in association with the community. This should include photo interpretation, verbal histories as well as potential inclusion of historic photos in the foyer and/or other appropriate location such as the NIRC museum. Integrate with the recommended memorialisation or dedication of structures to reflect past contributions by the community. Prior to mobilisation for commencement of demolition undertake archival recording of the existing structures. CEMP to include: – Roles and responsibilities to verify that requirements for hazardous materials handling have been met. – A waste management plan outlining comprehensive control measures for all stages of the construction and demolition works and associated roles and responsibilities.
All construction phase works including enabling works, demolition and construction	– Contractor will be responsible for developing a construction staging plan that minimises disruptions to hospital operations – Consultation with community during the construction phase is recommended by the noise assessment – Temporary park included in Stage 1 will include designated parking for construction vehicles – All works would comply with NIRC policies including '4.02 – Working near overhead and underground assets policy' – Undertaking of a noise assessment to model areas most likely to be detrimentally affected by construction noise and identify sensitive receptors – A CEMP would be prepared with sub-plans including: • Sediment and erosion control plan • Noise and vibration management plan • A chance finds protocol for Asbestos containing materials	50% design development to include: – Assessment of the potential risks associated with the site soil contamination inclusive of: • A Supplementary Contamination Investigation • Remediation Options Assessment and Management Strategy • A Site Management Plan in the event a containment cell is required – Thematic guidance for the design of construction site hoarding to be sympathetic to the local landscape and reflecting the design philosophy – Consideration of equipment necessary to achieve construction with least potential to generate unnecessary noise and vibration effects and 'nuisance' as defined by the *Environment Act 1990* (NI) – Review and update noise assessment to reflect the current reduced scope Stage 1 – Identification of a stockpile site to provide sufficient area for the storage of raw materials and minimise the number of deliveries required outside of standard construction hours. – Consider reuse of spoil material likely to be generated through the Kingston Pier Channel Construction Project (EPBC 2021/9124) in concrete production Project delivery is to be guided by an Environmental Management System (EMS) that meets the requirements of ISO AS 14001:2015 within which the

Activity	Existing Measures	Measures recommended by this EIS
		CEMP, inclusive of all recommended sub-plans and mitigation measures identified by the Environmental Risk Assessment, is delivered Pre-mobilisation noise and vibration assessment, using contractor-specific details such as plant/equipment, activities and work methods, scheduling/timing and activity durations. Findings to inform the noise and vibration management plan (NVMP) under the CEMP CEMP to specify: – All plant and equipment to be used in construction and demolition activities must be maintained in accordance with OEM requirements. – Procedures to minimise vehicle idling – Refuelling of vehicles and plant for use on-site is to take place at designated external fuel depots CEMP to include: – A fauna management sub-plan that includes: • Requirement for an appropriately experienced and qualified wildlife spotter/catcher to be present during vegetation removal to identify birds and other wildlife at risk of injury and rescue / recover any birds inadvertently injured. • Procedures for rescue and treatment of any fauna inadvertently injured during demolition and construction phase works. – Biosecurity measures that comply with the Norfolk Island Regional Council Pest Management Plan (NIRCPMP) 2021-2026 and Biosecurity (Prohibited and Conditionally Non-prohibited Goods - Norfolk Island) Determination 2016, including but not limited to: • Measures to implement biosecurity controls on the import of plant, equipment, personnel and other material to Norfolk Island, • Measures to manage potential biosecurity risks in movement of any construction related material once on the Island – Installation of construction site temporary fencing: • (Or other physical marking) to define limits of works and out of bounds areas to minimise the potential for unapproved removal or damage to vegetation to be retained • With hoarding to protect the privacy of neighbouring residences • Conduct of inspections and maintenance of hoarding to ensure it remains fit for purpose – Roles and responsibilities assigning 'before you dig' and NIRC policy compliance

Activity	Existing Measures	Measures recommended by this EIS
		– A waste management plan outlining comprehensive control measures for all stages of the construction and demolition works and associated roles and responsibilities – Vermin control measures in line with the NIRC Pest Management Plan (2021-2026) – Noise and vibration management plan (NVMP) outlining control measures and associated roles and responsibilities, including: • Site inductions • Establishment of temporary noise barriers around noisy activities • No loud stereos on site • Avoid shouting, talking loudly, slamming vehicle doors or making any other unnecessary noise • Works carried out during construction hours specified • Turn off equipment when not in use • Halt construction for the duration of funeral services and weddings at All Saints Church • Halt construction for the duration of Court sittings, if required • Limit work to specified hours • Selection of equipment that is less noisy • Regular and effective maintaining • Siting to increase distance between source and receiver • Monitoring vibration • Procedure to respond in the event of resultant impacts to adjacent structures. – Artificial light management provisions to avoid or minimise light spill timing, frequency, duration and intensity to adjoining natural areas and residences – Community and stakeholder engagement plan under the CEMP to include: • Provision of weekly updates on all aspects of the Project through appropriate media platforms such as the NIRC website, social media and community noticeboards • Changes to traffic and road conditions • Timing of planned works and associated restrictions with alternate arrangements where relevant • Regular liaison with NIHRACS manager to understand and respond to user-experience, conflicts and upcoming activities to deconflict competing interests

Activity	Existing Measures	Measures recommended by this EIS
		• Complaints handling procedures and a register of issues raised, responses and any alterations made to Project delivery – Dust suppression systems to be employed during all demolition and earthworks including appropriate use of water trucks – Stockpiling of soils and other water materials is to be avoided where practicable. If required, stockpiles being left for more than a day are to be covered using fabric or tarpaulin that is fit-for-purpose – Speed restrictions to reduce wheel-generated dust – Trucks carrying construction materials to be covered – Vehicle movement restrictions during high wind conditions when dust cannot be effectively controlled – Traffic management plan under the CEMP to include: • Addressing haul routes, timing of deliveries for construction, deliveries for NIHRACS operations, parking for contractors and NIHRACS visitors and staff, vehicle flow management and maintenance of access for emergency services • Monitoring road surface condition on haul routes for heavy vehicles • Timing and procedure for repair of significant new damage caused by the Project at conclusion of the Construction phase • Safety management along haul routes • Noise, vibration and traffic impacts to Norfolk Island Central School, accommodation, places of worship or other sensitive receivers along haul routes.
Operational Stage		
Operational use of the site	The 30% design responds to: – Future climate scenarios including cyclone intensity and severity in addition to being guided by sustainability as one of the three key themes in the design philosophy with design decisions across all elements responding to the NIHRACS context and foreseeable long term operational requirements. – Community feedback and also incorporated design principles in the architectural and landscape design to be sympathetic to the character of Norfolk Island while enabling an improvement in health services delivery. – The requirement for the includes the provision of landscaping to create a visual screen between the NIHRACS facility and adjoining neighbours.	50% design development to include: – Consideration of construction scheduling to implement landscape planting as soon as practicable upon completion of works requiring access to garden areas – Shielding between on-site plant and sensitive receivers – Locating noisy equipment inside acoustic structures/enclosures – Selecting quieter plant/equipment where practicable – Provision of porous pavements where appropriate. – Liaison with NIRC is required and an understanding of the existing stormwater infrastructure in and around the MPS site needs to be better understood to confirm the stormwater solution. – Analysis of discharge volumes, velocities and erosion risk to the slope east of the Project site.

Activity	Existing Measures	Measures recommended by this EIS
	– The requirement for the consideration of car parking and vehicle movements. – Consideration of the capacity of Norfolk Island's utilities and infrastructure and confirmed capacity to accommodate the upgraded NIHRACS facility. – Completion of a noise assessment to model areas most likely to be detrimentally affected by operational noise and identify sensitive receptors.	– Confirmation of traffic impacts from operational phase at conclusion of Stage 4 of the NIRACS redevelopment program and identify any additional considerations to be addressed and timing for any remedial works necessary – Addressing design of new utilities to meet potential future demand at the site for water supply, discharge to the sewer network or electricity demand – A review and update of noise assessment to reflect the current reduced scope Stage 1 – An investigation of alternate access arrangements through adjoining properties including consequential impacts relating to vegetation, soils, slopes, erosion, in addition to associated approvals as appropriate CEMP to specify: – All plant and equipment to be used in construction and demolition activities must be maintained in accordance with OEM requirements. – Refuelling of vehicles and plant for use on-site is to take place at designated external fuel depots. Operational Environmental Management Plan (OEMP) to be prepared and implemented to include: – Minimising unnecessary use of external lighting or creation of light spill that impacts adjacent residences – Management of external lighting to minimise interrupting wildlife lifecycles and behaviour – Noise management procedures relating to operational plant and machinery – Noise management in relation to day/night patterns of use and RAC operations including visitors, residents and staff – Complaints handling procedures – All operational plant and equipment will be subject to an asset management strategy which ensures OEM maintenance and compliance with operational specifications in relation to noise and vibration

7. Environmental impact assessment

7.1 Overview

This EIS has been undertaken with reference to available baseline and historical data, onsite investigations and previous project experience.

The following site-specific assessments were undertaken for the purposes of this project during initial design phases in 2020. As the Project site has remained largely unchanged since the undertaking of these assessments, they are still considered to applicable to this EIS:

– Preliminary Tree Assessment
– Ecological Investigation
– Noise and Vibration Assessment
– Contaminated Land Assessment
– Geotechnical assessment.

Assessment of the potential impacts to the environment are discussed in the following sections which cover the information requirements of the Planning Act and Regulations as outlined previously in Table 2.2.

In considering the impact to the environment, the assessment has taken into account all the of mitigation measures which are included in the 30% design, identified as ‘existing mitigation measures’ in the ERA. Additionally, it has assumed that mitigation measures proposed by the ERA would be implemented. Accordingly, the conclusion of the environmental impact assessment is conditional on all mitigation measures being implemented.

7.2 Landscapes and Soil

Norfolk Island is situated on the Norfolk Ridge, which comprises deeply weathered erosional remnants of a volcano which has resulted in predominantly clayey soils, olivine basalt flows and tuff that can have a weathering profile of up to 45 m (DITRDCSA, 2022).

Soils across Norfolk Island have been developed over volcanic basaltic sheet lavas and pyroclastic tuff (layered volcanic ash). Soils are generally well draining, clayey soils that have developed over basaltic flows (Abell & Falkland, 1991). These soils are deeply weathered and have rich highly permeable structure. There is some variation across the Island with some areas dominated by younger sandy soils developed over calcarenite, which are prone to erosion. Historic land use including cattle grazing and farming across Norfolk Island has influenced erosion and soil compaction. Further soil mapping of geotechnical zoning indicates that the Project site and the surrounding area is likely underlain by either Middlegate gravelly clay or Rooty Hill clay soil types (Parsons Brinckerhoff, 2005) and presented in Figure 7.1.

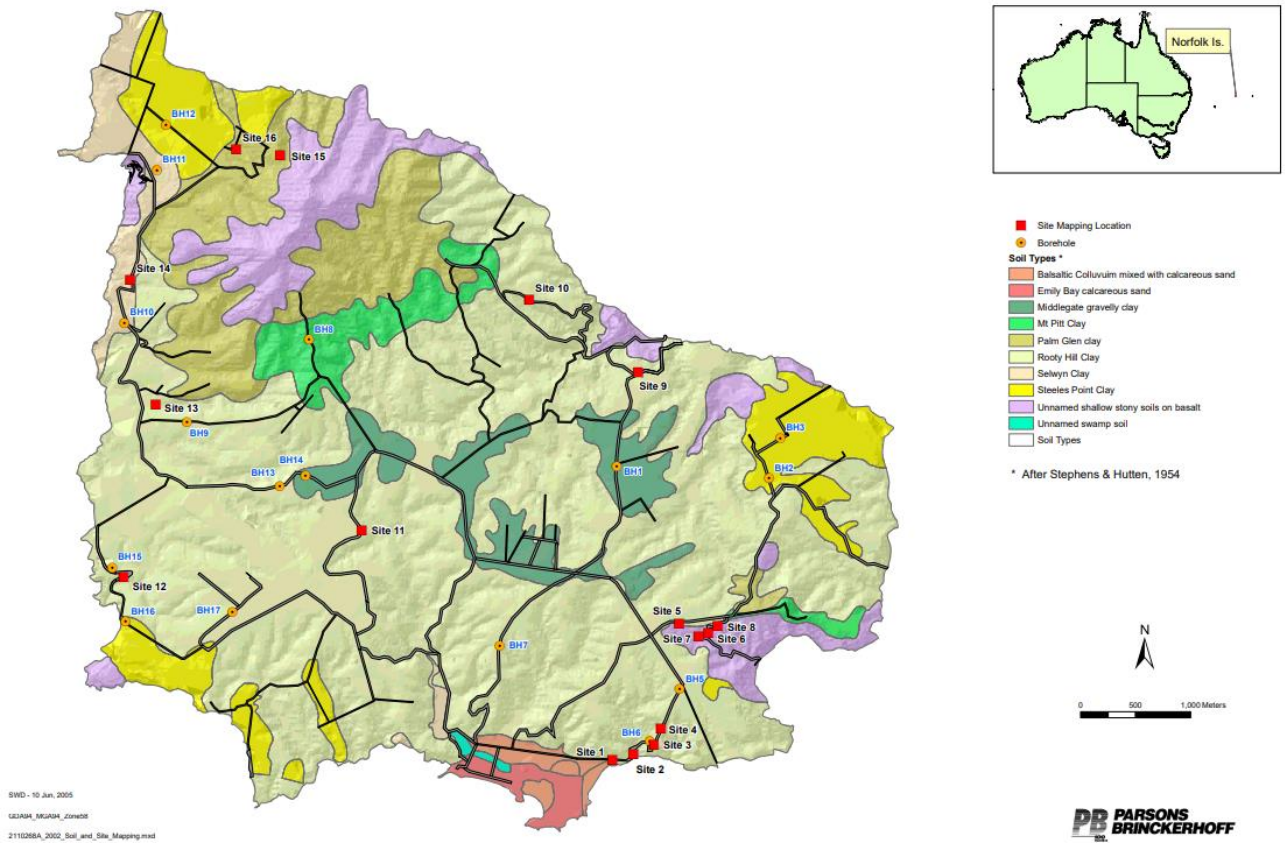

Figure 7.1 Norfolk Island Soil Map (Parsons Brinckerhoff, 2005).

A geotechnical investigation at the Project site undertaken by Norfolk Island Consulting Engineers (NICE) in August 2020. The investigation involved drilling seven boreholes to 4.5 m depth below existing ground surface levels using an eight-tonne hydraulic excavator equipped with a 450 mm diameter auger. Soils were sampled for geotechnical and chemical testing purposes and seven dynamic cone penetrometer tests were undertaken.

The investigation identified brown low plasticity silty clay to depths ranging between 0.3 to 0.9 m below ground level (bgl), underlain by orange, brown or red brown high plasticity clay extending to depths ranging between 3.0 – 4.5 mbgl (Norfolk Island Consulting Engineers, 2020).

Acid Sulfate Soils (ASS) is the name given to naturally occuring soils, unconsolidated sediments or organic accumulations (peat) in which sulfuric acid may be produced on exposure to air, is being produced, or has been produced, and are formed under waterlogged conditions (Petheram, et al., 2020). There are three types of peaty ASS within lower landscape positions on Norfolk Island, and the current knowledge of the extent of ASS is mapped in Figure 7.2 (Petheram, et al., 2020). There is no historical record of ASS within the Project area.

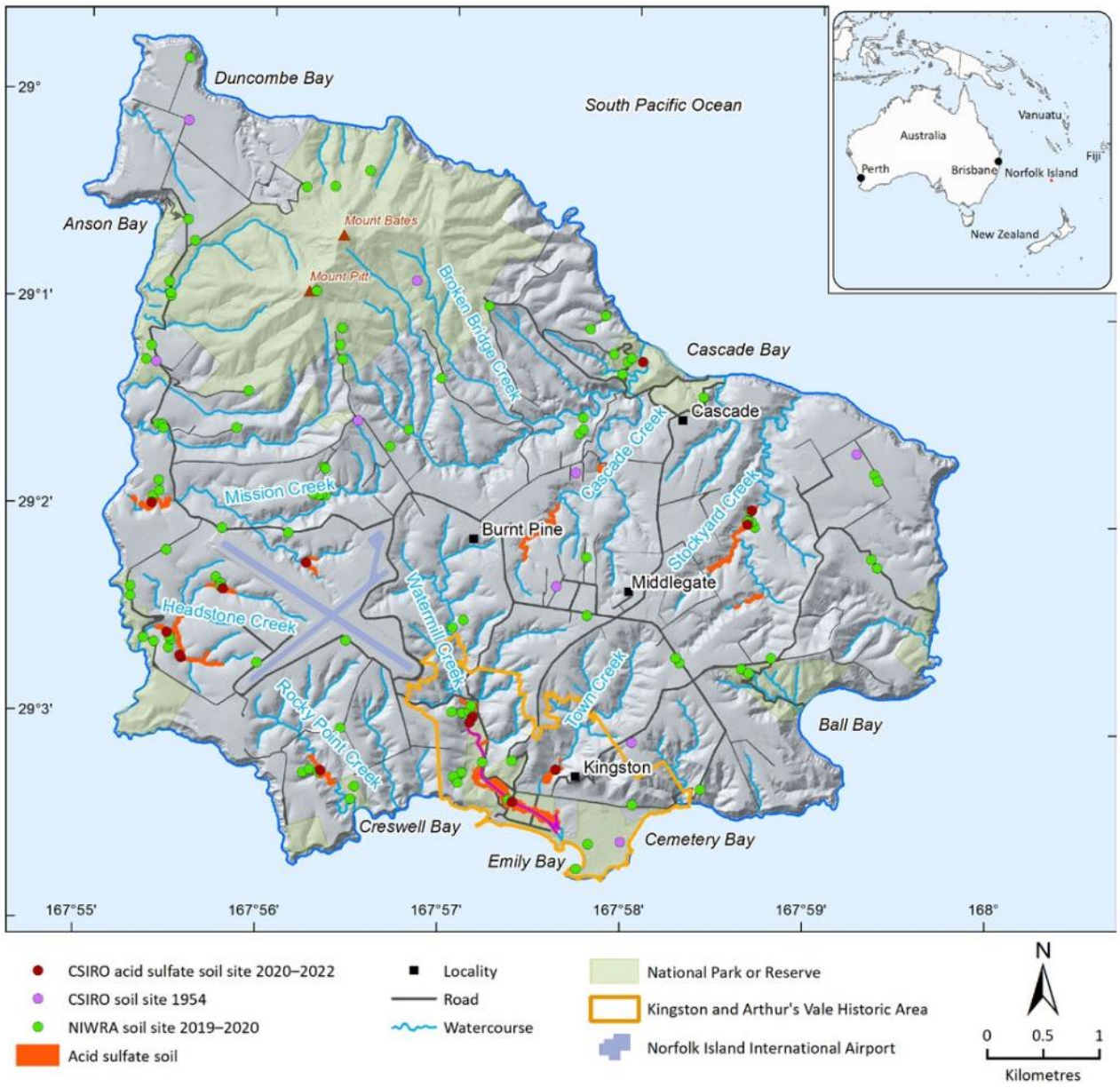

Figure 7.2 Location of ASS soils using on ground mapping in 2021-2022 and high-resolution aerial photography (CSIRO, 2023)

7.2.1 Potential Impacts

Potential impacts to geology and soil quality as a result of the Project are outlined in Table 7.1.

Table 7.1 Potential impacts to geology and soil quality

Potential impact	Activity	Description of impact
Construction		
Erosion and sedimentation	Earthworks, stockpiling, machinery movement	The Project area is known to have highly erodible soils, particular high-risk locations include where both surface gradients and slope lengths combined increase the erosive potential of stormwater runoff. Activities which have the highest risk of sedimentation and erosion impacts include: – Works near creeks and stormwater drainage lines – Vegetation removal

Potential impact	Activity	Description of impact
Construction		
		– General earthworks, including stripping of topsoil, excavation of material or filling of material – Stockpiling of topsoil and vegetation. Movement of heavy vehicles across exposed earth.
	Vegetation clearing	Mobilisation of unconsolidated materials if disturbed surfaces are not stabilised or successfully revegetated following construction.
		Risk of exposure of soils to weathering processes increasing the risk of erosion and transportation.
	Cut and fill	Fill import has potential to impact on soils as loose fill could be eroded during rainfall events potentially causing mass movement of soils and change in soil surface characteristics. In areas of cut, the earthworks have potential to destabilise soils.
	Stockpiling	Excavated material would require stockpiling prior to disposal or reuse. If stockpiles are not adequately stabilised, material would erode during high rainfall or wind events.

7.2.2 Landscapes and Soils Assessment

The following considerations apply in assessing the potential for a significant impact to landscapes and soils. In accordance with SIG 1.2 under the EPBC Act a potentially significant impact to the environment may occur if there a real chance or possibility that the action will result in any one of the factors addressed in Table 7.2.

Table 7.2 Assessment of Landscapes and Soils

Factor	Assessment
Substantially alter natural landscape features	The bulk earthworks proposed would result in modification of the existing ground surface as illustrated in Figure 7.5 through a combination of cut and fill. Fill material is anticipated to be brought to the Project site from Lot 10 Portion 44a, a land parcel already established for stockpile management on which there are no natural values or features that would be affected by the Project. Given the scale of proposed works, the Project would not substantially alter the natural landscape.
Cause subsidence, instability or substantial erosion	The Project site is approximately 1.6 Ha, most of the site (1 Ha) falls at approximately 3% in a south westerly direction toward Grassy Road. A swale, located between Grassy Road and the edge of the site captures stormwater from the southwestern catchment. Stormwater from the swale is directed to an existing stormwater pit just outside the site at the junction of Grassy Road and Taylors Road. The rest of the site falls in north easterly direction. The northeastern boundary of the site falls steeply away towards the valley and a creek. The proposed RAC is located on the northeastern side of the site with its catchment directed toward the valley and creek. The design levels for the Stage 1 design aim to work closely with natural ground level and therefore the stormwater design for the RAC and the new vehicle turning circle convey water in a pit and pipe network towards the northeast side of the RAC where it is discharge via level spreader as overland flow down the embankment towards the creek. The level spreader would ensure the discharge of stormwater is distributed across the bank to prevent scouring. Stormwater would pass through existing vegetation and soak into the soil on the bank naturally removing soluble pollutants and fine sediments prior to it entering the water course at the bottom on the hill.
Involve medium or large-scale excavation of soil or minerals	Earthworks are required to create level platforms and reduce the need for ramps and steps for the proposed buildings and maintain overland flow routes for stormwater.

Factor	Assessment
	Cut and fill volumes have been calculated after the removal of topsoil. The calculated total volume of fill is 3,670 m^3. The geotechnical report indicates topsoil thicknesses ranging from 300mm up to 900mm around the RAC. Assuming an average of 600mm topsoil across the site it in anticipated that approximately 4,665 m^3 of topsoil will need to be removed and stockpiled for reuse. The bulk earthworks are discussed further in Section 7.6. Given the scale of proposed works, while there would be substantial localised earthworks that redistribute topsoil on the Project site and from Lot 10 Portion 44a, the Project would not involve medium or large-scale excavation of soil.

7.3 Coastal Landscapes and Processes

The Project site is located close to the geographic centre of Norfolk Island and would have no direct impact on coastal landscapes and processes. Notwithstanding the following assessment considers indirect effects of the Project from construction impacts and increased impervious surfaces in the overall masterplan. The following considerations apply in assessing the potential for a significant impact to coastal landscapes and processes. In accordance with SIG 1.2 under the EPBC Act a potentially significant impact to the environment may occur if there a real chance or possibility that the action will result in any one of the factors addressed in Table 7.3.

Table 7.3 Assessment of Coastal Landscapes and Processes

Factor	Assessment
Alter coastal processes, including wave action, sediment movement or accretion, or water circulation patterns	Coastal processes would not be directly or indirectly affected by the Project.
Permanently alter tidal patterns, water flows or water quality in estuaries	During the construction stage with earthworks and the potential for mobilisation of sediment during rainfall events there is potential for water quality impacts at the point of discharge to the Pacific Ocean of Broken Bridge Creek to the northeast and Watermill Creek to the south. Mitigation measures that have been identified in Table 6.4 would be effective in preventing a reduction in water quality in the receiving waters in Cascade Bay and Emily Bay.
Reduce biological diversity or change species composition in estuaries	The Project would have no direct or indirect impact on species composition in Emily Bay or Cascade Bay.
Extract large volumes of sand or substantially destabilise sand dunes	Concrete required for the Project would be mixed locally with most components needing to be imported. The sand component would likely be a combination of imported sand with some material potentially generated on Norfolk Island by the local industry including recycled glass, basalt rock and gravel. The Kingston Pier Channel Construction Project (EPBC 2021/9124) proposes stockpiling up to 5,500 m^3 of sediment at the Cascade Quarry (Advisian 2023). While this is described to be used in remediation of the quarry, consideration should be given to the potential for reuse where its characteristics meet the requirements of concrete production and potential contamination risk has been addressed. Should the reuse of excavated spoil from the Kingston Pier Channel Construction Project and other local supplies not meet the volume of sand required for concrete production, the balance would need to be imported. The source of sand would be through existing suppliers and their operations and be subject to all applicable biosecurity requirements. While the volume of concrete and associated sand resource has not been determined at the 30% design, given the nature of the project, it is unlikely the Project would directly or indirectly result in the extraction of large volumes of sand or substantially destabilise sand dunes.

Conclusion of Assessment

The Project would have no direct impacts on coastal landscapes and processes. Indirectly, there would be a requirement for the Project to be supplied with sand for concrete production with would mostly need to be imported. This volume is unlikely to be significant and would be met by existing suppliers and their operations.

However, from a sustainability perspective, it is recommended that the 50% design development consider the potential for reuse of dredged material in concrete production derived from the Kingston Pier Channel Construction Project that is proposed to be stockpiled at Cascade Quarry. This would require assessment of the sand characteristics and confirmation no contamination risks remain in the dredged material.

7.4 Ocean Forms, Processes and Life

The Project site is located close to the geographic centre of Norfolk Island and would have no direct impact on the marine environment. Notwithstanding the following assessment considers indirect effects of the Project from construction impacts and increased impervious surfaces in the overall masterplan. The following considerations apply in assessing the potential for a significant impact to coastal landscapes and processes. In accordance with SIG 1.2 under the EPBC Act a potentially significant impact to the environment may occur if there a real chance or possibility that the action will result in any one of the factors addressed in Table 7.4.

Table 7.4 Assessment of ocean forms, processes and life

Factor	Assessment
Reduce biological diversity or change species composition on reefs, seamounts or in other sensitive marine environments	The Project would have no direct or indirect impact on any marine environment and its associated biodiversity.
Alter water circulation patterns by modification of existing landforms or the addition of artificial reefs or other large structures	The Project would have no direct or indirect impact on water circulation within any marine environment.
Substantially damage or modify large areas of the seafloor or ocean habitat, such as sea grass	The Project would have no direct or indirect impact on any area of seafloor or associated vegetation.
Release oil, fuel or other toxic substances into the marine environment in sufficient quantity to kill larger marine animals or alter ecosystem processes	The Project would not involve maritime operations such that there was a risk of the release of oil, fuel or other toxic substances into the marine environment in sufficient quantity to kill larger marine animals or alter ecosystem processes.
Release large quantities of sewage or other waste into the marine environment	The Project would not result in the release of any sewage or other waste into the marine environment.

7.5 Water Resources

Norfolk Island has a drainage system typical of deeply weathered volcanic terrain. On the southern plateau, surface water systems comprise a network of dry valleys leading into perennial and intermittently supplied streams. The elevated terrain around the Norfolk Island National Park, inclusive of the Project area, also supports an extensive network of dry gullies. The drainage pattern of The Islandis largely radial to the main volcanic vents of Mount Pitt and Mount Bates (Abell & Falkland, 1991). This lies northwest of the Project site.

There are no natural surface water bodies within the footprint of the Project works. Run-off at the site is expected to be conveyed approximately 100 m northeast towards the creek in the adjacent valley following the landscape gradient. Investigations in 2020 reported this drainage line to be dry. The valley extends in a north easterly direction and drains into Broken Bridge Creek before it meets Cascade Creek near to the

coastline of Cascade Bay before arriving at the Pacific Ocean via Cockpit Waterfall approximately 2.5 km downstream of the Project site (Figure 7.3).

Given that the Project site is on a ridge, there is also the possibility for water to enter Watermill Creek approximately 250 m to the south via roadside stormwater drainage on Douglas Drive and Taylors Road. This waterway travels roughly 4 km to the southeast through Kingston before meeting the Pacific Ocean at Emily Bay (Figure 7.3).

The Norfolk Island National Park & Botanic Garden Climate Change Strategy 2011-2016 identified future risk associated with increased frequency and intensity of droughts, storms, cyclonic activity, and fire events (Director of National Parks 2011). Water security has been a recent threat to the Island. In summer 2019/20, due to consecutive years of low rainfall, a portable Defence water purification and desalination system was flown to the Island as a short-term solution for summer water shortages (DITRDCA 2020).

There is no water network on the Island, all dwellings and residences are serviced by on site rainwater capture for potable water usage. There is groundwater available on the Island with several established historical bores on the island. The use of groundwater is discouraged on The Islandto preserve the groundwater supply. The requirements for rainwater capture and storage on The Islandare covered in the Development Control Plan 2 (DCP2).

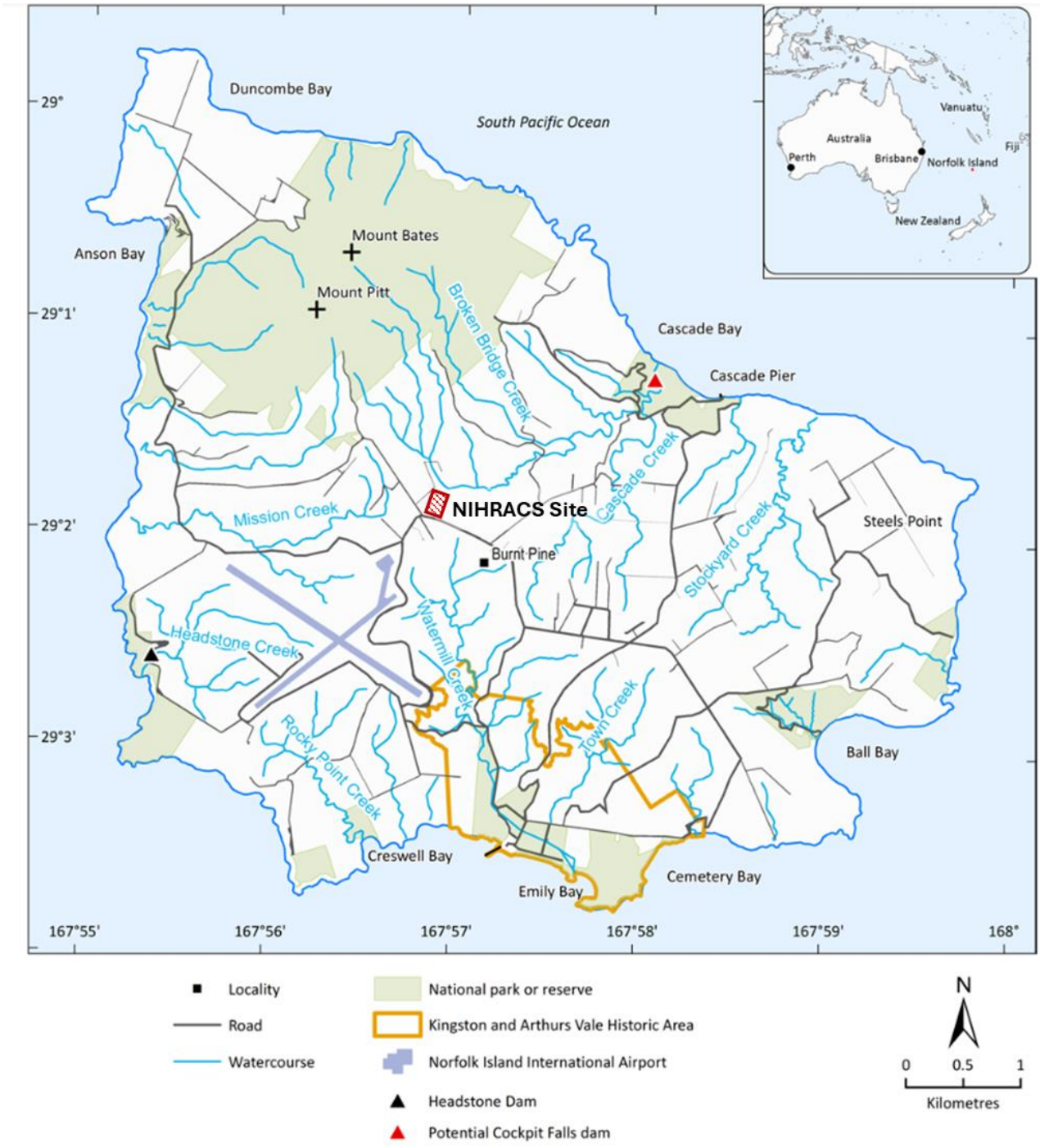

Figure 7.3 ***Waterways of Norfolk Island (CSIRO, 2020) with modifications***

The 2021 Norfolk Island Environmental Assessment report identifies water quality as a key concern for The Islandwith numerous cases of surface waters being polluted by sewage effluents and excess nutrient input from agricultural practices. Waters in many major waterways, including Watermill Creek, have been known exceed ANZECC guidelines for human and ecological health following heavy rains. Such findings have resulted in the intermittent closure of Emily Bay for recreation activities and has been attributed to running of livestock and leakage from non-sewered areas (septic tanks) (Maurin et al. 2021).

A Stormwater Options Assessment was undertaken to support the 30% Concept design to assess and recommend viable drainage options for the design.

7.5.1 Potential Impacts

Potential impacts to hydrology and water quality as a result of the Project are discussed in Table 7.5.

Table 7.5 Potential impacts to hydrology and water quality

Potential impact	Activity	Description of impact
Construction		
Erosion and sedimentation	Excavation and earthworks	During earthworks and excavation, there would be potential for sediment and nutrient laden runoff from areas disturbed by construction to impact water quality in downstream waterways. Mobilisation of disturbed soils into waterways could result in increased pollution of freshwater and marine environments.
		Quality and quantity of stormwater could be altered as a result of the Project.
Spills	Vehicle use	Spills from vehicles and machinery causing pollution of waterways and decrease in water quality.
Encountering hazardous materials (ASS or asbestos)	Excavation and earthworks	During earthworks and excavation, there would be potential for unexpected finds to occur which may include asbestos fragments or ASS. If disturbed, drained and left unmanaged ASS can pose considerable risks such as: – Acidification of water bodies and associated water quality issues – Deoxygenation of water bodies (killing aquatic life) – Release of toxic levels of metals, commonly aluminium and iron.
Operation		
Improved stormwater management	Project use	The Project will include appropriate stormwater management controls for the upgraded roads which would overall reduce runoff from roadways, leading to positive impact.
Diversion of rainfall	Potable supply and firefighting reserve	The Project would capture an increased volume of rainfall leading to less available water reaching local waterways.
Increased impervious surfaces	Operation	The Project will result in increased impervious surfaces that would increase runoff however with the increased capture (above) would limit the potential for infiltration and groundwater recharge unless porous paving were included in the design where appropriate.

7.5.2 Assessment of water resources

The following considerations apply in assessing the potential for a significant impact to water resources. In accordance with SIG 1.2 under the EPBC Act a potentially significant impact to the environment may occur if there a real chance or possibility that the action will result in any one of the factors addressed in Table 7.6.

Table 7.6 Assessment of water resources

Factor	Assessment
Measurably reduce the quantity, quality or availability of surface or ground water	The Project occupies an area of approximately 1.6 Ha, which at conclusion of works described as Stage 4 would see approximately 50% covered by buildings or paved surfaces (refer to Figure 2.2). It is likely this would lead to an increase in stormwater runoff compared to the current situation in which approximately 30% of the Project site is impervious. Acknowledging the potential for altered groundwater recharge, the mitigation measures in Table 6.4 include investigations at the 50% design stage to consider porous paving. The Project includes passive design and ecologically sustainable development (ESD) principles to achieve whole-of-life (WOL) outcomes and local ESD targets. In addition to solar energy and hot water, high insulation values and shading, rainwater collection tanks are proposed to meet potable water and firefighting requirements. Despite this no solar generation is included in Stage 1. The requirements for rainwater capture on the Island are covered in the Development Control Plan 2 (DCP2). The NIHRACS facility currently has approximately 845 KL of rainwater storage on site and also includes the following back-up water supplies:

Factor	Assessment
	– Secondary rainwater supply line from the adjacent commercial site that is used to top up the dedicated two overflow tanks as required – Tertiary bore water supply from the airport (disused 2 years ago due to contamination) – Tertiary bore water supply line from the NIHRACS bore located in the valley to the north of the facility. Following the proposed demolition works (refer to Section 2.3.2) water storage to be included in Stage 1 of the Project would replace the current storage capacity with the following components: – Construction of two 385 KL above ground rainwater storage tanks located at the eastern edge of the site adjacent the main entrance on Grassy Road – Construction of one 60 KL in ground tank located in a central location on the site under the proposed driveway to the RAC building – Construction of one 15 KL in ground tank adjacent proposed RAC building serving as a buffer tank – Construction of potable water pump house comprising: • Dual water pumps operating on a duty stand by arrangement • Fire storage make-up pump • Water pre-treatment arrangement. Subsequent stages would include an additional two 2 195 KL above ground rainwater storage tanks. While their location is to be confirmed during the appropriate design stage, they would be connected to the site's water filtration and pump arrangement located at the eastern edge of the site adjacent the main entrance on Grassy Road. The increased storage would represent an increase of 390 KL approximately 45% of the existing storage capacity.
channelise, divert or impound rivers or creeks or substantially alter drainage patterns	Discharge of stormwater would generally follow existing patterns however with stormwater generated along the southern edge of the Project, discharge would be directed to a spreader located in the valley to the northeast of the existing facility. This would introduce a new concentration of stormwater that is expected to infiltrate into the soil before meeting the creek. As discussed in Table 7.2, information gaps remain as to the implications of this from a soils and stability perspective. Similar uncertainty would also apply to the likely impact on drainage patterns.
measurably alter water table levels	Given the scale of the Project, it is unlikely that ground water levels would be measurably altered. This is due to the Project: – Not involving extraction of ground water – Design considerations to improve infiltration in the 50% design development with porous paving.

Conclusion of Assessment

The Project would result in capture of an increased volume of rainfall to meet potable demand and firefighting reserves. Given the location of the Project site on a ridge, it is likely it occupies an area of groundwater recharge and with the combined increase in impervious surfaces and increased collection of rainfall, there would be less water available for infiltration. The extent to which this is important to the local environment is likely minimal given the creek below the existing facility is known to be ephemeral. The potential impact of the altered drainage regime of vegetation is unknown.

7.6 Pollutants, chemicals and toxic substances

In 2020, GHD conducted a contaminated land assessment of the Project site that comprised a desktop assessment, interviews with site personnel and intrusive sampling (Appendix D). The initial desktop assessment identified a number of potential contamination sources and / or locations where contaminating activities may have been undertaken which could impact soils within the MPS facility footprint (Figure 7.4):

– Former diesel AST (associated with the former generator)

- Former sewerage treatment plant
- Former use of groundwater from the Norfolk Island Airport
- Historical and current operation of laundry facility
- Construction and demolition of buildings onsite and nearby
- Use of soil fill materials
- Maintenance workshop
- Fuel storage at the service station and vehicle maintenance workshop (adjacent to the Project site)
- Historical storage of Norfolk Island Airport fire trucks (adjacent to the Project site).

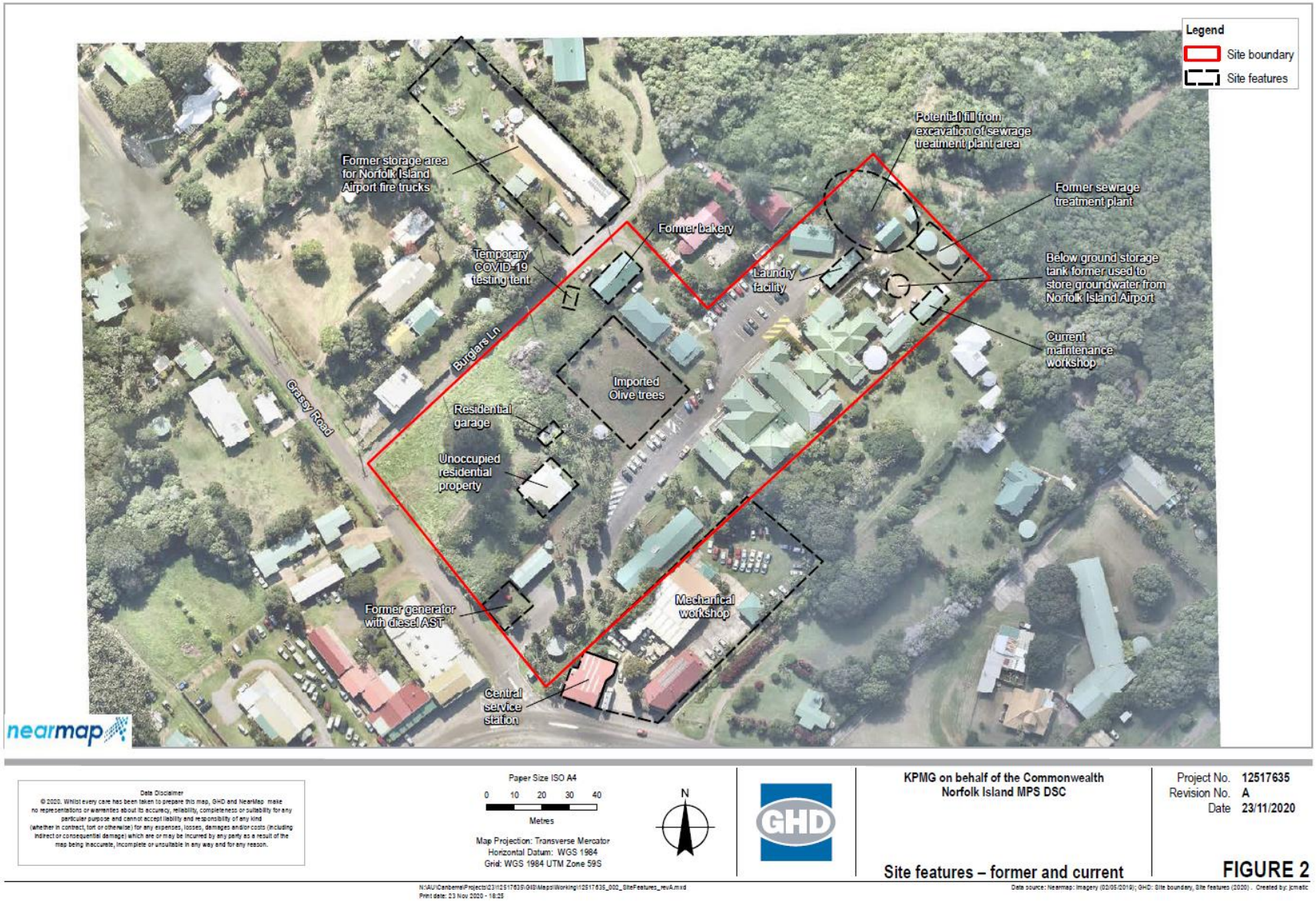

Figure 7.4 Site features – former and current

Onsite sampling was undertaken on 21-24 September 2020. The intrusive investigations targeted locations based on the proposed design, areas expected to be disturbed as part of bulk earthworks (Figure 7.5) and areas identified by the desktop assessment as being potential sources of contamination within the infrastructure footprint of the proposed MPS facility.

The activities undertaken as part of this work were:

– Collection of soil samples from:
  a) Ten soil bores to a maximum of 3.0 meters below ground level (mbgl)
  b) Six soil bores to 1.0 mbgl
  c) Three test pits to a maximum depth of 0.6 mbgl.
– Submission of soil samples to an Australian National Association of Testing Authorities (NATA) accredited laboratory for analysis.

Figure 7.5 Stage 1 bulk earthworks plan

Based on the Project site history assessment and field investigations, some contamination is present within the footprint of the proposed development, which may pose a risk to human health or the environment. Investigation findings are summarised as follows:

– Friable asbestos was identified in some areas of the Project site and may present a risk to human health during any intrusive works or ground disturbance activities. The extent of asbestos and the concentration of asbestos within soil is currently unknown. The detections of asbestos occurred within near surface soil fill material in two areas as follows:
  a) Adjacent to the archive storeroom
  b) Adjacent to the residential house / garage.
– The former storage and use of groundwater from Norfolk Island Airport may have resulted in some localised PFAS contamination of soils. PFAS was detected above the human health assessment criteria in one sample collected from near surface soils adjacent to the maintenance workshop in the northern portion of the Project site.
– Elevated lead concentrations are not widespread but localised to certain areas and material types. The identified concentrations of lead within selected samples may present a risk to human health. The concentrations of lead within three near surface samples collected from soil fill material exceeded the adopted the human health assessment criteria.
– The depth of soil fill generally extended to a depth of 0.4 mbgl, but was encountered to a depth of at least 1.3 mbgl in the northern portion of the Project site.

A summary of the findings at the areas of concern identified by the desktop study is provided in Table 7.7.

Table 7.7 Summary of contamination investigation findings

Potential contamination source	Summary of findings	Risk to human or ecological health
Former diesel AST (associated with the former generator)	Concentrations of assessed contaminants were below the LOR and / or the adopted assessment criteria for all soil samples. Material is not considered to pose a significant risk to human health or the environment.	Low
Former sewerage treatment plant	Concentrations of assessed contaminants were generally reported below the adopted assessment criteria however refusal was encountered too early to provide a sound assessment.	Moderate
Former use of groundwater from the Norfolk Island Airport	PFAS was detected exceeding the adopted human health and ecological criteria in near surface soils adjacent to the storage tanks, indicating localised contamination in this area, which may be encountered during construction. PFAS detections above the LOR were also reported in the vicinity of the storage tank and laundry facility.	High
Historical and current operation of laundry facility	PFAS was detected in soils at this locality. The extent of any residual impact to below ground infrastructure or services associated with the Project site is unknown.	Moderate
Construction and demolition of buildings onsite and nearby	Friable asbestos was detected within near surface soils in a number of locations. Soils may present a risk to human health where encountered as part of the construction phase of the Project. Fragments of potential ACM were also observed on the ground surface in areas of the Project site outside of assessment area for this investigation.	High
Use of soil fill materials	Concentrations of assessed contaminants including lead and asbestos were reported above the human health criteria. These may present a risk to human health (primarily during the construction phase).	High
Maintenance workshop	PFAS was detected exceeding the adopted human health and ecological criteria in near surface soils directly adjacent to the maintenance workshop. The PFAS contamination may be encountered during construction.	High
Fuel storage at the service station and vehicle maintenance workshop (adjacent to the Project site)	Concentrations of assessed contaminants were less than the LOR and / or the adopted assessment criteria for hydrocarbons, however lead was reported above the human health and ecological criteria in one near surface sample.	Moderate
Historical storage of Norfolk Island Airport fire trucks (adjacent to the Project site)	PFAS was not detected above the LOR at the nearest sample location.	Low

Information gaps

As indicated in Table 7.7, there are several aspects relating to contamination as a result of historical events and building activities. The Contamination Assessment (Appendix D) determined the following data gaps remain following that assessment as follows:

– The lateral extent of ACM within the soil fill layer in the vicinity of the archive storeroom / former COVID-19 tent and the residential house.
– The concentration of asbestos in soil and the risk the presence of asbestos within soil presents to human health.
– The contamination status of the tank formerly used to store groundwater from the Norfolk Island Airport.
– The contamination status of soils surrounding the tank formerly used to store groundwater from the Norfolk Island Airport.

– The contamination status of infrastructure and services associated with the delivery of groundwater from Norfolk Island Airport to the site and the laundry facility.
– The contamination status of the soils within the extent of the former sewerage treatment plant.
– The lateral and vertical extent of soil fill identified in the northern portion of the site in the vicinity of the sewerage treatment plant and if ACM is present within this material.

Building upon the measures identified in the risk assessment, additional investigations need to be undertaken in subsequent stages of the project to address these gaps:

1. Undertake a supplementary investigation with the aim to close out identified data gaps by:
    - Delineation of the lateral extent asbestos detected within the soil fill and assessing the concentration of ACM in soil and the risk this presents to human health.
    - Identifying the contamination status of the tank formerly used to store groundwater from the Norfolk Island Airport, in addition to analysis of adjoining infrastructure and deeper surrounding soils the tank.
    - Determine the lateral and vertical extent of soil fil in the northern portion of the Project site.
2. Prepare a Remediation Options Assessment and Management Strategy. This assessment would be based on the identified contamination to date and the findings of the supplementary contamination investigation with the infrastructure footprint of the proposed MPS facility. Options may include:
    - Excavations to the lateral and vertical extent of identified contamination and placement within an engineered containment cell. This would require consideration during the 50% design phase.
    - On site remediation.
    - Design alterations, to consider leaving contaminated pipes or other structures in-situ.

It is currently assumed that suitable fill material can be sourced from Lot 10 Portion 44a. The 50% design phase would include investigations to verify suitability of the material which should include confirmation that it is not only structurally suitable, but also free of contaminants.

7.6.1 Potential Impacts

Potential impacts from contaminated soils as a result of the Project are outlined in Table 7.8.

Table 7.8 Potential impacts from contaminants

Potential impact	Activity	Description of impact
Construction		
Encountering hazardous materials	Excavation and earthworks	During earthworks and excavation, there would be potential for unexpected finds to occur which may include asbestos fragments.
Introduction of additional contamination	Importing fill from Lot 10 Portion 44a	Fill material is proposed to be imported to the Project site from Lot 10 Portion 44a. This material has not been adequately tested and as a result there is an unknown potential for introduction of new contamination to the Project site if the appropriate investigations are not undertaken.
Mobilisation of existing contamination	Earthworks and stockpiling	The Project site is known to support several contaminants. Ineffective environmental controls during construction may lead to the mobilisation of that contamination into local waterways or to be distributed elsewhere on the Island in an uncontrolled manner.
Release of greenhouse gases	Use of plant and machinery	Plant and machinery that would be used during the construction would release greenhouse gases as part of their emissions.
Dust and exhaust emissions	Earthworks and use of plant and machinery	Ground disturbance and vehicle movements would lead to the potential for dust and vehicle emissions impacting neighbouring residences and businesses in addition to sensitive receivers along the proposed haul routes.

7.6.2 Assessment of pollution, chemicals and toxic substances

The following considerations apply in assessing the potential for a significant impact from pollution, chemicals and toxic substances as identified in Table 7.9.

Table 7.9 Assessment of water resources

Factor	Assessment
generate smoke, fumes, chemicals, nutrients, or other pollutants which will substantially reduce local air quality or water quality	Plant and machinery to be used in construction would be guided by a CEMP to be maintained in accordance with OEM requirements to minimise unnecessary emissions. Further, the mitigation measures described in Table 6.4 include measures to minimise idling, cover loads during transit and manage the potential for dust creation on the Project site. Noting the temporary nature of the construction phase, with these measures in place, and by implementing a CEMP within an overarching EMS framework that meets the requirements of ISO AS 14001, it is unlikely there would be a significant impact resulting from construction. The operational stage of the Project would not lead to the release of pollutants, chemicals or toxic substances.
result in the release, leakage, spillage, or explosion of flammable, explosive, toxic, radioactive, carcinogenic, or mutagenic substances, through use, storage, transport, or disposal	The Project does not involve bulk storage of potentially polluting substances. However, during both the operation and construction stages, there is the potential for inadvertent hydrocarbon spills from vehicles and potentially during operation, also other chemicals used in garden maintenance and cleaning. Existing contamination including PFAS and lead are broadly understood however it is recommended that a supplementary investigation be undertaken to provide improved knowledge on the extent of these contaminants and others. With the implementation of a CEMP within an overarching EMS framework that meets the requirements of ISO AS 14001, it is unlikely there would be a significant impact resulting from inadvertent spills during construction or operation. Further, it is unlikely that existing contamination would be mobilised and result in release or leakage into the local environment.
increase atmospheric concentrations of gases which will contribute to the greenhouse effect or ozone damage	The Project would contribute to the concentration of greenhouse gases as a result of the plant and machinery that are anticipated being used. By implementing a CEMP within an overarching EMS framework that meets the requirements of ISO AS 14001, it is unlikely the contribution the Project makes to climate change would be significant.
substantially disturb contaminated or acid-sulphate soils	There are no acid sulfate soils that would be disturbed by the Project.

7.7 Ecology

7.7.1 Desktop Review

Norfolk Island is highly isolated, having never been joined to a land mass. This has generated unique biodiversity with many species endemic to the Island (43 plant and 15 birds). Pre-European settlement, the Island was dominated by subtropical rainforest, however, subsequent clearing for timber and agricultural practices has driven fragmentation of tree canopy cover and resulted in a significant loss of the native vegetation. The majority of the Island ’s remnant habitat is found within the Norfolk Island National Park and Botanic Gardens (~750 m northwest of the Project site).

The Project area is largely open, having been cleared to establish buildings, with some scattered trees throughout the Project site. Vegetation within the Project footprint is characterised predominantly by planted exotic trees, with occasional larger remnant trees, including a twin trunked Norfolk Island pine of approximately 40 m in the Project site northwest, and a smaller Norfolk Island pine and white oak at the rear of the existing hospital (east). The vegetated Broken Bridge Creek gully lies to the northeast; however, vegetation was largely exotic with emergent Norfolk Island pine overlying a dense weedy understorey of cherry guava.

Protected species

An assessment of the project area via the EPBC's protected matters search tool (PMST) identified 92 listed threatened species as occurring within the Project site footprint and/or a 10 km radius of the Project site (the locality). An overview of fauna composition is provided in Table 7.10. Other endemic fauna not covered by the EPBC Act are protected under the Norfolk Island Threatened Species Recovery Plan (Director of National Parks 2023).

Table 7.10 Overview of listed threatened species occurrence within the locality

Class	Bird	Fish	Mammal	Plant	Reptile	Invertebrate
No. threatened species in feature area	15	2	0	27	0	1
No. threatened species in buffer area only (10 km)	9	5	3	19	7	4

26 biologically important areas were identified on or surrounding Norfolk Island, with 12 inclusive of the Project site area. Of these, all pertained to seabird breeding and foraging. Given the poor quality of habitat at the Project site it is not anticipated that project works would pose a great risk to seabird populations on the Island.

There are 39 listed marine species identified to occur within 10 km of the Project site, however given the scope of the works and central position of the Project on the Island (nearest ocean ~2.4 km northeast), no impacts to marine animals are anticipated. Likewise, being a terrestrial site there were no whales or other cetaceans identified as occurring within the project footprint or habitat critical to the survival of marine turtles identified to occur within 10 km.

42 migratory species were identified to occur within the project area and adjacent 10 km radius. Of those, only 16 occurred within the Project site footprint, all being migratory seabirds. All other species were marine and unlikely to be impacted per the above reasoning. An overview of migratory species composition is provided in Table 7.11.

Table 7.11 Overview of listed migratory species occurrence within the locality

Class	Bird	Mammal	Reptile	Shark
No. listed migratory species in feature area	16	0	0	0
No. listed migratory species in buffer area only (10 km)	9	9	5	3

There are no threatened ecological communities identified to occur on the Island, nor are there any critical habitats of nationally or internationally (Ramsar) important wetlands present.

Being an external territory from the Australian mainland, Norfolk Island is not located in proximity to the Great Barrier Reef marine park, nor any state/territory reserves or regional forest agreements. The nearest marine park is the Norfolk marine park which encapsulates waters to the south of the Island including Emily, Slaughter and Cemetery Bay. Potentially impacted surface waters from the Project site are not expected to drain towards these locations, being conveyed northeast or west depending on conditions.

Commonwealth lands associated with Norfolk Island National Park are present across the central northeast of the Island, however none interact with areas impacted by the Project footprint. There are three Commonwealth terrestrial reserves located on the Island as outlined below, however none fall within the area set out for works or are downstream of affected areas:

– Norfolk Island Botanic Gardens (~750 m northwest)
– Norfolk Island (Mt. Pitt) (~1 km north)
– Norfolk Island (Phillip Island) (~4.7 km southeast, offshore).

Biosecurity – pathogens and invasive species

Given their isolated history, island flora and fauna can be particularly susceptible to the introduction of new diseases and invasive species; this too is true of Norfolk Island. Invasive species such as rats, cats, Argentine ants and others are a key threat to many of the Islands' native species in addition to both native and introduced pathogens.

Argentine ants were first identified on Norfolk Island in 2005 and have since established themselves in more than 20 distinct zones across the Island. The invasive ant is highly aggressive to other species and capable of displacing both native invertebrate and bird populations, thus posing a major threat to biodiversity on the Island. The Project site is located roughly midway between infestation Zone 15 and Zone 18, separated by approximately 350 m to each (Figure 7.6). As of the last published update by NIRC Zone 15 is a treated area currently being monitored for recolonisation while Zone 18 is receiving spot treatments as the last persisting colonies are found.

The hospital grounds were formerly part of Zone 6, however eradication has since been confirmed within this area with no evidence of colonisation as of October 2023 (NIRC 2023b).

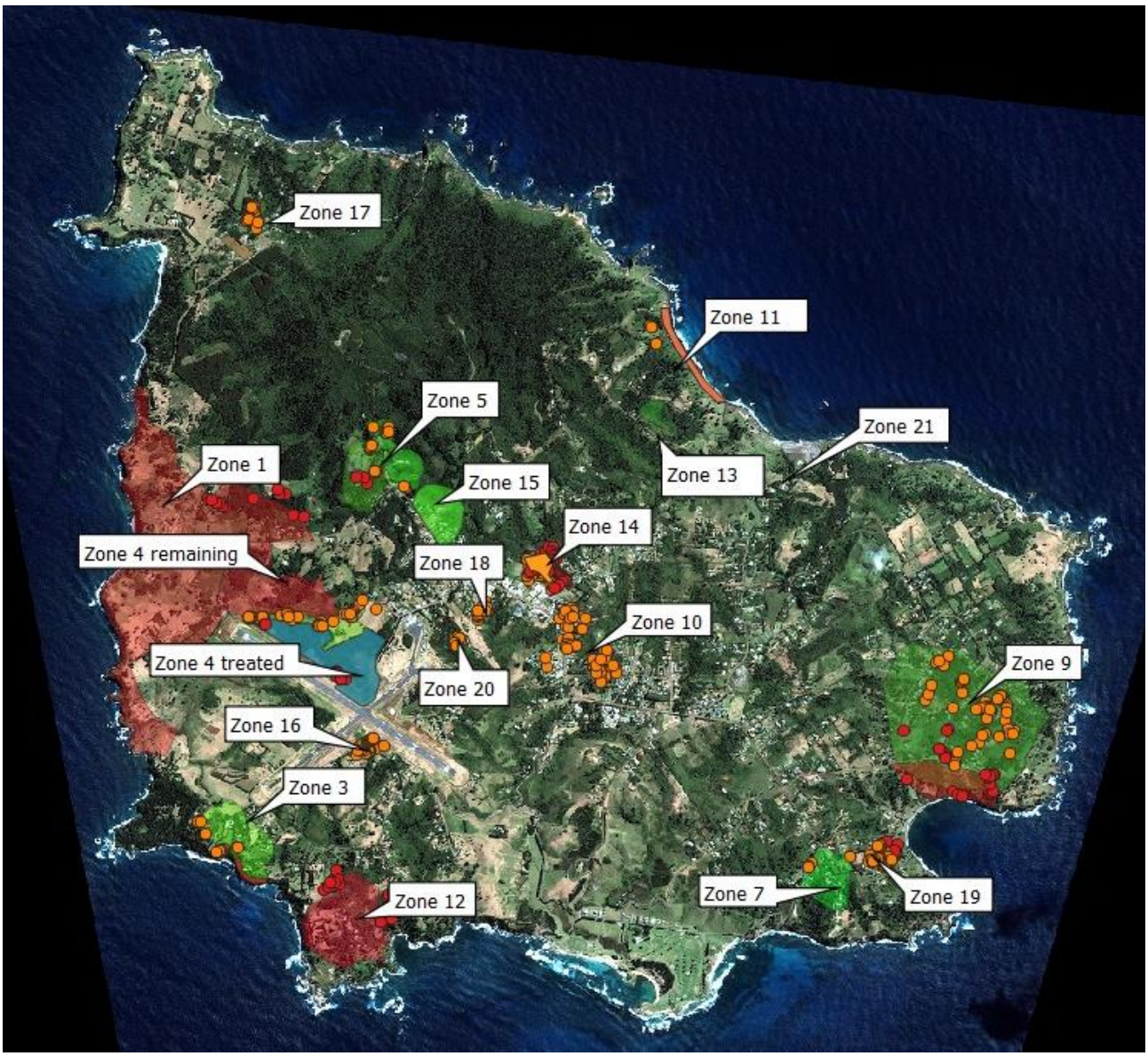

Figure 7.6 Extent and location of known Argentine ant infestations on Norfolk Island as of August 2023 (NIRC 2023)

Psittacine circoviral (beak and feather) disease (PCD) is another exotic force threatening biodiversity on the Island. The disease affects parrot species and was first confirmed on the Island in 1995, likely as a result of

the introduction of the Eastern Rosella (*Platycercus eximius*) (DSEWPAC 2013). As of 2001, PCD is listed under the EPBC Act as a key threatening process to endangered parrots as, in circumstances where bird populations have been dramatically reduced, the disease may have the potential to cause catastrophic losses. A 1999 study of 50 Norfolk Island Green Parrots suggested that an estimated 8% of the population on Norfolk Island is affected by PCD (DCCEEW 2020). While no specific occurrence of the disease has been reported at the Project site, there remains the need for caution in ensuring no further diseases are introduced or spread through the importing of resources for project works.

In 2022, Agriculture Victoria Research was contracted by the Department of Infrastructure, Transport, Regional Development, Communication, Sports and the Arts (DITRDCSA) to conduct a plant pest and disease survey on Norfolk Island (Martoni 2023). The key findings of the survey include:

– No record of any newly identified significant high-priority pests or pathogens on Norfolk Island was made during the survey.
– No exotic fungal or bacterial plant pathogens were detected as part of this survey.
– Seven new records of weeds or plants naturalised on Norfolk Island.
– Records of numerous insect species not previously reported in Norfolk Island. These included endemic psyllid species, beneficial insect species, and pest species. Identified pest species were not National Priority Plant Pests.
– Records of 16 virus species previously not reported on Norfolk Island including Southern tomato virus (STV) and Watermelon crinkle leaf-associated virus 2 (WCLV2). STV and WCLV2 have a limited host range and are not associated with disease. The impact of the remaining 14 virus species should not be a cause of concern.

Precautionary measures should be in place to minimise spread of any existing pests, weeds, and pathogens however no recordings were documented in the Proposal area.

7.7.2 Ecological Investigation

Methods

A field assessment and arboriculture survey was conducted on 21 to 25 August 2020 by local ecologist Margaret Christian from Green Eyes Environmental Consulting. They identified tree species and assessed the existing ecological values of the study area. They also conducted Habitat assessment surveys, bird census surveys, spotlighting, call-playback, opportunistic searches for wildlife traces, remote surveillance cameras, and an Anabat detector.

The field surveys were conducted in accordance with the following permits and approvals:

– Department of Employment, Economic Development and Innovation Scientific Users Registration Certificate (Registration Number 132).
– DEHP Scientific Purposes Permit (permit number WISP15723315).
– Animal Research Authority issued by the accredited GHD Animal Ethics Committee.

Results

It is noted that the ecological investigations were undertaken four years prior to the current design phase. While results are expected to be representative of the current state of the Subject site changes may have occurred in the intervening period which are not captured by the original report.

Threatened species

Two shade trees (*Meryta latifolia*) (EPBC Act critically endangered) were observed in gardens along the access road near to the Dental Unit off Burglars Lane.

Three threatened bird species were recorded during the surveys. Green parrot and Norfolk Island whistler were both recorded from the north of the Project site, while a Norfolk Island boobook was heard calling following call playback, likely from the national park (Figure 7.2).

Table 7.12 Recorded threatened bird species

Name	Norfolk Island Status	EPBC Act Status
Norfolk Island red-crowned parakeet, *Cyanoramphus cookii*	Endemic	Endangered
Norfolk Island boobook, *Ninox novaeseelandiae*	Endemic	Endangered
Norfolk Island golden whistler, *Pachycephala pectoralis xanthoprocta*	Endemic	Vulnerable

General flora and fauna

Trees were recorded in the Preliminary Tree Assessment. A total of 134 trees were documented. The most common species were planted kentia palms.

A large twin-trunked Norfolk Island pine to around 40 m high was situated in the southwest of the Project site, while another smaller Norfolk Island pine was located in the north. A large white oak (*Lagunaria patersonia*) was also located in the north of the Project site, downslope from the level of the existing infrastructure. Two tree fern species, rough tree fern (*Cyathea australis* subsp. *norfolkensis*), and Norfolk Island tree fern (*Cyathea brownii*) were observed along the valley floor outside of the potential infrastructure footprint.

A total of 16 birds were recorded, five endemic, three native, one migratory seabird and seven exotic. Three of the species were EPBC Act listed threatened species, and five were EPBC Act listed marine species. The only other recorded fauna species within the study area were feral cats, which were observed using surveillance cameras.

7.7.3 Potential Impacts

Potential impacts to flora and fauna as a result of the Project are discussed in Table 7.13.

Table 7.13 Potential impacts to flora and fauna

Potential impact	Activity	Description of impact
Construction		
Destruction of fauna habitat	Clearing of trees	Demolition and construction activities would result in both direct and indirect impacts: – Reduction in available foraging habitat – Reduction in available nesting or sheltering habitat, including loss of hollows – Clearing of two planted shade trees (*Meryta latifolia*) – Removal of the large twin-trunked Norfolk Island pine.
Disturbance, injury and mortality of fauna.	Excavation and earthworks. Heavy vehicle movement.	During construction, death or injury may occur to fauna present during clearing of vegetation or increased traffic. If birds are present but not nesting during construction, they will generally move away from the Project area to escape disturbance however there still may be a risk of accidental strike. The proposal has the potential to temporarily affect the use of the Project by fauna as a result of increased disturbance during construction. The use of machinery may temporarily deter some fauna species from using potential habitat surrounding the Project area during construction.
		Noise can cause changes in behaviours such as foraging, requiring additional energy expenditure if fauna need to forage further afield. Impacts during construction would be short term, temporary and are unlikely to deter fauna from using habitat features retained nearby the Project area, such as trees, in the long term.
		Unauthorised access to areas that are not approved to be impacted by the Project resulting in damage to flora and fauna habitat.
Invasion and spread of pests, weeds,	Movement of material	Pathogens and diseases, such Argentine ant (*Linepithema humile*), may be transported into the Project area by machinery and workers. These have the potential to establish in surrounding areas that are currently unaffected

Potential impact	Activity	Description of impact
pathogens and diseases.		by them, possibly causing damage to native fauna and flora within the Project area.
Operation		
Disturbance, injury and mortality of fauna.	Project use	There is likely to be increased traffic as a result of the Project which may increase the chance of accidental strikes.

7.7.4 Assessment of ecological impacts

Plants

The following considerations apply in assessing the potential for a significant impact to plants, as identified in Table 7.14.

Table 7.14 Assessment of plants

Factor	Assessment
involve medium or large-scale native vegetation clearance	The Project involves no medium or large scale clearing of native vegetation.
involve any clearance of any vegetation containing a listed threatened species which is likely to result in a long-term decline in a population or which threatens the viability of the species	Landscaping of the current facility includes two shade trees (*Meryta latifolia*) listed as critically endangered under the EPBC Act. The 50% design process would include consideration of the feasibility that these plants can be relocated. Additionally, landscaping of the Project also includes native plants under the Sustainability design principle. While the Project would potentially result in the loss of the two shade trees if their relocation was not practicable, it is unlikely to result in a long-term decline which threatens the viability of the species.
introduce potentially invasive species	Provided measures proposed for the CEMP are implemented, it is unlikely there would be any inadvertent introduction of potentially invasive species.
involve the use of chemicals which substantially stunt the growth of native vegetation	The Project does not involve the use of chemicals which substantially stunt the growth of native vegetation.
involve large-scale controlled burning or any controlled burning in sensitive areas, including areas which contain listed threatened species	The Project does not involve large-scale controlled burning or any controlled burning in sensitive areas, including areas which contain listed threatened species.

Animals

The following considerations apply in assessing the potential for a significant impact to animals identified in Table 7.15.

Table 7.15 Assessment of animals

Factor	Assessment
Cause a long-term decrease in, or threaten the viability of, a native animal population or populations, through death, injury or other harm to individuals	The Project would not cause a long-term decrease in, or threaten the viability of, a native animal population or populations, through death, injury or other harm to individuals.
Displace or substantially limit the movement or dispersal of native animal populations	The Project would not displace or substantially limit the movement or dispersal of native animal populations.

Factor	Assessment
Substantially reduce or fragment available habitat for native species	A white oak (*Lagunaria patersonia*) occurs near the top of the slope adjacent to the northern corner of the Project site. During the ecological investigations, white terns (*Gygis alba*) a listed marine species under the EPBC Act were observed roosting in this tree. As there is also potential for white oak to be used for nesting by white terns in addition to a variety of other birds, the Project may interfere with breeding as a result of noise and activity during construction. The presence of other trees on the Project site including Norfolk Island pines (*Araucaria heterophylla*) may also provide roosting and nesting opportunities for several bird species. While the removal of the Norfolk Island pines cannot be avoided, the Project has been designed to retain and protect the white oak. With the inclusion of native plants in the landscaping, there would be some replacement of potential habitat affected by the Project. Additionally, the timing of vegetation removal has been recommended in Table 6.4 to avoid the breeding period of white terns and other bird to minimise the potential for disturbing a critical life cycle stage. The Project would not substantially reduce or fragment available habitat for native species.
Reduce or fragment available habitat for listed threatened species, which is likely to displace a population, result in a long-term decline in a population, or threaten the viability of the species	The Project would not reduce or fragment available habitat for listed threatened species, which is likely to displace a population, result in a long-term decline in a population, or threaten the viability of the species.
Introduce exotic species which will substantially reduce habitat or resources for native species	Provided measures proposed for the CEMP are implemented, it is unlikely there would be any inadvertent introduction of potentially invasive species which will substantially reduce habitat or resources for native species.
Undertake large-scale controlled burning or any controlled burning in areas containing listed threatened species	The Project would not involve undertaking large-scale controlled burning or any controlled burning in areas containing listed threatened species.

7.8 People and Communities

7.8.1 Noise and vibration

The Project is in proximate (<20 m) to several residential sensitive receivers on Burglars Lane, as well as commercial properties along Douglas Drive and Taylors Road. These include Central Service Station (<10 m), Ferny Lane Theatre (<20 m) and P&R Groceries (<40 m). Construction and operational noise and vibration will need to be managed in relation to these sensitive receivers.

A noise and vibration assessment (Appendix F) was undertaken to predict the potential noise and vibration impacts of construction and operation of the Project site. The assessment used aerial imagery to identify nine sensitive receivers most likely to experience disruption due to works at the Project site: six residential, two commercial and one mixed residential/commercial. These were confirmed by site visit.

To note, the noise and vibration assessment was completed on the basis of the full scope of works under Option 1 and Option 2 and not the current Project's reduced Stage 1 scope of work. Although the impacts of reduced scope Stage 1 were not assessed, the impacts are anticipated to be less than the results presented below and in Appendix F due to the reduced scope of work.

Noise

Construction noise was assessed in line with the *Interim Construction Noise Guideline* (ICNG) (DCEWW, 2009), and operational noise assessed per with the *Noise Policy for Industry* (NPI) (NSW EPA, 2017). The noise criteria for construction and operational noise considered the existing background noise levels, which were measured during a site visit.

Computer based noise modelling was conducted based on site layout and anticipated construction plant and equipment to predict the potential noise impacts at sensitive receivers. Given the proximity of receivers it is expected that noise from some construction activities will exceed the Construction Noise Management Levels. An updated quantitative construction noise assessment should be conducted as part of subsequent phases as details of activities, equipment and locations are better understood.

Similarly, operational noise is predicted to exceed the established Project noise trigger levels at most, if not all, receivers. Exceedances up to 23 dB are anticipated during typical operations at the residential receiver adjacent to the Project in the east. Further, these results indicate that there is potential for sleep disturbance to occur. Exceedance of Project-specific operational guidelines are largely driven by the proposed presence of various pumps (e.g. for water treatment) around the site. The design currently does not include noise mitigation elements such as noise attenuation enclosures/barriers or lower noise generating equipment selection, thus modelling may be considered to reflect the worst-case scenario. It is expected that implementation of noise mitigation measures during subsequent design phases will be able to reduce noise impacts to meet established criteria however this does not negate the need to include noise considerations in the operational environmental management plan.

Vibration

Vibration criteria for human comfort have been established in line with *Assessing Vibration: A Technical Guideline* (AVTG) (2006) for guidance on human exposure to vibration. As there is no specific Australian Standard referring to structural vibration in buildings, vibration criteria for cosmetic damage have been established with consideration of the British Standard BS 7385:1993 *Evaluation and Measurement for Vibration in Buildings – Part 2: Guide to Damage Levels from Ground Borne Vibration*, and German Standard DIN 4150-3: 2016 *Vibrations in buildings*.

Construction activities would result in a short-term increase in localised vibration levels, as energy from equipment is transmitted into the ground, which attenuates with distance. Construction vibration impacts may exceed human comfort or building damage levels if the appropriate safe working distances cannot be maintained. Due to complicated ground conditions, an exact vibration assessment result is generally not expected from available prediction methods.

The operation of the MPS is not expected to have any vibrational impacts and was not further assessed.

Potential Noise Impacts

Potential impacts of noise and vibration as a result of the Project are discussed in Table 7.16.

Table 7.16 Potential impacts of noise and vibration

Potential impact	Activity	Description of impact
Construction		
Increase in noise levels	Excavation and earthworks	Key sources of noise and vibration that are expected to occur during the above hours may include: – Heavy vehicle movements delivering materials to the Proposal area – Plant and equipment generating additional noise and vibration during work hours – Additional ambient noise from construction workers in the area.
	Heavy vehicle movement	
	Workers' noise	
Increase in vibration levels	Excavation and earthworks	Vibration impacts (human comfort or cosmetic damage to buildings) would be generally limited to an area of 100 m. These impacts would be temporary and limited to construction hours only.
Operation		
Encroachment on adjoining residences	Operational noise	The Project involves a reconfiguration of the existing RAC facility and would result in the new high dependency accommodation being placed along the northern boundary at the eastern end of the Project site in close proximity to an adjoining neighbour.

7.8.2 Traffic and access

The site is located on Grassy Road just north of the intersection of Grassy Road, Ferny Land and Taylors Road. Grassy Road is a main road which leads northeast from the centre of the Island to Norfolk Island National Park, Mount Pitt Lookout, and the Botanic Gardens. The road is lined with residential buildings and tourist accommodation infrastructure. The existing hospital and residential aged care have regular traffic movement associated with staff, visitors, and patients.

A car park is located near to the hospital entry and residential aged care facility. Existing parking onsite is limited, and overflow car parking often occurs along Grassy Road and an adjacent grassed, empty allotment to the north. The allotment is also used as carparking for the nearby Ferny Road Theatre. There is a rear access to the dental clinic from Burglar's Lane, although this has been blocked off from the main car park.

The site has ready access to the airport by road and is also accessible to both Kingston and Cascade Piers via Taylors Road, which runs through the township of Burnt Pine.

An options assessment of the Project has also reviewed parking options to be considered as part of the concept Project design. Some existing informal carparking locations will be developed as part of the Project and, as such, there is a requirement to consider alternative parking capacity in the design.

Potential Traffic Impacts

Potential impacts to traffic and access as a result of the Project are discussed in Table 7.17.

Table 7.17 Potential impacts to traffic and access

Potential impact	Activity	Description of impact
Construction		
Increased traffic	General construction activities	Generation of additional traffic on roads within and around the Project area as a result of equipment, materials and construction workforce transportation.
		Disruption to local traffic due to increased construction traffic.
Reduced parking availability	General construction activities	Works on the Project site may limit access to on-site parking for public utilising hospital facilities.
Operation		
Loss of informal parking	Operation	Informal parking on the grassy area at the western side of the Project site opposite Ferny Lane Theatre would not be available following completion of all stages of the project.

7.8.3 Social and economic environment

Norfolk Island is heavily dependent on tourism and has a high sense of community value, particularly associated within the Burnt Pine area and wider KAVHA. It is important to keep the community informed to minimise disruption to the community. The Project would provide a safer environment for locals and tourists, allowing greater support through improved infrastructure.

The 2021 ABS census identified 24.9% of the Norfolk Island population (547 out of a total population of 2,188) were aged 65 years and over (ABS 2021). To better support this aging population improved care infrastructure is essential and will improve quality of life for all.

The Project is located in close proximity (<60 m) to a number of residential sensitive receivers, as well as Ferny Lane Theatre. The associated construction works has potential to cause dust, noise and visual impacts to nearby sensitive receivers during the construction phase. This includes road users being impacted by construction activities.

A number of buildings within the existing NIHRACS facility have been donated by the community but would be subject to demolition as a result of the Project. These buildings hold important community value and include among other donations, the:

– Mawson Units (donated by Mr Art, and Mrs Jean Mawson for the purposes of providing accommodation for senior citizens) (The Norfolk Islander 1983)
– Ahstyk Dental Clinic, donated by Mr Anthony William Redstone OBE.

The improvement of existing facilities will facilitate more jobs initially in construction and later healthcare for the local community.

Potential Impacts

Potential impacts to the social and economic environment as a result of the Project are discussed in Table 7.18.

Table 7.18 Potential impacts to social and economic environment

Potential impact	Activity	Description of impact
Construction		
Increased employment opportunities	General construction activities	Construction contractor would be locally sourced and therefore the Project would generate local employment for the period of construction.
Decreased visual amenity	General construction activities	Construction equipment, potential loose litter, stockpiles, exposed earth resulting in decreased visual amenity of the area.
Removal of structures donated by the community	Demolition and enabling works	Several structures that would be demolished through the Project were originally donated by members of the Norfolk Island community.
Operation		
Improved health services	Operation	Improved facilities will allow for improved and accurate health services.
Increased employment opportunities	Operation	Health service providers would be employed locally, generating long term employment.

7.8.4 Community Infrastructure

Norfolk Island's remote location has certain limitations on the local industry capacity and existing infrastructure to effectively support a major construction project. The local community can expect to receive benefits from the Project by preparing workplaces to assist with the construction labour, accommodation and food, logistics and local material supply. The following themes have been considered and included in the 30% CDR and associated cost plans:

– Demolition and recycling
– Construction waste management
– Contractor personnel messing and accommodation
– Logistics approach including local freight, trade, and materials.

A project logistics report was developed during the 5% MPFR. This section builds on the findings of the logistics report, taking into consideration the more mature state of the design, a better understanding of the requirements of the project and the impacts of logistics on the project.

The logistics support to the Island is constantly being reviewed and is evolving. There are a number of initiatives currently in planning by NIRC and DITRDCSA, including improved shipping and freight services. These initiatives may be in motion by the time this project is in the construction phase. The project's freight and logistics support system will also require constant review as the Island's logistics and support

mechanisms change. This may impact on the facility design, project schedule and construction methodologies as the project progresses.

To meet biosecurity requirements, any imported items must comply with the requirements of the Department of Agriculture, Fisheries and Forestry (DAFF) import permit system.

Resources

Norfolk Island being a relatively small land mass has few natural resources that would be available for use in the Project. Consequently, a large proportion of the resource requirement for the Project would be imported. However, there is capacity for some resources to be supplied locally including:

– Sand and gravel for concrete production
– Timber
– Stone.

Sand and gravel for concrete production

As discussed in Section 2.3.4 there is some capacity for recycling materials as components in concrete production. This would reduce the need for importing raw materials and also minimise the volume of waste products going to landfill. Further, as discussed in Table 7.3, there may be potential for reuse of spoil generated through the Kingston Pier Channel Construction Project to further minimise the need for importing sand, subject to confirmation it meets criteria for use in concrete and is not contaminated.

Timber

The Island has a well-established supplier with local knowledge and experience milling a range of Norfolk Island pine and eucalyptus hardwood species. The trees that are felled are dead, dying, diseased or a danger to persons and property. A permit from the NIRC must be obtained before any pine can be felled as all native trees are protected trees in Norfolk Island.

GHD (2024) anticipate that the Contractor would be able to efficiently procure local Norfolk Island pine for the superstructure elements. It is also assumed that the Contractor will need to be responsible for removal and disposal of tree roots. It is recommended by GHD (2024) that the large twin-trunked Norfolk Island pine located at the hospital is removed as early as possible if it is to be used for the project's superstructure.

The mill can provide timber and build to engineering specifications but is limited by not being able to certify timber or locally undertake stress tests of milled timber.

As part of the NIHRACS MPS replacement project GHD (2022) prepared a feasibility study for use of locally grown timber resources for the construction of the MPS facility. The study was to consider the opportunities for the removal of the hardwood trees in the plantation (approximately 26 hectares in area) within the forestry zone. This is consistent with the National Parks Management Plan which aims to remove the hardwood trees in the near term to reduce bush fire hazard.

The GHD (2022) study included a field assessment of the plantation, discussions with local processors, and exploration of potential uses for the timber. Results indicated a significant volume of recoverable timber, with potential applications in appearance-grade uses and landscaping. However, limitations such as processing constraints and uncertainties about species strength properties were identified. Recommendations included further historical research, detailed inventory assessments, development of a forest practice code, and targeted utilisation trials to inform the project's future phases.

Stone

Norfolk Island is well known for the remarkably preserved convict era buildings and ruins that were constructed from locally sourced stone masonry. Cascade Pier currently has a large supply of stone that the 30% design currently incorporates in the facility.

As described by GHD (2024), the 30% CDR assumes that the Contractor would submit an application to source local stone from Cascade Pier subject to signing an agreement with the NIRC Works Depot that manages all sale of rock on island.

Utilities

Water

There is no reticulated supply of water on Norfolk Island. Current demand for water is met through a combination of rainwater harvesting, collection from freshwater springs and extraction of groundwater (NIRC 2018). The use of ground water is discouraged on The Island to preserve the ground water supply.

The potable water storage capacity of the existing hospital is 770kL, which is distributed between two 385kL tanks located at the site entrance. The potable and firefighting water supply is discussed further in Table 7.6.

Sewer

Wastewater management on Norfolk Island from urban (residential, mixed use, business and industrial), agricultural and rural residential developments on the island is addressed through two primary approaches (Integran, 2024):

– A conventional sewerage network of pipes, pumps and a treatment plant, known as the Water Assurance Scheme, services the main urban area and township area of Burnt Pine and surrounds. At the treatment plant, wastewater undergoes manual screening to remove solids before being discharged to the ocean at Headstone (NIRC 2017). There is no dedicated management system for bio-solids which are also discharged into the ocean.
– In areas not connected to the centralized scheme, wastewater is managed through various on-site waste management systems. These comprise holding tanks, pump outs, traditional septic systems, greywater/sullage, and advanced wastewater treatment systems.

The existing hospital and associated external buildings are currently serviced by the Island's sewerage network. The hospital external buildings are connected to the sewer main located adjacent Burglar's Lane while the main hospital building, Mawson House and Ambulance station are connected to the sewer manhole located on Grassy Road.

Initial advice from NIRC indicates that there is current capacity for a new health facility to connect to the Islands sewer network through a new sewer connection to the mains.

Electricity

The electrical infrastructure on Norfolk Island consists of a central diesel fired power station located adjacent to Norfolk Island Airport and a high voltage distribution network. An existing substation located along the southern boundary of the Project site adjacent to Grassy Road, currently directs the power supply to NIHRACS.

Norfolk Island has favourable conditions for solar power and generates a significant amount of its energy this way since its introduction to the island in the past five years.

A high voltage (HV) cable supplies a NIRC transformer located on the development site near the ambulance station (LHS at front gate) which supplies the hospital and consumers in the surrounding area. Based on observations and discussion with NIRC, a load assessment of the existing substation indicates that there is approximately 240kVA or 348A/phase load on the existing substation. Advice from Council is that the peak demand of the existing NIHRACS facility is approximately 140 kW which is included in the substation load assessment undertaken as part of the design development.

Power is reticulated from the substation to an adjacent recently installed generator. The generator includes the automatic transfer switch (ATS) which transfers the hospital load to the generator in the event of a power outage.

The primary site supply will consist of upgrading the existing NIRC transformer currently located on the site. The existing generator will be retained in its existing location to provide a secondary supply in the event of a power outage.

No solar generation is proposed for the reduced scope Stage 1 residential aged care facility, however the design has been developed to allow for installation of solar panels at a later stage of the project if required.

7.8.5 Waste

Norfolk Island's remote location creates certain limitations on the local waste management capacity, access to resources and available infrastructure to effectively support a major construction project. Managing wastes in isolated communities such as Norfolk Island poses significant challenges, as many of the conventional solutions used on the mainland are not feasible in this unique environment.

Waste management on Norfolk Island

Waste Management is current coordinated at the Norfolk Island Waste Management Centre (WMC) which has been operational since 2021 after the closure of the Headstone Waste Facility. The WMC functions as a drop-off facility for residents and visitors. There is also capacity for the WMC to collect bulky, construction and other non-compact waste. The WMC is open for drop off four days a week.

The WMC processes waste from a number of different streams and primarily acts as a stockpiling facility through which waste is exported to the mainland for recycling or disposal. No disposal occurs on Island due to groundwater quality concerns.

A summary of current waste management at the facility (and broader island) is provided in Table 7.19.

Table 7.19 Summary of existing waste streams and management on Norfolk Island

	Exported to mainland	Processed on island
Recycling/Reuse	**Metal waste;** Crushed, stockpiled and exported for recycling.	**Glass;** Crushed to produce a sand-like product which can be purchased by residents.
	Car tyres; Shredded, stockpiled and exported for recycling.	
	Car batteries; Stockpiled and exported for recycling.	**Green waste and organics;** Shredded and composted.
	E-waste; Packaged for export and recycling.	
Disposal	**General household refuse;** Baled and exported to landfill.	No disposal occurs on Norfolk Island, only stockpiling. A temporary stockpile has been created within a restricted access area at the WMC to store asbestos waste until a more permanent solution is developed. NIRC is completing a draft waste strategy where a feasibility study will be completed for the construction and management of an on-island disposal pit foe asbestos waste.
	Building and Demolition waste; Stockpiled and exported for disposal	
	Asbestos and other hazardous waste; Stockpiled and exported for disposal	
	Waste oils; Decanted into IBCs for export and disposal.	

As per anecdotal evidence provided by management at NIHRACS, approximately 400kg of clinical waste is produced by the NIHRACS each month, however it is noted that this volume also includes some non-clinical waste due to inconsistencies in definition. Formerly, sanitary, general and clinical waste have been co-mingled and incinerated per WMC requirements. More recently, these waste streams have been separated, with clinical waste alone being incinerated and general waste being managed per the system outlined in Table 7.19.

The residential aged care capacity upgrades proposed as part of Stage 1 of the Project would see an increase by less than ten residents. For this reason, changes in operational waste volumes produced are anticipated to be minor and unlikely to negatively impact waste disposal infrastructure on the island. Once Stage 1 is completed, it is anticipated that the ongoing waste management arrangements at NIHRACS will continue as per their own waste management policy and procedure.

Project waste management

For the Project, resources are expected to be sourced either on-island or delivered via sea freight. The Project will manage and dispose of waste using the existing Norfolk Island waste management system.

There is an overarching requirement to demolish unused and unsafe buildings to reduce the maintenance liability and create suitable space for new buildings in accordance with the design documentation. Materials from the demolition will comprise of four main categories:

– Hazardous waste – asbestos, lead paint, other contaminated materials.
– Reusable waste – solar panels, tanks, E-waste, non-damaged building materials.
– Recyclable waste – white goods, pallets, certain scrap metals, glass.
– Demolition waste –builders waste, broken materials, plastic, polystyrene.

The following other waste streams have also been identified for management:

– Construction waste – waste generated by workers on the project, primarily comprising packaging, food waste and similar general waste products.
– Operational waste – waste generated by the operation of the project eg. clinical, sanitary and general hospital waste.

Anticipated volumes of respective waste streams are currently unknown, however details of waste volumes are to be provided as part of the project Construction Environmental Management Plan (CEMP).

Hazardous waste

The island does not presently have a process for managing contaminated waste (including PFAS, Lead and Asbestos). The Norfolk Island WMC is only a transfer point and not a waste disposal point for asbestos, so asbestos waste may need to be transferred to the mainland for appropriate disposal at a licenced waste disposal facility. Current options for hazardous waste disposal include burial onsite in a containment cell and/or stockpiling and exportation to the mainland, however there is no arrangement for this yet.

For the purposes of asbestos waste management for the Project, a management strategy will need to be developed in consultation with NIRC prior to construction commencing.

Reusable waste

To support community benefit objectives and to minimise exporting of waste, it is proposed that the contractor sort demolished materials and make available usable materials for the local community. Prior to distribution, legal counsel should be sought to ensure that neither the Commonwealth nor NIRC incurs liability for any materials that may be hazardous or defective.

A Memorandum of Understanding may need to be established between DITRDC and relevant parties to clarify responsibility for the future use of the reusable items.

Recyclable waste

Recyclable waste refers to materials that are actively recycled either locally on Norfolk Island or externally in New Zealand or mainland Australia. To maintain this classification, recyclable and non-recyclable items must be kept separate upon delivery to the WMC. If these materials are mixed, the entire load is reclassified as non-recyclable and subject to the corresponding disposal fees.

The 30% CDR assumes that the Contractor will be able to stockpile the recyclable waste at the Waste Management Centre before it is baled and exported. The centre has indicated they have the capacity to accommodate the increased volume of waste generated however this will need to be reassessed upon final confirmation of waste material volumes.

Demolition waste

Demolition waste that cannot be re-used by the local community will be temporary stockpiled at the Waste Management Centre and exported for recycling or disposal.

Other construction waste

The building construction works are anticipated to generate significant quantities of waste including packaging waste such a paper, cardboard and certain plastics, which are often recycled across mainland Australia. The facilities on Norfolk Island, however, lack the adequate equipment or resources to recycle these packaging wastes. Packaging waste generated by the Project will be baled and exported to mainland Australia for disposal in line with existing systems.

Putrescible waste will also be generated at the construction site over the duration of the contract. It is assumed that the Contractor will dispose of this waste for composting via the Norfolk Island WMC.

Aged care facility operational waste

Operational waste is to be management through the NIHRACS Waste and Environmental Management Policy and Waste and Environmental Management Procedure. These documents have been developed in line with NIRC and Revolve Your World (WMC management) requirements. Waste management strategies on the Island are currently undergoing change. The finalised documents will outline a revised approach to sustainable waste management including specific guidelines for management of clinical waste.

Framework waste management plan

Impacts to resources, waste and utilities during Project construction will be temporary in nature and would be managed through the implementations of a Waste Management Plan (WMP) as part of the Project CEMP. The following items are to be included in the WMP:

– The key roles and responsibilities of the client, principal contractor and subcontractors will be outlined in the plan
– Anticipated volumes and types of waste materials generated in the construction and demolition of buildings required in the development of Stage 1.
– Procedures proposed for recycling methods and separating and packaging various types of construction and demolition materials prior to delivery to the Waste Management Centre.
– Details of key training and awareness requirements including inductions and toolbox talks will be undertaken
– Audit, monitoring and review.

The management plan will demonstrate that the waste hierarchy has been applied and identify ways that the volume of waste generated and the volume of waste sent for disposal will be minimised, except where that is the best overall environmental outcome.

The proposed procedures for the handling and storage of the waste should include but not be limited to:

– Waste will be segregated at the source with dedicated waste segregation areas on site
– Spoil and topsoil to be stockpiled in allocated areas with appropriate sediment and erosion control measures implemented
– Recyclable waste to be stored in their appropriate containers onsite prior to delivery to the WMC
– Hazardous waste is to be segregated at demarcated and contained locations with appropriate bunding and stockpiles to be covered with geotextile fabric or impermeable plastic sheeting before being disposed of offsite at a predetermined disposal location as per the proposed draft NIRC waste strategy.

7.8.6 Potential Impacts

Potential impacts to resources, waste and utilities as a result of the Project are discussed in Table 7.20.

Table 7.20 Potential impacts to resources, waste and utilities

Potential impact	Activity	Description of impact
Construction		
Hazardous waste generation	All construction phase activities	Generation of hazardous waste (including asbestos) and other materials that cannot be disposed of on Norfolk Island during demolition that would require stockpiling and disposal by export off-island. Contractor facilities (potentially including portable toilets and associated facilities) will generate grey water and sewage that will need to be appropriately disposed of at registered facilities on the Island.
General refuse from site activities	All construction phase activities	Occupation of the site and conduct of construction phase activities would include the generation of general refuse inclusive of recyclable and putrescible wastes.
Exhaustion of local resources	Construction	Excessive consumption of local natural resources to support construction.

7.8.7 Assessment

The following considerations apply in assessing the potential for a significant impact to people and communities identified in Table 7.21.

Table 7.21 Assessment of impacts to people and communities

Factor	Assessment
Substantially increase demand for, or reduce the availability of, community services or infrastructure which have direct or indirect impacts on the environment, including water supply, power supply, roads, waste disposal, and housing	The Project is responding to the need for increased service standards however in responding to this demand, consequential impacts to community infrastructure are likely. Notwithstanding, at the 30% design advice has been received from NIRC that the Island's existing sewer system can accommodate the new hospital. Similarly, other services are understood to be able to accommodate the new facility however emphasis is placed on self-sufficiency for water and electricity. The 30% design responds to this requirement with a range of measures to minimise reliance on community infrastructure and enhance the facility's sustainability. Accordingly, the Project is unlikely to substantially increase demand for, or reduce the availability of, community services or infrastructure which have direct or indirect impacts on the environment, including water supply, power supply, roads, waste disposal, and housing.
Affect the health, safety, welfare or quality of life of the members of a community, through factors such as noise, odours, fumes, smoke, or other pollutants	Short term effects including noise, dust, vehicle emissions and other construction related impacts are likely to occur with the most affected members of the community being adjacent residents and businesses. The CEMP has identified a number of measures that if implemented by a CEMP that is overseen through an EMS that meets the requirements of ISO AS 14001, are unlikely to result in a significant impact. The temporary nature and effect of mitigation measures would effectively mitigate the potential for these effects to result in a significant impact.
cause physical dislocation of individuals or communities	The Project would seek to keep residents and aging members of the Norfolk Island community who need medical care, connected with family and friends by providing contemporary, high-quality facilities on the island. This would minimise the need for people to seek medical care on the Australian mainland or elsewhere. The project would not have an adverse impact on this aspect of people and communities.
substantially change or diminish cultural identity, social	The loss of structures donated by the community as part of the demolition risks the loss of cultural identity and acknowledgement of the important relationship between the community and the health services provided by the NIHRACS. The

Factor	Assessment
organisation or community resources	recommended measure in Table 6.4 for the 50% design process to consider the memorialisation or dedication of new structures or features of the Project would mitigate this impact and ensure the contributions of the community remain a prominent part of the identity of the facility.

7.9 Heritage

Norfolk Island has seen four significant phases of historic development, dating from early Polynesian Settlement, through Colonial and Penal settlement and Pitcairn settlement. This has resulted in a range of heritage values and conditions. A summary of these period can be found in Table 7.22.

A PMST report (Appendix E) and desktop search was conducted to understand the heritage values present at the Project site.

Table 7.22 Summary of Norfolk Island settlement

Settlement	Date	Description
Polynesian Settlement	c 1115-1450 AD	Norfolk Island was initially inhabited by Polynesian seafarers over a 300-year period. Polynesian settlement of Norfolk Island occurred following migration of people to New Zealand and other nearby Polynesian islands. It is likely that this settlement represents a single occupation phase of the Island. The main site of occupation of Polynesian settles was at Emily Bay, KAVHA.
Colonial Settlement	1788-1814	James Cook sighted Norfolk Island in 1774, with the Island being settled in 1788 by the British following the arrival of the First Fleet in Sydney. In the initial period of settlement, the area along the shoreline was cleared for cultivation and livestock grazing as well as construction of shelters and storehouses. In 1790 HMS Sirius become wrecked on the reef. The Island expanded significantly during the 1790s to a population of 1,156, with settlers and convicts farming on small holdings of land. By 1802 it was decided that Norfolk Island was unable to be self-sufficient, and orders were given to close the settlement, with all settlers leaving by 1814, destroying all buildings prior to departure.
Penal Settlement	1825-1855	In 1822, a decision was made to re-open The Islandas a penal settlement for re-offending convicts. Many of the stone structures from colonial settlement remained and were repaired with new roofs. By December 1825, the first convicts had arrived on the Island, and the penal settlement quickly gained the reputation as being one of the harshest in the British Empire. The 1840s saw a building program constructing the Commissariat, new military barracks and a new gaol. The new gaol was complete in 1847, however in the same year it was decided that the penal settlement would be shut down. The number of convicts on The Islanddecreased by 1000, to 857 by December 1847. The Island continued to be used for colonial prisoners only, and by 1854 only a handful of convicts remained. The majority of buildings remaining in KAVHA relate to this period of settlement.
Pitcairn Settlement	1856-present	The ‘Pitcairners’ were the descendants of mutineers from the HMS Bounty and Tahitians. The Pitcairner populations had outgrown their home on Pitcairn Island, and the British Home Office agreed to relocate Pitcairners to Norfolk Island in 1852. Pitcairners arrived in Kingston in 1856, initially occupying the old barracks and buildings. Each household was allocated a 50-acre lot away from Kingston. Many of the convict era buildings fell into disrepair during the late 1800s. The administration of Norfolk Island was transferred to New South Wales in 1901. In 1913 Norfolk Island was established as a territory under the Commonwealth of Australia. In the 1920s renovation of some of the convict era buildings was undertaken to be used as administration offices and residences. Development continued within Kingston and in the surrounding hills. Tourism began in the 1950s which saw more convict era buildings being repaired.

World Heritage

The Kingston and Arthur's Vale Historic Area (KAVHA) (Australian Convict Sites) is located approximately 1.5 km to the south and extends from near the southern end of the Norfolk Island Airport, south along the coastline including Slaughter Bay, Emily Bay, and Cemetery Bay (refer to Figure 7.7). KAVHA features buildings (some of which remain inhabited by locals), archaeological sites, and ruins from the convict era, and continues to be central to the Norfolk Island community for its links with traditional culture, and contributions to the evolving heritage, identity, and values of the Island.

Works at the Project site are not anticipated to directly or indirectly impact the KAVHA site or associated heritage values.

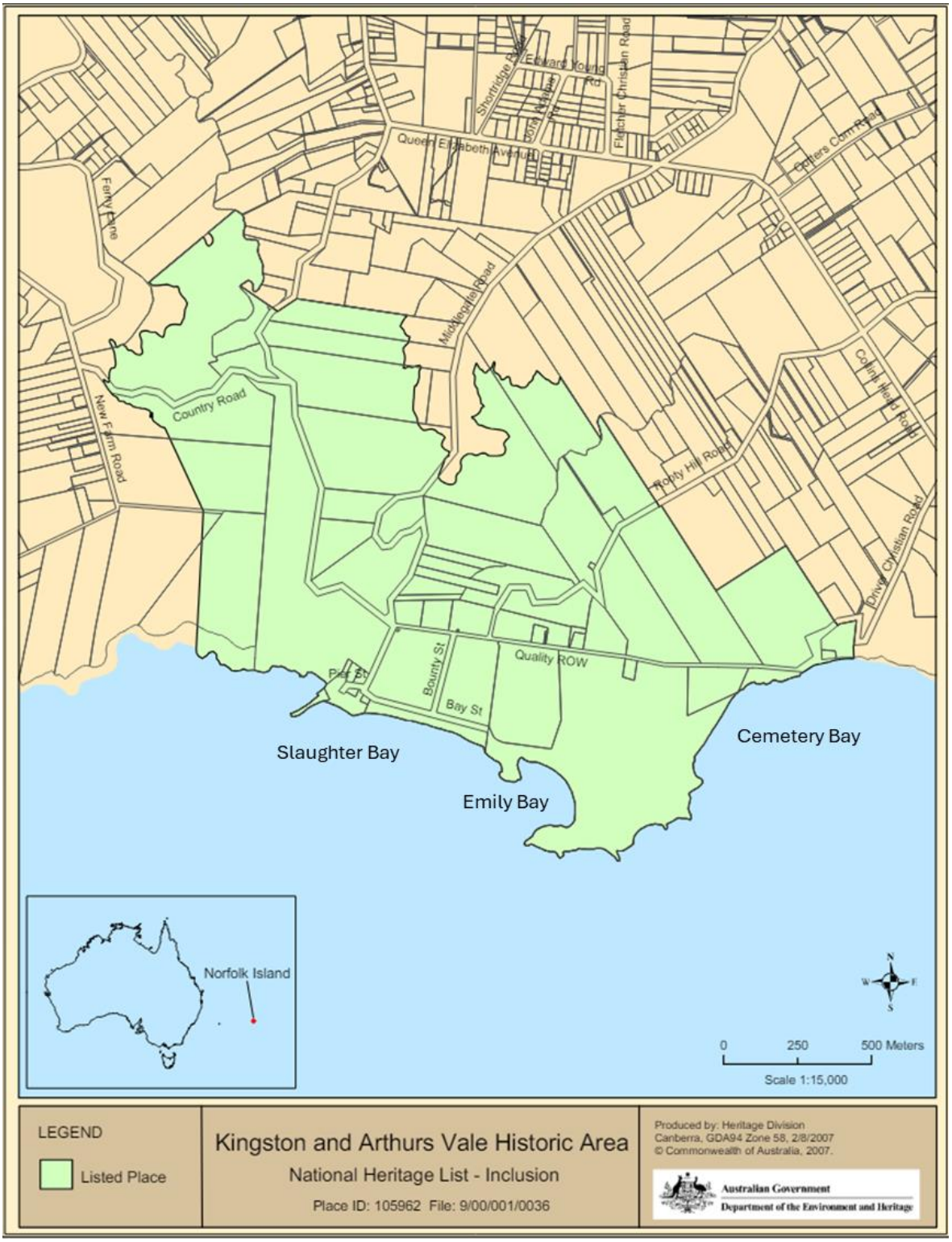

Figure 7.7 The KAVHA site area, Norfolk Island

National Heritage

Two listed National Heritage places are known within 10 km:

– HMS Sirius Shipwreck (located offshore)
– KAVHA (as described above).

Works at the Project site are not anticipated to impact on values associated with any national heritage sites.

Commonwealth Heritage

The PMST search conducted on 26 May 2024 identified seven Commonwealth Heritage Places located within 10 km:

– Natural heritage:
  a) Nepean Island Reserve, 4.5 km south
  b) Phillip Island, 9.2 km south
  c) Selwyn Reserve, 1.1 km north.
– Historic heritage:
  a) Arched Building, Longridge, 1.8 km south
  b) Cascade Reserve, 2.3 km east
  c) HMS Sirius Shipwreck, 3.3 km south
  d) Kingston and Arthurs Vale Commonwealth Tenure Area, 2.9 km south.

Works at the Project site are not anticipated to impact on values associated with any Commonwealth heritage sites.

Local Heritage

The Norfolk Island Heritage Register identifies 15 places of heritage significance on The Island (Norfolk Island Regional Council , 2023). None of these places intersect with or are in close proximity to the Project site. The approximate locations of the items of heritage significance are shown in Figure 7.7, and the direction and approximate distances to the Project are included in Table 7.23 in order of increasing distance from the Project site.

Table 7.23 Norfolk Island Heritage Register items of heritage significance

Item of heritage significance	Direction from Project	Approx. distance
Norfolk Island National Park	North	1.1 km
Kingston and Arthurs Vale Historic Area	Southeast	1.5 km
Longridge Agricultural Settlement Site	South	1.8 km
St Barnabas Church Area	West	1.9 km
Bumbora Reserve and Portion 96b1	Southwest	2.0 km
Cascade Agricultural Settlement Site	Northeast	2.2 km
Cascade Reserve	Northeast	2.4 km
Hundred Acres Reserve	Southwest	2.8 km
Selwyn Reserve	Northwest	2.9 km
Anson Bay Reserve	Northwest	3.3 km
Point Ross Reserve	South	3.3 km
Anson Point nesting ground	Northwest	3.7 km
That part of Ball Bay Reserve formerly known as Bucks Point Reserve	Southeast	4.1 km
Two Chimneys Reserve	Southeast	4.5 km
Nepean Island Reserve	Southeast	4.6 km

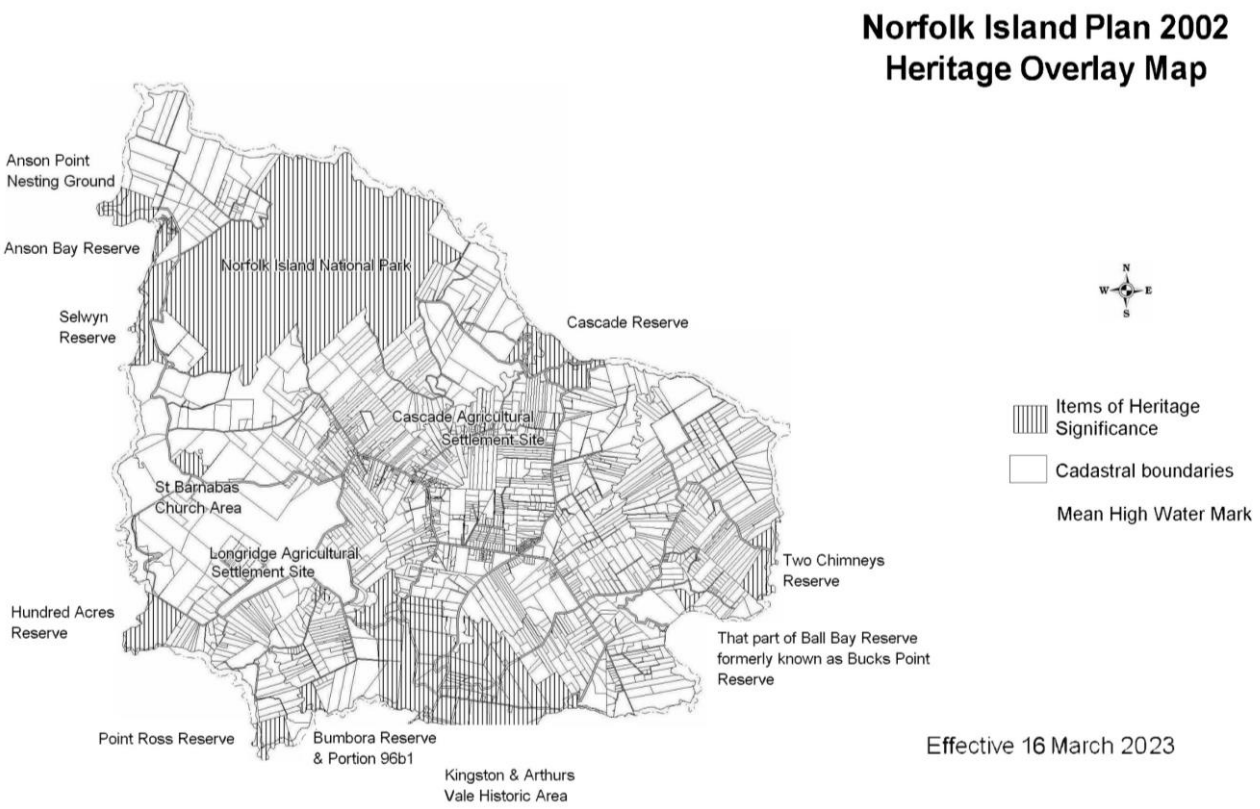

Figure 7.8 Norfolk Island heritage overlay map (Norfolk Island Regional Council , 2023)

Site history

The Norfolk Island Hospital was first established at its current site in early 1829, being raised on the foundations of colonial era settlements (Hitch 1992). This first version of the hospital remained operational until 1855 and comprised only 10 rooms of anecdotally unsanitary conditions. The current facility was built in the 1940s by the New Zealand Armed Forces to support troops in the Pacific during WWII and operated exclusively as a hospital until July 1st, 2016, when administration was taken over by the NIHRACS (Hitch 1992 & NIHRACS 2024). Over subsequent years, donations made by the community have facilitated the inclusion of further services, including the Mawson Units, Physiotherapy Unit, Dental Unit, Emily Channer District Nursing Service and St John Ambulance Service (NIHRACS 2020).

Due to its historical function as an armed forces and community hospital, the facility is likely to have historical and social values associated with it, although the heritage importance of the structure itself would likely be a minor contributor to the overall values.

The Project site is located within the township of Burnt Pine, the largest town on Norfolk Island. Between 1795 and 1802 this area was property of first fleeter Andrew Goodwin, who was granted a prime sixty-acre lot (lot 64) where he lived with his wife and his children prior to selling the property (Timbury 2012). The next record of the Project site is from an 1844 map which lists the region as being a sheep station. This rural character appears to have been maintained up until 1942 and the advent of WWII in the Pacific.

Following the construction of Norfolk Island Airport during WWII at the request of the United States Army Air Forces, Burnt Pine significantly expanded, growing to become the main service centre of The Island which it has remained to this day (Richards, 2021).

7.9.1 Potential Impacts

Potential impacts to heritage as a result of the Project are discussed in Table 7.24.

Table 7.24 Potential impacts to heritage

Potential impact	Activity	Description of impact
Construction		
Damage to unknown heritage	Enabling works	Damage and/or loss of historical or cultural heritage during demolition and earthworks.
History of the hospital not documented	Demolition of structures	Once demolished the current configuration of the site would be inaccessible and stories associated with its history lost if not documented and made available.

7.9.2 Assessment of heritage impacts

The following considerations apply in assessing the potential for a significant impact to heritage. While there would be no impacts to any listed heritage place, this assessment has considered the historical value of the Project site and the importance of protecting and celebrating its history as a place with heritage value.

Table 7.25 Assessment of impacts to heritage

Factor	Assessment
Permanently destroy, remove or substantially alter the fabric (physical material including structural elements and other components, fixtures, contents, and objects) of a heritage place	The Project would result in the demolition of several structures which contribute to an understanding of the hospital's growth and that of the Norfolk Island community over the latter half of the 20th century and early 21st century. While it is not listed on any heritage register, it has been recommended through the measures proposed in Table 6.4 that several heritage-focussed mitigation measures are implemented to: – avoid damage to currently unknown archaeological heritage – record the site as it currently exists – celebrate the past contributions of the community – incorporate historical features into the new facility's design.
Involve extension, renovation, or substantial alteration of a heritage place in a manner which is inconsistent with the heritage values of the place	The Project's architectural design takes inspiration from various influences that reflect the cultural heritage of Norfolk Island as described by the 30% CDR (GHD 2024). The resulting structures would not be inconsistent with the heritage values of the place.
Involve the erection of buildings or other structures adjacent to, or within important sight lines of, a heritage place which are inconsistent with the heritage values of the place	The Project site is not within the viewshed of any of the listed heritage places that would be sensitive to development on the site, most notably KAHVA. The Norfolk Island National Park is located approximately 1.1 km to the north. Development as proposed on the Project site would not involve the erection of buildings or other structures adjacent to, or within important sight lines of, the national park or any other heritage place which are inconsistent with the heritage values of the place.
Substantially diminish the heritage value of a heritage place for a community or group for which it is significant	Demolition of a number of structures would likely impact members of the Norfolk Island community. This would be most notable for those with memories of significant events associated the hospital or through association with the community members who have donated buildings that would be demolished. Recommended measures to capture the stories, history and recognise contributing members of the community would ensure the heritage values are recorded and celebrated in an accessible way that is meaningful to the community.
Substantially alter the setting of a heritage place in a manner which is inconsistent with the heritage values of the place	The Project would not change the function of the Project site, it would remain functioning as a medical facility and retain community association as a hospital. As such, the Project would not alter the setting of a heritage place in a manner which is inconsistent with the heritage values of the place.
Substantially restrict or inhibit the existing use of a heritage place as a cultural or ceremonial site	The Project would not substantially restrict or inhibit the existing use of a heritage place as a cultural or ceremonial site, particularly with the recommended measures to reflect the site history and contribution of the community.

7.10 Evaluation of impacts

7.10.1 Beneficial and adverse impacts

Potential beneficial and adverse impacts of the Project are summarised in Table 7.26. Adverse impacts are expected to be managed through the implementation of mitigation and management measures.

Table 7.26 Summary of beneficial and adverse impacts

Matter	Impact	Description
Beneficial		
Social and Economic environment.	Local employment	– Construction and Operational phases have local employment opportunities.
	Improved local health care	– Improved health care facilities will benefit the whole island.
Adverse		
Flora and Fauna	Destruction of fauna habitat	– Removal of existing vegetation including the large twin-trunked Norfolk Island pine and excavation of vegetation and rock cuttings within the Project area may reduce available habitat.
	Disturbance, injury and mortality of fauna	– Throughout construction and operation, death or injury may occur to fauna present within the Project area through clearing of vegetation of increased traffic. Additionally, noise and vibration generated throughout construction may cause changes in foraging behaviours.
	Invasion and spread of pests, weeds, pathogens and diseases	– Pathogens and diseases may be transported into by machinery and workers which may become established within the Project area.
	Damage to Norfolk Island pines	– Compaction of the soil profile through movement of vehicles and machinery within the TPZ may impact the nature soil structure and porosity potentially resulting in root death. Additionally, cut within the TPZ could cause direct damage to root systems.
Soils and geology	Erosion and sedimentation	Erosion and sedimentation may arise from the Proposal as a result of: – Earthworks, stockpiling, machinery movement – Vegetation clearing – Cut and fill.
	Encountering hazardous materials (ASS or asbestos)	During earthworks and excavation, there would be potential for unexpected finds to occur which may include asbestos fragments or ASS. If disturbed, drained and left unmanaged ASS can pose considerable risks such as: – Soil acidification – Release of toxic levels of metals, commonly aluminium and iron. – Noxious gas release. – Damage to human and animal health. – Diseases relating to asbestos (in extreme cases). – Exposure of asbestos to the community.
Hydrology and water quality	Erosion and sedimentation	Erosion and sedimentation may arise from the Project as a result of excavation, earthworks and stockpiling. If not appropriately managed this may result in sediment and nutrient laden runoff into waterways including Watermill Dam.
	Spills	Spills from vehicles and machinery causing pollution of waterways and decrease in water quality.
Noise and vibration	Increase in noise and vibration levels	Noise and vibration is expected to be generated from the Project through excavation and earthworks, heavy vehicle movement, workers' noise. Noise and vibration impacts are expected to be temporary and limited to construction hours only.

Matter	Impact	Description
Resources, waste and utilities	Resourcing pressure	The Project may result in impacts on local resources including import and export of materials and local material use.
	Increased waste	General construction activities are expected in increase waste pressure on existing WMC. Waste generation and construction may also result in migration of dust from disturbed areas or litter.
	Construction timing delays	Resourcing pressures related to offloading materials from Kingston / Cascade pier may result in construction timing delays.
Social and economic	Decreased visual amenity	Construction equipment, littler, stockpiles or exposed earth may result in decreased visual amenity from the road.

7.10.2 Cumulative impacts

Several projects are currently underway or have recently been completed on Norfolk Island including the sewer upgrade and road upgrade in the Kingston and Arthur's Vale Historic Area (KAVHA). Both projects required the importation of large volumes of materials.

The KAVHA Sewerage Scheme upgrades program is currently underway to reduce human waste and pollution and improve water quality in the area (DITRDCA, 2022). The Sewerage Scheme upgrades program will occur in three stages which would aim to collect all sewage generated on Crown land in KAVHA which would replace the existing holding tanks infrastructure and allow the decommissioning of the old system.

No large-scale future projects are known at this time and will be dependent on the requirements of the NIRC and local need.

Assuming the road works will be continuing during the same timeframes as the Project cumulative impacts are anticipated to be limited to noise, air quality, traffic, and transport. Both projects have the potential to generate noise and dust creating impacts for sensitive receivers in the vicinity.

Cumulative traffic and transport impacts may also be experienced due to the large volumes of materials and freight required for the projects. Some degradation to road pavements may be experienced from an anticipated increase in heavy vehicle traffic.

It is recommended to continue community engagement and undertaken liaison with Project representatives from other significant projects (including the road works project and any additional projects) to plan activities to reduce the cumulative impacts from the projects.

7.10.3 Summary of assessments

Following consideration of the environmental factors described by SIG1.2, Table 7.27 presents an overview of each factor. As described below, there remain information gaps which limit the capacity to reach a conclusion as to the potential significance of the project. Subsequent design stages will need to address these gaps.

The conclusion of the assessment where a significant impact was not considered likely is contingent on:

– Implementation of an EMS that meets the requirements of ISO AS 14001 with a subordinate CEMP which incorporates the mitigation measures in Table 6.4
– Additional design through the 50% design development stage and beyond that responds to aspects which need to be incorporated in the Project design as inherent characteristics.

It will be necessary to obtain a permit under Part 13 for the removal or relocation of the two shade trees which currently form part of the landscape in the Project site.

Table 7.27 Summary of impact assessments

Factor	Conclusion from impact assessment
Landscapes and soil	The Project is unlikely to have impacts on the natural landscape as the works do not propose to substantially alter the landscape. The current stormwater arrangement on site will remain as is therefore an increase in stormwater discharge is not anticipated leading to an unlikely change in slope stability and soil quality.
Coastal landscapes and processes	The Project would have no direct impacts on coastal landscapes and processes. Indirectly, there would be a requirement for the Project to be supplied with sand for concrete production with would mostly need to be imported. This volume is unlikely to be significant and would be met by existing suppliers and their operations. However, from a sustainability perspective, it is recommended that the 50% design development consider the potential for reuse of dredged material in concrete production derived from the Kingston Pier Channel Construction Project that is proposed to be stockpiled at Cascade Quarry. This would require assessment of the sand characteristics and confirmation no contamination risks remain in the dredged material.
Ocean forms process and life	The Project would have no direct impacts on ocean forms, processes and life.
Water resources	The Project would result in capture of an increased volume of rainfall to meet potable demand and firefighting reserves. Given the location of the Project site on a ridge, it is likely it occupies an area of groundwater recharge and with the combined increase in impervious surfaces and increased collection of rainfall, there would be less water available for infiltration. The extent to which this is important to the local environment is likely minimal given the creek below the existing facility is known to be ephemeral. The potential impact of the altered drainage regime of vegetation is unknown.
Pollutants, chemicals and toxic substances	The Project has the potential to adversely affect the local environment through dust and emissions both on the Project site, affecting neighbouring residences and businesses in addition to sensitive receivers along haul routes. Further, the soils at the Project site are not well-characterised for potential contaminants. The key mitigation however is for the project to be undertaken within an EMS framework that meets the requirement of ISO AS 14001 that includes a CEMP. The CEMP would include all measures described in Table 6.4. As a result, the Project is unlikely to significantly contribute to the generation of pollutants, chemicals and toxic substances in the surrounding environment.
Ecology	The Project may result in the loss of two critically endangered shade trees (*Meryta latifolia),* currently located along the access road off Burglars Lane, if their relocation is not deemed practicable. Despite this, the impact would not be considered significant and mitigation measures would seek to reinstate this species as part of the landscaping alongside other species native to Norfolk Island. A permit under Part 13 of the EPBC Act would be required to remove or relocate the shade trees if an approval under Part 9 of the Act did not apply in the first instance. The Project would have limited impact to potential habitat for birds with the removal of existing landscaping which includes Norfolk Island pines. Retention of the white oak in the design and recommended timing of the proposed vegetation clearing would eliminate the majority of potential impacts to animals. Accordingly, the Project is unlikely to result in any significant impacts to animals.
People and communities	The Project has the potential to adversely affect people and communities in several aspects while also positively contributing to the community once in operation. Essential mitigation measures are described in Table 6.4 and include: – Consideration of the memorialisation or dedication of new facilities or features of the Project to recognise previous contributions of the community, in particular for structures that would be demolished which are the result of donations. – implementation of a CEMP within the oversight of an EMS meeting the requirements of ISO AS 14001.
Heritage	The Project is unlikely to adversely affect heritage values of the Project site. This is contingent on the implementation of measures as described in Table 6.4.

8. Conclusion

The project involves replacing the existing RAC facility and supporting services building on Grassy Road, Norfolk Island, to a modern facility that meets current and future health standards, ensuring the wellbeing of the Norfolk Island community. The new facility is to be sited adjacent to the existing facility within land zoned under the Norfolk Island Plan 2002 special use zone for the purposes of a hospital. The design will allow for staging and decanting from the existing facility to the new facility as the construction of the Project proceeds.

Two options for the design of the facility were progressed during the 30% design stage. Option 1, the 'integrated' option presents a centralised consolidated facility that is primarily driven by the clinical needs and NIHRACS operational model. Option 1 builds on the design that was developed during the Initial Business Case and the 5% Design Stage where a consolidated facility is sited on the vacant lots adjacent to the existing facility.

Option 2, the "Village" option, takes into consideration community feedback that was received from the 5% design. This design meets the community's desire to have a detached Residential Aged Care facility that makes best use of the valley views to the northeast of the Project site, car parking concerns off Grassy Road and site pressures with adjacent properties. Option 2, as adopted for the reduced scope Stage 1, has a detached Residential Aged Care facility which enables it to have its own identity and enhanced privacy.

Development of the NIHRACS MPS is consistent with the Health Services Plan (HSP) that has been developed for Norfolk Island identify future health and aged care services to support the Norfolk Island community. This plan was refined over the last five years, and investigated a range of alternatives, including a continuation of patients travelling to the mainland for medical services and alternative or supplementary services such as internet consultations (KPMG 2020).

The Project is the recommended option from the HSP aligning with 'Option 2' above and has been developed to be sympathetic to the Project site, and consider the cultural, heritage and community values of Norfolk Island.

Consultation with the community, including individuals and community groups as well as NIHRACS stakeholders has been undertaken through the course of the Project in order to understand key issues and user requirements. In addition, opportunities have been sought to make sure that the Project maximises the use of locally sourced materials to reduce reliance on the relatively unpredictable shipping system, and in this way would provide benefit to the local economy.

As at the 30% design stage, a decision on the potential significance of the project cannot be concluded without additional investigations and design development that responds to the findings of the Environmental Risk Assessment. Further, in order to complete the assessment, directions from the Chief Executive Officer about the assessment and statement must be sought and addressed in accordance with Section 45(6) of the Planning Act.

9. References

Abell RS and Falkland AC (1991) *The hydrogeology of Norfolk Island South Pacific Ocean. Bulletin 234*. Australian Government Publishing Services, Canberra. Retrieved online 19 August 2020 at **https://d28rz98at9flks.cloudfront.net/31/Bull_234.pdf**

Advisian (2023) *Kingston Pier Channel Construction Project Public Environment Report*, unpublished report for the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (17 February 2023) **https://www.infrastructure.gov.au/sites/default/files/documents/KPCC_PER_RevD_2023.pdf**

Australian Bureau of Statistics (2021) Retrieved online 13 June 2024 at: **https://www.abs.gov.au/census/find-census-data/quickstats/2021/SAL90004**

Administration of Norfolk Island (2010) *Norfolk Island Government Gazette Number 11*. Friday 19 March 2010. Retrieved online 18/11/2020 at: **http://www.norfolkisland.gov.nf/sites/default/files/public/documents/NIAgazette/2010/2010_03_19_Gazette%20No.11.pdf**

Administration of Norfolk Island (2003) *Norfolk Island Heritage Act 2002 – Heritage Register*. Retrieved online 15 May 2024 at: **https://www.nirc.gov.au/downloads/file/604/heritage-register**

Anderson A, Smith I and White P (2001) 'Archaeological fieldwork on Norfolk Island' in *The Prehistoric Archaeology of Norfolk Island, Southwest Pacific*, ed. Atholl Anderson and Peter White, pp. 11–32. Records of the Australian Museum, Supplement 27. Sydney: Australian Museum. **https://media.australian.museum/media/Uploads/Journals/17914/1336_complete.pdf**

Asset Technologies Pacific (2005) *Asset Management Plan*. Unpublished report.

Bureau of Meteorology 2020 Retrieved online 17 November 2020 at **http://www.bom.gov.au/climate/averages/tables/cw_200288.shtml**

Chapman N (1796) *Plan of the settlers' lots and the ground cultivated for the publick on Norfolk Island 1796* **https://catalogue.nla.gov.au/catalog/3533375**

Commonwealth of Australia (2013a) *Matters of National Environmental Significance Significant impact guidelines 1.1, Environment Protection and Biodiversity Conservation Act 1999*. Commonwealth of Australia, Canberra.

Commonwealth of Australia (2013b) *Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies. Significant Impact Guidelines 1.2. Environment Protection and Biodiversity Conservation Act 1999*. Commonwealth of Australia, Canberra.

Commonwealth Grants Commission (2011). *Update of the financial capacity of Norfolk Island 2011- Staff Findings*. Retrieved 15 May 2024 from: **https://www.cgc.gov.au/sites/default/files/2021-12/norfolk_island_2011_final_report_0.pdf**

CSIRO (2020) *Norfolk Island Water Resource Assessment*. Australia: CSIRO.

CSIRO (2023) *Norfolk Island Water Resource Assessment: Acid sulfate soils study*. CSIRO.

DCCEEW (2020) *Norfolk Island National Park and Norfolk Island Botanic Garden Management Plan 2020*. Federal Register of Legislation.

DCEWW (2009) *Interim Construction Noise Guideline*.

Department of Agriculture, Water and the Environment (2020) *National Heritage Places - Kingston and Arthurs Vale Historic Area (KAVHA)*. Retrieved online 21 August 2020 at **https://www.environment.gov.au/heritage/places/national/kavha**

DITRDCA (2020) *Desalination system to address water shortage*, Department of Infrastructure, Transport, Regional Development, Communications and the Arts. Retrieved online 20 August 2020 at

https://www.infrastructure.gov.au/department/media/mr_20200206-desalination-system-address-water-shortage.aspx

DITRDCA (2022) Retrieved from Have your say on proposed Kingston sewerage system (23 September 2022), Department of Infrastructure, Transport, Regional Development and Communications. **https://www.infrastructure.gov.au/territories-regions-cities/territories/norfolk-island/media-releases/have-your-say-on-proposed-kingston-sewerage-system**

DITRDCA (2022b) *Heritage Impact Statement Kingston and Arthur's Vale Historic Area (KAVHA) Sewerage Scheme: Stage 1. Norfolk Island*, Department of Infrastructure, Transport, Regional Development, Communications and the Arts.

Diatloff N (2007) *Norfolk Island Hydrology Study. The Background to Water and Wastewater Management on Norfolk Island*. Document prepared by the Government of Norfolk Island.

Director of National Parks (2023) *Draft Norfolk Island Region Threatened Species Recovery Plan*. Canberra: Department of Climate Change, Energy, the Environment and Water.

DSEWPC (2013) 'Cyanoramphus cookii — Norfolk Island Parakeet, Tasman Parrot', *Species Profile and Threats Database*. Retrieved from **http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=67046**

Director of National Parks (2011) *Norfolk Island National Park & Botanic Garden Climate Change Strategy 2011-2016*. Retrieved online 21 August 2020 at **https://www.environment.gov.au/system/files/resources/8fd887ef-a2f0-4958-92c7-e7b88dfe6146/files/norfolkstrategy.pdf**

GHD (2017) *Norfolk Island Airfield Landslide Initial Geotechnical Assessment and Recommendation*. January 2017. Unpublished report prepared for Norfolk Island Regional Council

GHD (2019) *Norfolk Island HSP and MPS IBC Environmental Constraints Report*. April 2019. Unpublished report prepared for KPMG.

GHD (2022) *Forestry Feasibility Study: Norfolk Island,* unpublished report prepared for DITRDCA (8 December 2022)

GHD (2024) *NIHRACS MPS – Stage 1 RAC Replacement 30% Concept Design and Stage 2 Master Plan*, unpublished report prepared for DITRDCA (May 2024)

Harper W (1888) *Plan of Norfolk Island: showing grants and subdivision*. Published by the Surveyor General's Office, Sydney.

Hitch G (1992) *The Pacific War 1941 – 1945 and Norfolk Island*. Photopress International, Norfolk Island.

Kennedy T (1885) *Norfolk Island, diagram of allotments*.

KPMG (2020) *Norfolk Island Health Service Plan*. Unpublished report prepared for the Department of Infrastructure, Transport, Cities, and Regional Development.

Martoni F, Achari S, Blacket MJ, Brohier ND, Constable F, Dugdale T, Ekanayake P, Kant P, Kelly G, Kinoti C, Li T, Lovelock D, Mann R, Nogarotto E, Sawbridge T, Smith R, Wainer J, Rodoni B (2023). *Plant Pest and Disease Survey on Norfolk Island, Final Project Report* (May 2023). State of Victoria Department of Energy, Environment and Climate Change. **https://www.infrastructure.gov.au/sites/default/files/documents/plant-pest-and-disease-survey-on-norfolk-island-mays2023.pdf**

Maurin C, Lucas S, Ordens CM, Pagliero L, McIntyre N, Chen W, Seshadri B, Roberts A, King JP, Taylor N, Williams S, Myers NM, Williams K, O'Conner LC, Fuller P, Ingold J (2021) *Norfolk Island Environmental Assessment*, A report by Monash University and The University of Newcastle for the Norfolk Island Regional Council (NIRC), and funded by the Australian Government. **https://www.nirc.gov.au/downloads/file/686/norfolk-island-environmental-assessment-final-report-august-2021**

Murphy M (1904) *Map of Norfolk Island shewing grants and subdivisions*. NSW Department of Lands, Sydney.

Norfolk Island Hospital and Residential Aged Care Service (2020) A*bout Norfolk Island Health and Residential Aged Care Service*. Retrieved online 18/11/2020 at: **https://norfolkislandhealth.gov.nf/about/**

Norfolk Island Consulting Engineers (2020). *Draft Geotechnical Investigation Report. Norfolk Island Health and Residential Aged Care Services (NIHRACS) Replacement Project*. Unpublished report prepared for GHD. 21 August 2020.

Norfolk Island Regional Council (2016) *Norfolk Island Community Strategic Plan 2016 – 2026, our plan for the future*. Retrieved 15 May 2024 from: **https://www.nirc.gov.au/downloads/file/699/community-strategic-plan-2016-2026**

Norfolk Island Regional Council (2017) *Water Assurance Scheme - Media Release*. 14 July 2017. Retrieved from **http://www.norfolkisland.gov.nf/sites/default/files/public/documents/2017_07_14%20MR%20-%20Did%20you%20know%20-%20Water%20Assurance%20Scheme.pdf**

Norfolk Island Regional Council (2018) *Annual Report 2017-2018*. Retrieved online 15/05/2024 at: **https://www.nirc.gov.au/downloads/file/431/annual-report-2017-2018-adopted-21-11-2018**

Norfolk Island Regional Council (2018) *Norfolk Island Environment Strategy 2018 – 2023*. Retrieved 15 May 2024 from: **https://www.nirc.gov.au/downloads/file/690/norfolk-island-environment-strategy-2018-2023**

Norfolk Island Regional Council (2023a) *Norfolk Island Zoning Map*. Retrieved from: **https://www.nirc.gov.au/downloads/file/605/zoning-map-16-03-23**

Norfolk Island Regional Council (2023b) *Argentine Ant Fact Sheet* (October 2023), Retrieved from Norfolk Island Regional Council: **https://www.nirc.gov.au/argentine-ants**

NRM South. (n.d.). *Managing Waterways*. Retrieved from Landholder Series: **https://www.dpac.tas.gov.au/__data/assets/pdf_file/0029/47675/NRM_South_Managing_Waterways_Factsheet.PDF**

NSW Public Works Advisory (2019) *Norfolk Island Waste Water – Options Study*, Draft Report. Report Number: WSR-19028. Prepared for Norfolk Island Regional Council. September 2019. **https://www.nirc.gov.au/downloads/file/675/norfolk-island-wastewater-options-report-draft**

NSW EPA (2017) Noise Policy for Industry.

Oberonia Botanical Services (2020) *Tree assessment, Norfolk Island Multipurpose health Services and Regional Ages Care Facility Project*. 24 August 2020. Unpublished technical memorandum prepared for GHD

Parsons Brinkerhoff (2005) *Norfolk Island Report on Geotechnical Soils Investigations*. Prepared for the Norfolk Island Administration. June 2015.

Petheram C, Hughes J, Philip S, Tavener N, Greenwood D, Taylor N, Vaze J (2020) *Norfolk Island Water Resource Assessment*. Australia: CSIRO.

Timbury C (2012) *Andrew Goodwin : Lydia Munro* (17 August 2012) Retrieved from First Fleet Fellowship Victoria Inc.: **https://firstfleetfellowship.org.au/convicts/andrew-goodwin-and-lydia-munro/**

Appendices