



**Australian Government**  

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**Department of Defence**

**POINT WILSON WATERSIDE  
INFRASTRUCTURE REMEDIATION  
POINT WILSON, VICTORIA**

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

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## Attachments

1. Location Plans
2. Site Photos
3. Preferred Option (Wharf and Linkspan)
4. Landside Building Plan

# POINT WILSON WATERSIDE INFRASTRUCTURE REMEDIATION

## Identification of the Need

### Background

1. The majority of the Australian Defence Force's (Defence) Explosive Ordnance (EO) inventory is imported from overseas suppliers, including all guided weapons, with limited EO imported via other means or manufactured domestically. Defence currently receives between one and three EO shipments per year; this frequency of importation is expected to increase due to recent international training agreements and strong interest from Defence Industry and other commercial businesses on available import and export opportunities.
2. The Point Wilson Explosive Area (PWEA) is the sole Defence-owned importation facility capable of bulk (large scale) movement of EO. The PWEA facility is considered a strategic national security asset. It is a significant maritime asset, currently consisting of a 2.4 kilometre long jetty and 168 metre long wharf capable of accommodating EO container vessels. The Commonwealth Government acquired the PWEA land progressively from 1956 to 1959. The jetty and wharf were constructed between 1958 and 1961, and the facility was officially opened in 1961. Since opening, the PWEA has been Defence's bulk EO importation site until its closure in 2008 due to the unsafe structural condition of the wharf and jetty. Location plans and site photos are provided at [Attachments 1 and 2](#).
3. The PWEA provides Defence with an EO importation facility licensed to 1,000 tonne Net Explosive Quantity (NEQ) that covers the operational spectrum from routine importations to more extreme circumstances.
4. In 2015, Defence conducted a study into alternative EO importation sites, which included Port Alma in Queensland (QLD), Twofold Bay in New South Wales (NSW), and Wyndham Port in Western Australia (WA). This study confirmed that Point Wilson is the only suitable site for bulk EO importation as:
  - a. it is Defence owned and controlled;
  - b. it has a land-side holding area large enough to handle and process bulk EO in containers and pallets within public safety templates, allowing the entire evolution of a single bulk shipment to be processed in a single location;

- c. once refurbished, it will provide guaranteed secure and reliable bulk EO importation capability;
- d. it has good direct access to roads and infrastructure to main EO depot centres;
- e. the site will be able to facilitate required quarantine operations in an appropriately designed onsite facility; and
- f. it forms part of an integrated EO network solution, aligns with the approved EO Logistics Reform Program (EOLRP), and harnesses the efficiencies identified in that program.

## Need for the Works

- 5. PWEA has exceeded its anticipated design life. In 2008, a structural report assessed that the wharf and jetty structure had deteriorated to the point that it is unsafe and inoperable until remediation work is completed. As a result, the waterside facility was deemed non-operational for bulk EO operations. In 2016, further safety shortcomings were identified, which led to a decision to restrict all access to the jetty and wharf, with access by exception to address critical safety issues only.
- 6. The main technical issues preventing use of the waterside infrastructure at PWEA are:
  - a. **Concrete Deck Deterioration.** The deterioration of the concrete deck, due to chloride ingress into the concrete, has led to spalling of the concrete soffit and corrosion of the steel reinforcement resulting in loss of structural capacity.
  - b. **Steel Crosshead Corrosion.** The breakdown of the coating and subsequent corrosion of the steel crosshead has led to a reduction in the structural capacity of the members.
  - c. **Steel Stringer Beam Halving Joints Corrosion.** The stiffeners and connection plates on the half joints on the stringers have corroded to such an extent that the structural capacity has been significantly impacted.
  - d. **Steel Piles Corrosion.** The protective coating that was installed to protect the steel piles has deteriorated over time. This, in conjunction, with higher rates of corrosion in the splash zone has resulted in the steel piles undergoing various rates of corrosion. The jetty piles have been assessed as being in a reasonable condition (generally due to their protection by the existing cathodic protection system). The wharf and link span piles are not protected by cathodic protection and are in significantly worse condition than the jetty piles.

- e. **Dilapidated Timber Fender Piles.** Necking of the timber piles below the waterline and marine borers within the timber have significantly reduced the berthing load capacity of the timber fender piles. In 2017, this degradation reached a point where the risk of failure and subsequent collapse into the sea was considered a potential public safety risk to mariners and the environment. Due to this risk, all timber fender piles have recently been removed.
7. Due to the degradation of the waterside infrastructure, PWEA cannot be made operational without significant remediation works and currently remains non-operational.<sup>1</sup> As a result of PWEA's non-operational status, Defence has implemented an interim remote decanting storage, handling and processing solution for EO importation through Port Alma. This is a shared use privately owned port, 60 kilometres south of Rockhampton in North Queensland. It is used for importation of general cargo, petroleum, explosives and chemical products. Port Alma is currently the only other port on the Eastern seaboard, other than Point Wilson, that has adequate EO import licence to meet Defence's need.
8. Continued reliance on Port Alma as the sole point of importation represents a significant risk to Defence for the following reasons:
- a. Port Alma is a commercial port, and its availability is constrained due to continual competition for berthing slots with resource industry companies. Access is not guaranteed and quite often time pressured and difficult during high port congestion.
  - b. Port Alma does not have any onsite EO storage facilities and requires transfer to the Queensland storage reserve of Bajool, some 30 kilometres from Port Alma. Bajool has limited EO storage capacity, requiring further overflow storage in a dis-used quarry at the remote Shoalwater Bay Training Area approximately 130 kilometres north of Port Alma. This leads to additional transport, security and handling risks, and costs due to limited infrastructure at Shoalwater Bay. This overflow storage access will be limited in the future with Shoalwater Bay experiencing increased training usage by the Australian Defence Force and foreign forces.
  - c. The port can only handle shipping containers rather than pallets, limiting its utility. It has aging and limited facilities (some of which are 50 years old), there is potential that it may close for refurbishment or upgrade in the near to medium future. There is

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<sup>1</sup> Although the EO importation is not undertaken at present, the site is still used by Defence for general storage. The existing road network is used to transport goods to and from the site.

also no guarantee on the future use of Port Alma as Defence is not seen as the priority for a commercial port.<sup>2</sup>

- d. Port Alma is vulnerable to inclement weather; being closed due to king tides and weather events on a number of occasions. The roads to Bajool are poor and subject to risks and constraints as they are a single-lane-width and have closed shoulders.
  - e. Increased workaround and inefficiencies incur an extra cost of approximately \$1.0 - \$1.5 million per shipment in additional transport, handling, security, and port fees, all of which leads to increased inefficiencies and operational stress on the EO supply chain. There are considerable distances to the main EO depot sites in New South Wales and Victoria, and it can take months before all EO is finally distributed around the EO network.
  - f. It creates complexity in quarantine management with a number of local agreements in place regarding the transport of contaminated containers to Bajool, which could be cancelled at any stage. Defence has on occasion been instructed to unload within 24 hours, making it difficult to organise biosecurity officers to support this.
9. Returning PWEA to operational status is therefore critical to the sustainment and surety of the Defence EO supply chain, and will contribute to a broad range of Defence capabilities.
  10. Point Wilson landside storage and container processing areas are being substantially upgraded through the Parliamentary approved EOLRP. In accordance with the EOLRP, Point Wilson is to be the primary single point of entry for bulk EO importation in the future Defence EO network. EOLRP objectives and efficiencies will not fully materialise if this project does not proceed.
  11. PWEA will also provide support to the broader Defence industry as an EO import and export facility able to be used when not required for Defence activities. A number of Defence industry companies have expressed an interest in utilising the facilities once remediated.
  12. If the project does not proceed, the entire dilapidated wharf and jetty would need to be demolished for public safety at an estimated cost of \$60 - \$100 million.

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<sup>2</sup> The Queensland Government agreed that Defence should proceed with plans to remediate Point Wilson for the importation of bulk explosive ordnance and develop options for using Port Alma as a back-up location. Queensland Government Submission on Defence White Paper 2013, February 2013

## **Description of the Proposal**

13. The objective of this project is to remediate the PWEA waterside infrastructure in order to enable the recommencement of bulk EO importation operations at PWEA.

## **Project Location**

14. PWEA is located on the northern shores of Corio Bay, Victoria and is approximately 60 kilometres by road from Melbourne and 25 kilometres from Geelong.
15. The existing site layout and the proposed redevelopment site layout at PWEA are shown at Attachment 1. The jetty and wharf are proposed to be constructed over the general footprint of the existing jetty and wharf.

## **Options Considered to Fulfil the Identified Need**

16. Suitability of other bulk EO importation ports like Twofold Bay in New South Wales and Wyndham Port in Western Australia. Twofold Bay was considered not suitable due to an insufficient EO licence, a lack of onsite EO storage, no ability to manage or accommodate importation levels of EO containers, no direct access to major roads and rail networks, close proximity to private and commercial businesses and public beaches. The Wyndham Port was found to be extremely remote with no major roads and rail infrastructure access, limited access through the wet season, increased operating costs due to remote location and ship limitations due to tidal range of 8 metres.
17. A broad range of options at PWEA to meet the requirements of EO bulk import operations were considered. In the initial development phase, options ranged from minimal refurbishment to complete replacement and it was determined that the major refurbishment was the preferred option as it best meets the capability requirements and is best value for money. To look at ways of reducing capital outlay, Defence explored traditional commercial and floating deck options.
18. Defence conducted a detailed assessment on commercial interest in remediating the wharf. The study concluded that there is no interest from the Victorian Government or private companies, in jointly remediating the Point Wilson wharf and jetty for shared use. However, if the wharf and jetty are remediated to its full use by the Commonwealth, there is interest from a number of logistics and Defence industry companies to use the Point Wilson wharf and jetty when it is available.
19. Defence determined that “Do Nothing” is not an option for this site. The “Do Nothing” approach will leave the wharf and jetty in a mothballed state, which is likely to deteriorate



exponentially due to the jetty not being safe to conduct maintenance. The “Do Nothing” approach poses environmental and public safety risks. Also, sole reliance on Port Alma as Defence’s importation capability is not supported given the risks to the Defence supply chain it entails. Given its age, significant investment in Port Alma infrastructure will also be required in the medium term.

20. As a result, two options were considered in further detail by Defence:
  - a. Option 1 - Remediate wharf with 2.4 kilometre single lane jetty; and
  - b. Option 2 - Use of a floating deck to reduce jetty length.

### **Option 1 - Remediate Wharf with 2.4 kilometre Single Lane Jetty**

21. The remediation of the 2.4 kilometre jetty consists of a 2,255 metre single lane jetty and 125 metre link span connecting to the new wharf, with associated supporting infrastructure. This was considered a low risk option, which operationally represents the status quo. This option was considered to have significant benefits despite the larger capital cost as it decreases the risk of inoperability or a serious incident.
22. Defence has an established Estate Management System that allows management of fixed wharf infrastructure for bulk EO importation throughout its life cycle.

### **Option 2 - Use of a Floating Deck to reduce jetty length**

23. A floating deck is a large steel, subdivided pontoon which is capable of carrying EO via transshipment between the commercial EO ship, at anchor, and an unloading wharf. A floating deck can be considered to provide the same capability as a standard wharf (albeit significantly larger as EO containers are temporarily stored on the floating deck) and would be equipped with a range of similar fittings, services and buildings to that of a traditional wharf. Several floating deck sub-options were considered and a medium sized floating deck, and an 880 meter single lane jetty including passing bays to allow two-way traffic was found to be the most suitable.

### **Preferred Option**

24. While Option 2 is a lower capital cost than Option 1, this is offset by the introduction of a new platform and technology which results in additional risks to the unloading process. Introduction of a floating deck is not recommended due to the unique operating model which would introduce:
  - a. Increased operational complexity and safety risks including concerns regarding emergency evacuation, double handling of EO and a larger workforce requirement;

- b. The procurement and operation of a commercial floating deck is outside normal business for Defence, and is a significant risk to the success of this option. It would require Defence to develop the capability and knowledge to own and operate a bespoke specialised marine vessel; and
  - c. The water depth of the proposed EO importation vessel anchorage may be too shallow for the expected vessels, and the distance between the anchorage and the end of the jetty will restrict the EO licensing of the facility.
25. Option 1 provides the lowest risk and the best long term sustainable solution for large scale EO importation and is therefore the preferred option. Plans for the proposed Option 1 are provided at Attachment 3.

## **Environment and Heritage Assessment**

### **Indigenous Heritage Impact**

26. A number of indigenous sites have been located at the PWEA. The sites are located outside the project footprint and will not be impacted from the proposed works.

### **Natural Heritage Impact**

27. The PWEA forms part of the Point Wilson Defence Natural Area, which is listed on the Commonwealth Heritage List for its natural heritage values.
28. The project footprint will mostly avoid areas with natural heritage values, although a small area of protected grassland will be directly impacted. This will not compromise the heritage listing status of the site.
29. Indirect impacts will be reduced through implementing environmental impact mitigation and management measures.

### **Historic Heritage Impact**

30. A desktop archaeological assessment found five shipwrecks recorded within the Point Wilson and broader Corio Bay area. The shipwreck survey did not identify wrecks within the immediate vicinity of the Point Wilson Waterside Infrastructure; these wrecks are located well outside the project footprint and would be avoided during the remediation works.
31. The waterside infrastructure was assessed by a heritage consultant. The jetty and wharf infrastructure have been identified to have Commonwealth Heritage value based on technical, rarity and historic values. The works associated with the proposed remediation would not retain any of the original jetty or amenity building fabric and has the potential to have a significant impact on the Commonwealth Heritage values of these structures.

Archival recording will be undertaken prior to the works to document the values and provide a record for the future.

32. An area containing building remains and associated landscaping, which is listed on the Victorian Heritage Inventory, is located close to the project footprint. Precautions will be implemented to avoid construction impacts to this area.

### **Environmental Impact**

33. An Initial Environmental Review identified potential environmental and heritage impacts and risks during the remediation/construction and operation of the waterside infrastructure.
34. It was determined that an Environmental Impact Assessment (EIA) was required to determine the significance of potential environmental and heritage impacts associated with the proposed works.
35. The EIA included the following specialist studies:
  - a. Indigenous Heritage Assessment;
  - b. Shorebird Assessment;
  - c. Vegetation and Tree Assessment;
  - d. Threatened Fauna Assessment for Striped Legless Lizard and the Golden Sun Moth;
  - e. Acoustics Assessment (Underwater and Surface);
  - f. Turbidity Assessment;
  - g. Historic Assessment and Historic Impact Assessment of the Waterside Infrastructure;
  - h. Bushfire Assessment;
  - i. Contamination Assessment (onshore, marine sediment and marine subsurface); and
  - j. Ecological Risk Assessment (marine).
36. The EIA identified that the proposed remediation works are expected to have some impacts on ecology and natural resources. The EIA identified mitigation measures that are to be incorporated into a Construction Environmental Management Plan (CEMP), as well as specific monitoring programs for selected environmental aspects (i.e. water quality, acid sulphate soils, birds, habitat and noise).
37. The proposed works were referred to the Department of Sustainability, Environment, Water, Populations and Communities (SEWPaC, now the Department of Environment and Energy under the Environment Protection Biodiversity Conservation Act (1999)).

38. SEWPaC determined that the project is not a controlled action provided it is undertaken in the manner set out in the decision. The referral decision included a list of measures that must be implemented to avoid significant impacts on listed threatened species and communities, listed migratory species, and wetlands of international importance.
39. Management measures and additional monitoring will be implemented to meet the referral decision conditions and avoid impacts to matters of national environmental significance.
40. Subsequent to the EIA and referral submission, additional environmental studies were undertaken, including:
  - a. A targeted survey for State-listed marine fauna species (i.e. southern-hooded shrimp and pipefish); and
  - b. Surface surface and sub-surface marine sediment grain size and further contamination investigation.
41. The findings of the additional studies supplement previously gathered information and the recommendations will be incorporated into a CEMP.
42. The remediation works will be managed in accordance with the Defence Environmental Management framework, including compliance with the applicable Environmental Management Systems. The Contractor's environmental procedures for construction activities will be required to comply with an approved CEMP and a Defence Environmental Clearance Certificate.

## **Key Legislation**

43. The following key legislation and standards are relevant to this project:
  - a. Environmental Protection and Biodiversity Conservation Act 1999 (Cth);
  - b. Work Health and Safety Act 2011 (Cth);
  - c. Disability Discrimination Act 1992 (Cth);
  - d. Defence Act 1903 (Cth);
  - e. Building and Construction Industry Improvement Amendment Act 2012; and
  - f. Fair Works Act 2009 (Cth).

## **Applicable Codes and Standards**

44. The design will comply with all the relevant and current Defence, Australian Standards, Codes and Guidelines including, but not limited to, the following:

- a. National Construction Code – Building Code of Australia;
- b. Defence Security Manual;
- c. Defence Manual of Infrastructure Engineering – Electrical;
- d. Manual of Fire Protection Engineering; and
- e. Defence Estate Quality Management System polices and processes.

## **Consultation with Key Stakeholders**

45. Defence has developed a comprehensive consultation and communications strategy that recognises the importance of providing local residents, community groups, statutory authorities, and other interested stakeholders with the opportunity to provide input into, or raise concerns relating to, the proposed works.
46. As part of this strategy, the following communications methods are planned to be adopted:
  - a. Project-specific website; and
  - b. Community information sessions, which will be advertised locally.
47. In addition to the above, Defence has conducted or plans to offer verbal briefings through written correspondence to the following key interested parties:
  - a. Federal Member for Corio, Hon Richard Marles MP;
  - b. State member for Lara, Hon John Eren;
  - c. City of Greater Geelong Council;
  - d. Geelong Chamber of Commerce;
  - e. Geelong Port;
  - f. Victorian Ports Melbourne;
  - g. Port of Melbourne; and
  - h. Avalon Airport.

## **Purpose of the Works**

### **Project Objective**

48. The objective of this project is to remediate the PWEA waterside infrastructure in order to enable the recommencement of bulk EO importation operations at PWEA.

## **Details and Reasons for Site Selection**

49. In May 1963, the Commonwealth signed a 56-year lease with the then Geelong Harbour Trust Commissioners for approximately 460 acres of seabed for the approach jetty. In the following year, Defence signed a similar lease with the Trust Commissioners for 1.8 hectares of land in order to access the PWEA area. In 1962, the seabed directly beneath the PWEA jetty was acquired from the Geelong Harbour Trust.
50. In February 1988, the management of the PWEA was transferred to Defence from the Commonwealth's Department of Transport and Communications.
51. In 1998, Defence proposed to establish the East Coast Armament Complex (ECAC) at Point Wilson to support ammunitioning and de-ammunitioning of ships in the Royal Australian Navy, as well as for importing Defence EO in commercial vessels. The complex was to include new warehouses (for explosive and non-explosive materials), a transit facility, and the refurbishment of the existing jetty and wharf amenities. The ECAC, however, did not proceed at PWEA. Ammunitioning and de-ammunitioning of ships in the Royal Australian Navy is now primarily conducted at Twofold Bay in New South Wales and HMAS Stirling in Western Australia.
52. Whilst there is no current Defence Zone Plan or Base Master Plan, PWEA is classified in line with a typical Defence naval port, where the waterside infrastructure and operations are defined as the 'Operational Zone'. The facilities proposed are consistent with 'Operational Zone' uses.
53. The selection of the site has been undertaken in accordance with the Defence Estate Planning Policy requirements. The Site Selection Board process addressed Defence policy including environmental, heritage and operational considerations.
54. The site selection process independently considered siting options for the various structures. Due to the existing waterside seabed licence, the new waterside structure needs to be built over the existing foot print. Therefore, only a single waterside siting option was available.

## **Detailed Description of the Proposed Works**

55. To meet the project objective, the proposed works include adaptive re-use and refurbishment of existing waterside infrastructure (where economical and feasible), combined with the demolition of redundant and deteriorated infrastructure, and the construction of new replacement infrastructure.

56. The major elements of the proposed works include:
- a. **Project Element 1: Jetty.** Refurbish the 2,255 metre single lane (two-way) jetty with passing bays, consisting of a new jetty deck and stringer beams with strengthened existing piles, and crossheads where required.
  - b. **Project Element 2: Wharf.** Construct a new 135 metre wharf and 125 metre link span consisting of a new deck with new piles, crossheads and stringer beams, comprising of:
    - (i) **Demolition** – Demolish existing wharf.
    - (ii) **Wharf and Link Span** – Construct new steel piles concrete beams, and deck in an enhanced configuration that is 30 metres shorter and six metres wider for improved safety and operational capability. This will accommodate EO ships up to 136 metres in length, 18,000 tonnage displacement and laden draft of 8.5 metres.
    - (iii) **Mooring Structures** – Install new mooring dolphins.
    - (iv) **Boat Landing** – Construct a single boat landing abutting the end of the Amenities building for use by line boats and / or security vessels.
  - c. **Project Element 3: Waterside Amenities.** A new single-storey waterside amenities building to provide working accommodation and amenities for the stevedores, line crew and operators.
  - d. **Project Element 4: Landside Infrastructure.** Landside infrastructure upgrades comprising:
    - (i) **Demolition** – Demolish existing buildings.
    - (ii) **Fire Pump House and Tanks** - A new single-storey concrete facility to house the pump sets supporting the waterside fire and potable water infrastructure.
    - (iii) **External Works** – Remediate causeway and approach road, including associated landscaping.
  - e. **Project Element 5: Engineering Services.** Services upgrades, comprising:
    - (i) **Electrical** - The waterside infrastructure is planned to be powered from an extended 22 kilovolts cable supply that is reticulated along the wharf to the substation located within the Amenities building.

- (ii) **Water & Fire** - The site's combined water and fire main shall be upgraded and reticulated to the Pump House and Tanks. A new potable water main shall service the Amenities Building and wharf wash-down facility. The fire main shall be reticulated along the wharf to the fire hydrants, hose reels and monitors on the wharf.
  - (iii) **Sewer** - A new septic holding tank will be replaced below the Amenities building.
  - (iv) **Communications** - New cabling shall be reticulated to the Fire Pump House and Amenities building for the emergency phones and fire control cabling.
  - (v) **Cathodic Protection** – The installation of an electrical cathodic protection system on the marine infrastructure to protect against corrosion.
57. The proposed works are demonstrated at Attachments 3 and 4.
58. There are no landside facilities included as part of this project (excluding water tanks) as they are being delivered under the approved EOLRP project, which includes hardstands for the bulk storage of containers, container unpacking, bio-security inspection, and an administration building. This element of EOLRP would not proceed should the PWEA waterside project not be approved.

### **Public Transport, Local Road and Traffic Concerns**

59. The PWEA region has limited public transport options. The majority of the PWEA workforce relies on private transport to access the site. The site is sufficiently large to accommodate the workforce's parking needs.
60. The proposed project is essentially a redevelopment to re-establish capability. Defence does not intend to change the number of personnel located at PWEA, nor its function of bulk EO unloading. As a result, Defence does not foresee any significant change in the current use or number of vehicles accessing the site, compared to when it was last operational in 2008.
61. The primary access to PWEA is via major arterial routes and rural roads. There are limited residential properties in proximity to PWEA.
62. During the construction of the facility, there may be an increased level of vehicle movements on the roads that access PWEA. There will be an increased level of people attending the site daily. Specific areas within PWEA have been identified to provide adequate working accommodation and car parking for construction personnel.



## **Zoning and Local Approvals**

63. The PWEA site is a Commonwealth owned site, with Defence controlled land and port.
64. There are no Native Title or Indigenous Land Use Agreements associated with this proposal or any requirement for the acquisition of any additional land.
65. There exists a sea-bed lease Agreement between the Commonwealth and the State authority, Department of Sustainability and Environment (DSE), which involves 460 acres around the wharf and jetty structure. Defence is in the process of renewing the sea-bed lease which is due to expire in early 2019 and does not anticipate any issues.
66. There exists a license Agreement between the Commonwealth and the nominated State Authority, Parks Victoria for the Crown Land for the carriageway across the marshy inlet known as “The Spit Wildlife Reserve” leading into PWEA. This license expires in 2019 and is planned to be renewed.
67. Defence has appointed Thales Pty Ltd as the operator of the facility and is responsible for security and also enforcing the restricted zones in accordance with Maritime Transport and Offshore Facilities Security Act 2003 and associated regulations.

## **Childcare Provisions**

68. There is no requirement for childcare facilities as part of this project, as the project does not increase the population on the Defence establishment.

## **Impacts on Local Communities**

69. The project is expected to employ skilled construction workers from the local region over the construction period. In addition, it is anticipated that construction will generate further job opportunities from the supply, manufacture and distribution of components and materials.
70. As this project is focussed on remediating the infrastructure to maintain the existing capability, the existing workforce to operate this facility is not expected to change.
71. It is planned that all works will be undertaken during site working hours, typically between 7am and 6pm Monday through to Friday, and 7am to 1pm on Saturdays. It is not expected that any construction activity will take place on Sundays.

## **Planning and Design Concepts**

72. The proposed design considered the impact of the materials, construction techniques, finishes, treatments, equipment and building systems on the life cycle cost of the facilities, with particular respect to the marine environment. Capital costs have been balanced against forecast operational and maintenance costs in the selection of building materials and equipment.
73. The project takes into account the following design and planning considerations:
- a. achieve functional requirements and create a safe, efficient and healthy workplace;
  - b. provide cost effective and practical facilities of energy efficient design suitable for climatic conditions;
  - c. offer economy in relation to material selection, construction techniques, buildability and finishes;
  - d. maximise use of the existing infrastructure to minimise capital facilities costs;
  - e. consider whole of life costs in the selection of finishes, plant and materials;
  - f. utilise readily available and durable materials that combine a long design life with minimal maintenance;
  - g. remain cognisant of the surrounding land use and environmental impact; and
  - h. enhance preservation of the natural and visual environment.

## **Structural Design**

74. Significant structural options were considered involving either new or adaptive re-use of the existing structure. Options were evaluated to establish the value for money solution based on whole of life criteria that met the capability requirements and to reach the expected design life (50 years) of the facility. The design life can be further extended significantly through regular maintenance, routine appraisals and estate upkeep and works program.
75. The approach jetty structural solution involves the retention of the existing steel piles and crossheads, with a new superstructure and concrete deck placed over. Passing bays are proposed every 500 metres along the 2.4 kilometre approach jetty. Additional new steel piles are proposed at these locations to cater for concurrent two-way traffic.

76. Design of the jetty, wharf and dolphins takes into consideration the predicted sea-level rise and a 1 in a 500 year design wave. The structural design allows ease of access for future maintenance, repair and replacement of structural members.
77. The existing wharf structure was considered unusable due to the state of corrosion and will be demolished to sea bed level. Wharf and dolphins involve new steel piles (concrete filled), concrete beams and deck with an in-situ concrete deck. Steel mooring bollards and kerbs are provided to the perimeter of the structure.
78. The new approach pumphouse is proposed to have a stiffened raft slab supported by board piles. The walls will be concrete with an in-situ concrete roof and lightweight metal cladding.

### **Materials and Furnishings**

79. The architectural expression of the Waterside Amenities Building reflects the historical use of a working accommodation facility in a marine environment. The building shall be intrinsically distinguished through a red and white chequered facade to align with the international recognition of danger to provide greater visual identification and enhance the safe navigation of vessels in the surrounding waters.
80. Generally, both buildings are of a robust and economic nature with high quality marine concrete panels and in-situ concrete roofs, with stainless steel and marine grade aluminium finishes. The finishes are proposed to be low maintenance and suitable for a marine environment.
81. A new Bureau of Meteorology weather station is proposed to be positioned adjacent the Amenities Building car parking area to improve access and maintainability. This will replace an existing Bureau of Meteorology weather station.
82. The existing Victorian Regional Channel Authority navigation aids are proposed to be re-positioned on the wharf and adjacent the Amenities Building to provide safe navigation of vessels.

### **Mechanical Services**

83. The mechanical services have been designed according to the function and needs of each building to meet the requirement of a facility within a marine environment that has high intensity use over a short duration of time, periodically throughout the year. The purpose of the mechanical service systems is to provide mandatory ventilation, thermal comfort and

air quality in accordance with specific user needs and the requirements of the Building Code of Australia.

84. In addition to providing ventilation and thermal comfort, the mechanical systems minimise energy consumption through effective applications including:
- a. low-energy air conditioning solutions such as natural ventilation to minimise the use of active air-conditioning;
  - b. systems and equipment with high efficiency and co-efficient of performance as established by compliance with the BCA, Section J performance requirements and Defence Building Energy Performance Manual; and
  - c. system designs that respond efficiently to variable heating, cooling and occupancy demands through the provision of services ‘on demand’ and the automated stopping of services when demand ceases.

## **Hydraulic Services**

85. A new internal water supply network is proposed from the boundary meter with back-flow prevention devices to reticulate to the Approach Pumphouse to service the waterside fire services infrastructure and pressurised potable water system.
86. A new gravity sewerage drainage system will be supplied to collect waste discharges from fixtures and equipment from the waterside amenities building to a concrete holding tank. The holding tank will be integrated with the new concrete deck structure with a removable cast-iron lid for maintenance access. The building has been raised 500 millimetres above deck level to accommodate a services void and allow the drainage to gravitate to the holding tank to eliminate future maintenance access from the water. A piped solution was not considered value for money due to the facility being located 2.4 kilometres from shore.
87. Rainwater harvesting is not considered suitable due to exposure from the marine environment, potential contamination from birdlife, and the intermittent use of the facility.
88. Roof drainage will be designed based on 1 in 100 year rainfall intensity with provision of 100% overflow to come into operation during a rainfall event in excess of a 1 in 100 year storm.
89. Due to potential intermittent use of the amenities building, a chlorine dosing system is proposed to treat the potable water and risk of Legionella due to stagnation and internal filming growth on the pipes.

## **Electrical Services**

90. Lighting, power and fire detection will be provided in accordance with Australian Standards and Defence's engineering requirements.
91. The waterside infrastructure is proposed to be supplied via an extended 22 kilovolts supply to a new substation located at the Amenities Building in order to meet the power and lighting requirements.
92. Electrical infrastructure and switchboards will have minimum twenty five percent spare capacity to allow for future growth complying with Defence engineering requirements. The switchboards are equipped with a local multi-function meter and surge protection.
93. High efficiency lighting with marine grade fittings are proposed along the length of the jetty, wharf and dolphins that can be collectively switched from the general approach and the amenities building.
94. Standalone structure marking lights containing powered photovoltaic cells with daylight sensing are proposed along the waterside infrastructure to allow detection of the structure and safe navigation of the vessels at night.

## **Acoustics**

95. The new waterside facilities will comply with the Building Code of Australia and Australian Standards for noise and acoustics. Acoustic separation has been considered between rooms, and walls have been designed to meet user requirements and building functions.

## **Fire Detection and Protection**

96. Fire detections systems, indicator panels, security lighting, emergency and exit lighting will be provided to the amenities building and Pumphouse in accordance with Australia Standards, the Defence Manual of Fire Protection Engineering, the Manual of Infrastructure and Electrical Engineering, and all other applicable Codes and Standards.
97. The Country Fire Authority have visited the site and reviewed the fire protection proposal to ensure that the Brigade's operational requirements are met.
98. Fire Indicator Panels located at the Approach Pumphouse and amenities building will be connected to the 24 hour manned fire station.

## **Landscaping**

99. The proposed landscape approach is to provide environments that respond to the local indigenous conditions of the site, its micro-climates, vegetation communities and assemblages.
100. The landscaping design around the Pumphouse and causeway will focus on a functional, low maintenance, water sensitive approach with the use of indigenous plants. The existing culvert and drainage system for the approaches has been made redundant and replaced with vegetated swales and wetlands.
101. Precautions will be taken to avoid environmental sensitivities to native grasslands by adopting landscaping practices in accordance with local environmental conditions, the Construction Environmental Management Plan and Environmental Clearance Certificate.

## **Water and Energy Conservation Measures**

102. The Ecologically Sustainable Design (ESD) measures proposed to be incorporated in the project are balanced with the requirements for a facility exposed to a marine environment, security, workplace health and safety considerations, and specialist functional requirements to ensure that Defence's operational capability is not compromised.
103. Both the Waterside amenities building and Approach Pumphouse will embrace the Defence ESD principles and objectives regarding water and energy efficiency.
104. To ensure that buildings operate efficiently with regards to energy consumption, they have been designed and will be constructed in accordance with Defence's Smart Infrastructure Manual and Energy Efficient in Government Operations policy.
105. Water efficiency measures in line with Defence's Water Management Strategy are proposed to be included in the design of the buildings.
106. Rainwater harvesting from water collected from the roofs of the facilities was not considered viable due to contamination of chloride from sea-water and birdlife.
107. The following conservation design considerations are proposed for the project:
  - a. Manual open slot windows allowing effective cross-ventilation to reduce reliance of mechanical conditioning during summer periods;
  - b. Daylight harvesting to reduce reliance on artificial lighting;
  - c. High efficiency lighting;
  - d. Energy efficient cooling and heating systems;

- e. Solar lighting for safe vessel navigation to supplement powered lighting when not operational; and
- f. High efficiency sanitary fixtures and fittings.

### **Ecologically Sustainable Design (ESD)**

108. It is proposed that the following ESD principles will be employed for the project:

- a. whole of life costing – consideration has been given to the sum of all costs (capital and recurring) for plant, equipment and materials including acquisition, operation, maintenance, refurbishment and disposal costs;
- b. minimum energy performance;
- c. use of energy efficient appliances and equipment where possible;
- d. materials waste minimisation in design and construction, including recycling the demolished materials from the existing wharf and jetty structure;
- e. emissions minimisation from furniture, equipment, materials and finishes including paints, sealants and adhesives;
- f. utilising plantation timber where necessary; and
- g. maximising the use of finishes, furniture, fixtures and equipment with renewable materials.

### **Demolition and Disposal of Existing Structures**

109. The existing waterside amenities building, wharf deck and piles, link span deck and piles, jetty deck, and landside amenities buildings are proposed to be demolished. The waterside demolition will be staged to facilitate the construction of new waterside works and refurbishment works. Demolition materials will be separated and recycled where possible and viable.

### **Provisions for People with Disabilities**

110. The project has taken into consideration the requirements and design principles for facilities and access for the disabled in accordance with the Building Code of Australia and Australian Standard AS1428 Parts 1 and 2 – Design for Access and Mobility, and Defence's policy 'Disabled Access and Other Facilities for Disable Persons'.

111. Access and facilities for the disabled are provided to the Amenities Building in accordance with the Building Code of Australia 2016, Disability Discrimination Act 1992 and Australian Standard AS1428.

### **Security Measures**

112. The design of the facilities complies with the Defence Security Reference Manual and advice sought from the Defence Security and Vetting Agency.
113. The existing 300 meter Security Exclusion Zone surrounding the waterside infrastructure will be maintained and continue to be enforced during construction. Signage noting this requirement will be maintained at all Port of Geelong boat ramps and launching facilities to notify the public.
114. Security will continue to be maintained during construction. All construction sites will be appropriately secured to prevent public access during the construction period.

### **Workplace Health and Safety Measures**

115. The facilities provided in this project will comply with the Department of Defence Occupational Health and Safety policy, the Workplace Health and Safety Act 2011, Workplace Health and Safety Regulations 2011 and the Defence Occupational Health and Safety Manual.
116. In accordance with section 35(4) of the Building and Construction Industry Improvement Act 2005 (Commonwealth), the appointed contractors will hold full occupational health and safety accreditation from the Office of the Federal Safety Commissioner under the Australian Government Building and Construction Occupational Health and Safety Accreditation Scheme.
117. A specific Occupational Health and Safety and Site Management Plan will be developed by the appointed Contractor and will cover site specific issues including marine activities.

### **Cost Effectiveness and Public Value**

#### **Outline of Project Costs**

118. The estimated out turn cost of the project is \$218.9 million, excluding Goods and Services Tax. The estimate includes the delivery costs for management and design fees, construction costs, furniture, fittings and equipment, contingencies and escalation provisions.



119. The total cost of ownership as a result of the proposed works will increase due to the ongoing operation and support services required by the new facilities.

### **Details of Project Delivery System**

120. Subject to Parliamentary approval, a Managing Contractor form of contract is planned to deliver the works. A Project Manager Contract Administrator will be appointed by the Commonwealth to manage the delivery phase while a Managing Contractor will be appointed to complete design development, procure trade contractors, and construct the works.
121. The Managing Contractor form of delivery provides the Commonwealth with buildability input into the design while promoting opportunities for small to medium enterprises by sub-contracting design and construction trade packages.

### **Construction Program**

122. Subject to Parliamentary approval of the project, early procurement works for major supply items, such as steel piles, are planned to commence from late-2018 with construction completion planned by mid-2021.

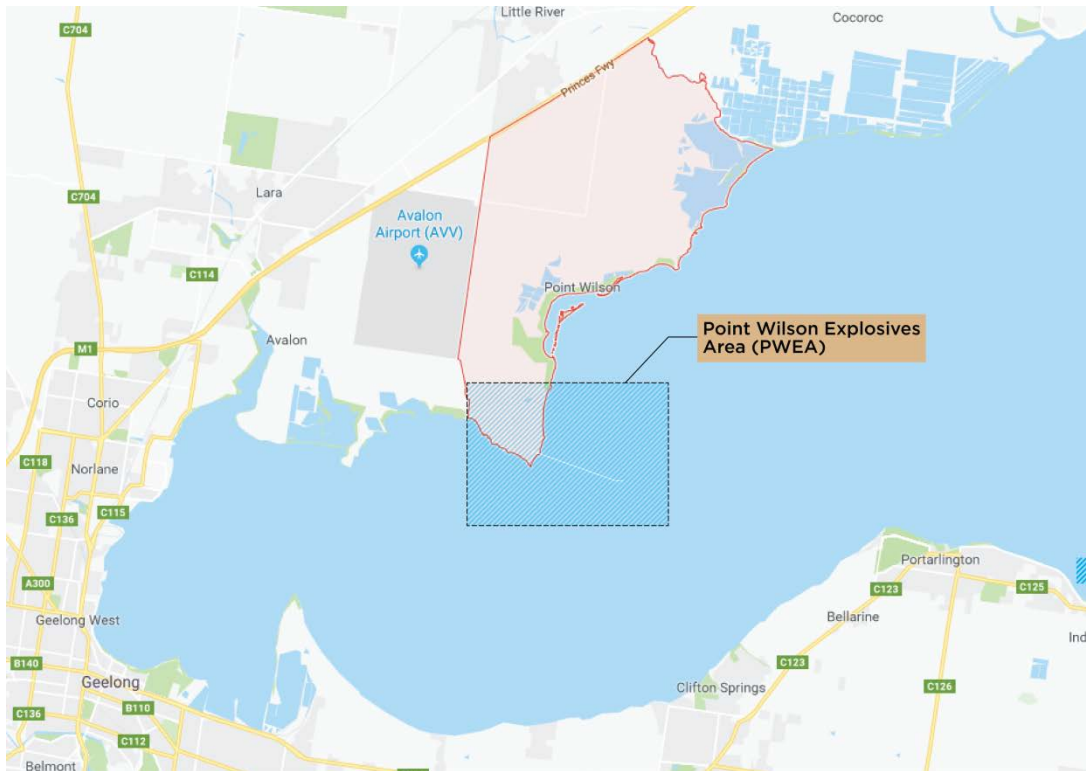
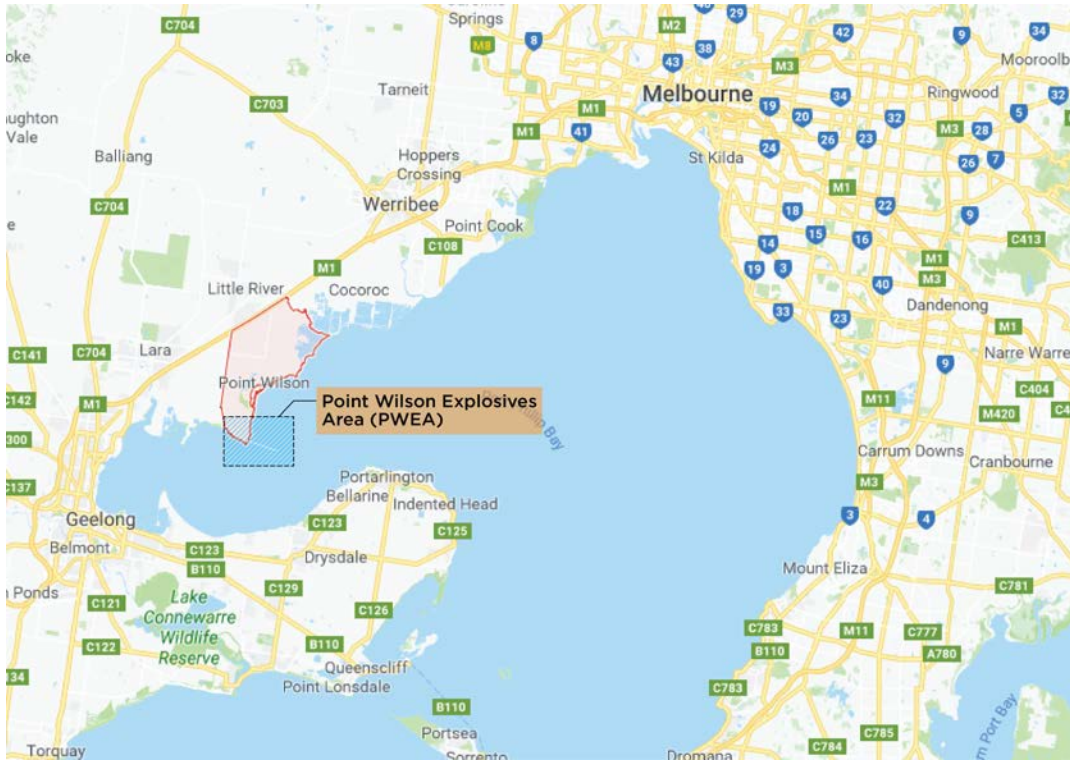
### **Public Value**

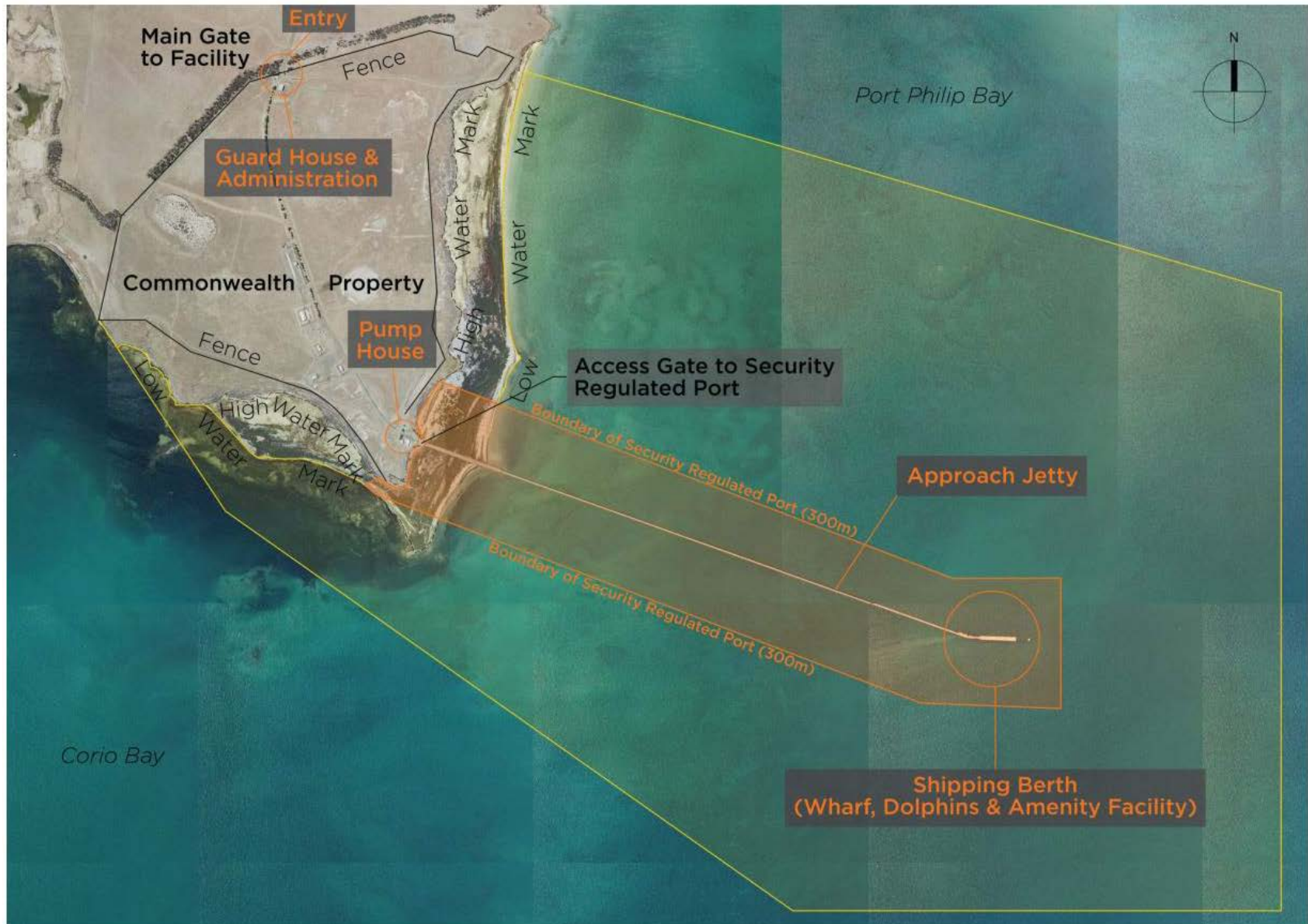
123. The project will address serious shortcomings in relation to Workplace Health & Safety and degradation of the existing waterside structure. By addressing these issues, Defence will have preserved this key strategic asset and capability for the long term. Retaining this capability is critical to the sustainment of Defence EO stock levels and will contribute to a broad range of Australian Defence Force capabilities.
124. The project will employ a diverse range of skilled consultants, contractors and construction workers during the construction phase to deliver, and manage, the delivery of the works.

### **Revenue**

125. The Point Wilson wharf remediation, once complete subject to approval, will provide opportunities for other logistics and Defence industry companies. Defence will be pursuing commercial sharing opportunities or use during off-peak times. This will generate revenue to offset the capital outlay and ongoing maintenance costs.

## Attachment 1 - Location Plans





## Attachment 2 - Current Site Photos



Photo 1 - General Condition of Piles



Photo 2 - Pile detailing exposed concrete

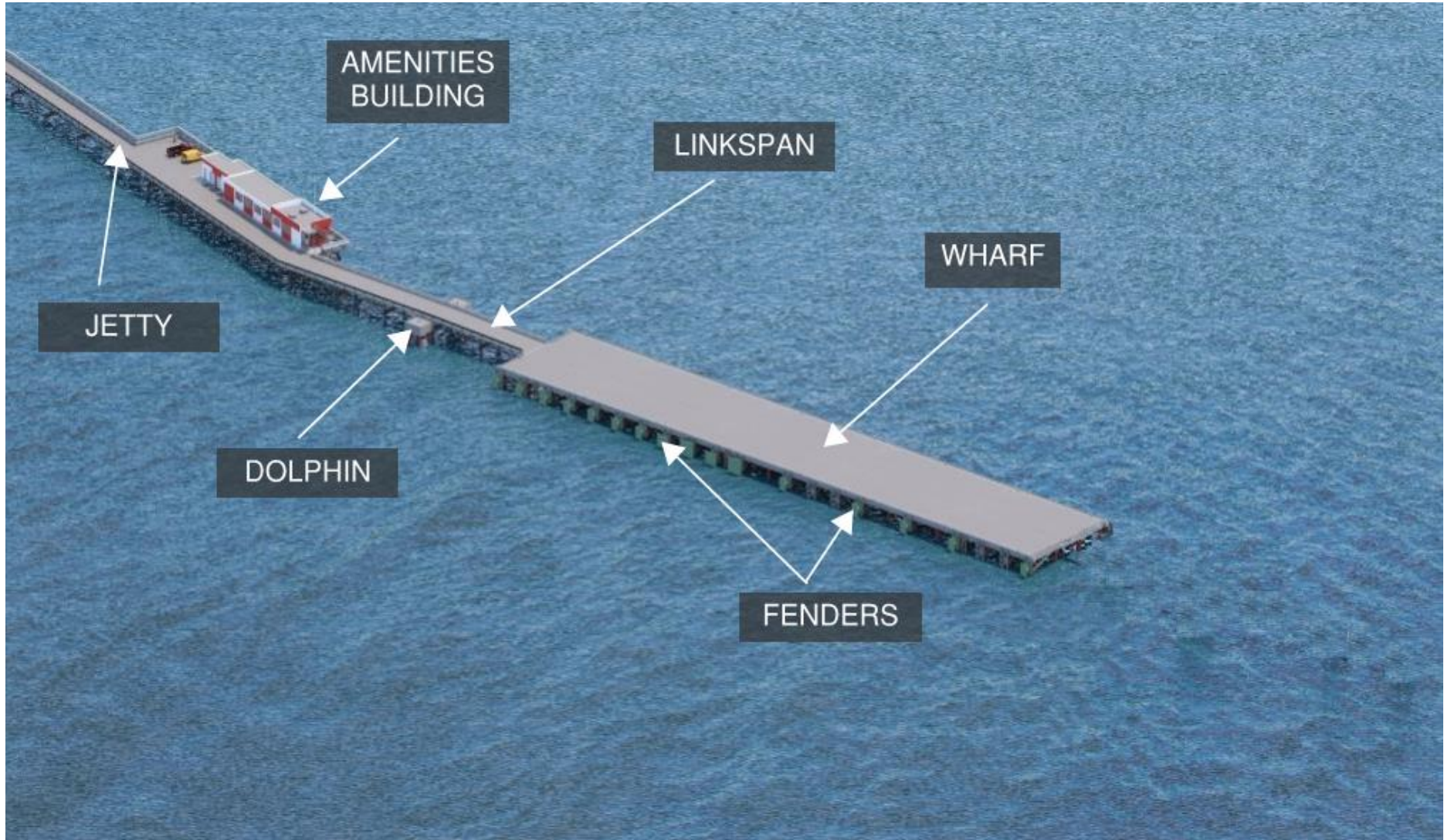


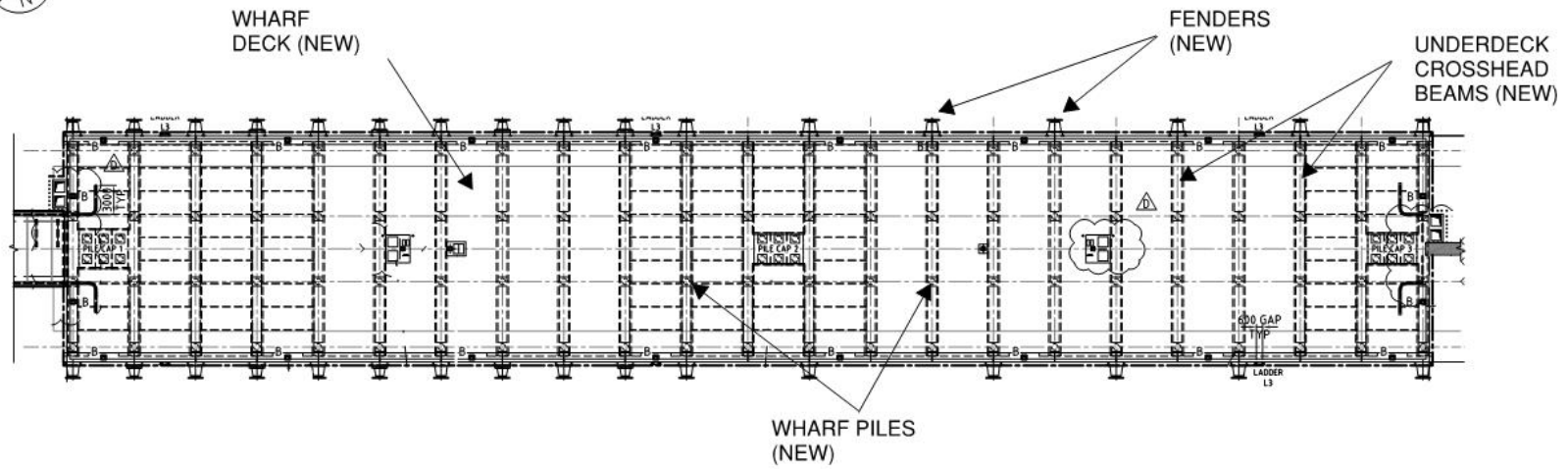
Photo 3 - General Condition of Piles, Crossheads and Jetty



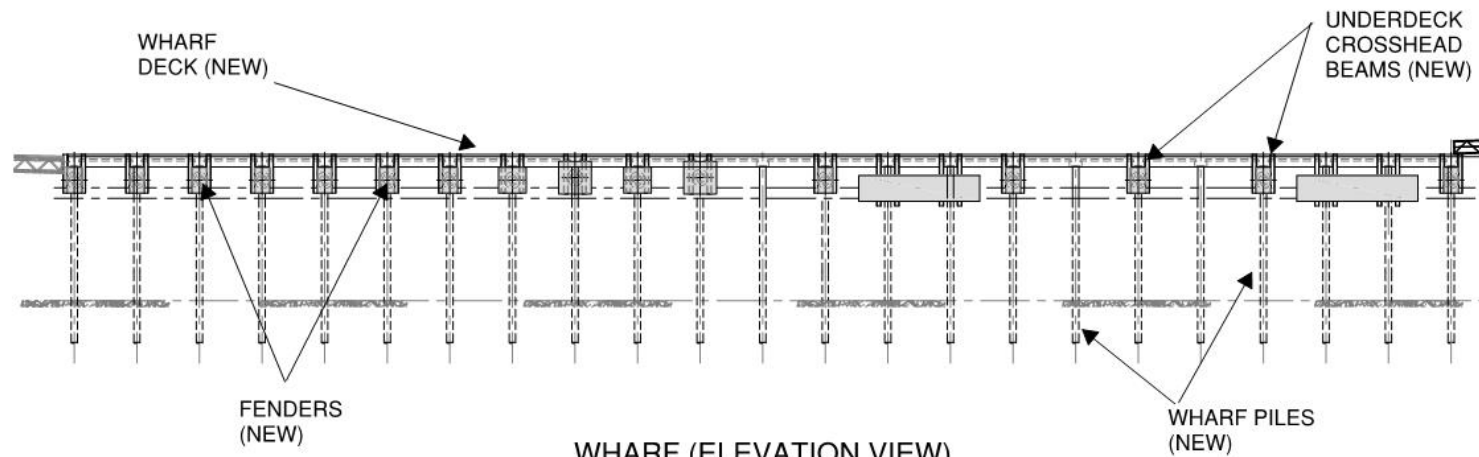
Photo 4 - General Condition of Wharf

### Attachment 3 - Preferred Option (Wharf and Linkspan)



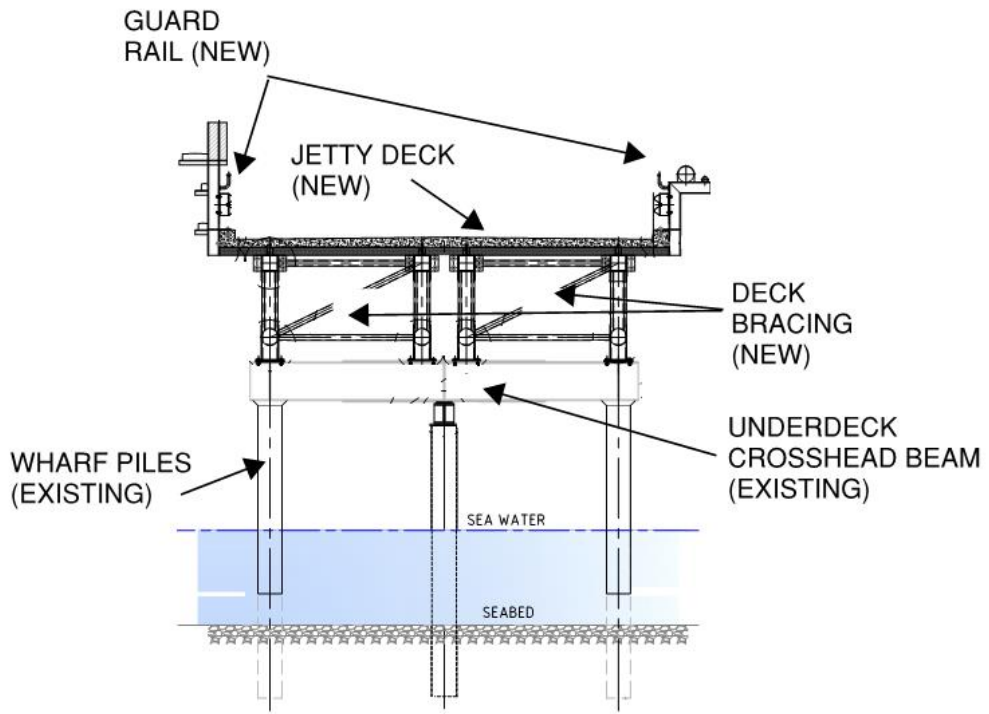


WHARF (PLAN VIEW)

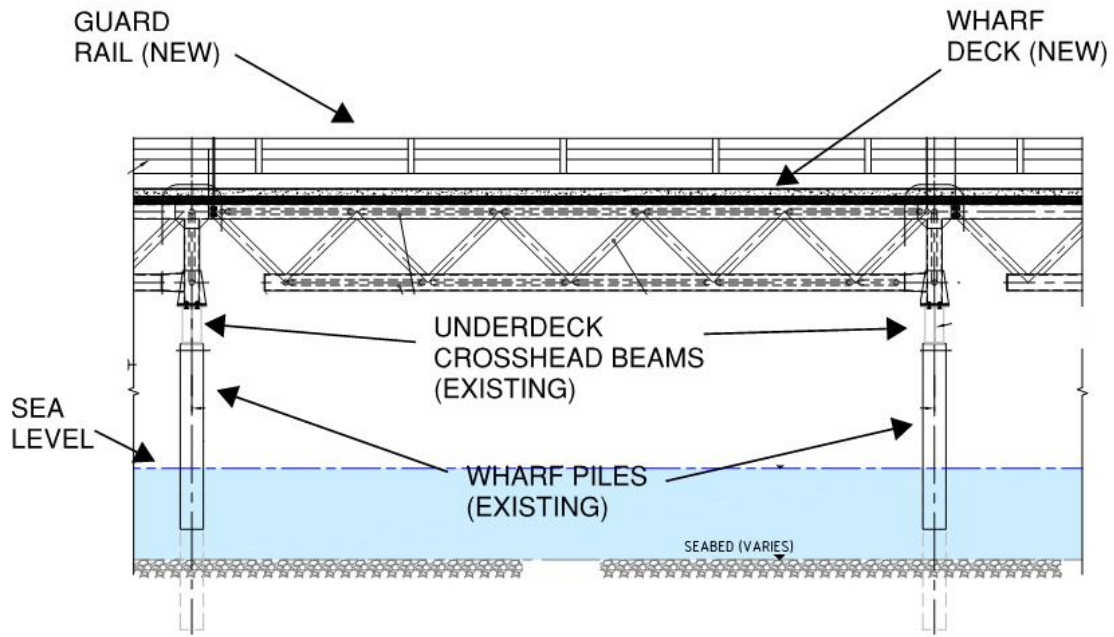


WHARF (ELEVATION VIEW)

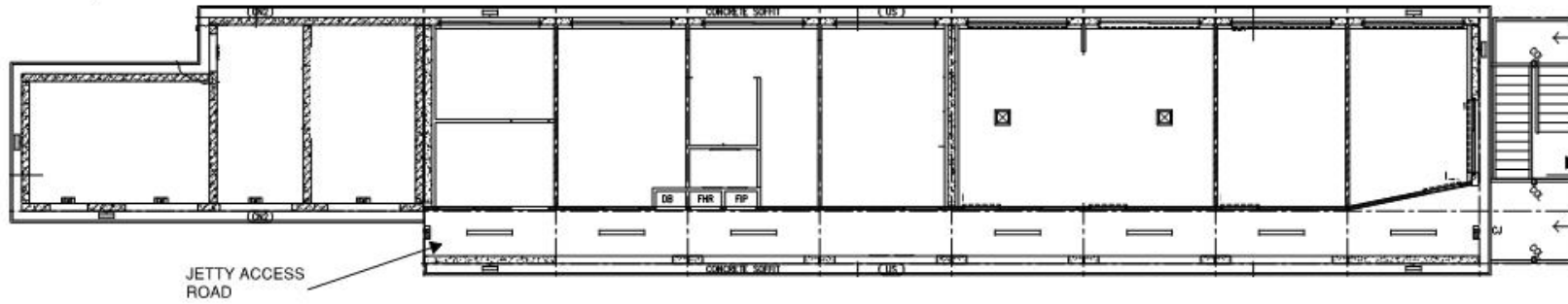




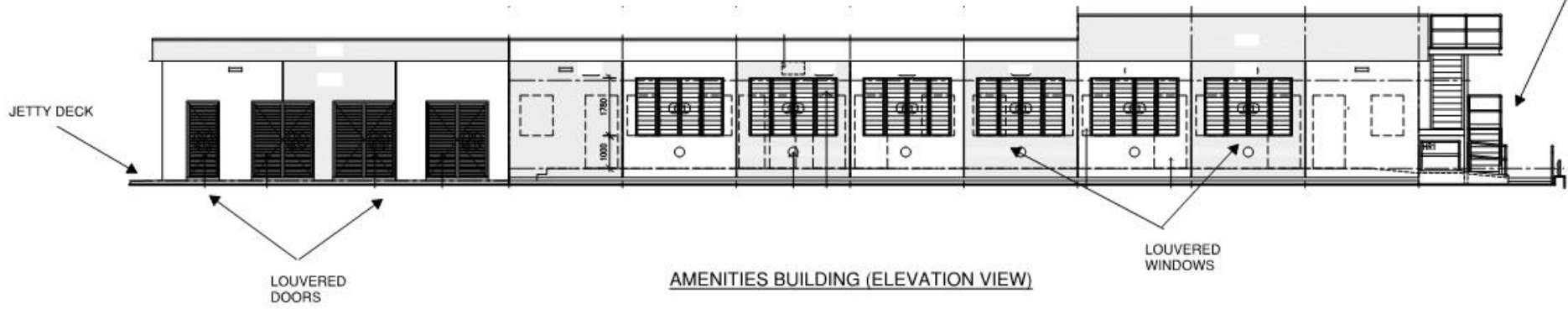
JETTY (SECTION VIEW)



JETTY (ELEVATION VIEW)



AMENITIES BUILDING (PLAN VIEW)



AMENITIES BUILDING (ELEVATION VIEW)

### Attachment 4 - Landside Building Plan

