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Visual Amenity

Nuclear-Powered Submarine Construction Yard Environmental Impact Statement

ANI

URPS

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We acknowledge the Kaurna People as the Traditional Custodians of the land on which we work and pay respect to their Elders past, present and emerging.

Contents

1. Introduction

This visual amenity impact assessment was undertaken to support the Environmental Impact Statement (EIS) for the nuclear-powered Submarine Construction Yard (SCY) proposed for the Lefevre Peninsula, Adelaide. The assessment addresses the 'visual amenity' assessment requirements set by the State Planning Commission. These assessment requirements are summarised in the table below.

Table 1.1 – State Planning Commission Assessment Requirements for Visual Amenity

Ref	Attribute	Objective	Method of investigation	Level of assessment
AEQ4	Visual Amenity	To ensure adverse effects on visual amenity, landscape and open space values are avoided or minimised and opportunities to enhance these values are maximised.	• Provide a description of the landscape character, features and values of the development area and its environs. This should address (where relevant): a. components of the development that may result in impacts to visual amenity, b. public and private viewsheds to the development and the visual values of the area, c. viewsheds in which the development features, including from nearby public lookouts, tourist attractions, conservation areas, roads and key vantage points in the vicinity, d. existing built features within the landscape and their impact on the existing landscape and visual setting. • Describe the effects of the development on visual amenity and landscape quality, including both near and distant views, such as where public access will be maintained from public reserve and conservation areas, including from the land and sea. This should focus on final built form, but should also address light spill from the development. • If required, provide a visual analysis of the development from key viewpoints, including photomontages or perspectives showing the proposed and likely future development.	STANDARD

Ref	Attribute	Objective	Method of investigation	Level of assessment
			• Describe the rationale for the major design elements of the proposed development and measures to mitigate their visual impact (in the context of an industrial area). • Describe how the design and construction of all buildings and structures will be controlled to ensure cohesive visual amenity, including details of construction materials, colours and landscaping for all main buildings and structures. • Describe the use of screening / amenity / landscape plantings and potential broad scale revegetation, including the opportunities for the use of locally endemic species.	

The assessment indicates that the proposed development will include buildings of a very large scale and will hence have a visual impact on the surrounding area. However, the character of the locality which includes many other very large industrial built forms means that this impact is consistent with the surrounding landscape. The existing subject site is of low visual amenity and is highly underutilised.

2. Existing Landscape Character, Features and Values

Assessment requirements relevant to this section

- Provide a description of the landscape character, features and values of the development area and its environs. This should address (where relevant):
  - components of the development that may result in impacts to visual amenity,
  - public and private viewsheds to the development and the visual values of the area,
  - viewsheds in which the development features, including from nearby public lookouts, tourist attractions, conservation areas, roads and key vantage points in the vicinity,
  - existing built features within the landscape and their impact on the existing landscape and visual setting.
- If required, provide a visual analysis of the development from key viewpoints, including photomontages or perspectives showing the proposed and likely future development.

2.1 Subject site

The subject site is located on the north eastern Lefevre Peninsula. It is bound by the Port River and Mutton Cove to the north and east, the existing Osborne Naval Shipyard to the east, industry to the west and south, and residential properties separated by Victoria Road to the west. The site currently comprises vacant, cleared, industrial land, laydown areas, car parks, piles and hardstand previously constructed for the cancelled attack class submarine program, stormwater swales and shoreline. The land is relatively flat. Is fenced from the general public and has a very low intensity of use. The marine-based portion of the subject site encompasses a portion of the Port River.

2.2 Character of the locality

2.2.1 Industry

The Lefevre Peninsula is part of the metropolitan Adelaide coastline. The Peninsula has a strong maritime association due to its proximity to Port Adelaide and the Port River. The locality is important for industry and port related activities. These land uses have meant that the areas which interface with the River have been developed and are no longer in a natural state.

The character of the eastern Lefevre Peninsula surrounding the subject site is industrial, with low visual amenity. Existing industrial sites in the locality include the largest commercial and tourism port in South Australia, power stations, commercial rail, grain silos, fuel tanks, the existing Osborne Naval Shipyard, chemical plants and other industrial uses. The wider Port Adelaide character is also largely industrial.

These industrial uses mean there are a number of built structures with significant scale present in the locality. This includes stacks of shipping containers, cranes, and large container and cruise ships at the

port, large grain silos and fuel tanks at the Viterra site and Ampol fuel terminal respectively, and buildings of significant scale at the Osborne Naval Shipyard.

Other industrial uses in the locality have other visual impacts such as the salt pans at Ixom Operations, or smoke stacks from various manufacturing sites.

Most of these sites are secured from general public access.

Figure 1: Viterra grain silos

Figure 2: Ampol fuel terminal

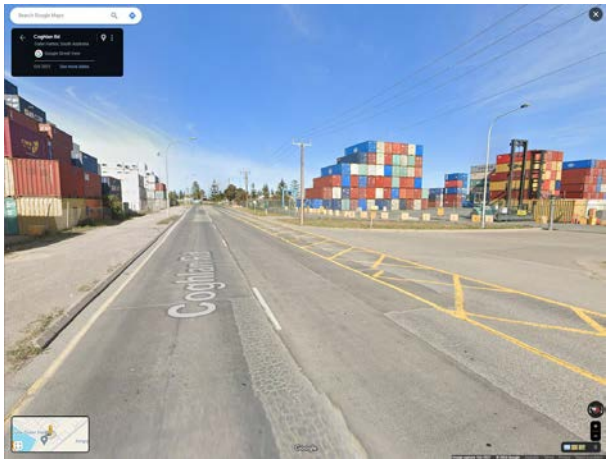

Figure 3: Flinders Adelaide Container Terminal

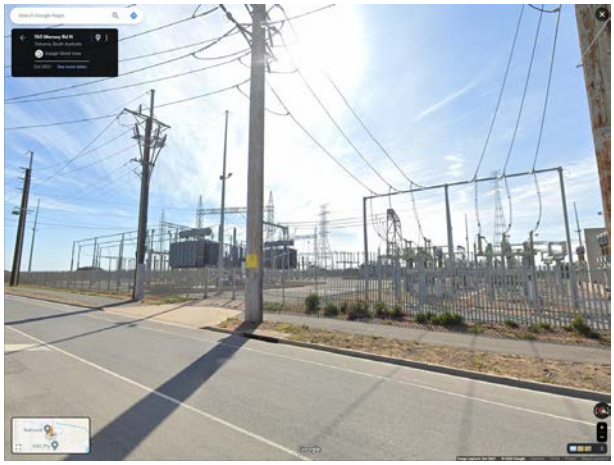

Figure 4: Osborne Substation

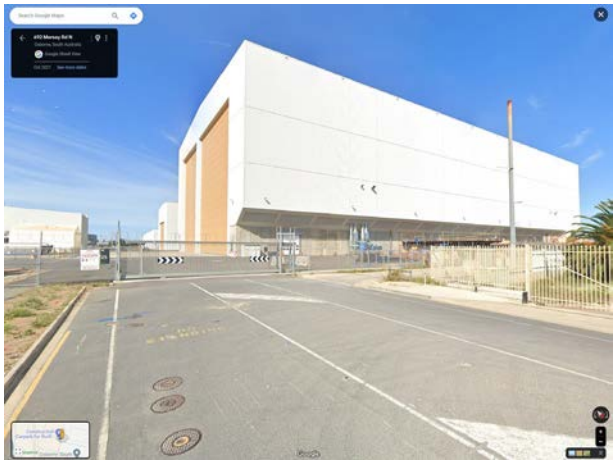

Figure 5: Osborne Naval Shipyard

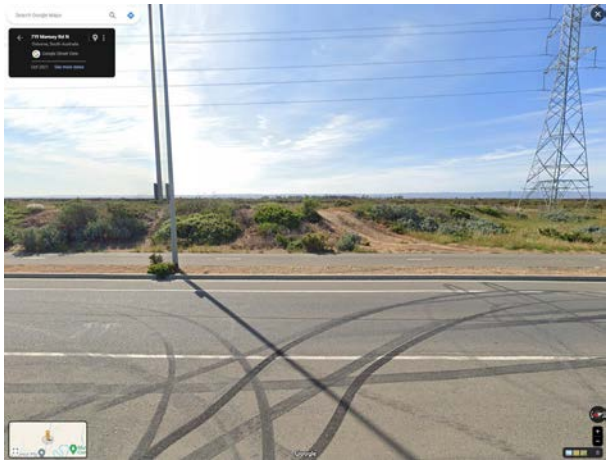

Figure 6: Mutton Cove

The proposed development is for industrial land uses which will increase the intensity of land use and maintain consistency with established industrial and defence land uses.

The industrial character of Port Adelaide forms part of its history and appeal, makes it unique, and contributes to its tourism value.

2.2.2 Open space

There are also large areas of open space in the locality including Mutton Cove, Falie Reserve, Kardi Yarta, Biodiversity Park and Outer Harbour Railway Station Reserve. These open spaces mostly comprise of low planted vegetation, besides Mutton Cove which hosts remnant mangrove and samphire. Some of these open spaces are used for rubbish dumping and other unsociable behaviours given their industrial setting, which impacts on their visual amenity. State and local governments are working to reduce these impacts.

The Port River has relatively high visual amenity. However, it is a highly modified waterway, used extensively for shipping, dredged many times, with largely developed banks, fringing industry and is the receptor of large stormwater loads from highly urban areas.

2.2.3 Residential and community

Victoria Road acts as a separation between the industrial aspects and the established neighbourhood of the Lefevre Peninsula. The land to the south of Victoria Road largely contains a greater variety of land uses. This includes established residential areas, community infrastructure for sport and recreation, and community services. Suburbs south of Victoria Road include North Haven, Osborne and Taperoo. It is envisaged that in the future these areas will grow and becoming increasing used for related supporting industries, social services and residential supply for future SCY workers.

2.3 Views to the subject site

The subject site and surrounding locality can be viewed from various points in metropolitan Adelaide. This includes suburban areas to the south and west, the Port River, Port Adelaide, Torrens Island and St Kilda. Some of these viewsheds are provided below.

Figure 7: View of the subject site and nearby Osborne Naval Shipyard, Viterra grain silos and port infrastructure from St Kilda.

Figure 8: View of the subject site from Mersey Road North

Figure 9: View of subject site from the end of Archie Badenoch Road

Figure 10: View of the subject site from Victoria Road, screened by trees.

Figure 11: View of the subject site from the nearest dwellings

3. Key Development Design Features

Assessment requirements relevant to this section

- Describe the rationale for the major design elements of the proposed development and measures to mitigate their visual impact (in the context of an industrial area).
- Describe how the design and construction of all buildings and structures will be controlled to ensure cohesive visual amenity, including details of construction materials, colours and landscaping for all main buildings and structures.
- Describe the use of screening / amenity / landscape plantings and potential broad scale revegetation, including the opportunities for the use of locally endemic species.

The SCY is anticipated to largely comprise large-scale industrial sheds and workshops. Buildings of such form and massing are characteristic of the prevailing industrial land uses in the locality.

This will include fabrication buildings that are of a significant scale, up to 50 metres in height and 200 metres in length. Examples of these facilities are shown in the images below.

In addition to industrial sheds and workshops, the development will include supporting office space, amenities, car parking, laydown and external storage areas, a wharf, submarine launch facility and wet basin.

The site layout has sought to maximise the use of available land by locating infrastructure in accordance with the functional design requirements. The infrastructure layout has regard to building floor area and construction type, whilst retaining the necessary functional requirements and workflow patterns typical for nuclear -powered submarine construction sites overseas that optimise operating efficiency.

Renders of the development at its 5% design can be seen below. Note, these may change as design development continues.

Figure 12: Render of the SCY development from the east

Figure 13: Render of the SCY development from the north

Figure 14: Render of the SCY development from the south

Figure 15: Render of the SCY development from the west

The built form is anticipated to be largely consistent with the existing Osborne Naval Shipyard including material choices, with some buildings of a slightly larger scale. The existing Osborne Naval Shipyard can be seen in the images below.

Figure 16: Aerial view of the existing Osborne Naval Shipyard

Figure 17: Close up view of a large fabrication hall at the existing Osborne Naval Shipyard.

The character of the built form is not of high amenity. Major design elements will be selected primarily for their functional needs.

It is considered that building works will better integrate existing land uses and see currently underutilised land occupied for its intended industrial purpose. The development will be cohesive with the adjacent Osborne Naval Shipyard.

It is anticipated that vegetation along Victoria Road will not be impacted by the development. Therefore, this vegetation will continue to provide screening to the development, helping to soften the visual impact.

Minimal landscape plantings are anticipated, and will be largely limited to areas such as the car park and Falie Reserve. The use of locally endemic species for these plantings will be prioritised where possible. Visibility within the shipyard to support security measures will be critical.

Figure 18: Link Road Landscape Plantings

4. Effects of the Development on Visual Amenity

Assessment requirements relevant to this section

- Describe the effects of the development on visual amenity and landscape quality, including both near and distant views, such as where public access will be maintained from public reserve and conservation areas, including from the land and sea. This should focus on final built form but should also address light spill from the development.

4.1 Impacts on viewsheds

4.1.1 Suburbs of the Lefevre Peninsula

Dwellings along Victoria Road are orientated towards internal local roads with the rear of the allotment towards the subject site. This orientation provides a visual separation to the industrial area and reduces some of the associated impacts with views and traffic.

It is anticipated that dwellings on the internal street network south of Victoria Road which are oriented towards the project site may view additional built form. The built form will be consistent with the existing form at the Osborne Naval Shipyard, with an increased density and occupation.

As can be seen in the above renders, the parcel of land closest to the residential area is anticipated to be developed for carparking and road infrastructure only. The lower profile of these land uses will have lower visual impact than the larger buildings planned for elsewhere on the site.

The view of the largest building in the existing Osborne Naval Shipyard from the nearest residences is shown in the image below. View impacts are anticipated to be similar with the new development.

Figure 19: View of largest existing Osborne Naval Shipyard building from nearest residential premises

4.1.2 Port River

The SCY will be visible from the Port River, which is used for commercial and recreational uses. Visual impacts of not considered to be significant, given the surrounding industrial uses along the whole of the Port River. In some respects, the development is likely to make a positive contribution, with community and visitors likely to have some interest in viewing the shipyard from the river.

4.1.3 Mutton Cove

Mutton Cove is a conservation area located directly adjacent to the subject site. Mutton Cove is currently publicly accessible, with walking paths around the perimeter of the site. Given the proximity and high security needs of the defence development, general public access to Mutton Cove will need to be managed.

4.1.4 Torrens Island

Torrens Island is located directly across the Port River from the subject site. Torrens Island is home to three power stations with no residential occupation or general community services. Torrens Island can only be accessed by authorised personnel, with organised historic tours available.

The SCY development will be visible from Torrens Island. However, the impacts on this area are considered to be minimal given the separation provided by the river, Mutton Cove and the established large scale defence precinct buffering much of the proposed development. The other established large scale infrastructure in the general locality also reduces the impact that the development will incur. Further to this, there is little for the development to impact on with no residential or community occupation of Torrens Island.

4.1.5 St Kilda

St Kilda is located 3km northeast of the Lefevre Peninsula. St Kilda is separated from the Peninsula by the Port River, Torrens Island, Adelaide International Bird Sanctuary and mangroves.

St Kilda is a coastal township with a population of 88 that is popular for birdwatching and fishing.[1] St Kilda has a large public reserve and boat launching facility on the waterfront. Dwellings overlook this space towards water and the Peninsula beyond.

The Peninsula and its built form is visible in the distance from St Kilda, including the infrastructure and built form associated with Viterra Outer Harbor silos, Flinders Container Terminal, Pelican Point Power Station, Ampol Fuel Terminal and existing ship yard,

The development will therefore also be visible from St Kilda, but will be consistent with the existing established infrastructure. The distance between the development and St Kilda will mean the development will only be visible at a distance. There will be no obstruction of views in the foreground or beyond the Peninsula.

Figure 20: View of the subject site and nearby Osborne Naval Shipyard, Viterra grain silos and port infrastructure from St Kilda.

4.1.6 Port Adelaide

Port Adelaide is a waterfront centre northwest of the Adelaide CBD. Port Adelaide is large part of South Australia's history and has recently undergone urban transformation to rejuvenate the area as a social, economic and residential hub.

[1] https://www.abs.gov.au/census/find-census-data/quickstats/2021/SAL41371

Port Adelaide has an industrial look and feel with many historical buildings and increasing numbers of townhouses and apartments. The area is home to a variety of businesses and retail outlets. The area is orientated around the Port River and has vantage points towards the subject site. There are many berths and industrial operations established on the waterfront between Port Adelaide and the subject site.

The size and scale of the future development may be visible from Port Adelaide, but development is considered to be consistent with much of the existing outlook. The distance from Port Adelaide to the subject site is not expected to provide any negative impacts from an overlooking, overshadowing or visual amenity perspective.

A view towards the development from the Port River Expressway bridge over the Port River is provided below. The existing Osborne Naval Shipyard is not visible. A number of other industrial properties are visible.

Figure 19: View towards the development from the Port River Expressway bridge

4.2 Lighting impact

The development is anticipated to be lit at night. Temporary light would be generated during construction by the use of plant and machinery. Permanent light would be generated over the course of operations, to ensure safety, security and function.

This lighting is anticipated to be similar to the lighting for the existing Osborne Naval Shipyard and is likely to be visible to nearby residences.

Figure 19: Lighting at existing Osborne Naval Shipyard (Source: Australian Naval Infrastructure 2020)

Best practice lighting design will be used to reduce light pollution. This includes:

- Here practical only add light to natural darkness for specific purposes.
- Use adaptive light controls to manage light timing, intensity and colour.
- Light only the object or area intended.
- Use lowest intensity lighting appropriate for the task.

Lighting will be established in accordance with the following standards:

- AS/NZ 1158.3.2:2020: Lighting for roads and public spaces.
- AS/NZS 4282:2023: Control of the obtrusive effects of outdoor lighting, Standards Australia and Standards New Zealand 2023
- National Light Pollution Guidelines for Wildlife, Commonwealth of Australia 2023

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