



Visual Impact Assessment

Bays Port Shore Power Project – White Bay Cruise Terminal

Port Authority of New South Wales

29 August 2024

311012-01011





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PROJECT 311012-01011: Visual Impact Assessment

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Executive Summary

Worley Consulting has been engaged by Port Authority of New South Wales (Port Authority) to prepare a Visual Impact Assessment (VIA) to accompany the Review of Environmental Factors (REF) for the development of a landside electricity supply for cruise ships at White Bay Cruise Terminal (WBCT), as part of the Bays Port Shore Power Project (the Project) at the Bays Port Precinct (the Precinct), New South Wales (NSW).

The purpose of the VIA is to assess the potential changes to visual amenity in relation to how the surroundings of individuals or groups of people may be specifically affected by change in the visual scene, both quantitatively and qualitatively.

Proposal Overview

The Project is to be delivered in two (2) stages:

- Stage 1: White Bay Shore Power - WBCT connection consisting of the following Work Packages:
 - *Work Package 1: Power supply provision from the Rozelle Ausgrid substation to the Precinct to support all stages of the Project, including installation of high voltage connection kiosk (to be undertaken by Ausgrid and Ausgrid's Accredited Service Providers).*
 - Work Package 2: Shore power equipment supply and installation for WBCT berth (including design of internal electrical distribution network).
 - Work Package 3: Internal network civil works to support Stage 1 infrastructure.
- *Stage 2: Glebe Island 1, 2, 7 and 8 connections (to be undertaken in multiple phases and is not part of this proposal; scope and phasing to be assessed and delivered at a later stage).*

The scope of works for the REF (the proposal) relates to Stage 1, Work Packages 2 and 3 only.

Stage 1: WBCT Shore Power, Work Package 1, is excluded from the REF (the proposal) as the scope relates to the new power supply and distribution of electricity to the Bays Port precinct and is governed by the *Electricity Supply Act 1995* (NSW) where Ausgrid is the Determining Authority. Planning approval associated with Work Package 1 scope and timeline will be conducted separately in accordance with Ausgrid's Environment Assessment Guidelines (NS174B) and Part 5 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) which generally applies to works for the purpose of an electricity transmission or distribution network.

Assessment and Conclusions

A comprehensive visual impact assessment of the proposal on the surrounding areas has been conducted. The VIA has identified and evaluated the existing visual environment, key views and view types before progressing to an assessment of quantitative and qualitative criteria using best practice methodology.

The rating system for the VIA has been prepared to be consistent with the visual impact assessment methodology of the *Guidelines for landscape character and visual impact assessment: Environmental impact assessment practice note EIA-N04* (Transport for NSW, 2023).



The visual catchment of the proposal is limited as a result of the Port and its existing infrastructure, topography and surrounding vegetation.

Of the six viewpoints selected and analysed the findings for operational impacts are as follows:

- **One** viewpoint received an impact rating of Negligible.
- **Three** viewpoints received an impact rating of Low.
- **One** viewpoint received an impact rating of Moderate-Low.
- **One** viewpoint received an impact rating of Moderate.

The highest visual impact was identified for Birrung Park, due to its proximity to the proposal. In addition, as the park is public open recreation space this increases the visual receiver sensitivity and therefore increases the overall rating impact rating to Moderate.

The operation of the proposal would have minimal impact to surrounding Port infrastructure at the site and adjacent businesses (comprising both existing or future planned developments) with the proposed shore power infrastructure being relatively small in form and scale with the supporting cable conduits, power and control cables to be laid underground. Further, the WBCT Onshore Power Supply (OPS) is replacing a derelict building and is to be included with visual treatments to mitigate any visual impacts.

During the construction period, many viewpoints analysed within this VIA are likely to have minor visual impacts. These visual impacts would be of a temporary nature, located within a restricted access working port and would reduce for all viewpoints once the proposal is complete and the construction areas made good.

Overall, it is considered that the visual impacts of the proposal are such that it is not considered to have a long-term visual effect on nearby land and/or property and would not constitute reasons for the proposal not to proceed.

Acronyms and Abbreviations

Acronym/abbreviation	Definition
the Contractor	Company to be engaged by Port Authority to undertake construction of the proposed works
CEMP	Construction Environmental Management Plan
CMS	Cable Management System
EP&A Act	<i>Environmental Planning & Assessment Act 1979</i> (NSW)
HVC	High voltage connection
NSW	New South Wales
OPS	Onshore Power Supply
Port Authority	Port Authority of New South Wales
(the) Precinct	The Bays Port Precinct
Project	Bays Port Shore Power Project, including Stages 1 & 2
proposal	The proposed works assessed in this VIA, being Stage 1 Work packages 2 & 3 at White Bay Cruise Terminal (WBCT)
REF	Review of Environmental Factors
WBCT	White Bay Cruise Terminal
VIA	Visual Impact Assessment

1 Introduction

1.1 Background

Worley Consulting has been engaged by Port Authority of New South Wales (Port Authority) to prepare a Visual Impact Assessment (VIA) to accompany the Review of Environmental Factors (REF) for the development of a landside electricity supply for cruise ships at White Bay Cruise Terminal (WBCT), as part of the Bays Port Shore Power Project (the Project) at the Bays Port Precinct (the Precinct), New South Wales (NSW).

The Bays Port Shore Power Project is to be delivered in two (2) stages:

- Stage 1: White Bay Shore Power – WBCT connection, consisting of the following Work Packages:
 - *Work Package 1: Power supply provision from the Rozelle Ausgrid substation to the Precinct to support all stages of the Project, including installation of high voltage connection kiosk (to be undertaken by Ausgrid and Ausgrid's Accredited Service Providers (ASPs)).*
 - Work Package 2: Shore power equipment supply and installation for WBCT berth (including design of internal electrical distribution network).
 - Work Package 3: Internal network civil works to support Stage 1 infrastructure.
- *Stage 2: Glebe Island Shore Power – Glebe Island 1, 2, 7 and 8 connections (to be undertaken in multiple phases and is not part of this proposal; scope and phasing to be assessed and delivered at a later stage).*

The scope of works for the REF (the proposal) relates to Stage 1: WBCT Shore Power, Work Packages 2 and 3 only, as outlined above.

Stage 1: WBCT Shore Power, Work Package 1, is excluded from the REF (the proposal) as the scope relates to the new power supply and distribution of electricity to the Bays Port precinct and is governed by the *Electricity Supply Act 1995* (NSW) where Ausgrid is the Determining Authority. Planning approval associated with Work Package 1 scope and timeline will be conducted separately in accordance with Ausgrid's Environment Assessment Guidelines (NS174B) and Part 5 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) which generally applies to works for the purpose of an electricity transmission or distribution network.

The purpose of the VIA is to assess the potential changes to visual amenity in relation to how the surroundings of individuals or groups of people may be specifically affected by change in the visual scene, both quantitatively and qualitatively.

The site is the area of works concerning the proposal and is based on the REF scope as shown in Figure 1-1.

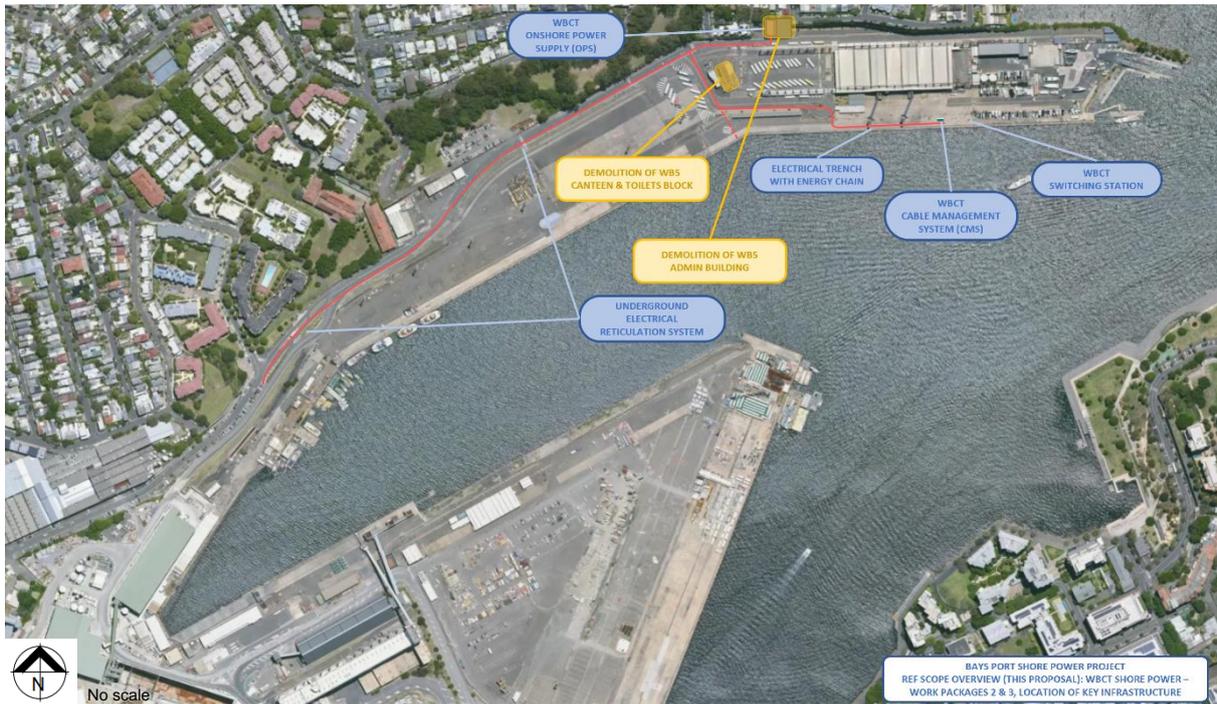


Figure 1-1 REF scope (Stage 1, Work Packages 2 and 3, only) (Source: Port Authority, 2024)

1.2 The Proposal

The proposal involves the installation of landside electricity supply for cruise ships at WBCT. A breakdown of the scope of work for the construction of Stage 1, Work Packages 2 and 3, is outlined below and is illustrated in Figure 1-1. Further description of the proposal is provided in Section 4.

Stage 1, Work Package 2:

Installation of Shore Power equipment at WBCT:

- Installation of Onshore Power Supply (OPS) and switchgear units.
- Installation of mobile Cable Management System (CMS) unit at WBCT.
- Installation of energy chain in a trench along WBCT berth for a mobile CMS. *(Note: Coordination with Work Package 3 contractor is required).*
- Installation of switching station at WBCT.
- Installation of water-cooling system for WBCT OPS *(Note: Coordination with Work Package 3 contractor is required for the water supply to the system).*
- Construction of façade or visual treatment such as perimeter or green walls at WBCT OPS building (to be determined during detailed design stage).

Stage 1, Work Package 3:

Internal network civil works at White Bay, including demolition and construction.

- Demolition:



- Demolition of decommissioned Administration Building and Canteen and toilet block, at White Bay berth 5.
- Construction:
 - Construction of concrete foundation for high voltage connection (HVC) kiosk, WBCT OPS and switchgear units and WBCT switching station.
 - Construction of a shed for WBCT CMS unit. Location of CMS enclosure to be determined during detailed design stage.
 - Installation of piping system for the water-cooling system at WBCT (in collaboration with Work Package 2 scope).
 - Installation of electrical trenches and conduits, at a depth of 1.1-1.3m (approximate), and pits for power, control and communication cables at the following locations:
 - HVC kiosk at Port Authority's boundary (*Note: the HVC kiosk will be installed by Work Package 1 Contractor and not part of this proposal*).
 - White Bay berth 3 and 4, along the Port Access Road/services corridor.
 - WBCT, including along the berth for the energy chain installation.
 - Installation of cable conduits, power and control cables for the internal electrical reticulation network.

1.3 Methodology

1.3.1 Visual Assessment Rationale

The preparation of the VIA involved the following tasks:

- Review background planning documents and aerial photography (Nearmap) to estimate the visual catchment prior to the site inspection.
- Undertake site inspections to establish landscape character units and to ground truth the preliminary Viewshed Analysis; in particular, looking to determine the effects of vegetation and built form on the key views, identifying all major visual receptors by type and location.
- Prepare view analysis matrix as the basis of the impact assessment. Criteria included distance from development, angle of view, landscape character and visual sensitivity.
- Conduct photographic analysis. Key views from nearby private properties assessed from the nearest publicly accessible viewpoint.
- Review of concept design.
- Identify all visual receptor (viewer) locations such as from dwellings, roads, parks, streets etc determined from an analysis of the topographic information, site appraisal and Nearmap analysis (note that where a number of residences experience a broadly similar view, these were grouped as a single receptor).
- Preparation of the report which includes a view by view assessment with description and ratings, conclusions and recommended mitigation measures.

1.3.2 Planning Principles

The VIA aims to ensure that all possible effects of change and development in the landscape, views and visual amenity are considered. The Commission of the NSW Land and Environment Court developed visual impact assessment Planning Principles involving the following steps:

- Step 1: Identify the nature and scope of the existing views from the public domain.
- Step 2: Identify the locations in the public domain from which the potentially interrupted view is enjoyed. (Note that the Planning Principles give primacy of views from the public domain over views from private land).
- Step 3: Identify the extent of the obstruction at each relevant location.
- Step 4: Identify the intensity of public use of those locations where that enjoyment will be obscured, in whole or in part, by the proposal.
- Step 5: Identify whether or not there is any document that identifies the importance of the view to be assessed.

1.3.3 Rating System

The rating system for the VIA has been prepared to be consistent with the visual impact assessment methodology of the *Guidelines for landscape character and visual impact assessment: Environmental impact assessment practice note EIA-N04* (Transport for NSW, 2023).



Visual amenity impact refers to changes in a view experienced by a person observing a landscape. Landscape character is a combination of distinctive qualities of a certain area. The measurement of visual impacts is based on the combination of 'sensitivity' of an existing area or a view to change and the 'magnitude' (scale, contrast, quality, distance) of the proposal (Transport for NSW, 2023). The construction and operation impacts of the proposal are rated using the landscape character and visual impact grading matrix from EIA-N04 (Figure 1-2).

		Magnitude			
		High	Moderate	Low	Negligible
Sensitivity	High	High	High-Moderate	Moderate	Negligible
	Moderate	High-Moderate	Moderate	Moderate-low	Negligible
	Low	Moderate	Moderate-low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

Figure 1-2 Landscape character and visual impact rating matrix (Source: Transport for NSW, 2023)

Transport for NSW (2023) provide further definition of the above terms:

- 'Sensitivity' refers to the qualities of an area, the number and type of receivers and how sensitive the existing character of the setting is to the proposed nature of change. For example, a pristine natural environment is likely to be more sensitive to a change of the nature of a four lane motorway than a built up industrial area. The design quality of the development does not make the area less sensitive to change but instead affects the magnitude of the impact.
- 'Magnitude' refers to the physical scale of the development, how distant it is and the contrast it presents to the existing condition. For example, a large interchange would have a very different impact on landscape character than a localised road widening in the same area. A more distant bridge would have a lesser magnitude than one nearer to residents. A vegetated embankment facing a parkland would have less contrast than a retaining wall in the same location.

Magnitude would also need to consider cumulative impact, which is a consideration of the result of the incremental impact of the proposal when added to other past, current and known likely future activity.

2 Landscape Character and Visual Environment

2.1 Landscape Character

2.1.1 Glebe Island/White Bay Port Area

The proposal is located on the foreshore of Sydney Harbour at Bays Port (White Bay) and is characterised as a semi-enclosed harbour landscape with views across the harbour. A number of public spaces adjoin the site, including streets, footpaths, elevated foreshore walks, parks, landmarks and monuments, including Glebe Island Bridge and Anzac Bridge. The existing visual environment could be described as a working port in the harbour foreshore area. The site features expansive views across the harbour, foreshore areas and the Sydney CBD skyline.

The Glebe Island/White Bay Port area has operated since the nineteenth century for port, maritime, maritime transport and industrial uses. Glebe Island and White Bay are the only deep-water wharves west of the Sydney Harbour Bridge. The port facility is owned and managed by Port Authority and has been in government ownership since 1901. The site is located near the heritage-listed White Bay Power Station which has recently re-opened as an events and functions space managed by Placemaking NSW. The Power Station is located within the Stage 1 sub-precinct of Bays West, which is undergoing construction work associated with the Sydney Metro West project and future urban renewal.

Land reclamation occurred in the late nineteenth century, replacing jetties and changing the topography of the area to create deeper water berths. The site has been used as a multi-purpose port which has historically allowed for a variety of uses including, but not limited to, cruise ships, container handling, break bulk cargo (e.g. timber, paper and steel), motor vehicle imports, dry bulk cargoes (coal, cement, sugar, gypsum, aggregates, etc.) and bulk liquids (e.g. vegetable oils, tallow, lubricants).

The Port facility consists of five operational shipping berths at White Bay (2-6) and four berths at Glebe Island (1, 2, 7 and 8), respectively (Figure 2-1 to Figure 2-3). Port Authority operates the cruise terminal at White Bay 5 and manages White Bay 4 primarily for cruise overflow and ad-hoc vessel visits. White Bay 3 is used for a variety of ad hoc port and working harbour uses, White Bay 2 is occupied by licensees who operate independent businesses including commercial office, port services and non-trade vessels, and a dry boat storage and refuelling facility is at White Bay 6. Glebe Island 7 is used for unloading/loading bulk vessels for gypsum and sugar whilst Glebe Island 8 is for cement only. Glebe Island 1 and 2 are used for the unloading/loading of dry bulk goods as well as other occasional ad-hoc port related uses and laying-up of shipping vessels.

Other Port-based infrastructure includes the White Bay Cruise Terminal building (opened in 2013), silos and storage facilities, administration and amenities buildings, access roads, substations, hardstand and parking areas. Part of the Port Authority land is currently being leased out as ancillary sites and contractor parking for the WestConnex, Western Harbour Tunnel and Sydney Metro West construction projects. The Port Access Road is on an artificial embankment, approximately 1m higher than the surrounding land on which it was built.

The site has been extensively modified to function as a working port. The topography of the site is characterised by large escarpments reaching up to 18m (to the north of the WBCT), and flatter transition areas which step down to the port's hardstand level. The north of the White Bay is bounded by residential areas of Balmain which are elevated and physically separated from the site by a sandstone cliff and retaining wall. These mainly single and double storey residences are located in Grafton, Vincent, Adolphus, Donnelly and Stephen Streets, Balmain.



Figure 2-1 Aerial view of the Port and its berths, looking east (Source: Worley Consulting, 2023)



Figure 2-2 Aerial view of the Port and its berths, looking west (Source: Worley Consulting, 2023)



Figure 2-3 Aerial view of the Port and its berths, looking east (Source: Worley Consulting, 2023)

Recently, older industrial sites surrounding Sydney Harbour have increasingly become obsolete or underutilised. Many of these sites have been redeveloped for residential purposes. The Bays West Place Strategy (NSW Department of Planning, Industry and Environment, 2021) was finalised in November 2021 to guide the transformation of Bays West Precinct (including the Port land) into the future. The Bays West Stage 1 Master Plan and the Rezoning Package being led by Placemaking NSW was finalised on 9 December 2022. New planning controls are now in force to guide the development of a new centre for Bays West around the future Bays Metro station and the heritage listed White Bay Power Station (Figure 2-4).

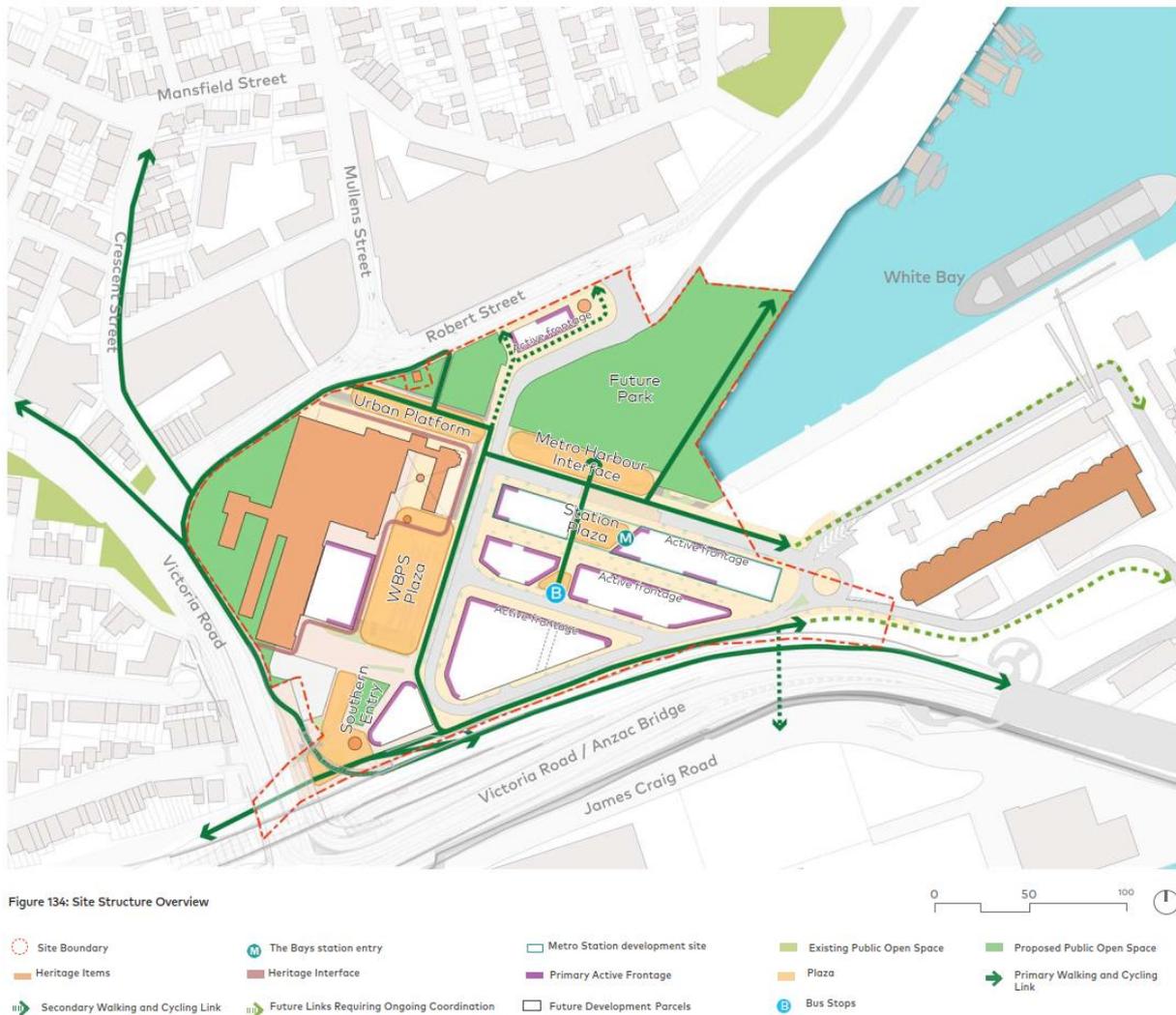


Figure 2-4 Bays West Stage 1 Master Plan – Site Structure Overview (Source: Cox Architecture and TURF, 2022)

2.1.2 Heritage Items

The site does not contain any heritage listings. There are several heritage items and heritage conservation areas (HCAs) located within the vicinity of the site. Refer to the separate Statement of Heritage Impact for further information on these items.

2.2 Surrounding Landscape

White Bay is surrounded to the north by the Balmain peninsula which is characterised by mainly low density residential development including a number of heritage items. The sandstone escarpments of the peninsula generally transition down to the grade of the hardstand, where overland watercourses connect to White Bay. The highest and most dramatic section of the sandstone escarpment features to the north of the WBCT, at the interface with Grafton Street.

Birrung Park is an elevated, heritage listed public park and is heavily vegetated acting as a screen between residential development along Donnelly Street to the Port. Partial views to the flat and low lying White Bay below the park are available. Along this northern boundary, wire mesh fencing is



provided. The Balmain East Heritage Conservation Area (HCA) and The Valley HCA adjoin the Port boundary to the north.

The site is located on mostly reclaimed land that was created by filling in the head of White Bay and the former isthmus that once connected Glebe Island. To the south of Glebe Island is the Victoria Road and Anzac Bridge road corridor. The Glebe Island Silos, another (local) heritage item, are a major landmark.

Glebe Island was connected to the Balmain Peninsula by a narrow isthmus on a low lying tidal flat with a freshwater stream flowing from the north into the salt water of the harbour. Extensive earthworks in the nineteenth century changed the topography of the island, connecting it to the mainland. The White Bay Power Station was opened in 1917, upgraded over its operation and finally decommissioned in 1984.

Water, topography, and arterial roads act as barriers to future development of the Bays Precinct.

2.3 Existing Significant Views

The Bays West Stage 1 Master Plan and Urban Design Framework (Cox Architecture and TURF, 2022) identifies significant views to and from key landmarks including White Bay Power Station (Figure 2-5), Glebe Island Silos (Figure 2-6) and Anzac Bridge (Figure 2-7).

The Glebe Island Silos are large in scale and their prominent location have made them a Sydney landmark. ANZAC Bridge is a modern landmark that dominates the Bays Precinct and is an essential part of Sydney's road infrastructure. View corridors from these landmarks intersect with the location of the proposal.

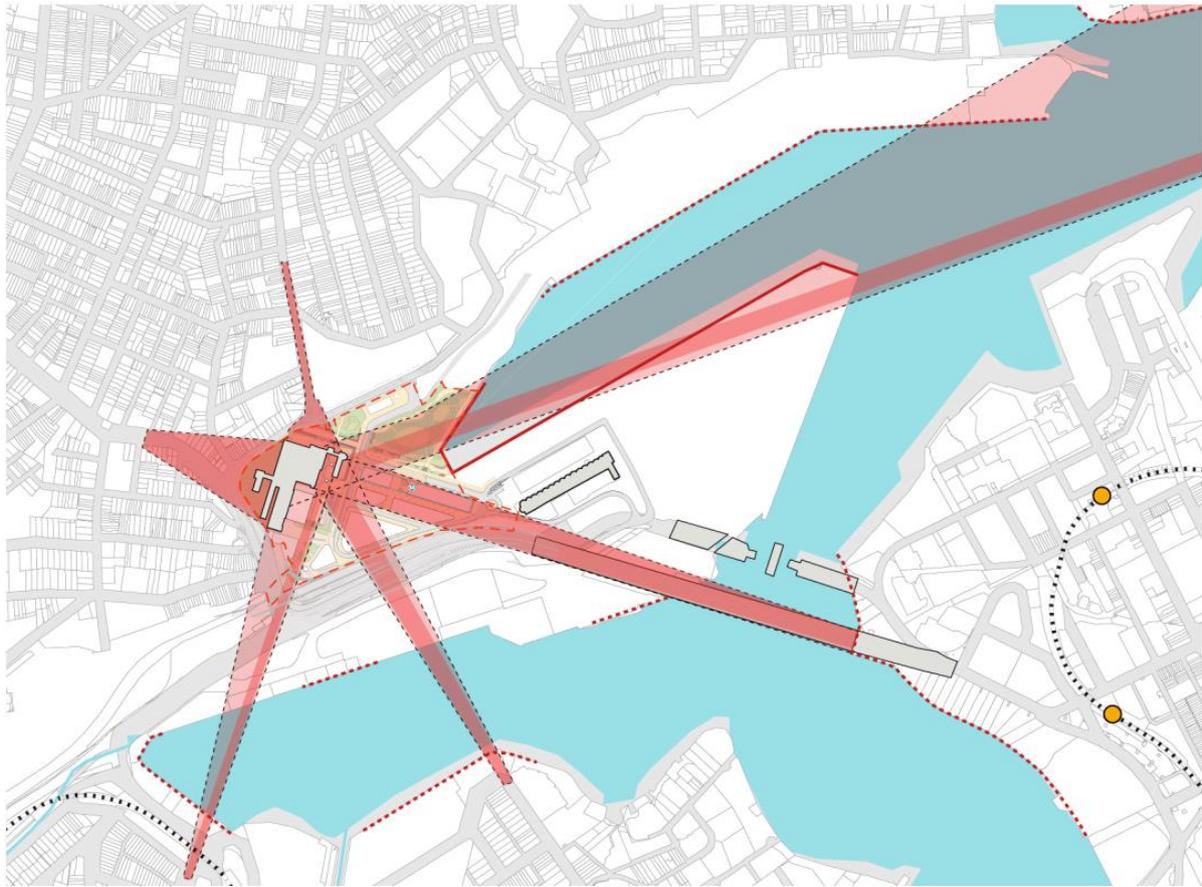


Figure 162: Scenic Landscape

- Site Boundary
- Viewsheds
- Primary views
- Shorelines within viewsheds

0 250m

Figure 2-5 White Bay Power Station view corridors (Source: Cox Architecture and TURF, 2022)

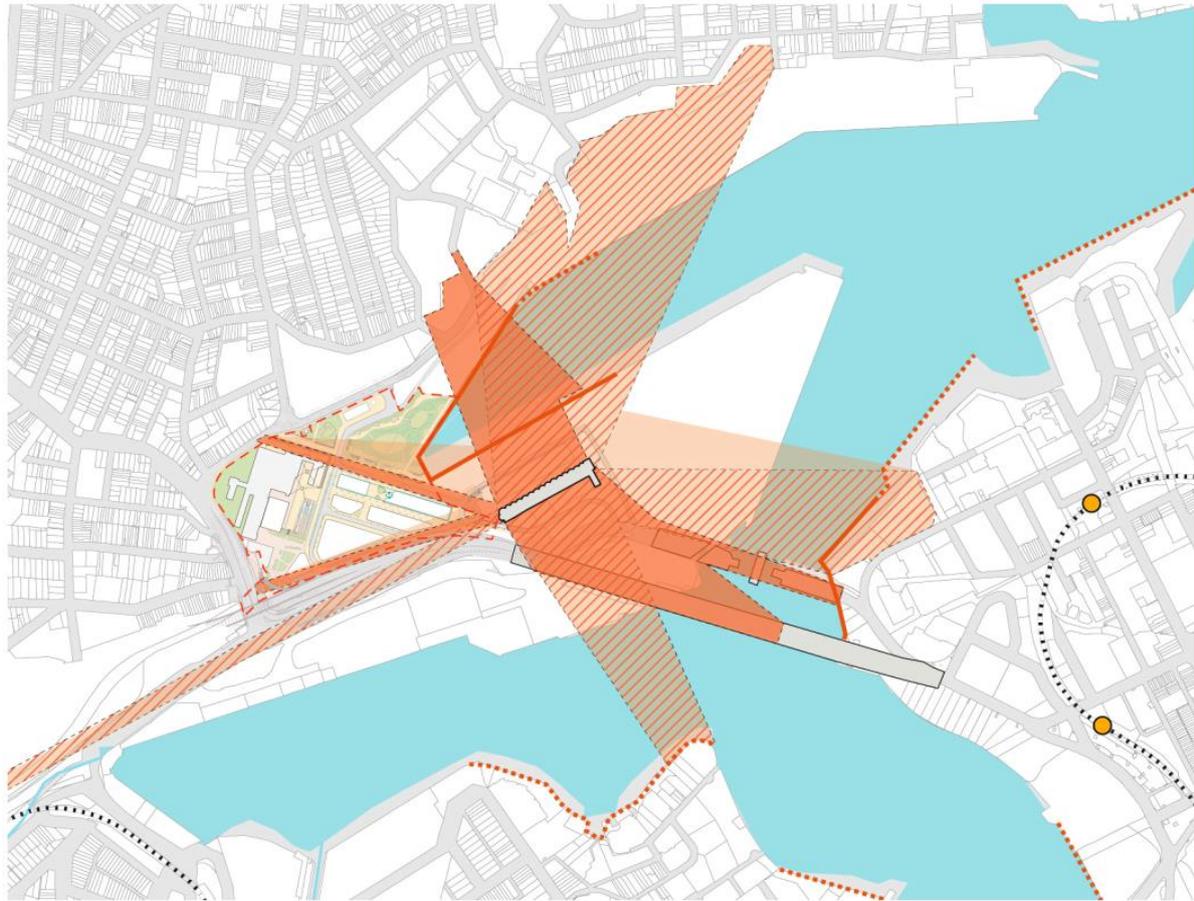


Figure 163: Heritage Landscapes

- Site Boundary
- Significant Views for Retention
- Curtilage Associated with Viewshed
- Full Foreshore & Water View
- Partial Foreshore & Water View
- Other Views Desirable for Retention

Figure 2-6 Glebe Island Silos view corridors (Source: Cox Architecture and TURF, 2022)

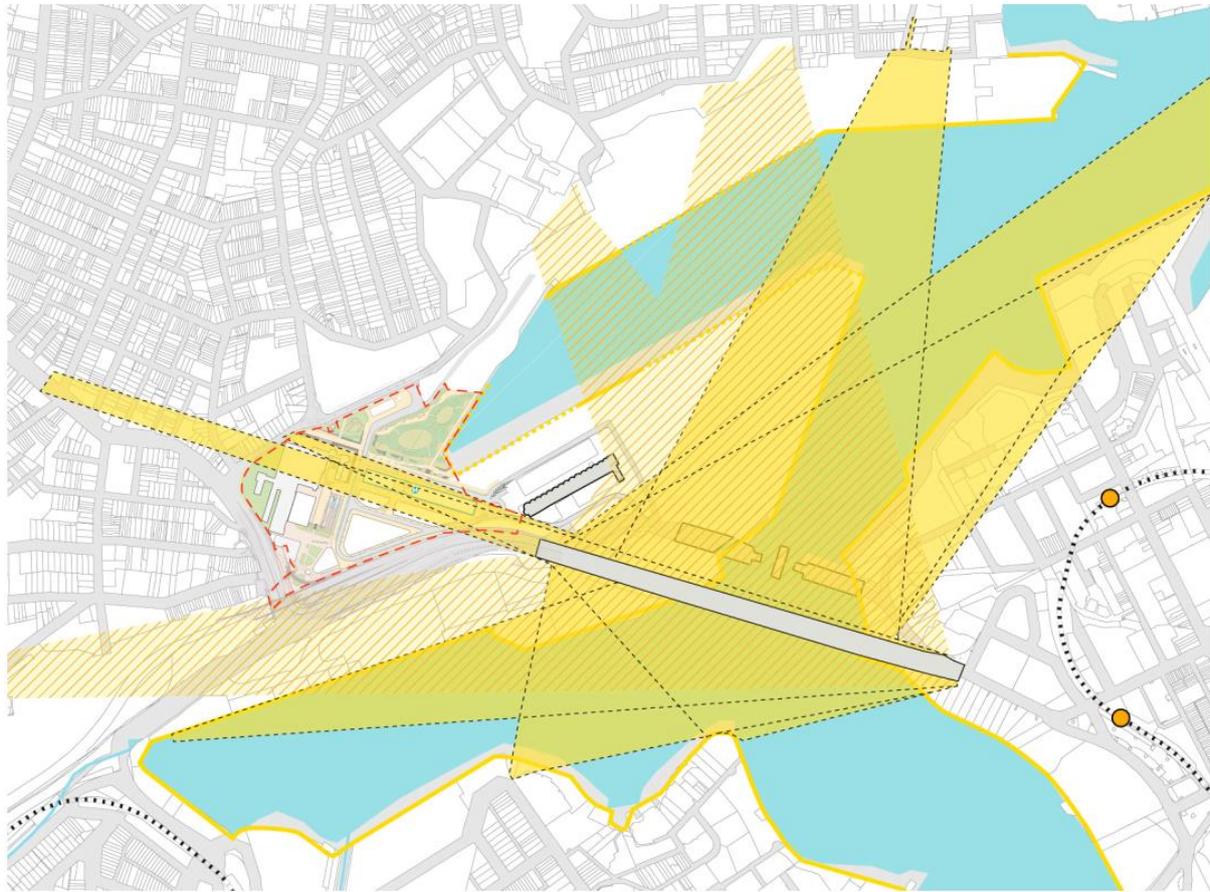


Figure 164: Heritage Elements

0 250m

- Site Boundary
- Significant Views for Retention
- Curtilage Associated with Viewshed
- Full Foreshore & Water View
- Partial Foreshore & Water View
- Other Views Desirable for Retention

Figure 2-7 Anzac Bridge view corridors (Source: Cox Architecture and TURF, 2022)



3 Visual Catchment Analysis and Viewpoint Selection

Google Earth was used to estimate viewshed based on topography and taking into account the Port boundary, vegetation or building heights and distance from the proposal. This analysis was used as a guide only, with site inspections conducted to ascertain the key locations from which the proposal would potentially be visible. For private properties, a view from the nearest accessible point has been taken.

Based on the above, six viewpoints, as presented in Figure 3-1 were selected for detailed evaluation in Section 4.2.



Figure 3-1 Location of the six viewpoints with the visual envelope represented by the green shaded areas (Base map source: Google Earth, 2023)

4 Visual Impact Analysis

4.1 Construction Impacts

Temporary visual impacts would be associated with the construction phase. The following activities are proposed to occur during construction:

- Site establishment including setting up temporary fencing and enabling works and establishing a Site Compound and any ancillary/storage facilities within a suitable location within the site.
- Transport of plant, equipment and materials to site to perform the site demolition and construction works.
- Establish traffic management and erosion and sedimentation controls where required.
- Demolition of existing White Bay 5 Administration Building (decommissioned) and Canteen and toilet block (decommissioned) including removal of any hazardous materials in accordance with the site-specific Construction Environmental Management Plan (CEMP) and waste management plan.
- Excavation for trenches and pits for conduits, electrical cables and energy chains. Approximately 1m (width) trenching on existing Port Access Road, which is not a public road, and alongside WBCT berth may be required. Port Authority intends to execute the excavation works during off-season/s to minimise impact on cruise operation. A site-specific Traffic Management Plan (TMP) would be in place to manage vehicle movement along the impacted areas.
- Excavation for a water-cooling system at White Bay for WBCT OPS which includes installation of inlet and outlet piping for the water-cooling system, and other associated power and control cabling at WBCT OPS.
- Construction of structural foundations for modular shore power equipment packages.
- Installation/construction of infrastructure and cabling.
- Construction of external façade for shore power infrastructure at White Bay, where required.
- Rehabilitation of disturbed areas, where required.
- Decommissioning of ancillary facilities and site demobilisation.

In addition, during construction temporary signage, hoarding and banners, would be erected around the site. The signage would be for the purposes of 'identification, direction and community information signage', identifying the coming of Shore Power, the maritime port uses on site and directional/identification information. The signage may change with various images and text during the construction period.

Overall, during the construction period, many viewpoints analysed within this VIA are likely to have minor visual impacts. Visual impacts of the site compound, ancillary/storage facilities would be minimised through the use of hoarding that would shield tools and equipment in use behind the hoarding. Increased site traffic (including trucks) and construction activities would lead to a temporary reduction in visual amenity. Impacts would reduce as viewing distance and screening vegetation

increase. Furthermore, these visual impacts would be of a temporary nature, located within a restricted access working port and would reduce for all viewpoints once the proposal is complete and the construction areas made good.

4.2 Operational Shore Power System Components

The shore power connection is established via a series of electrical and mechanical equipment and infrastructure components that are illustrated (Figure 4-1) and summarised below. A detailed description is included within Section 4 of the REF.

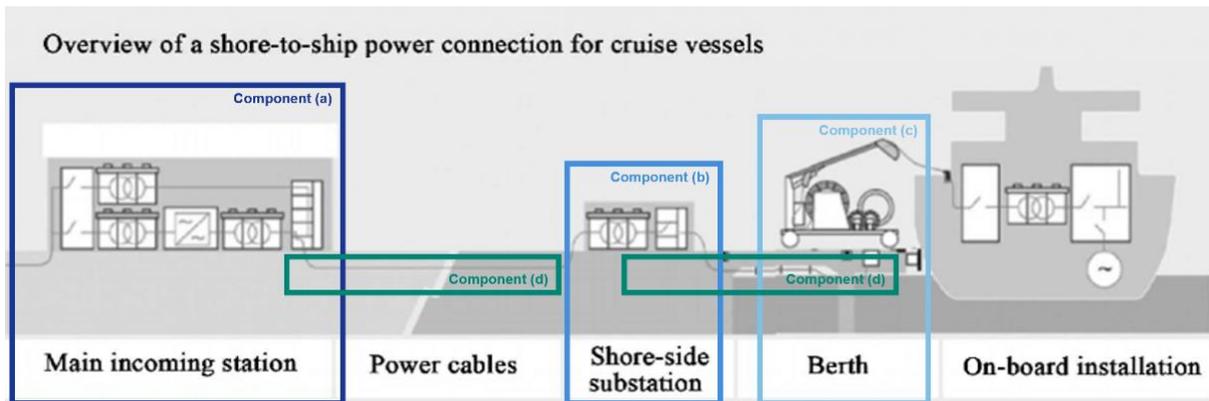


Figure 4-1 Shore power system components (Source: Port Authority, 2024)

- a) Point of supply substation, high voltage connection (HVC) kiosk or equivalent
- b) Onshore power supply system

Onshore power supply (OPS) is the main component of the shore power infrastructure. An OPS system replaces onboard generated power from diesel auxiliary engines with high voltage electricity generated onshore. As most vessels operate at 60Hz frequency rating whilst onshore electrical power in Australia is generated at 50Hz, the OPS system will also convert the shore-side frequency to the level required for the ships' operation.

The WBCT OPS unit consists of four sets of containerised modules (refer to Figure 4-2 and Figure 4-3) that will be fabricated offsite by the shore power specialist:

- Module 1 – Power and frequency conversion system
- Module 2 – Grid and distribution switchgear
- Module 3 – Auxiliary transformer and control system
- Module 4 – Water-cooling system

The actual number of container units to be determined during the detailed design stage.

The estimated total combined footprint of WBCT OPS unit is 12m (width) x 17.6m (length) x 6m (height). The actual size of OPS units to be determined during the detailed design stage, in accordance with the equipment selection process. (Note: Installation of HVC kiosk, to supply power to WBCT OPS, will be performed under Work Package 1 and is not part of this proposal. HVC kiosk will be located close to Port Authority's boundary in accordance with Ausgrid design review and approval process.)

Construction of façade or visual treatment at WBCT OPS building is to be determined during the detailed design stage. The construction of the visual treatment, such as perimeter or green walls, will be performed separately to the shore power infrastructure installation stage. The visual treatment will be based on examples of visual treatment that may be implemented for WBCT OPS areas shown in Figure 4-4 and Figure 4-5.

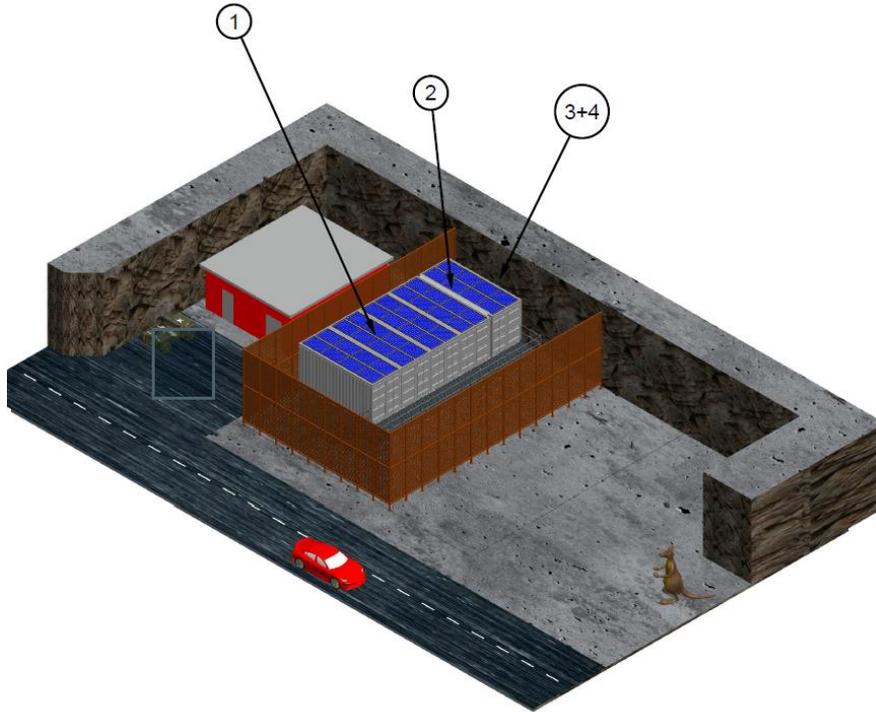


Figure 4-2 Proposed WBCT OPS unit arrangement, including visual treatment (Source: Port Authority, 2024)

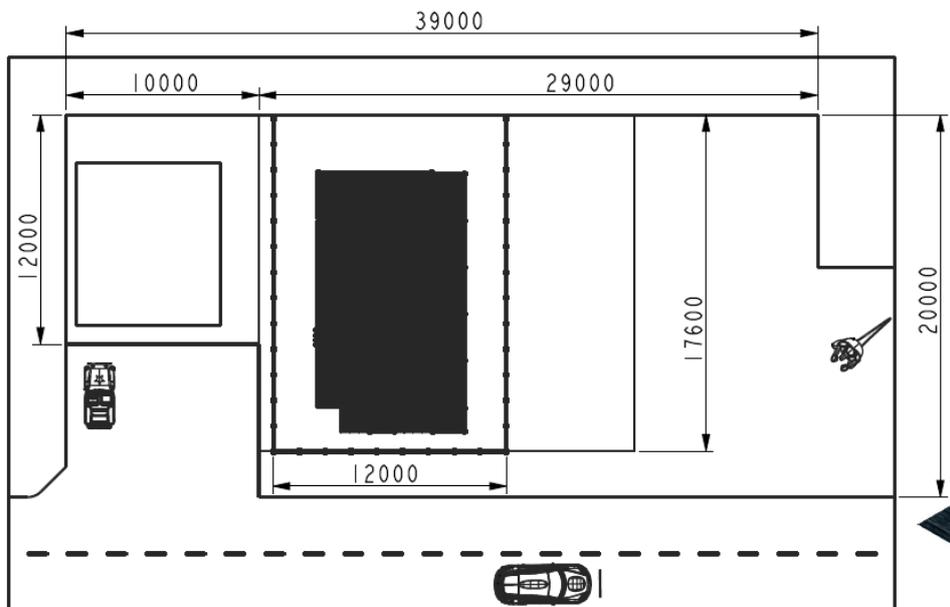


Figure 4-3 Proposed WBCT OPS unit layout (Source: Port Authority, 2024)



Figure 4-4 Example of visual treatment for WBCT OPS (Source: Port Authority, 2024)



Figure 4-5 Example of visual treatment for WBCT OPS (Source: Port Authority, 2024)

c) Cable management system

Cable management system (CMS) is a customised electrical and mechanical system which consists of power cables, cable lifting unit, plugs, connecting pits and/or cable trenches to connect the power supply from the OPS building to the vessel's electrical system.

There are various types of CMS units that could be used (to be determined during detailed design stage):

- i. Mobile crane with exposed cabling – Typically used for shore power connections to cruise ships where there are space restrictions on the berth preventing installation of additional electrical infrastructure such as cable trenches.
- ii. Semi-automated system with underground cabling – uses a mobile cable lifting unit which connects to power cables installed in an underground trench system parallel to



the berth. The cable trench is protected by industrial-grade metal covers that can be lifted up and down automatically based on the lifting unit's movements.

- iii. Stationary or fixed system – Typically used for bulk vessels, container ships and ferries, where vessel connection points are consistent and known.

All versions are based on a mobile CMS unit connected to an energy chain to ensure minimal impact on berth-side activities, including cruise operations and passengers' movements. The size of CMS unit depends on the system selected during design stage, typically around 3-4m (width) x 5-11m (length) x 3-6m (height) when the arm is at resting position. The mobile CMS is supported by the installation of an energy chain in a trench along WBCT berth.

- d) Power and communications cables.

The cables are to be installed at depth of 1.1-1.3m (approximate) at the following locations:

- HVC kiosk at Port Authority's boundary (*Note: the HVC kiosk will be installed by Work Package 1 Contractor and not part of this proposal*).
- White Bay berth 3 and 4, along the Port Access Road/services corridor.
- WBCT, including along the berth for the energy chain installation.

- e) Ship-side electrical network and connection panel.

Earth switches for connection to cruise ships at WBCT will be installed within a 10-foot marine container. This switching station, or typically referred to as shore disconnecting and earthing unit (SDEU), will be located as close as possible to the berth-side for safe operation of the system.

4.3 Operational Visual Impact Analysis

A visual impact analysis for operation of the proposal has been conducted for the six viewpoints with individual entries included for each location. An overlay of the proposal footprint (based on Figure 1-1) with the location of the viewpoints and visual catchment is presented in Figure 4-6.



Figure 4-6 Operational visual impact analysis overlay (Base map sources: Google Earth, 2023 and Port Authority, 2024)

Viewpoint Number	1
Location	12 Grafton Street, Balmain 
Distance to Site Boundary	100m
Receptors	Residents, road users and pedestrians
No. of Viewers	Low
Existing View	A partial view over the WBCT building, White Bay 5 and associated boat storage, servicing and refueling infrastructure through the wire mesh fencing is available (Figure 4-7). There is also vegetation growing over sections of the wire mesh fencing generally along Grafton Street.



Figure 4-7 Existing view for Viewpoint 1

Expected Visual Impact

The proposed location of the CMS unit and most of the associated shore power infrastructure (including electrical trench with energy chain) is to be installed in front of the WBCT building to service White Bay 5, which would not be visible from this viewpoint. The WBCT switching station would be visible as a minor new element (to be located as close as possible to the berth-side), however, it would blend with infrastructure that is present on the White Bay 5 hardstand.

Receptor Type	Public/Private
Sensitivity Rating of Receptor	Low
Magnitude – Distance	Low
Magnitude – Quantum of View	Low
Magnitude – Period of View	Low
Magnitude Scale of Change	Low
Overall Magnitude Rating	Low
OVERALL VISUAL IMPACT RATING (Combination of Sensitivity and Magnitude Ratings)	Low

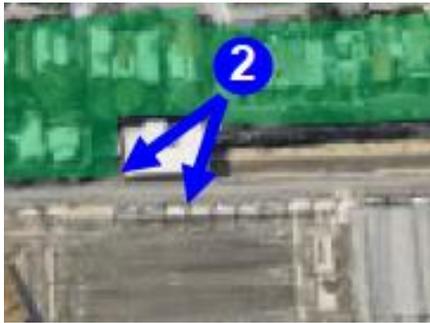
Viewpoint Number	2
Location	34 Grafton Street, Balmain 
Distance to Site Boundary	20m
Receptors	Residents, road users and pedestrians
No. of Viewers	Low
Existing View	A view of White Bay and Glebe Island is available through the wire mesh fencing (Figure 4-8). Port Authority has an air quality monitoring station installed (within a fenced area) at the corner of Grafton and Adolphus Streets which partly obstructs the view. The Canteen and toilet block and a section of the roof of the Administration Building is visible.



Figure 4-8 Existing view for Viewpoint 2

Expected Visual Impact

The existing two-storey Administration Building (about 8m in height excluding services) at White Bay berth 5 would be demolished and replaced with the 6m high new White Bay OPS unit. This new building would be less visible from this viewpoint due to being lower in height and partly screened by the air quality monitoring station. Further, this OPS is replacing a derelict building and is to be included with visual treatments. The single storey Canteen and toilet block would be demolished with no replacement proposed.

Receptor Type	Public/Private
Sensitivity Rating of Receptor	Low
Magnitude – Distance	Moderate
Magnitude – Quantum of View	Low
Magnitude – Period of View	Low
Magnitude Scale of Change	Low
Overall Magnitude Rating	Low
OVERALL VISUAL IMPACT RATING (Combination of Sensitivity and Magnitude Ratings)	Low

Viewpoint Number	3
Location	Birrung Park, Balmain 
Distance to Site Boundary	20m
Receptors	Park users
No. of Viewers	Low
Existing View	Elevated views over White Bay including the WBCT building, part of the Canteen and toilet block and White Bay 5 and to the Sydney CBD beyond are available through the wire mesh fencing at Birrung Park which is a public open space containing extensive vegetation, grassed areas and paths (Figure 4-9). The Administration Building at White Bay berth 5 is visible from this viewpoint.



Figure 4-9 Existing view for Viewpoint 3

Expected Visual Impact

The new White Bay OPS and CMS units and switching station would be visible from this viewpoint; however, the proposed size of these structures is such that they would not dominate the view. It is noted the quality of the view which is mainly experienced by people walking past is affected by the existing wire mesh fencing. Further, the OPS is replacing a derelict building and is to be included with visual treatments. The partially visible single storey Canteen and toilet block would be demolished with no replacement proposed. All other WBCT shore power infrastructure to be installed would largely be underground, including the internal electrical distribution network with the conveyor belts in trenches along WBCT berth and would not be visible.

Receptor Type	Public
Sensitivity Rating of Receptor	Moderate
Magnitude – Distance	Moderate
Magnitude – Quantum of View	Moderate
Magnitude – Period of View	Moderate
Magnitude Scale of Change	Moderate
Overall Magnitude Rating	Moderate
OVERALL VISUAL IMPACT RATING (Combination of Sensitivity and Magnitude Ratings)	Moderate

Viewpoint Number	4
Location	9 Rosebery Place, Balmain 
Distance to Site Boundary	30m
Receptors	Commercial workers and pedestrians
No. of Viewers	Low
Existing View	A view of White Bay including Robert Street, the WBCT building and White Bay berths 4 and 5 are available through the wire mesh fencing (Figure 4-10).



Figure 4-10 Existing view for Viewpoint 4

Expected Visual Impact

The new White Bay OPS and CMS units and switching station would be visible from this viewpoint; however, the size of these structures is that they would not dominate the view. It is noted the quality of the view is affected by the existing wire mesh fencing and port activities. Further, the OPS is replacing a derelict building and is to be included with visual treatments. All other WBCT shore power infrastructure to be installed would largely be underground within the existing Port Access Road (Robert Street) adjacent to this viewpoint, including the internal electrical distribution network.

Receptor Type	Public/Private
Sensitivity Rating of Receptor	Moderate
Magnitude – Distance	Moderate
Magnitude – Quantum of View	Low
Magnitude – Period of View	Low
Magnitude Scale of Change	Low
Overall Magnitude Rating	Low
OVERALL VISUAL IMPACT RATING (Combination of Sensitivity and Magnitude Ratings)	Moderate-Low

Viewpoint Number	5
Location	<p>Corner Buchanan and Robert Streets, Balmain</p> 
Distance to Site Boundary	20m
Receptors	Residents, road users and pedestrians
No. of Viewers	Low
Existing View	<p>Robert Street is a two-way public road which contains car parking along both sides and some vegetation and wire mesh fencing (along southern side) (Figure 4-11). On weekdays, the car parking areas along Robert Street are usually near or at capacity due to the nearby industrial areas. The Glebe Island Silos and Gypsum Storage Facility are visible, along with vessels berthed at White Bay berths 1 and 2. The large green coloured acoustic shed that is visible from this street corner is an ancillary facility used for the construction phase of the future The Bays Metro Station.</p>



Figure 4-11 Existing view for Viewpoint 5

Expected Visual Impact

There would be negligible visual impact as the WBCT shore power infrastructure to be installed would largely be underground within the existing Port Access Road (Robert Street) adjacent to this viewpoint, including the internal electrical distribution network.

Receptor Type	Public
Sensitivity Rating of Receptor	Low
Magnitude – Distance	Negligible
Magnitude – Quantum of View	Negligible
Magnitude – Period of View	Negligible
Magnitude Scale of Change	Negligible
Overall Magnitude Rating	Negligible
OVERALL VISUAL IMPACT RATING (Combination of Sensitivity and Magnitude Ratings)	Negligible

Viewpoint Number	6
Location	Pirrama Park, Pyrmont 
Distance to Site Boundary	320m
Receptors	Park users
No. of Viewers	Moderate
Existing View	When cruises ships and other vessels are not a berth, unimpeded views are available across Johnstons Bay to White Bay Port infrastructure including the WBCT building (Figure 4-12).



Figure 4-12 Existing view for Viewpoint 7

Expected Visual Impact

The new White Bay CMS unit and switching station would be visible from this viewpoint (when cruise ships are not at berth), however, the size of this structure would not dominate the view. The new OPS unit (with visual treatment included) which is replacing a derelict building would be partly obscured by the WBCT building.

Receptor Type	Public
Sensitivity Rating of Receptor	Low
Magnitude – Distance	Low
Magnitude – Quantum of View	Low
Magnitude – Period of View	Low
Magnitude Scale of Change	Low
Overall Magnitude Rating	Low
OVERALL VISUAL IMPACT RATING (Combination of Sensitivity and Magnitude Ratings)	Low



4.4 Impacts to Heritage Items and Significant Views

There would be little impact on views from heritage listed items in the vicinity of the site due to the nature of the proposal, essentially underground works with relatively minor above ground supporting infrastructure and operation not dissimilar to existing port activities.

In addition, the proposal would have no direct impact to the significant views identified in Section 2.3 due to the location, scale (height and width) and visual treatments of the new shore power infrastructure, namely:

- White Bay Power Station view corridors
- Glebe Island Silos view corridors
- Anzac Bridge view corridors.



4.5 Visual Impact Summary

Table 4-1 presents the summary of the visual impact analysis for the viewpoints.

Table 4-1 Summary of visual impacts for the proposal

Viewpoint Location	Receptor Sensitivity	Magnitude					Impact Rating
		Distance	Quantum of View	Period of View	Scale of Change	Overall Magnitude Rating	
1. 12 Grafton Street, Balmain	Low	Low	Low	Low	Low	Low	Low
2. 34 Grafton Street, Balmain	Low	Moderate	Low	Low	Low	Low	Low
3. Birrung Park, Balmain	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
4. 6 Rosebery Place, Balmain	Moderate	Moderate	Low	Low	Low	Low	Moderate-Low
5. Corner Buchanan and Robert Streets, Balmain	Low	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
6. Pirrama Park, Pyrmont	Low	Low	Low	Low	Low	Low	Low

5 Mitigation Measures

There are typically five broad approaches to mitigating the visual impacts of any change to a scene that entails built form development. These are through:

- **Avoidance** – where the visual impact of the proposal is deemed of a scale that cannot be mitigated by any of the approaches outlined below, this approach implies relocating the proposal elsewhere on the site with lesser visual impacts or not proceeding with the proposal on the site at all
- **Reduction** – typically this approach seeks to mitigate impacts through the reduction of some part of the proposed structure or development (i.e. reduced height or omission of parts of the built structure/s)
- **Alleviation** – this approach entails design refinements to the proposal to mitigate visual impacts. These refinements might typically include built form articulation, choice of material and colours and/or planting design
- **Off-site Compensation** – where none of the above approaches will provide adequate visual impact mitigation for off site visual receptors, this approach entails off site works on the land from which the viewpoint is experienced (e.g. screening close to the viewpoint), usually carried out with the agreement of the affected landowner.
- **Management** – in this approach the mitigation response typically entails an operational or management action such as construction management.

Set out below are the relevant responses to these approaches with respect to the proposal:

- **Avoidance** – Not applicable.
- **Reduction** – Not applicable.
- **Alleviation** – Mitigation of visual impacts of the proposal have already been incorporated into the design with a façade or visual treatment proposed for the WBCT OPS building and it being the replacement of an existing derelict building located below the escarpment.
- **Off-site Compensation** – Not applicable.
- **Management** – An appropriate Construction Environmental Management Plan (CEMP) is to be prepared for the construction phase of the proposal by the responsible construction contractor which would outline management measures for environmental impacts including impacts on sensitive receivers.

6 Conclusion

A comprehensive visual impact assessment of the proposal on the surrounding areas has been conducted. The VIA has identified and evaluated the existing visual environment, key views and view types before progressing to an assessment of quantitative and qualitative criteria using best practice methodology.

The visual catchment of the proposal is limited as a result of the Port and its existing infrastructure, topography and surrounding vegetation.

Of the six viewpoints selected and analysed the findings for operational impacts are as follows:

- **One** viewpoint received an impact rating of Negligible.
- **Three** viewpoints received an impact rating of Low.
- **One** viewpoint received an impact rating of Moderate-Low.
- **One** viewpoint received an impact rating of Moderate.

The highest visual impact was identified for Birrung Park, due to its proximity to the proposal. In addition, as the park is public open recreation space this increases the visual receiver sensitivity and therefore increases the overall rating impact rating to Moderate.

The operation of the proposal would have minimal impact to surrounding Port infrastructure at the site and adjacent businesses (comprising both existing or future planned developments) with the proposed shore power infrastructure being relatively small in form and scale with the supporting cable conduits, power and control cables to be laid underground. Further, the WBCT OPS is replacing a derelict building and is to be included with visual treatments to mitigate any visual impacts.

During the construction period, many viewpoints analysed within this VIA are likely to have minor visual impacts. These visual impacts would be of a temporary nature, located within a restricted access working port and would reduce for all viewpoints once the proposal is complete and the construction areas made good.

Overall, it is considered that the visual impacts of the proposal are such that it is not considered to have a long-term visual effect on nearby land and/or property and would not constitute reasons for the proposal not to proceed.



7 References

Cox Architecture and TURF (2022), *Bays West Stage 1 Master Plan and Urban Design Framework*.

Department of Planning, Industry and Environment (2021), *Bays West Place Strategy*.

Transport for NSW (2023), *Guideline for landscape character and visual impact assessment: Environmental impact assessment practice note EIA-N04*.